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**AGWMR**

**2019**

# **2019 Groundwater Remediation and Monitoring Annual Report**

**January – December 2019**



**Bloomfield Terminal**

**Western Refining Southwest, Inc.**

**#50 Rd 4990**

**Bloomfield, New Mexico 87413**

**Submitted: April 2020**

Prepared for  
New Mexico Oil Conservation Division and  
New Mexico Environment Department – Hazardous Waste Bureau

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# List of Acronyms

benzene, toluene, ethylbenzene, and xylene (BTEX)

below grade level (bgl)

diesel range organics (DRO)

dissolved oxygen (D.O.)

Environmental Protection Agency (EPA)

feet (ft)

gallons per minute (gpm)

gasoline range organics (GRO)

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

New Mexico Energy, Minerals and Natural Resources Department Oil Conservation Division (EMNRD-OCD)

investigation derived waste (IDW)

liters (L)

maximum contaminant level (MCL)

methyl tert-butyl ether (MTBE)

micrograms per liter (ug/L)

micro Siemens per centimeter (uS/cm)

milligrams per liter (mg/L)

millivolts (mV)

monitoring well (MW)

New Mexico Administrative Code (NMAC)

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)

Semi-volatile organic compounds (SVOCs)

separate phase hydrocarbon (SPH)

Standard cubic feet per minute (scfm)

Temporary piezometer (TP)

top of casing (TOC)

total dissolved solids (TDS)

## **List of Acronyms (continued)**

total petroleum hydrocarbon (TPH)

toxicity characteristic leaching procedure (TCLP)

volatile organic compounds (VOC)

Wastewater Treatment System (WWTS)

Water Quality Control Commission (WQCC)

# EXECUTIVE SUMMARY

This Annual Report includes a summary of activities conducted at the Bloomfield Terminal in 2019 pursuant to the reporting requirements outlined in Section IV.A.2. of the July 2007 Consent Order (NMED, 2007) issued by the New Mexico Environment Department Hazardous Waste Bureau (NMED-HWB), and Section 2.F. of Discharge Permit GW-001 (NMOCD, 2017) issued by the New Mexico Energy, Mineral, and Natural Resources Department Oil Conservation Division (EMNRD-OCD). This report includes a summary of sampling activities, total fluids recovery, and remediation monitoring activities conducted in 2019.

## Groundwater Measurements

Depth-to-groundwater and depth-to-product measurements were taken from the facility monitoring wells, recovery wells, observation wells, and collection wells prior to the collection of groundwater samples during the Semi-Annual and Annual Sampling Events conducted in April 2019 and August 2019, respectively. The field measurements were taken a minimum of 48 hours after the recovery well pumps were turned off to allow the groundwater elevation to stabilize. Groundwater elevation contours show that groundwater generally flows in a northwest direction, with groundwater under the former process areas flowing towards the north boundary barrier wall and Hammond Ditch collection system.

When compared to the 2018 fluid level measurements, the measurements collected in 2019 indicated a reduction in the SPH thickness in the wells MW-20, MW-41, MW-72, RW-19, and RW-28.

## Groundwater and Surface Water Monitoring

Groundwater and surface water monitoring activities conducted in 2019 included the collection of groundwater samples and field data from the following four areas of the facility:

- Terminal Complex – includes Terminal, Cross-Gradient, Downgradient, and RCRA Wells;
- North Boundary Barrier – includes observation and collection wells;
- San Juan River Bluff – includes Outfall and Seep locations; and
- San Juan River Terrace – includes San Juan River samples.

Sampling associated with the Bioventing System located at the River Terrace is summarized in the *River Terrace Voluntary Corrective Measures Bioventing System Annual Report*, which is submitted in March of each year. Groundwater and surface water monitoring activities conducted in April and August 2019 follow the guidelines outlined in the approved Facility-Wide Groundwater Monitoring Plan dated June 2014 and Discharge Permit GW-001.

Groundwater concentrations above respective screening levels are primarily localized near the former refinery process units and tank farm. No major changes were observed in the groundwater concentrations. The north boundary barrier wall and active groundwater recovery systems within the facility provide hydraulic capture of the impacted groundwater, and thus eliminate the concern of impacts to the San Juan River.

### **Outfall and Seep Inspections**

Weekly visual inspections of Seeps 1, 2, 3, and 5 and along the San Juan River Bluff, which includes the East Fork area, were conducted in 2019. Visual inspection results and samples collected along the San Juan River as part of the groundwater monitoring program for the Bloomfield Terminal indicate that there has been no impact to the San Juan River.

### **Total Fluids Recovery Systems**

The Bloomfield Terminal operates and monitors several fluid recovery systems within the facility, which include:

- Groundwater Recovery System using recovery wells within the Terminal Complex;
- North Boundary Barrier Collection System;
- Hammond Ditch Recovery System;
- River Terrace Remediation System; and
- East Outfall Recovery System.

All fluids recovered from these systems, with the exception of the River Terrace Remediation System, are pumped to the on-site Waste Water Treatment Plant for treatment prior to disposal through the on-site injection well or evaporation ponds. Groundwater recovered at the River Terrace Remediation System is treated through two granular activated carbon units and discharged to the raw water ponds.

# SECTION 1.0

## 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 (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

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 facility had an approximate refining capacity of 18,000 barrels per day before refining operations were terminated in November 2009. Various process units operated at the facility, which included 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 liquid petroleum gas (LPG).

The Bloomfield Terminal ("Terminal") is a crude oil and petroleum product transfer and storage facility that includes truck loading and unloading. The Terminal stores and transfers crude oil, petroleum products (e.g., naphtha, unleaded gasoline, diesel, and kerosene) and ethanol. The purpose of the facility is to transfer crude oil and petroleum products between pipelines, trucks and storage tanks. Crude oil and petroleum products arrive by pipeline or tank trucks. The tank farm is a system of storage tanks used throughout the Terminal to hold and store crude oil, petroleum products, fuel additives, and water. These tanks are located above ground and range

in size from 110,000 barrels to less than 1,000 barrels. Pumps, valves, and piping systems are used throughout the Terminal to transfer various liquids among tankage and loading racks. Several tank truck loading racks are used to load out petroleum products and receive crude oil and gasoline additives.

The Terminal is located on approximately 263 acres south of Bloomfield, New Mexico in San Juan County (Figure 1). The Terminal complex is bisected by County Road 4990 (Sullivan Road), which runs east-west (Figure 2). The part of the Terminal tankage located north of County Road 4990 includes the following general areas:

- Office Area (buildings, warehouse, maintenance, storage yard)
- Parking Lots
- Diesel Unloading
- Wastewater Treatment Unit (WWTU)
- Tank Farm Area
- Used Equipment Laydown Area
- Firefighting Training Area
- Former Refinery Units
- Class I Injection Well
- Raw Water Ponds

The remainder of the Terminal facility, regional business office, transportation maintenance facility, and the evaporation ponds are located on a 25-acre site south of County Road 4990 and includes the following general areas:

- Terminal Office and Parking Lot
- Crude Oil Unloading Station
- Product Loading and Unloading Station
- Storage Tank Area
- Regional Office and Parking Lot
- Transportation Maintenance Truck Shop and Truck Parking Lot
- Wastewater Evaporation Ponds
- 90-day Hazardous Waste Bay

The Bloomfield 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).

## **1.2 History of Facility Modifications and Improvements**

### ***1.2.1 Previous Owner's Activities***

Local entrepreneur, Kimball Campbell, constructed the crude topping unit that eventually became the Bloomfield Refinery facility in the late 1950s. O.L. Garretson bought the facility in the early 1960s, renamed it Plateau, Inc. and sold it in 1964 to Suburban Propane of New Jersey.

Operationally, the facility had steadily evolved through a series of improvements, modifications and expansions. Suburban upgraded the facility in 1966, increasing the Crude Unit throughput to 4,100 barrels per calendar day (bpcd) and adding 1,850 bpcd Reformer and Naphtha Hydrotreater. In 1975, the Crude Unit was expanded to 8,400 bpcd.

In 1979, the Crude Unit was expanded again to 16,800 bpcd (later demonstrated to have a hydraulic capacity in excess of 18,000 bpcd). A Fluidized Catalytic Cracker (FCC) with a nominal capacity of 6,000 bpcd, an Unsaturated Gas Plant and a Treater Unit were also added at that time. The capacity of the Reformer / Hydrotreater was increased to 2,250 bpcd. The FCC was upgraded in 1982 to conform to State and Federal air quality standards.

### ***1.2.2 Bloomfield Refining Activities***

Bloomfield Refining Company (BRC) acquired the facility from Suburban Propane (Plateau) on October 31, 1984. The current owner of the facility is San Juan Refining Company. Western Refining Southwest, Inc. is the facility operator.

Over the years, there have been many improvements made to facility operations and equipment. These improvements are summarized below.

#### **1986**

- Relocated the spent caustic tank onto a concrete pad with retaining walls.

## **1987**

- Upgraded the Reformer and increased its capacity to 3,600 barrels per day (bpd). Modified the Laboratory and Treater Unit and increased tank storage capacity.
- Cleaned up the North and South bone yards.
- Decommissioned and dismantled old Tanks 6 and 7.
- Relocated the API recovered oil Tank 8 and Tank 9 to concrete pads with concrete retaining walls.
- Established a systematic inspection, maintenance, and repair program for tanks.

## **1988**

- Added a 2,000 bpd Catalytic Polymerization Unit. Removed the facility's two underground storage tanks and replaced them with aboveground storage tanks.
- Completed installation of a Cathodic Protection System for the Tank Farm and underground piping.
- Rebuilt the process area sewer system and added curbed, concrete paving to the unpaved process areas.

## **1989**

- Increased Reformer throughput to 4,000 bpd.
- Activated the groundwater hydrocarbon recovery system.
- Constructed the first double-lined Evaporation Pond as part of Refinery's Discharge Plan improvements.

## **1990**

- Constructed the second double-lined Evaporation Pond as part of the Refinery's Discharge Plan improvements.
- Constructed a drum storage shed and converted to bulk chemical usage, where possible, in order to minimize the use of drummed chemicals.

## **1991**

- Revamped the burner fuel sales rack with concrete paving and curbing.
- Submitted the permit application for a Class 1 Disposal Well.
- Upgraded the groundwater hydrocarbon recovery system.

## **1992**

- Submitted an air quality permit application. The application included a proposal to install a Diesel Hydrodesulphurization (HDS) Unit and a Sulfur Recovery Unit (SRU) in order to comply with new EPA low-sulfur diesel regulations and decrease air emissions.

## **1993**

- Began a program under a Consent Agreement with the United States Environmental Protection Agency (USEPA) to conduct Interim Measures (IM), a RCRA Facility

Investigation (RFI) and a Corrective Measures Study (CMS) addressing groundwater contamination.

- Replaced portions of the underground cooling water piping.
- Added concrete paving around the API Separator.
- Installed the HDS Unit and SRU.

#### **1994**

- Completed installation of the Class 1 Injection Well.
- Retrofitted the Aeration Lagoons with two additional liners.
- Installed a floating cover for the API Separator.
- Closed the clay-lined evaporation ponds and spray evaporation area.

#### **1995**

- Improved the diking south of the Refinery to further reduce storm water runoff.
- Began implementation of additional corrective measures for groundwater cleanup as determined from the CMS.

#### **1998**

- Converted the former evaporation ponds on the east side of the Refinery to raw water storage ponds.

#### **1999**

- Installed sheet pilings and a bentonite slurry wall adjacent to the San Juan River, North of the process units, in order to intercept a small hydrocarbon seep that had been detected in the area.

#### **2001**

- Initiated a program to inoculate the Aeration Lagoons with sludge-consuming micro-organisms.

#### **2002**

- A concrete liner was installed on the Hammond Ditch. At that time, Giant constructed the Hammond Ditch French Drain Recovery System to address contamination under the ditch.

#### **2003**

- Several monitoring wells were converted into recovery wells to further enhance the continuing ground water remediation efforts. MW-45, MW-46 & MW-47 were installed to facilitate sample collection. East Outfall #1 Recovery System was set up to return impacted water back to the refinery.

#### **2004**

- Monitoring wells MW-48, MW-49 and eight temporary piezometers were installed as part of Voluntary River Terrace Investigation activities.

- Several temporary piezometers were drilled on the north side of Hammond Ditch to determine the surface elevation of the Nacimiento Formation. Design of a slurry wall to be constructed on the north side of Hammond Ditch was completed.
- Lined containments were constructed in the draws north of Hammond Ditch in order to collect potentially contaminated groundwater which discharged to the land surface.
- Sewer lines were replaced in the Treater and FCC.

## **2005**

- The North Boundary Barrier Wall installation was completed March 2005. Fourteen observation wells were installed on the north side of the slurry wall and fifteen collection wells were installed on the south side of the slurry wall in April 2005.
- As a matter of preventive maintenance, the lined containments in the draws north of the slurry wall were upgraded periodically.
- In April, five more temporary piezometers were installed at the River Terrace. In August, Dewatering Wells (DW-1 and DW-2) and thirteen bioventing wells were drilled and construction of the River Terrace Bioventing Project was initiated.

## **2006**

- The River Terrace Bioventing System was put on-line in January 2006. Monitoring data from that project is submitted in a separate report to the regulatory agencies.
- During the week of February 13, 2006 seven sump wells were installed along the bluff north of the barrier wall. These wells were drilled in accordance with the North Barrier Wall Work Plan which was submitted to OCD February 7, 2006.
- Fluids extraction from the observation and collection wells, the north draws, and the sump wells continued throughout 2006.
- As a matter of preventive maintenance, the lined containments in the draws north of the slurry wall were upgraded periodically.

## **2007**

- On May 31, 2007, Giant Industries, Inc. became a wholly-owned subsidiary of Western Refining, Inc. of El Paso, Texas.
- Construction of the Ammonia Refrigeration Unit (ARU) was completed and the system put on line by March 2007. This unit is used to recover propane from hydrogen streams.
- Construction of the Benzene Stripper was completed and the system put in service by October 2007. This unit is used to strip benzene from process waste water.
- Discharge piping was installed at RW #1 to increase the recovery capacity of the well.
- As a matter of preventive maintenance, the lined containments in the draws north of the slurry wall (Seeps 1-9) were upgraded periodically.

## **2008**

- The *Facility-Wide Groundwater Monitoring Plan (Revised May 2008)* was approved and implemented in the latter half of 2008.

- In September, Group No. 2 RCRA Site Investigation activities commenced. Areas included in Group No. 2 are SWMU No. 2, SWMU No. 8, SWMU No. 9, SWMU No. 11, and SWMU No. 18.
- As part of the *Closure Plan North and South Aeration Lagoons* the ponds were drained, cleaned out, inspected, repaired, and put back in service. This process started in October 2008 and was completed in February 2009.

## **2009**

- In March, monitoring wells were installed around the Aeration Lagoons to satisfy Group No. 1 RCRA site investigation requirements. Group No. 3 Site Investigation activities began in April. This group includes SWMU No. 4, SWMU No. 5, AOC No. 22, AOC No. 23, AOC No. 24, AOC No. 25, and AOC No. 26.
- On November 23, 2009, Western Refining indefinitely suspended refining operations at the Bloomfield Refinery. The crude unloading and product loading racks, storage tanks and other supporting equipment remain in operation.

## **2010**

- In January 2010, due to analytical results indicating high benzene levels, piping was installed to permanently route discharge water from Tank 33 to the API Separator.
- In August, Group No. 4 and Group No. 5 investigation field activities were conducted which included the installation of three monitoring wells.

## **2011**

- In August 2012, Group No. 6 RCRA Investigation activities were conducted, which involved soil sampling within each of the Seep Areas located along the northwest portion of the facility.

## **2012**

- In January 2012 the group 8 RCRA Investigation activities commenced, which involved soil sampling within SMWU No. 3 – Underground Piping Currently in Use, and SWMU No. 6 – Abandoned Underground Piping.
- On October 12, 2012, NMED Hazardous Waste Bureau approved a Work Plan submitted by Western dated October 9, 2012 authorizing Western to optimize the remediation efforts at the River Terrace. Optimization activities conducted in 2012 included the removal of approximately 250 cubic yards of impacted clay-type soil from the River Terrace, and conversion of a portion of the biovent system to an air sparging system in efforts to target the most impacted groundwater area located within the southwest corner of the River Terrace.
- In the third quarter 2012, Western commenced work that involves enhancement of the total fluids recovery system. This work involves transitioning five monitoring wells (MW-20, MW-55, MW-56, MW-57, and MW-58) and one recovery well (RW-3) to operational total fluids recovery wells. RW-3 was returned to operation by the fourth quarter 2012. Operation of the monitoring wells located near the aeration lagoons is expected to begin in April 2013.

## **2013**

- In the first quarter 2013, Western completed work that involves enhancement of the total fluids recovery system. This work involved transitioning five monitoring wells to active total fluids recovery wells (MW-20, MW-55, MW-56, MW-57, and MW-58). Operation of the monitoring wells located near the aeration lagoons has commenced.
- In June 2013, Western removed two former diesel dispenser pumps, storage tank, associated piping, former fueling pad and approximately 500 cubic yards of soil. Soil samples confirmed all the impacted soil was removed from the immediate vicinity of the former diesel fueling pumps.
- In 2013 Western replaced Tank 37, Tank 38 and Tank 34 with new equivalent tanks. Tank 37 and Tank 34 containments were also lined.
- Well MW-70 was developed on May 22, 2013 and baseline samples were collected on June 13, 2013.

## **2014**

- In 2014 Western Refining performed an environmental site investigation for the SWMUs designated as Group 9 and SWMU No. 27 Wastewater Collection System. Group 9 includes SWMU No. 12 (API Separator), SWMU No. 13 (Process Area) and SWMU No. 14 (Tanks 3, 4, and 5)
- In August 2014, NMED was notified of a significant rain event that resulted in severe flash flooding in the Bloomfield, New Mexico area. The storm caused the Hammond ditch to reverse flow directions, resulting in the entire roadway along the north boundary barrier to fill with water. The significant run-off along the river bluff resulted in Seep 4, Seep 6, Seep 7, Seep 8 and Seep 9 to permanently erode away due to the heavy surface run-off. Prior to the flooding event, these locations were no longer actively collecting seep water due to the existence of the north boundary barrier, and had previously been investigated as part of the 2007 Consent Order. Therefore as of August 2014, the only existing catchment locations are Seep 1, Seep 2, Seep 3, and Seep 5.

## **2015**

- In 2015 routine groundwater and surface water sampling were conducted per the approved Facility-Wide Groundwater Monitoring Plan.

## **2016**

- Routine groundwater and surface water sampling were conducted in 2016.

## **2017**

- The terminal operated as usual in 2017 without any deviations from normal operations.
- There were no reportable leaks, spills, or releases in 2017. There was no indication of expanding groundwater contamination and routine corrective action was implemented to address the known plume.
- Fluids were observed in the leachate collection system in the North and South Evaporation ponds, as was also previously observed in prior years since the ponds were constructed. A summary of the fluids was previously provided in correspondence to the OCD dated June 23, 2017.

- Information on the volume of water placed in the evaporation ponds and ultimately disposed in the injection well is provided in the Annual Report for the injection well. The new injection well was put into service in 2017, the details of which are provided in the Annual Report for the injection well.
- Routine groundwater and surface water sampling were conducted in 2017.
- Discharge Permit GW-001 was renewed on June 8, 2017.

## **2018**

- The terminal operated as usual in 2018 without any deviations from normal operations.
- On May 17, 2018 a release of slop oil was discovered at a culvert that crosses beneath County Road 4990. The material described as slop oil consists of petroleum products that originate at the truck loading rack and crude oil that originates at the crude oil unloading rack. The pipeline was evacuated of hydrocarbons and free liquids were removed. Impacted soils were removed and the excavation was backfilled due to potential traffic hazards along the immediately adjacent county road. In October 2018 an Investigation Work Plan was submitted to OCD and NMED.
- Routine groundwater and surface water sampling were conducted in April and August 2018.

## **2019**

- The terminal operated as usual in 2019 without any deviations from normal operations.
- Routine groundwater and surface water sampling were conducted in April and August 2019.

## **SECTION 2.0**

### **SCOPE OF ACTIVITIES**

This Annual Report includes a summary of activities conducted at the Bloomfield Terminal in 2019 pursuant to the reporting requirements outlined in Section IV.A.2. of the July 2007 Consent Order issued by the NMED-HWB, and Section 2.F. of Discharge Permit GW-001 issued to the Bloomfield Terminal by the EMNDR-OCD. This report includes a summary of sampling activities, total fluids recovery, and remediation monitoring activities conducted in 2019.

#### **2.1 Groundwater and Surface Water Monitoring Activities**

Groundwater and surface water monitoring activities conducted in 2019 include the collection of groundwater and surface water samples and field data from the following four areas of the facility:

- Terminal Complex;
- North Boundary Barrier;
- San Juan River Bluff; and
- San Juan River Terrace.

Monitoring activities conducted in April and August 2019 followed the guidelines outlined in the approved Facility-Wide Groundwater Monitoring Plan dated June 2014. Detailed information regarding groundwater and surface water analyses conducted in 2019 is included in Section 3.1.

##### **2.1.1 Fluid Measurements**

Depth-to-groundwater and depth-to-product measurements were collected from the facility monitoring wells, recovery wells, observation wells, and collection wells prior to the collection of groundwater samples during the Semi-Annual and Annual Sampling Events conducted in April 2019 and August 2019, respectively. All fluid level measurements were collected using a Geotech Interface Probe that measures to an accuracy of 0.01 feet. The field measurements were collected a minimum of 48 hours after the recovery well pumps were turned off to allow the groundwater elevation to stabilize. A summary of the fluid measurements collected is provided in Section 3.1.1.

### **2.1.2 Groundwater Field Parameters**

Prior to collecting groundwater samples, each well was purged a minimum of three well volumes. Groundwater field parameters (temperature, pH, and conductivity) were collected after purging one well volume. The total volume purged at each well was determined once the pH, temperature, and conductivity field parameters stabilized to within 10 percent for three measurements. A summary of the field measurements collected is provided in Section 3.1.2. In addition, field parameters were collected at the outfalls and seeps when sufficient water was present.

### **2.1.3 Terminal Complex Sampling**

Groundwater samples were collected from specified wells located within the Terminal Complex during the Semi-Annual Sampling Event and Annual Sampling Event conducted in April 2019 and August 2019, respectively, with the exception of wells that contained evidence of SPH, wells that exhibited a sheen during purging, wells that were dry, or wells that did not contain enough water to collect a sample. Figure 16 and Figure 17 show the location of the wells sampled during each sampling event. A summary of the analytical results is provided in Section 3.1.3.

#### Semi-Annual Sampling Event

Groundwater samples were collected from the following wells during the Semi-Annual Sampling Event conducted in April 2019:

- Terminal Wells: MW-52;
- Cross-Gradient Wells: MW-1 and MW-13;
- Downgradient Wells: MW-12, MW-35, MW-37, and MW-38.

Groundwater samples collected during the Semi-Annual Sampling Event were submitted to Hall Environmental Analytical Laboratory (HEAL) and analyzed for the following:

- Volatile organic compounds (VOCs) Target List – benzene, toluene, ethylbenzene, and xylenes (BTEX), and methyl tert-butyl ether (MTBE) by EPA Method 8260B; and
- Total petroleum hydrocarbons (TPH) – Gasoline Range Organics (GRO), Diesel Range Organics (DRO), and Motor Oil Range Organics (MRO) by EPA Modified Method 8015B (Terminal Well MW-52 and Downgradient Well MW-35 are not scheduled for TPH analysis).

Terminal Well MW-20 was not sampled due to the presence of measurable SPH during the gauging event. Groundwater samples were not collected from Terminal Well MW-30 due to the presence of a hydrocarbon sheen during the purging of the well for sampling. Cross-Gradient Well MW-33 was not sampled due to the insufficient volume of groundwater. Background Well MW-6 was dry and was not sampled.

No RCRA Investigation Wells are scheduled for sampling during the Semi-Annual Sampling Event conducted in April.

### Annual Sampling Event

Groundwater samples were collected from the following wells during the Annual Sampling Event conducted in August 2019:

- Terminal Wells: MW-29, MW-31, MW-44, and MW-52;
- Cross-Gradient Wells: MW-1, MW-13, MW-27, and MW-32;
- Downgradient Wells: MW-11, MW-12, MW-34, MW-35, MW-37, and MW-38; and
- RCRA Investigation Wells: MW-53, MW-59, MW-62, MW-63, MW-64, MW-67, MW-68, and MW-70.

Groundwater samples collected during the Annual Sampling Event were submitted to HEAL and analyzed for the following:

- VOCs by EPA Method 8260B;
- TPH-DRO by EPA Method 8015B;
- TPH-GRO by EPA Method 8015B;
- TPH-MRO by EPA Method 8015B;
- Total RCRA 8 Metals by EPA Method 6010B/7470;
- Dissolved Metals by EPA Method 6010B/7470;
- Alkalinity by EPA Method 310.1;
- Anions by EPA Method 300.0; and
- Carbon Dioxide by EPA Method 310.1.

Groundwater samples were not collected from Terminal Wells RW-9, MW-20, RW-28, and RW-43 due to the presence of SPH during the facility-wide gauging event. Groundwater samples were not collected from Terminal Wells RW-1, MW-4, RW-15, RW-18, MW-21, MW-30, MW-40, RW-23, and RW-42 due to the presence of a hydrocarbon sheen during the purging of the well for sampling.

Cross-Gradient Well MW-26 was not sampled due to the presence of SPH during the facility-wide gauging event. Cross-Gradient Well MW-33 was not sampled due to the insufficient volume of groundwater.

Groundwater samples were not collected from RCRA Investigation Wells MW-57, MW-58, MW-61, and MW-66 due to the presence of SPH during the facility-wide gauging event. Groundwater samples were not collected from RCRA Investigation Wells MW-54, MW-55, MW-56, and MW-65 due to the presence of a hydrocarbon sheen during the purging of the well for sampling. Groundwater samples were not collected from RCRA Investigation Wells MW-60 and MW-69 due to an insufficient volume of groundwater.

Background Wells MW-3, MW-5, and MW-6 were dry and were not sampled.

#### **2.1.4 North Boundary Barrier Sampling**

Groundwater samples were collected from observation wells and specified collection wells in April 2019 and August 2019, with the exception of wells that contained evidence of SPH, wells that were dry, or wells that did not contain enough water to collect a sample. Figure 16 and Figure 17 shows the location of the North Boundary Barrier wells that were sampled in April 2019 and August 2019, respectively. A summary of the groundwater results is provided in Section 3.1.4.

#### Semi-Annual Sampling Event

Groundwater samples were collected from the following wells during the Semi-Annual Sampling Event conducted in April 2019:

- Collection Wells: CW 0+60 and CW 25+95; and
- Observation Wells: OW 8+10, OW 19+50, OW 22+00, OW 23+90, and OW 25+70.

Groundwater samples collected in April 2019 were submitted to HEAL and analyzed for the following:

- VOCs-BTEX and MTBE only by EPA Method 8260B;
- TPH-GRO by EPA Modified Method 8015B;
- TPH-DRO by EPA Modified Method 8015B; and
- TPH-MRO by EPA Method 8015B.

Groundwater samples were not collected from Observation Wells OW 0+60, OW 1+50, OW 3+85, OW 11+15, OW 16+60, and OW 23+10 due to the presence of a hydrocarbon sheen during the purging of the wells for sampling.

Observation Well OW 14+10 was dry and was not sampled. Groundwater samples were not collected from Observation Wells OW 5+50 and OW 6+70. These wells did not yield enough water after purging to sample.

### Annual Sampling Event

Groundwater samples were collected from the following wells during the Annual Sampling Event conducted in August 2019:

- Collection Wells: CW 0+60 and CW 25+95; and
- Observation Wells: OW 8+10, OW 19+50, OW 22+00, OW 23+90, and OW 25+70.

Groundwater samples collected during the Annual Sampling Event were submitted to HEAL and analyzed for the following:

- VOCs – BTEX and MTBE by EPA Method 8260B;
- TPH-GRO by EPA Modified Method 8015B;
- TPH-DRO by EPA Modified Method 8015B; and
- TPH-MRO by EPA Method 8015B.

Groundwater samples were not collected from Observation Wells OW 3+85, OW 11+15, OW 16+60, and OW 23+10 due to the presence of a hydrocarbon sheen during the purging of the wells for sampling.

Observation Wells OW 1+50, OW 6+70, and OW 14+10 were dry and were not sampled.

Groundwater samples were not collected from Observation Wells OW 0+60 and OW 5+50.

These wells did not yield enough water after purging to sample.

### **2.1.5 San Juan River Bluff Sampling**

San Juan River Bluff sampling includes the collection of water samples at the outfall locations along the eastern portion of the facility, and at the seeps located along the western portion of the facility. Figure 3 shows the outfall and seep locations. A summary of the analytical results is provided in Section 3.1.5.

### Semi-Annual Sampling Event

Water samples were collected from the East Outfall #2 and East Outfall #3 locations during the 2019 Semi-Annual Sampling Event.

Water samples collected were submitted to HEAL and analyzed for the following:

- VOCs – BTEX and MTBE by EPA Method 8260B;
- Total RCRA 8 Metals by EPA Method 6010B/7470;
- Dissolved Metals by EPA Method 6010B/7470;
- Alkalinity by EPA Method 310.1;
- Anions by EPA Method 300.0; and
- Carbon Dioxide by EPA Method 310.1.

Surface water samples were not collected from Seep 1, Seep 2, Seep 3 and Seep 5 due to the absence of an active discharge at each location.

### Annual Sampling Event

Water samples were collected from the East Outfall #2 and East Outfall #3 locations during the 2019 Annual Sampling Event.

Water samples collected were submitted to HEAL and analyzed for the following:

- VOCs – BTEX and MTBE by EPA Method 8260B;
- Total RCRA 8 Metals by EPA Method 6010B/7470;
- Dissolved Metals by EPA Method 6010B/7470;
- Alkalinity by EPA Method 310.1;
- Anions by EPA Method 300.0; and
- Carbon Dioxide by EPA Method 310.1.

Surface water samples were not collected from Seep 1, Seep 2, Seep 3, and Seep 5 due to the absence of an active discharge at each location.

### **2.1.6 San Juan River Terrace Sampling**

San Juan River Terrace sampling includes the collection of surface water samples at four locations along the San Juan River and the collection of groundwater samples at the San Juan River Terrace. A summary of activities conducted and groundwater samples collected that are associated with the bioventing system located at the San Juan River Terrace are included in the previously submitted *River Terrace Voluntary Corrective Measures Bioventing System Report*

dated February 2020. Therefore sampling activities associated with the Bioventing System are not included in this report.

Figure 3 shows the approximate surface water sample locations along the San Juan River. A summary of the surface water analytical results is provided in Section 3.1.6.

#### Semi-Annual Sampling Event

Surface water samples were collected from the following locations during the Semi-Annual Sampling Event conducted in April 2019:

- San Juan River: Upstream, North of MW-46, North of MW-45, and Downstream.

Surface water samples collected during the Semi-Annual Sampling Event were submitted to HEAL and analyzed for the following:

- VOCs – BTEX and MTBE by EPA Method 8260B;
- TPH-DRO by EPA Method 8015B;
- TPH-GRO by EPA Method 8015B;
- TPH-MRO by EPA Method 8015B;
- Total RCRA 8 Metals by EPA Method 6010B/7470;
- Dissolved Metals by EPA Method 6010B/7470;
- Alkalinity by EPA Method 310.1;
- Anions by EPA Method 300.0;
- Carbon dioxide;
- Specific conductance; and
- Total dissolved solids.

#### Annual Sampling Event

Surface water samples were collected from the following locations during the Annual Sampling Event conducted in August 2019:

- San Juan River: Upstream, North of MW-46, North of MW-45, and Downstream.

Surface water samples collected during the Annual Sampling Event were submitted to HEAL and analyzed for the following:

- VOCs – BTEX and MTBE by EPA Method 8260B;
- TPH-DRO by EPA Method 8015B;
- TPH-GRO by EPA Method 8015B;
- TPH-MRO by EPA Method 8015B;
- Total RCRA 8 Metals by EPA Method 6010B/7470;

- Dissolved Metals by EPA Method 6010B/7470;
- Alkalinity by EPA Method 310.1;
- Anions by EPA Method 300.0;
- Specific conductance; and
- Total dissolved solids.

### **2.1.7 Outfall and Seep Inspections**

Weekly visual inspections of Seep 1, Seep 2, Seep 3, and Seep 5 along the San Juan River Bluff, which includes the East Fork area, were conducted in 2019. Figure 3 shows the location of the outfalls and seeps. A summary of the inspections performed is provided in Section 3.1.7.

## **2.2 Total Fluids Recovery Systems**

### **2.2.1 Groundwater Recovery System**

The Bloomfield Facility operates a total fluids pumping system used to recover SPH and hydrocarbon impacted groundwater for treatment and disposal. This is accomplished by actively pumping wells within the groundwater impacted area. Recovered fluids are pumped to the on-site API separator for product recovery. The remaining recovered fluid is pumped through the WWTS prior to disposal. The groundwater recovery system was operational throughout 2019. The wells that operated as active recovery wells in 2019 are RW-1, RW-2, RW-3, RW-9, RW-14, RW-15, RW-16, RW-17, RW-19, MW-20, RW-22, RW-23, RW-28, RW-42, MW-55, MW-56, MW-57, MW-58, and MW-69. Figure 2 shows the location of the recovery wells within the Facility. An operational summary of the groundwater recovery system is included in Section 3.3.1.

### **2.2.2 North Boundary Barrier Wall Collection System**

The North Boundary Barrier Wall, which was installed by April 2005, consists of a 2,700 foot long bentonite slurry wall that extends two to five feet into the Nacimiento Formation. The primary purpose of the wall is to prevent the migration of hydrocarbon-impacted groundwater towards the San Juan River. The collection system consists of 15 collection wells positioned along the facility-side of the barrier wall. For every collection well, there was also an observation well installed along the river-side of the barrier wall. Bloomfield Terminal personnel continued to monitor fluid levels on both sides of the barrier wall in 2019 by collecting depth-to-water and depth-to-product measurements. Figure 2 shows the location of the collection wells

and observation wells along the North Boundary Barrier Wall. A summary of the data collected along the North Boundary Barrier Wall is provided in Section 3.3.2.

### **2.2.3 Hammond Ditch Recovery System**

The Hammond Ditch Recovery System consists of recovery Tank 37, located along the western portion of the facility, and a French Drain system that was constructed below the concrete-lined Hammond ditch. Tank 37 collects groundwater from two 8-inch influent lines connected to the perforated sub-drain (the French Drain) beneath the Hammond Irrigation Canal. Tank 37 is equipped with a liquid level float control system and dedicated flow meter. Recovered water from Tank 37 is automatically pumped through a flow meter to the API Separator. The location of Tank 37 is shown on Figure 3.

The Hammond Ditch Recovery System serves as a hydraulic relief mechanism for groundwater that mounds along the Facility-side of the north barrier wall. Figure 3 shows the location of Tank 37. A summary of operational data for the Hammond Ditch Recovery System is included in Section 3.3.3.

### **2.2.4 River Terrace Remediation System**

The River Terrace Bioventing System commenced operation in January 2006. A summary of activities associated with the River Terrace Bioventing System are submitted separately to the agencies in March of each year.

### **2.2.5 East Outfall Recovery System**

Outfall 1 is equipped with a holding tank and automatic pumping system. Water from Outfall 1 discharges into Tank 38 directly and then is pumped to the on-site WWTS prior to disposal. Figure 3 shows the location of Tank 38.

The flow rate of recovered water entering Tank 38 is dependent upon the operation of the Hammond Ditch, which is located just south of Tank 38. A summary of the operational data of the East Outfall Recovery System for 2019 is included in Section 3.3.4.

## **2.3 Waste Disposal**

Western Refining indefinitely suspended refining operations at the Facility on November 23, 2009. The crude unloading and product loading racks, storage tanks and other supporting

equipment remain in operation. Recovered water from on-site remediation activities and facility operations is treated through the on-site WWTS. Treated water is then disposed of through the on-site Class I injection well or evaporation ponds.

Significantly less waste is routinely generated since the suspension of refining operations in November 2009. The on-site landfill is no longer operational, and therefore all operational waste generated is properly characterized and disposed of off-site. Additional information regarding waste disposal activities is provided in Section 3.5.

## **SECTION 3.0**

### **RESULTS SUMMARY**

The following is a summary of the data collected, visual inspections conducted, and analytical results received during monitoring and testing performed in 2019. Figure 8 and Figure 9 provide a summary of the BTEX concentrations detected during the April 2019 and August 2019 sampling events, respectively. Figure 10 shows the analytical results for chloride, sulfate, nitrate, and total dissolved solids (TDS) for April 2019. Figures 11 through 15 depict the analytical results for naphthalene, chloride, sulfate, nitrate, and TDS for August 2019.

#### **3.1 Groundwater and Surface Water Monitoring**

A summary of the groundwater and surface water analytical results for samples collected over the past few years are included in Table 3 through Table 10. Screening levels used to evaluate the groundwater condition at the Bloomfield Terminal are reflective of the same conservative screening levels currently used for evaluation of on-going RCRA Investigation activities. Sample results included in the analytical summary tables that exceed the respective regulatory screening levels are highlighted in yellow, while all detected results are bolded. An electronic copy of the respective analytical reports is included in Appendix A. The analytical reports contain the respective quality assurance/quality control data reviews and validation. Included in Appendix B is a summary of the quality assurance/quality control data reviews and validation.

##### **3.1.1 Fluid Level Measurements**

Depth-to-groundwater and depth-to-product measurements were collected at all facility monitoring wells, recovery wells, observation wells, and collection wells in April and August 2019. Additional fluid measurements were collected at the sump wells periodically throughout the year to monitor fluid levels along the north side of the facility. The fluid pumping wells were turned off and the groundwater was allowed to stabilize for a minimum of 48-hours prior to the collection of fluid levels within the Bloomfield Terminal during both the April and August sampling events. Figure 2 shows the location of the wells within the facility.

Using the fluid level measurements collected in April and August 2019, groundwater potentiometric surface elevations were calculated. The groundwater elevation data was used to develop groundwater potentiometric surface maps, which show the general direction of groundwater flow within the facility. Table 1 provides a summary of the fluid level measurements collected in 2019. Figure 4 and Figure 5 represent the groundwater contours

developed from data collected in April 2019 and August 2019, respectively. The groundwater potentiometric surface contours show that groundwater generally flows in a northwest direction. A discussion of the SPH data collected is provided in Section 3.2 of this report.

### **3.1.2 Groundwater Field Measurements**

Prior to collecting groundwater samples, each well was purged of a minimum of three well volumes using a disposable bailer. Groundwater field parameters (temperature, pH, conductivity, dissolved oxygen (DO), oxidation-reduction potential (ORP), and total dissolved solids (TDS)) were collected every two gallons or after purging one well volume, whichever was less. The total volume purged at each well was determined once the pH, temperature, and conductivity field parameters stabilized to within 10 percent for three measurements. The field parameters were collected using a YSI Professional Plus instrument. Field equipment calibration procedures performed prior to each sampling event are summarized in Section 4 of the Facility-Wide Groundwater Monitoring Plan. Table 2 provides a summary of the groundwater field parameters collected during the April 2019 and August 2019 sampling events. Field parameters were also collected from water samples collected at the East Outfalls, Seeps, and the San Juan River locations.

### **3.1.3 Terminal Complex Sampling**

#### **Terminal Wells**

Volatile organic compounds detected above the laboratory detection limit were below their respective screening levels in samples collected in 2019, with the exception of the sample collected from MW-31 in August. The following exceedances were reported:

- 1,2,4-Trimethylbenzene was detected above the respective screening level of 56 ug/L. The detected concentration was 330 ug/L.
- 1-Methylnaphthalene was detected above the respective screening level of 11 ug/L. The detected concentration was 78 ug/L.
- 2-Methylnaphthalene was detected above the respective screening level of 36 ug/L. The detected concentration was 74 ug/L.
- Benzene was detected above the respective screening level of 5 ug/L. The detected concentration was 1,500 ug/L.
- Ethylbenzene was detected above the respective screening level of 700 ug/L. The detected concentration was 710 ug/L.
- Naphthalene was detected above the respective screening level of 1.65 ug/L. The concentration detected was 160 ug/L.
- Xylenes were detected above the respective screening level of 620 ug/L. The detected concentration was 1,200 ug/L.

General chemistry parameters detected above the laboratory detection limit were below their respective screening levels in samples collected in 2019, with the following exceptions:

- Chloride was detected above the screening level of 250 mg/L at MW-52 in August 2019 with a detected concentration of 830 mg/L.
- Nitrite and nitrate were reported as a combined concentration in one sample where the applicable screening level for nitrite (1.0 mg/L) and nitrate (10 mg/L), were exceeded. This occurred in the sample collected at MW-52 with a reported combined concentration of 39 mg/L.
- Sulfate was detected above the screening level of 600 mg/L at MW-44 and MW-52 in August 2019 with detected concentrations of 3,500 mg/L and 1,400 mg/L, respectively.

Total metals constituents detected above the laboratory detection limit were below their respective screening levels in samples collected in 2019, with exception of arsenic. Arsenic was detected above the respective screening level of 0.01 mg/L at MW-44. The detected concentration above the screening level was 0.017 mg/L in August 2019.

Dissolved metals constituents detected above the laboratory detection limit were below their respective screening levels in samples collected in 2019, with exception of manganese. Manganese was detected above the respective screening level of 0.2 mg/L at MW-29, MW-31, and MW-44. The detected concentrations above the screening levels ranged between 0.43 mg/L and 1.1 mg/L, with the highest concentration detected at MW-29 in August 2019.

Total petroleum hydrocarbons were detected above the laboratory detection limits in the GRO and DRO analyses in MW-31. DRO was detected above the screening level of 0.0167 mg/L at a concentration of 1.1 mg/L in August 2019. GRO was detected above the screening level of 0.0101 mg/L at a concentration of 11 mg/L in August 2019.

A summary of the analytical results for samples collected at the Terminal Complex Wells is provided in Table 3.

### Cross-Gradient Wells

No volatile organic compounds were detected above the laboratory detection limits in samples collected in 2019.

General chemistry parameters detected above the laboratory detection limit were below their respective screening levels in samples collected in 2019, with the following exceptions:

- Chloride was detected above the respective screening level of 250 mg/L at MW-27 and MW-32 at concentrations of 960 mg/L and 740 mg/L, respectively, in August 2019.

- Nitrite and nitrate were reported as a combined concentration in two samples where the applicable screening level for nitrite (1.0 mg/L), was exceeded. This occurred in the samples collected at MW-13 and MW-32 with a reported combined concentrations of 1.8 mg/L and 37 mg/L, respectively.
- Nitrate exceeded the screening level of 10 mg/L in one sample collect at MW-32 in August 2019 with a reported concentration of 37 mg/L.
- Sulfate was detected above the respective screening level of 600 mg/L at MW-13, MW-27, and MW-32. The detected concentrations ranged between 1,100 mg/L and 2,900 mg/L, with the highest concentration detected at MW-27 in August 2019.

There were no total metals constituents detected above their respective screening levels in samples collected in 2019.

Dissolved metals constituents detected above the laboratory detection limit were below their respective screening levels in samples collected in 2019, with the following exceptions:

- Manganese was detected above the respective screening level of 0.2 mg/L at MW-13 and MW-27. The detected concentrations were 1.5 mg/L and 1.8 mg/L, respectively; and
- Iron was detected above the respective screening level of 1 mg/L at MW-27 in August 2019 with a reported concentration of 1.1 mg/L.

Total petroleum hydrocarbons were detected in one sample collected at MW-27 for the DRO fraction at a concentration of 0.23 mg/L vs. the screening level of 0.0167 mg/L.

A summary of the analytical results for samples collected at the Cross-Gradient Wells is provided in Table 4.

#### Downgradient Wells

Volatile organic compounds detected above the laboratory detection limit were below their respective screening levels in samples collected in 2019, with the following exceptions:

- 1,2,4-Trimethylbenzene was detected above the screening level of 56 ug/L at MW-11 at a concentration of 110 ug/L;
- 1-Methylnaphthalene was detected above the respective screening level of 11 ug/L at MW-11 with a concentration of 18 ug/L in August 2019;
- Benzene was detected in samples collected at MW-11 at 8 ug/L, which exceeds the screening level of 5 ug/L; and
- Naphthalene was detected above the respective screening level of 1.65 ug/L at MW-11. The detected concentration was 99 ug/L.

Semi-volatile organic compounds detected above the laboratory detection limit were below their respective screening levels in samples collected in 2019 with the exception of the concentration of 1-methylnaphthalene in MW-11. The detected concentration was 34 ug/L which exceeded the screening level of 11 ug/L.

General chemistry parameters detected above the laboratory detection limit were below their respective screening levels in samples collected in 2019, with the exception of the sulfate concentration in MW-37. The detected concentration was 1,200 mg/L in August 2019 which exceeds the screening level of 600 mg/L.

Total metals constituents detected above the laboratory detection limit were below their respective screening levels in samples collected in 2019, with the following exceptions:

- Arsenic was detected above the screening level of 0.01 mg/L at MW-35 (0.016 mg/L); and
- Chromium was detected above the screening level of 0.05 mg/L at MW-12 (0.31 mg/L).

Dissolved metals constituents detected above the laboratory detection limit were below their respective screening levels in samples collected in 2019, with the following exceptions:

- Arsenic was detected above the screening level of 0.01 mg/L at MW-34 (0.027 mg/L) and MW-35 (0.037 mg/L);
- Barium was detected above the screening level of 1.0 mg/L at MW-35 (1.1 mg/L);
- Iron was detected above the respective screening level of 1.0 mg/L at MW-11 (6.5 mg/L), MW-34 (2.5 mg/L), and MW-35 (1.9 mg/L); and
- Manganese was detected above the respective screening level of 0.2 mg/L at MW-11, MW-34, MW-35, MW-37, and MW-38. The detected concentrations above the screening level ranged between 2.0 mg/L and 3.6 mg/L, with the highest concentration detected at MW-34 in August 2019.

Total petroleum hydrocarbons were detected in the DRO and GRO fractions. The DRO fraction was detected at concentrations above the screening level of 0.0167 mg/L in the samples from MW-11, MW-35, and MW-38. The concentrations reported were 0.52 mg/L (MW-11), 0.26 mg/L (MW-35) and 0.43 mg/L (MW-38). The GRO fraction was detected at concentrations above the screening level of 0.0101 mg/L in the samples from MW-11, MW-35 and MW-38. The concentrations reported were 2.4 mg/L (MW-11), 0.35 mg/L (MW-35), and 0.052 mg/L (MW-38).

A summary of the analytical results for samples collected at the Downgradient Wells is provided in Table 5.

## RCRA Wells

Volatile organic compounds detected above the laboratory detection limit were below their respective screening levels in samples collected in August 2019, with the following exceptions:

- 1,2-Dichloroethane was detected above the respective screening level of 1.71 ug/L at MW-59 with a concentration of 10 ug/L;
- Benzene was detected above the respective screening level of 5 ug/L at MW-59 with a concentration of 7.5 ug/L; and
- MTBE was detected above the respective screening level of 100 ug/L at MW-59 with a concentration of 830 ug/L.

General chemistry parameters detected above the laboratory detection limit were below their respective screening levels in samples collected in August 2019, with the following exceptions:

- Chloride was detected above the respective screening level of 250 mg/L at MW-53, MW-64, and MW-70. The detected concentrations above the screening level ranged between 340 mg/L and 920 mg/L. The highest concentration was detected at MW-53;
- Nitrite was detected above the respective screening level of 1 mg/L at MW-53, MW-63, MW-64, MW-67, and MW-68, with concentrations ranging from 3.8 mg/L to 66 mg/L. The highest concentration was detected at MW-63;
- Nitrate was detected above the respective screening level of 10 mg/L at MW-53, MW-63, and MW-64, with concentrations ranging from 14 mg/L to 66 mg/L. The highest concentration was detected at MW-63; and
- Sulfate was detected above the respective screening level of 600 mg/L at MW-53, MW-62, MW-63, MW-64, and MW-70. The detected concentrations ranged between 960 mg/L and 4,000 mg/L, with the highest concentration detected at MW-62.

None of the total metals analyses indicated concentrations of constituents detected above their respective screening levels in samples collected in August 2019.

Dissolved metals constituents detected above the laboratory detection limit were below their respective screening levels in samples collected in August 2019, with the following exceptions:

- Arsenic was detected above the screening level of 0.01 mg/L in groundwater sample collected at MW-59 (0.027 mg/L);
- Iron was detected above the respective screening level of 1.0 mg/L at MW-59 (7.6 mg/L) and MW-70 (5.3 mg/L); and
- Manganese was detected above the respective screening level of 0.2 mg/L at MW-53, MW-59, MW-62, MW-63, and MW-70. The detected concentrations ranged between 0.30 mg/L and 1.6 mg/L, with the highest concentration detected at MW-70.

Total petroleum hydrocarbons were below the laboratory detection limit in the DRO and GRO fractions except for the sample from MW-59. The DRO concentration exceeded the screening level of 0.0167 mg/L in groundwater sample collected at MW-59 (0.31 mg/L). The GRO concentration exceeded the screening level of 0.0101 mg/L in groundwater sample collected at MW-59 (1.2 mg/L).

A summary of the analytical results for samples collected at the RCRA Wells in August 2019 is provided in Table 6.

### **3.1.4 North Boundary Barrier Sampling**

#### Collection Wells

No volatile organic compounds were detected above their respective screening levels in samples collected in 2019. Total petroleum hydrocarbons were detected above the laboratory detection limit in the GRO and DRO fractions. The DRO concentrations reported in the following samples exceeded the screening level of 0.0167 mg/L:

- CW 0+60 – 1.7 mg/L – April 2019; and
- CW 0+60 – 0.70 mg/L – August 2019.

The GRO concentrations reported in the following samples exceeded the screening level of 0.0101 mg/L:

- CW 0+60 – 3.1 mg/L – April 2019; and
- CW 25+95 – 0.36 mg/L – April 2019.

A summary of the analytical results for samples collected at the collection wells in 2019 is provided in Table 7.

#### Observation Wells

Volatile organic compounds detected above the laboratory detection limit were below their respective screening levels in samples collected in 2019 with the exception of the April 2019 sample from OW 19+50. The MTBE concentration (0.130 mg/L) in the sample exceeded the screening level of 0.100 mg/L.

The DRO concentrations reported in the following samples exceeded the screening level of 0.0167 mg/L:

- OW 8+10 – 0.44 mg/L – April 2019; and
- OW 19+50 – 0.19 mg/L – August 2019.

The GRO concentrations reported in the following samples exceeded the screening level of 0.0101 mg/L.

- OW 19+50 – 0.077 mg/L – April 2019;
- OW 23+90 – 0.027 mg/L – August 2019;
- OW 25+70 – 0.12 mg/L – April 2019; and
- OW 25+70 – 0.052 mg/L – August 2019.

A summary of the analytical results for samples collected at the collection wells in 2019 is provided in Table 7.

### **3.1.5 San Juan River Bluff Sampling**

#### Outfalls

Samples were collected from East Outfall #2 and East Outfall #3 in April and August 2019. A summary of the analytical results for samples collected at East Outfall #2 and East Outfall #3 in 2019 is provided in Table 8.

Volatile organic compounds were not detected in samples collected in 2019. General chemistry parameters detected above the laboratory detection limit were below their respective screening levels in samples collected in 2019 with the exception of nitrite concentrations. The nitrite concentrations reported in the following samples exceeded the screening level of 1 mg/L:

- East Outfall #2 – 1.5 mg/L – August 2019; and
- East Outfall #3 – 1.6 mg/L – August 2019.

For the total metals analyses, none of the metals were detected at a concentration above the screening levels in April and August 2019. All dissolved metals constituents detected above the laboratory detection limit were below their respective screening levels in samples collected in April and August 2019.

## Seeps

The seep locations were dry in April and August 2019 and were therefore not sampled. A summary of the analytical results for samples previously collected at the seeps is provided in Table 9.

### **3.1.6 San Juan River Terrace Sampling**

Sample locations related to the bioventing system are discussed in a separate report, and therefore are not included in this submittal. However, surface water samples were collected at four locations along the San Juan River in 2019. Samples were collected in April 2019 and August 2019 upstream of the Terminal, north of MW-46, north of MW-45, and downstream of the Terminal. A summary of the analytical results for samples is provided in Table 10.

Volatile organic compounds were not detected above laboratory detection limits in any of the samples for 2019. Similarly, Total Petroleum Hydrocarbons were not detected above laboratory detection limits in surface water samples collected for 2019. General chemistry parameters detected above the laboratory detection limits were below their respective screening levels in samples collected in 2019.

Total and dissolved metal constituents detected above the laboratory detection limits were below their respective screening levels in samples collected in 2019. Figure 3 shows the location of the San Juan River samples in relation to the Bloomfield Terminal.

### **3.1.7 Outfall and Seep Inspections**

Weekly visual inspections of Seep 1, Seep 2, Seep 3, and Seep 5 and along the San Juan River Bluff, including the East Fork area, were conducted in 2019. Inspections of the draws north of the barrier wall and analysis of samples of water collected in the seeps indicate that the barrier wall is preventing migration of contaminated groundwater toward the San Juan River.

Visual inspection of the East Fork area indicates that the flow rate at this seep location has decreased to less than 1 gallon/minute. The flow rate at this location does not appear to be impacted by the operation of the Hammond Ditch. Figure 3 shows the location of the outfalls and seeps in relation to the Bloomfield Terminal.

### **3.2 Separate-Phase Hydrocarbons**

Field measurements collected in April and August 2019 were also used to determine product thickness in areas where SPH was detected. In April 2019, SPH was identified in 17 wells. The product thickness detected ranged between 0.01 feet and 0.47 feet, with the most product detected at monitor well MW-58. In August 2019, SPH was identified in 16 wells. The product thickness ranged between 0.02 feet and 0.70 feet, with the most product detected at monitor well MW-77. Figure 6 and Figure 7 show a summary of the product thickness detected in April 2019 and August 2019, respectively.

Product had been detected in the groundwater prior to suspension of refining operations in November 2009. Review of the past 10 years of data collected shows SPH to be present in four general areas of the facility; the Terminals Area, the Tank Farm Area, the former Refinery Process Area, and the North Boundary Barrier Area. The following is a brief summary of the SPH trends observed as reported each year. A review of the historic SPH measurements collected are included in the Facility-Wide Groundwater Monitoring Plan dated December 2007 and in subsequent Annual Groundwater Remediation and Monitoring Reports submitted in April of each year.

#### Terminals Area

The area historically referred to as the “Terminals Area” is located south of County Road 4990. Primary operations in this area include product loading and unloading, crude unloading, and product storage. At the Terminal Area, SPH has been localized to two wells (MW-61 and MW-66). These wells were installed in 2009 as part of the on-going RCRA investigation activities. In the most recent measurement in August 2019, 0.31 feet of SPH was observed in MW-61. The SPH thickness at MW-61 has fluctuated between 0.21 feet and 0.98 feet. At MW-66, located west of Tank 45, the amount of SPH has fluctuated between 0.0 feet and 0.32 feet, with 0.06 feet measured most recently in August 2019. During the August 2019 sampling activities, a sheen was observed on the purged water for MW-65. This is the first occurrence of a sheen being observed in MW-65. The well was not sampled.

#### Tank Farm Area

The Tank Farm Area is located in the eastern portion of the facility, north of County Road 4990. This area is equipped with four total fluids recovery wells located along the center dike area

(RW-14, RW-15, RW-16, and RW-17). Recovery wells RW-14 and RW-16 are equipped with electrical submersible pumps, while RW-15 and RW-17 are equipped with dedicated pneumatic pumps that operate on a timer. All fluids pumped from these wells are routed to the on-site WWTP for product recovery and treatment. In recovery well RW-14, SPH was detected during the April 2019 gauging event (0.29 feet) and August 2019 gauging event (0.07 feet). No SPH was detected in RW-15, RW-16, and RW-17 during the April and August 2019 gauging events.

#### Former Refinery Process Area

In 2005, a 2,700-foot long bentonite slurry wall was installed along the western and northern boundary of the former process area. This north boundary barrier provides hydraulic control for product and groundwater that exists at the Bloomfield facility. Several monitoring wells located within the vicinity of the former refinery process area have shown detectable amounts of SPH prior to the suspension of refinery operations in November 2009. Total fluids recovery wells, as well as the French drain fluids collection system located below the Hammond Ditch in this area, provide hydraulic relief and enhance product recovery efforts.

Two wells within the warehouse area have shown detectable SPH. Monitoring well MW-54, which was installed in 2008, has shown decreasing levels of SPH since 2010. In August 2016, MW-54 contained only approximately 0.01 feet of SPH and no SPH was measured in 2019. Recovery well RW-1 is an active total fluids recovery well. This well operates at a constant flowrate of approximately 2 gpm. The amount of SPH at RW-1 has fluctuated since 2008, with no SPH measured during 2019.

Two active recovery wells (RW-2 and RW-3) are located along the southern property boundary and are equipped with dedicated pneumatic total fluids pumps. SPH was detected in RW-2 during the April 2019 gauging event (0.15 feet) and during the August 2019 gauging event (0.21 feet). SPH has only been detected in RW-2 during one gauging event in the past. In August 2014 the SPH thickness was recorded as 0.10 feet. RW-3 has shown traces of SPH prior to returning to operation in 2012, with SPH detected at 0.05 feet or less. No measurable SPH was detected in RW-3 in 2019.

Monitoring well MW-41, located adjacent to the former crude process unit, has shown fluctuating levels of SPH over the years. The range of SPH detected has been between 0.0 feet and 1.18 feet since 2007. SPH was not detected during the April 2019 gauging event. In

August 2019, 0.02 feet of SPH was measured in MW-41. The SPH thickness measurements in 2019 were less than the 2018 measurements.

The SPH level at RW-42, an active recovery well located upgradient of MW-41, has also fluctuated over time. The amount of SPH has ranged between 0.00 feet and 0.90 feet since 2007. SPH has not been detected in RW-42 since August 2015.

In the area near the WWTP and north of the former process units there are several wells in which SPH has been detected over the years. It is expected to see SPH levels fluctuate in this area due to the numerous active recovery wells, as well as, the existence of the north boundary barrier providing hydraulic control for all groundwater beneath the former process areas. To further enhance the product recovery efforts in this area, work has been done to equip five existing monitoring wells with dedicated pneumatic pumps for total fluids recovery. Monitoring wells MW-55, MW-56, MW-57, MW-58, and MW-20 have been converted to recovery wells. These wells are located in the area where SPH is currently most prevalent. The wells have been operational as of 2013 and continued to operate through 2019. In MW-20, the SPH thickness measurements in 2019 were less than the 2018 SPH measurements.

When compared to the 2018 fluid level measurements, the measurements collected in 2019 indicated a reduction in the SPH thickness in the wells MW-72, RW-19, and RW-28.

#### North Boundary Barrier Area

In 2005, a 2,700-foot long bentonite slurry wall was installed along the western and northern boundary of the former process area. This north boundary barrier provides hydraulic control for product and groundwater within the Bloomfield facility. Monitoring wells and observation wells located along the river-side of the slurry wall have shown intermittent detections of SPH. The greatest of which was 0.08 feet in April 2014 in MW-45; however, no SPH has been detected in excess of 0.01 feet since that time. The amount of groundwater detected in these wells is significantly less than the wells located on the facility-side of the wall, giving proof that the hydraulic barrier is effective. The intermittent detections of SPH are believed to be the residual effect of SPH in the area that existed prior to installation of the slurry wall.

Collection well CW 11+15 is located south of monitoring well MW-45 on the south side of the barrier wall. The range of SPH detected has been between 0.0 feet and 1.95 feet since April

2014. SPH was detected during the April 2019 gauging event (0.03 feet) and in the August 2019 gauging event (0.06 feet).

Collection CW 8+45 is located west of collection well CW 11+15. SPH was detected during the April 2019 gauging event (0.03 feet) and in the August 2019 gauging event (0.11 feet). No SPH was detected in this well during gauging events from 2011 through 2018.

SPH was not detected in the Observations Wells during the April 2019 and August 2019 gauging event. A hydrocarbon sheen was observed on some of the wells during the well purging activities prior to sampling. These wells include:

- Semi-Annual Event - OW 0+60, OW 1+50, OW 3+85, OW 11+15, OW 16+60, and OW 23+10; and
- Annual Event - OW 3+85, OW 11+15, OW 16+60, and OW 23+10.

### **3.3 Total Fluids Recovery Systems**

#### ***3.3.1 Groundwater Recovery System***

In 2019, 19 wells operated as total fluids recovery wells. The wells used for total fluids recovery were RW-1, RW-2, RW-3, RW-9, RW-14, RW-15, RW-16, RW-17, RW-19, MW-20, RW-22, RW-23, RW-28, RW-42, MW-55, MW-56, MW-57, MW-58, and MW-69. In the past, Marathon estimated the total gallons pumped (SPH and groundwater) from the recovery wells on an annual basis. The recovery wells are not equipped with individual flow meters. Most wells are equipped with pneumatic pumps that run on a timer system. Based on the timer setting and field verified flow rates, the total gallons pumped per well over time was calculated. The wells are routinely checked to make sure they are in service and to make any repairs, as necessary, to return wells to service. Because it is not possible to know with certainty how long an individual pump may have been out of service between inspections, Marathon has not attempted to estimate the annual recovery volumes for the wells.

#### ***3.3.2 North Boundary Barrier Wall Collection System***

Depth-to-groundwater measurements collected in April 2019 and August 2019 indicate that the barrier wall continues to provide a hydraulic barrier for groundwater below the facility. Based on the data collected in 2019, six of the fourteen observation wells contain little to no fluid (i.e., measuring less than 0.5 ft of fluid in the well at any one time). Of the 13 well pairs (i.e.,

observation and collection wells on opposite sides of the slurry wall) where water is present in the observation wells, the average difference in water level elevations across the slurry wall is 3.55 feet. This difference in water level elevations immediately across the slurry wall is further evidence of its continued effectiveness.

Table 1 provides a summary of the fluids level measurements collected from the wells along the north boundary barrier wall.

### **3.3.3 *Hammond Ditch Recovery System***

The Hammond Ditch Recovery System serves as a hydraulic relief system for groundwater accumulating within the western portion of the Terminal on the up-gradient side of the slurry wall. All water recovered through the Hammond Ditch French drain west of the pipeline easement discharges to Tank 37, which is then transferred to the API separator for product recovery. The location of Tank 37 is shown on Figures 2 and 3. Terminal Operators inspect the operation of recovery system and Tank 37 daily and record the amount of water recovered in the tank using a flow meter located on the discharge end of the Tank 37 transfer pump. In 2019, the total volume of fluids recovered at Tank 37 was approximately 15,882 barrels. The flow meter was not working in January 2019 and was replaced on February 7, 2019. The volume of fluids recovered at Tank 37 in 2018 was 20,393 barrels.

### **3.3.4 *East Outfall Recovery System***

Water recovered through the Hammond Ditch French drain east of the pipeline easement discharges through three outfalls (i.e., Outfall 1, Outfall 2 and Outfall 3). Total fluids from Outfall 1 is recovered via Tank 38 and transferred to the WWTS for treatment prior to disposal through the on-site injection well. Figures 2 and 3 show the location of Tank 38.

Tank 38 piping is equipped with a flow meter to measure the total gallons transferred to the WWTP. In 2019, the total fluid volume recovered at Tank 38 was approximately 196,862 barrels. The volume of fluids recovered at Tank 38 in 2018 was 106,349 barrels.

## **3.4 Waste Disposal**

Western Refining indefinitely suspended refining operations at the Bloomfield Facility on November 23, 2009. The crude unloading and product loading racks, storage tanks and other supporting equipment remain in operation. Recovered water from on-site remediation activities

and facility operations is treated through the on-site WWTS. Treated water is then disposed of through an on-site Class I non-hazardous injection well and/or two on-site evaporation ponds. The monthly and annual cumulative volumes of water discharged to the evaporation ponds are summarized in Table 11.

Significantly less waste is routinely generated since the suspension of refining operations in November 2009. The on-site landfill is no longer operational, and therefore all operational waste generated is properly characterized and disposed of off-site. A total of 20,880 pounds of waste were disposed off-site in 2019. A summary of the hazardous waste associated with terminal operations disposal activities is provided in Table 12.

## **SECTION 4.0 CONCLUSIONS**

The following is a summary of conclusions based on monitoring and inspection data collected in 2019.

### **4.1 Groundwater Monitoring**

Marathon has in-place a Facility-Wide Groundwater Monitoring Program that is updated annually as required under the 2007 Consent Order issued by NMED-HWB. Updates to this program include incorporation of additional wells installed as part of on-going completed RCRA Investigation activities. Such updates are proposed for agency approval in June of each year. Screening levels used to evaluate the groundwater condition at the Bloomfield Terminal are reflective of the same conservative screening levels currently used for evaluation of on-going RCRA Investigation activities. Tables 3 through 10 include the applicable screening level for each respective analyte. Sample results included in the analytical summary tables that exceed the respective screening levels are highlighted in yellow and all detected results are bolded. Figure 8 and Figure 9 shows a summary of the BTEX and MTBE concentrations detected site-wide during the April 2019 and August 2019 sampling events, respectively. Figure 10 shows the results for chloride, sulfate, nitrate, and total dissolved solids (TDS) for April 2019. Figures 11 through 15 show the analytical results for naphthalene, chloride, sulfate, nitrate, and TDS for August 2019.

Depth-to-groundwater and depth-to-product measurements were collected at all facility monitoring wells, recovery wells, observation wells, collection wells and sump wells in 2019. Groundwater elevation contours show that groundwater flows in the general northwest direction, with the groundwater under the process areas flowing towards the north boundary barrier wall and Hammond Ditch Collection System.

When compared to the 2018 fluid level measurements, the measurements collected in 2019 indicated a reduction in the SPH thickness in the wells MW-20, MW-41, MW-72, RW-19, and RW-28.

## Groundwater Quality

Based on the analytical results for groundwater monitoring collected in 2019, no major changes were observed in the groundwater concentrations. The following constituents were detected at concentrations in groundwater above their respective most conservative screening levels.

- Organic Compounds
  - 1,2,4-Trimethylbenzene;
  - 1,2-Dichloroethane;
  - 1-Methylnaphthalene;
  - 2-Methylnaphthalene;
  - Naphthalene;
  - Benzene;
  - Ethylbenzene;
  - MTBE;
  - Xylenes;
  - Diesel Range Organics; and
  - Gasoline Range Organics.
  
- General Chemistry
  - Chloride;
  - Nitrate;
  - Nitrite; and
  - Sulfate.
  
- Total Metals;
  - Arsenic; and
  - Chromium.
  
- Dissolved Metals
  - Arsenic;
  - Barium;
  - Iron; and
  - Manganese.

An investigation of naturally occurring (i.e., background) concentrations of constituents in groundwater was initiated in January 2012, with the last submission to NMED in January 2015. As of February 2020, NMED has not yet responded to the January 2015 *Investigation Report Background Concentrations*, thus background concentrations are not yet available for comparison to detected results.

## **4.2 Outfall and Seep Inspections**

Weekly visual inspections of the seeps and along the San Juan River Bluff, which includes the East Fork Area, were conducted in 2019. No visual sheens or odors were identified during the inspections. Fluid in the seeps is most often prevalent during the spring, corresponding with the times of higher precipitation. None of the seeps had sufficient discharge to allow for sample collection in April or August 2019.

## **4.3 Total Fluids Recovery Systems**

The Bloomfield Terminal operates and monitors several fluid recovery systems within the facility, which include:

- Groundwater Recovery System using recovery wells within the Terminal Complex;
- North Boundary Barrier Collection System;
- Hammond Ditch Recovery System;
- River Terrace Remediation System; and
- East Outfall Recovery System.

All fluids recovered from these systems, with the exception of the effluent from the River Terrace Remediation System, are pumped to the on-site WWTS for treatment prior to disposal through the on-site injection well or evaporation ponds. Water from the River Terrace is treated separately and is re-used as plant water for facility operations.

## **SECTION 5.0 REFERENCES**

Groundwater Technology, Inc., 1994, RCRA Facility Investigation/Corrective Measures Study Report Bloomfield Refining Company #50 County Road 4990 Bloomfield, New Mexico.

NMED, 2007, State of New Mexico Environment Department v. San Juan Refining Company and Giant Industries, Inc.; Order July 27, 2007.

NMOCD, 2017, New Mexico Oil Conservation Division, Discharge Permit Renewal (GW-001) Bloomfield Refinery, June 8, 2017.

## **TABLES**

**TABLE 1**  
**Fluid Level Measurements Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Well ID	Date	Measuring Point Elevation (ft amsl)	Total Well Depth (ft below TOC)	Depth To Product (ft below TOC)	Depth To Water (ft below TOC)	Corrected Groundwater Elevation (ft amsl)	SPH Thickness (ft)
MW-01	08/19/19	5519.21	21.41	NPP	17.02	5502.19	NPP
	04/02/19	5519.21	21.34	NPP	17.40	5501.81	NPP
	08/01/18	5519.21	21.40	NPP	18.16	5501.05	NPP
	04/16/18	5519.21	21.41	NPP	17.68	5501.53	NPP
	08/22/17	5519.21	21.41	NPP	17.35	5501.86	NPP
	04/18/17	5519.21	21.56	NPP	17.62	5501.59	NPP
	08/15/16	5519.21	21.56	NPP	16.83	5502.38	NPP
	04/15/16	5519.21	21.56	NPP	17.23	5501.98	NPP
	08/18/15	5519.21	21.56	NPP	16.95	5502.26	NPP
04/20/15	5519.21	21.56	NPP	16.95	5502.26	NPP	
MW-03	08/19/19	5539.27	36.57	NPP	NWP	NWP	NPP
	04/01/19	5539.27	36.44	NPP	NWP	NWP	NPP
	08/01/18	5539.27	36.50	NPP	36.50	5502.77	NPP
	04/16/18	5539.27	36.50	NPP	36.50	5502.77	NPP
	08/22/17	5539.27	36.46	NPP	36.46	5502.81	NPP
	04/18/17	5539.27	36.75	NPP	NWP	NWP	NPP
	08/15/16	5539.27	36.75	NPP	36.29	5502.98	NPP
	04/15/16	5539.27	36.75	NPP	36.33	5502.94	NPP
	08/18/15	5539.27	36.75	NPP	36.13	5503.14	NPP
04/27/15	5539.27	36.75	NPP	36.25	5503.02	NPP	
MW-04	08/20/19	5527.78	29.78	NPP	27.42	5500.36	NPP
	04/01/19	5527.78	29.78	NPP	27.28	5500.50	NPP
	08/01/18	5527.78	29.77	NPP	27.47	5500.31	NPP
	04/16/18	5527.78	29.76	NPP	27.31	5500.47	NPP
	08/22/17	5527.78	29.82	NPP	27.10	5500.68	NPP
	04/17/17	5527.78	30.48	NPP	27.85	5499.93	NPP
	08/15/16	5527.78	30.48	NPP	27.21	5500.57	NPP
	04/15/16	5527.78	30.48	NPP	27.10	5500.68	NPP
08/25/15	5527.78	30.48	NPP	27.94	5499.84	NPP	
04/27/15	5527.78	30.48	NPP	27.12	5500.66	NPP	
MW-05	08/19/19	5548.56	31.16	NPP	NWP	NWP	NPP
	04/02/19	5548.56	31.12	NPP	NWP	NWP	NPP
	08/02/18	5548.56	31.15	NPP	NWP	NWP	NPP
	04/16/18	5548.56	31.15	NPP	NWP	NWP	NPP
	08/22/17	5548.56	37.20	NPP	NWP	NWP	NPP
	04/18/17	5548.56	37.20	NPP	NWP	NWP	NPP
	08/16/16	5548.56	37.20	NPP	NWP	NWP	NPP
	04/18/16	5548.56	37.20	NPP	NWP	NWP	NPP
	08/13/15	5548.56	37.20	NPP	NWP	NWP	NPP
04/27/15	5548.56	37.20	NPP	NWP	NWP	NPP	
MW-06	08/19/19	5554.61	47.49	NPP	NWP	NWP	NPP
	04/02/19	5554.61	47.39	NPP	NWP	NWP	NPP
	08/02/18	5554.61	47.45	NPP	NWP	NWP	NPP
	04/16/18	5554.61	47.45	NPP	NWP	NWP	NPP
	08/22/17	5554.61	48.00	NPP	NWP	NWP	NPP
	04/18/17	5554.61	48.00	NPP	NWP	NWP	NPP
	08/16/16	5554.61	48.00	NPP	NWP	NWP	NPP
	04/18/16	5554.61	48.00	NPP	NWP	NWP	NPP
	08/13/15	5554.61	48.00	NPP	NWP	NWP	NPP
04/27/15	5554.61	48.00	NPP	NWP	NWP	NPP	

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MW-07	08/20/19	5527.66	62.08	NPP	28.03	5499.63	NPP
	04/01/19	5527.66	62.03	NPP	27.65	5500.01	NPP
	08/01/18	5527.66	62.09	NPP	27.79	5499.87	NPP
	04/16/18	5527.66	62.08	NPP	27.40	5500.26	NPP
	08/22/17	5527.66	62.05	NPP	27.62	5500.04	NPP
	04/17/17	5527.66	62.61	NPP	27.28	5500.38	NPP
	08/15/16	5527.66	62.61	NPP	27.74	5499.92	NPP
	04/15/16	5527.66	62.61	NPP	27.31	5500.35	NPP
	08/13/15	5527.66	62.61	NPP	27.75	5499.91	NPP
04/27/15	5527.66	62.61	NPP	27.43	5500.23	NPP	
MW-08	08/19/19	5534.58	34.92	NPP	31.53	5503.05	NPP
	04/01/19	5534.58	34.72	NPP	32.07	5502.51	NPP
	08/01/18	5534.58	34.73	NPP	32.40	5502.18	NPP
	04/16/18	5534.58	34.78	NPP	32.22	5502.36	NPP
	08/22/17	5534.58	34.75	NPP	31.92	5502.66	NPP
	04/18/17	5534.58	35.93	NPP	31.92	5502.66	NPP
	08/16/16	5534.58	35.93	NPP	34.75	5499.83	NPP
	04/15/16	5534.58	35.93	NPP	31.62	5502.96	NPP
	08/13/15	5534.58	35.93	NPP	31.42	5503.16	NPP
04/27/15	5534.58	35.93	NPP	31.54	5503.04	NPP	
MW-11	08/19/19	5510.31	21.82	NPP	12.47	5497.84	NPP
	04/02/19	5510.31	21.77	NPP	11.59	5498.72	NPP
	08/02/18	5510.31	21.80	NPP	12.28	5498.03	NPP
	04/16/18	5510.31	21.81	NPP	12.12	5498.19	NPP
	08/23/17	5510.31	22.32	NPP	12.11	5498.20	NPP
	04/18/17	5510.31	22.94	NPP	11.49	5498.82	NPP
	08/16/16	5510.31	22.94	NPP	11.11	5499.20	NPP
	04/18/16	5510.31	22.94	NPP	11.89	5498.42	NPP
	08/19/15	5510.31	22.94	NPP	11.25	5499.06	NPP
04/20/15	5510.31	22.94	NPP	11.30	5499.01	NPP	
MW-12	08/19/19	5501.61	13.45	NPP	10.14	5491.47	NPP
	04/02/19	5501.61	13.25	NPP	10.15	5491.46	NPP
	08/02/18	5501.61	13.15	NPP	10.30	5491.31	NPP
	04/16/18	5501.61	13.15	NPP	10.65	5490.96	NPP
	08/25/17	5501.61	13.36	NPP	10.29	5491.32	NPP
	04/18/17	5501.61	14.98	NPP	10.04	5491.57	NPP
	08/16/16	5501.61	14.98	NPP	9.49	5492.12	NPP
	04/18/16	5501.61	14.98	NPP	10.02	5500.29	NPP
	08/19/15	5501.61	14.98	NPP	8.52	5501.79	NPP
04/20/15	5501.61	14.98	NPP	8.55	5501.76	NPP	
MW-13	08/19/19	5542.04	52.91	NPP	40.99	5501.05	NPP
	04/02/19	5542.04	52.77	NPP	40.99	5501.05	NPP
	08/02/18	5542.04	52.89	NPP	40.85	5501.19	NPP
	04/16/18	5542.04	52.90	NPP	40.75	5501.29	NPP
	08/23/17	5542.04	52.85	NPP	40.65	5501.39	NPP
	04/18/17	5542.04	52.89	NPP	40.59	5501.45	NPP
	08/16/16	5542.04	52.89	NPP	40.67	5501.37	NPP
	04/18/16	5542.04	52.89	NPP	40.51	5501.53	NPP
	08/18/15	5542.04	52.89	NPP	40.53	5501.51	NPP
04/20/15	5542.04	52.89	NPP	40.68	5501.36	NPP	

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MW-20	08/20/19	5519.90	27.18	20.67	20.82	5499.20	0.15
	04/01/19	5519.90	27.10	20.71	21.05	5499.12	0.34
	08/01/18	5519.90	27.11	20.78	21.32	5499.01	0.54
	04/16/18	5519.90	27.12	20.73	21.13	5499.09	0.40
	08/22/17	5519.90	27.13	20.65	20.94	5499.19	0.29
	04/17/17	5519.90	27.13	20.60	20.87	5499.25	0.27
	08/16/16	5519.90	27.13	20.60	20.64	5499.29	0.04
	04/15/16	5519.90	27.13	20.60	21.20	5499.18	0.60
	08/13/15	5519.90	27.13	20.60	20.65	5499.29	0.05
04/27/15	5519.90	27.13	NPP	20.73	5499.17	NPP	
MW-21	08/19/19	5521.99	30.54	NPP	21.62	5500.37	NPP
	04/01/19	5521.99	30.45	NPP	21.70	5500.29	NPP
	08/01/18	5521.99	30.46	NPP	21.94	5500.05	NPP
	04/16/18	5521.99	30.46	NPP	21.88	5500.11	NPP
	08/22/17	5521.99	30.44	NPP	21.60	5500.39	NPP
	04/18/17	5521.99	30.38	NPP	21.58	5500.41	NPP
	08/15/16	5521.99	30.38	NPP	21.21	5500.78	NPP
	04/15/16	5521.99	30.38	NPP	21.68	5500.31	NPP
	08/13/15	5521.99	30.38	21.32	21.33	5500.67	0.01
04/27/15	5521.99	30.38	NPP	21.54	5500.45	NPP	
MW-25	08/19/19	5533.99	41.31	NPP	33.24	5500.75	NPP
	04/02/19	5533.99	41.20	NPP	33.23	5500.76	NPP
	08/02/18	5533.99	41.23	NPP	33.18	5500.81	NPP
	04/16/18	5533.99	41.24	NPP	33.06	5500.93	NPP
	08/23/17	5533.99	41.20	NPP	32.90	5501.09	NPP
	04/18/17	5533.99	41.20	NPP	32.84	5501.15	NPP
	08/16/16	5533.99	41.20	NPP	30.01	5503.98	NPP
	04/18/16	5533.99	41.20	NPP	32.86	5501.13	NPP
	08/13/15	5533.99	41.20	NPP	32.82	5501.17	NPP
04/27/15	5533.99	41.20	NPP	33.95	5500.04	NPP	
MW-26	08/19/19	5517.88	25.19	17.90	17.94	5499.97	0.04
	04/02/19	5517.88	25.11	NPP	17.79	5500.09	NPP
	08/02/18	5517.88	25.12	17.85	17.88	5500.02	0.03
	04/16/18	5517.88	25.12	17.73	17.76	5500.14	0.03
	08/23/17	5517.88	25.11	17.60	17.67	5500.27	0.07
	04/18/17	5517.88	25.11	17.45	17.50	5500.42	0.05
	08/16/16	5517.88	25.11	17.55	17.65	5500.31	0.10
	04/18/16	5517.88	25.11	17.51	17.65	5500.34	0.14
	08/13/15	5517.88	25.11	17.31	17.55	5500.52	0.24
04/20/15	5517.88	25.11	17.48	17.72	5500.35	0.24	
MW-27	08/19/19	5518.67	24.46	NPP	22.78	5495.89	NPP
	04/02/19	5518.67	24.31	NPP	22.44	5496.23	NPP
	08/02/18	5518.67	24.32	NPP	22.41	5496.26	NPP
	04/16/18	5518.67	24.32	NPP	20.88	5497.79	NPP
	08/23/17	5518.67	24.21	NPP	19.73	5498.94	NPP
	04/18/17	5518.67	24.42	NPP	18.87	5499.80	NPP
	08/16/16	5518.67	24.42	NPP	19.10	5499.57	NPP
	04/18/16	5518.67	24.42	NPP	18.91	5499.76	NPP
	08/18/15	5518.67	24.42	NPP	18.62	5500.05	NPP
04/20/15	5518.67	24.42	NPP	18.86	5499.81	NPP	

**TABLE 1**  
**Fluid Level Measurements Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Well ID	Date	Measuring Point Elevation (ft amsl)	Total Well Depth (ft below TOC)	Depth To Product (ft below TOC)	Depth To Water (ft below TOC)	Corrected Groundwater Elevation (ft amsl)	SPH Thickness (ft)
MW-29	08/19/19	5524.97	28.62	NPP	22.83	5502.14	NPP
	04/01/19	5524.97	28.58	NPP	23.23	5501.74	NPP
	08/01/18	5524.97	28.60	NPP	23.66	5501.31	NPP
	04/16/18	5524.97	28.65	NPP	23.45	5501.52	NPP
	08/22/17	5524.97	28.69	NPP	23.11	5501.86	NPP
	04/18/17	5524.97	28.62	NPP	23.23	5501.74	NPP
	08/15/16	5524.97	28.62	NPP	22.68	5502.29	NPP
	04/15/16	5524.97	28.62	NPP	23.04	5501.93	NPP
	08/24/15	5524.97	28.62	NPP	22.70	5502.27	NPP
04/27/15	5524.97	28.62	NPP	22.83	5502.14	NPP	
MW-30	08/19/19	5536.83	40.23	NPP	33.85	5502.98	NPP
	04/01/19	5536.83	40.00	NPP	34.32	5502.51	NPP
	08/01/18	5536.83	40.19	NPP	34.35	5502.48	NPP
	04/16/18	5536.83	40.22	34.29	34.30	5502.54	0.01
	08/22/17	5536.83	40.12	NPP	33.99	5502.84	NPP
	04/18/17	5536.83	40.13	NPP	34.07	5502.76	NPP
	08/15/16	5536.83	40.13	NPP	33.84	5502.99	NPP
	04/15/16	5536.83	40.13	NPP	33.92	5502.91	NPP
	08/24/15	5536.83	40.13	NPP	33.69	5503.14	NPP
04/20/15	5536.83	40.13	NPP	33.82	5503.01	NPP	
MW-31	08/19/19	5536.24	39.25	NPP	34.61	5501.63	NPP
	04/02/19	5536.24	39.17	NPP	34.63	5501.61	NPP
	08/02/18	5536.24	39.19	NPP	34.44	5501.80	NPP
	04/16/18	5536.24	39.18	NPP	34.30	5501.94	NPP
	08/22/17	5536.24	39.16	NPP	34.20	5502.04	NPP
	04/18/17	5536.24	39.16	NPP	34.16	5502.08	NPP
	08/16/16	5536.24	39.16	NPP	34.30	5501.94	NPP
	04/18/16	5536.24	39.16	NPP	34.13	5502.11	NPP
	08/24/15	5536.24	39.16	NPP	34.15	5502.09	NPP
04/27/15	5536.24	39.16	NPP	34.34	5501.90	NPP	
MW-32	08/19/19	5525.64	27.57	NPP	25.64	5500.00	NPP
	04/02/19	5525.64	27.53	NPP	25.61	5500.03	NPP
	08/02/18	5525.64	27.55	NPP	25.54	5500.10	NPP
	04/16/18	5525.64	27.53	NPP	25.45	5500.19	NPP
	08/23/17	5525.64	27.54	NPP	25.30	5500.34	NPP
	04/18/17	5525.64	27.51	NPP	25.31	5500.33	NPP
	08/16/16	5525.64	27.51	NPP	25.37	5500.27	NPP
	04/18/16	5525.64	27.51	NPP	25.25	5500.39	NPP
	08/08/15	5525.64	27.51	NPP	25.18	5500.46	NPP
04/20/15	5525.64	27.51	NPP	25.30	5500.34	NPP	
MW-33	08/19/19	5521.79	25.55	NPP	24.01	5497.78	NPP
	04/02/19	5521.79	25.50	NPP	23.59	5498.20	NPP
	08/02/18	5521.79	25.51	NPP	24.38	5497.41	NPP
	04/16/18	5521.79	25.51	NPP	22.78	5499.01	NPP
	08/23/17	5521.79	25.50	NPP	22.56	5499.23	NPP
	04/18/17	5521.79	25.51	NPP	22.50	5499.29	NPP
	08/16/16	5521.79	25.51	NPP	22.78	5499.01	NPP
	04/18/16	5521.79	25.51	NPP	22.54	5499.25	NPP
	08/18/15	5521.79	25.51	NPP	22.39	5499.40	NPP
04/20/15	5521.79	25.51	NPP	22.35	5499.44	NPP	

**TABLE 1**  
**Fluid Level Measurements Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Well ID	Date	Measuring Point Elevation (ft amsl)	Total Well Depth (ft below TOC)	Depth To Product (ft below TOC)	Depth To Water (ft below TOC)	Corrected Groundwater Elevation (ft amsl)	SPH Thickness (ft)
MW-34	08/19/19	5511.63	20.99	NPP	15.03	5496.60	NPP
	04/02/19	5511.63	20.94	NPP	14.53	5497.10	NPP
	08/02/18	5511.63	20.96	NPP	14.95	5496.68	NPP
	04/16/18	5511.63	20.96	NPP	14.87	5496.76	NPP
	08/23/17	5511.63	20.97	NPP	14.55	5497.08	NPP
	04/18/17	5511.63	20.96	NPP	14.55	5497.08	NPP
	08/16/16	5511.63	20.96	NPP	14.05	5497.58	NPP
	04/18/16	5511.63	20.96	NPP	14.57	5497.06	NPP
	08/19/15	5511.63	20.96	NPP	13.90	5497.73	NPP
04/20/15	5511.63	20.96	NPP	13.83	5497.80	NPP	
MW-35	08/19/19	5518.95	25.71	NPP	22.82	5496.13	NPP
	04/02/19	5518.95	25.62	NPP	22.44	5496.51	NPP
	08/02/18	5518.95	25.92	NPP	22.72	5496.23	NPP
	04/16/18	5518.95	25.65	NPP	22.68	5496.27	NPP
	08/23/17	5518.95	25.62	NPP	22.32	5496.63	NPP
	04/18/17	5518.95	26.45	NPP	22.45	5496.50	NPP
	08/16/16	5518.95	26.45	NPP	22.04	5496.91	NPP
	04/18/16	5518.95	26.45	NPP	22.44	5496.51	NPP
	08/19/15	5518.95	26.45	NPP	21.83	5497.12	NPP
04/20/15	5518.95	26.45	NPP	22.85	5496.10	NPP	
MW-36	08/19/19	5516.95	22.94	NPP	20.98	5495.97	NPP
	04/02/19	5516.95	22.86	NPP	20.87	5496.08	NPP
	08/02/18	5516.95	23.06	NPP	21.01	5495.94	NPP
	04/16/18	5516.95	23.08	NPP	21.16	5495.79	NPP
	08/23/17	5516.95	23.06	NPP	20.77	5496.18	NPP
	04/18/17	5516.95	23.26	NPP	20.86	5496.09	NPP
	08/16/16	5516.95	23.26	NPP	20.18	5496.77	NPP
	04/18/16	5516.95	23.26	NPP	20.95	5496.00	NPP
	08/13/15	5516.95	23.26	NPP	20.16	5496.79	NPP
04/27/15	5516.95	23.26	NPP	19.87	5497.08	NPP	
MW-37	08/19/19	5519.62	27.44	NPP	23.79	5495.83	NPP
	04/02/19	5519.62	27.36	NPP	23.56	5496.06	NPP
	08/02/18	5519.62	27.37	NPP	23.77	5495.85	NPP
	04/16/18	5519.62	27.39	NPP	23.80	5495.82	NPP
	08/23/17	5519.62	27.35	NPP	23.44	5496.18	NPP
	04/18/17	5519.62	27.58	NPP	23.60	5496.02	NPP
	08/16/16	5519.62	27.58	NPP	23.21	5496.41	NPP
	04/18/16	5519.62	27.58	NPP	23.66	5495.96	NPP
	08/19/15	5519.62	27.58	NPP	23.06	5496.56	NPP
04/20/15	5519.62	27.58	NPP	23.13	5496.49	NPP	
MW-38	08/19/19	5519.19	26.74	NPP	23.73	5495.46	NPP
	04/02/19	5519.19	26.65	NPP	23.60	5495.59	NPP
	08/02/18	5519.19	26.84	NPP	23.90	5495.29	NPP
	04/16/18	5519.19	26.84	NPP	23.89	5495.30	NPP
	08/22/17	5519.19	26.82	NPP	23.57	5495.62	NPP
	04/18/17	5519.19	26.82	NPP	23.59	5495.60	NPP
	08/16/16	5519.19	26.82	NPP	23.13	5496.06	NPP
	04/18/16	5519.19	26.82	NPP	23.64	5495.55	NPP
	08/19/15	5519.19	26.82	NPP	23.19	5496.00	NPP
04/20/15	5519.19	26.82	NPP	23.08	5496.11	NPP	

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**Fluid Level Measurements Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Well ID	Date	Measuring Point Elevation (ft amsl)	Total Well Depth (ft below TOC)	Depth To Product (ft below TOC)	Depth To Water (ft below TOC)	Corrected Groundwater Elevation (ft amsl)	SPH Thickness (ft)
MW-39	08/20/19	5520.83	38.41	NPP	25.72	5495.11	NPP
	04/01/19	5520.83	38.32	NPP	25.42	5495.41	NPP
	08/01/18	5520.83	38.34	NPP	25.70	5495.13	NPP
	04/16/18	5520.83	38.34	NPP	25.50	5495.33	NPP
	08/22/17	5520.83	38.31	NPP	25.73	5495.10	NPP
	04/17/17	5520.83	38.34	NPP	25.53	5495.30	NPP
	08/16/16	5520.83	38.34	NPP	25.80	5495.03	NPP
	04/15/16	5520.83	38.34	NPP	25.60	5495.23	NPP
	08/13/15	5520.83	38.34	NPP	25.78	5495.05	NPP
04/27/15	5520.83	38.34	NPP	25.75	5495.08	NPP	
MW-40	08/20/19	5527.31	29.79	NPP	27.93	5499.38	NPP
	04/01/19	5527.31	29.73	NPP	27.73	5499.58	NPP
	08/01/18	5527.31	29.62	NPP	28.33	5498.98	NPP
	04/16/18	5527.31	29.61	NPP	27.92	5499.39	NPP
	08/22/17	5527.31	30.07	NPP	27.94	5499.37	NPP
	04/17/17	5527.31	30.07	NPP	27.86	5499.45	NPP
	08/16/16	5527.31	30.07	NPP	28.14	5499.17	NPP
	04/15/16	5527.31	30.07	NPP	28.25	5499.06	NPP
	08/13/15	5527.31	30.07	28.08	28.09	5499.23	0.01
04/27/15	5527.31	30.07	NPP	28.08	5499.23	NPP	
MW-41	08/20/19	5526.41	31.21	26.35	26.37	5500.06	0.02
	04/01/19	5526.41	31.21	NPP	26.09	5500.32	NPP
	08/01/18	5526.41	31.25	26.85	26.95	5499.54	0.10
	04/16/18	5526.41	31.25	26.51	26.58	5499.89	0.07
	08/22/17	5526.41	31.62	26.38	26.49	5500.01	0.11
	04/17/17	5526.41	31.62	NPP	26.21	5500.20	NPP
	08/16/16	5526.41	31.62	NPP	28.14	5498.27	NPP
	04/15/16	5526.41	31.62	26.55	26.66	5499.84	0.11
	08/13/15	5526.41	31.62	26.43	26.67	5499.93	0.24
04/27/15	5526.41	31.62	26.59	26.80	5499.78	0.21	
MW-44	08/19/19	5535.44	50.99	NPP	34.55	5500.89	NPP
	04/01/19	5535.44	50.92	NPP	34.39	5501.05	NPP
	08/01/18	5535.44	50.96	NPP	34.35	5501.09	NPP
	04/16/18	5535.44	50.98	NPP	34.10	5501.34	NPP
	08/22/17	5535.44	50.91	NPP	34.18	5501.26	NPP
	04/18/17	5535.44	50.91	NPP	34.05	5501.39	NPP
	08/16/16	5535.44	50.91	NPP	34.32	5501.12	NPP
	04/15/16	5535.44	50.91	NPP	33.98	5501.46	NPP
	08/24/15	5535.44	50.91	NPP	34.30	5501.14	NPP
04/27/15	5535.44	50.91	NPP	34.98	5500.46	NPP	
MW-45	08/19/19	5506.36	16.79	NPP	11.88	5494.48	NPP
	04/02/19	5506.36	16.66	NPP	11.96	5494.40	NPP
	08/01/18	5506.36	16.71	11.95	11.96	5494.41	0.01
	04/17/18	5506.36	16.71	NPP	11.96	5494.40	NPP
	08/22/17	5506.36	16.74	NPP	11.83	5494.53	NPP
	04/17/17	5506.36	16.92	NPP	11.81	5494.55	NPP
	08/16/16	5506.36	16.92	NPP	11.78	5494.58	NPP
	04/15/16	5506.36	16.92	NPP	11.88	5494.48	NPP
	08/13/15	5506.36	16.92	NPP	11.85	5494.51	NPP
04/27/15	5506.36	16.92	NPP	11.95	5494.41	NPP	

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Well ID	Date	Measuring Point Elevation (ft amsl)	Total Well Depth (ft below TOC)	Depth To Product (ft below TOC)	Depth To Water (ft below TOC)	Corrected Groundwater Elevation (ft amsl)	SPH Thickness (ft)
MW-46	08/19/19	5504.65	10.19	NPP	NWP	NWP	NPP
	04/02/19	5504.65	10.00	NPP	NWP	NWP	NPP
	08/01/18	5504.65	10.10	NPP	NWP	NWP	NPP
	04/17/18	5504.65	10.10	NPP	10.10	5494.55	NPP
	08/24/17	5504.65	10.09	NPP	10.08	5494.57	NPP
	04/17/17	5504.65	10.39	NPP	NWP	NWP	NPP
	08/15/16	5504.65	10.39	NPP	NWP	NWP	NPP
	04/15/16	5504.65	10.39	NPP	10.03	5494.62	NPP
	08/13/15	5504.65	10.39	NPP	9.94	5494.71	NPP
04/27/15	5504.65	10.39	NPP	9.94	5494.71	NPP	
MW-47	08/19/19	5506.77	14.18	NPP	13.42	5493.35	NPP
	04/02/19	5506.77	14.10	NPP	12.85	5493.92	NPP
	08/01/18	5506.77	14.11	NPP	13.30	5493.47	NPP
	04/17/18	5506.77	14.12	NPP	13.17	5493.60	NPP
	08/23/17	5506.77	14.11	NPP	12.96	5493.81	NPP
	04/17/17	5506.77	14.28	NPP	12.60	5494.17	NPP
	08/15/16	5506.77	14.28	NPP	12.14	5494.63	NPP
	04/15/16	5506.77	14.28	NPP	12.55	5494.22	NPP
	08/13/15	5506.77	14.28	NPP	11.82	5494.95	NPP
04/21/15	5506.77	14.28	NPP	12.23	5494.54	NPP	
MW-50	08/19/19	5518.79	22.02	NPP	16.73	5502.06	NPP
	04/01/19	5518.79	21.94	NPP	17.14	5501.65	NPP
	08/01/18	5518.79	22.11	NPP	18.02	5500.77	NPP
	04/16/18	5518.79	22.07	NPP	17.30	5501.49	NPP
	08/22/17	5518.79	22.07	NPP	17.04	5501.75	NPP
	04/18/17	5518.79	20.00	NPP	17.42	5501.37	NPP
	08/15/16	5518.79	20.00	NPP	16.50	5502.29	NPP
	04/15/16	5518.79	20.00	NPP	16.87	5501.92	NPP
	08/13/15	5518.79	20.00	NPP	16.62	5502.17	NPP
04/27/15	5518.79	20.00	NPP	16.67	5502.12	NPP	
MW-51	08/19/19	5515.58	22.05	NPP	14.36	5501.22	NPP
	04/01/19	5515.58	22.11	NPP	14.74	5500.84	NPP
	08/01/18	5515.58	22.13	NPP	15.31	5500.27	NPP
	04/16/18	5515.58	22.14	NPP	15.00	5500.58	NPP
	08/22/17	5515.58	22.11	NPP	14.01	5501.57	NPP
	04/18/17	5515.58	20.00	NPP	14.93	5500.65	NPP
	08/15/16	5515.58	20.00	NPP	14.18	5501.40	NPP
	04/15/16	5515.58	20.00	NPP	14.79	5500.79	NPP
	08/13/15	5515.58	20.00	NPP	14.37	5501.21	NPP
04/27/15	5515.58	20.00	NPP	14.52	5501.06	NPP	
MW-52	08/19/19	5538.63	41.73	NPP	36.13	5502.50	NPP
	04/01/19	5538.63	41.66	NPP	36.65	5501.98	NPP
	08/01/18	5538.63	41.72	NPP	36.92	5501.71	NPP
	04/16/18	5538.63	41.71	NPP	36.78	5501.85	NPP
	08/22/17	5538.63	41.68	NPP	36.45	5502.18	NPP
	04/18/17	5538.63	41.00	NPP	36.49	5502.14	NPP
	08/16/16	5538.63	41.00	NPP	36.17	5502.46	NPP
	04/15/16	5538.63	41.00	NPP	36.19	5502.44	NPP
	08/13/15	5538.63	41.00	NPP	36.00	5502.63	NPP
04/20/15	5538.63	41.00	NPP	36.05	5502.58	NPP	

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Well ID	Date	Measuring Point Elevation (ft amsl)	Total Well Depth (ft below TOC)	Depth To Product (ft below TOC)	Depth To Water (ft below TOC)	Corrected Groundwater Elevation (ft amsl)	SPH Thickness (ft)
MW-53	08/19/19	5541.32	43.59	NPP	38.91	5502.41	NPP
	04/01/19	5541.32	43.53	NPP	39.26	5502.06	NPP
	08/01/18	5541.32	43.55	NPP	39.40	5501.92	NPP
	04/16/18	5541.32	43.55	NPP	39.29	5502.03	NPP
	08/22/17	5541.32	43.50	NPP	39.03	5502.29	NPP
	04/18/17	5541.32	41.50	NPP	38.99	5502.33	NPP
	08/16/16	5541.32	41.50	NPP	38.90	5502.42	NPP
	04/15/16	5541.32	41.50	NPP	38.85	5502.47	NPP
	08/13/15	5541.32	41.50	NPP	38.68	5502.64	NPP
04/27/15	5541.32	41.50	NPP	38.80	5502.52	NPP	
MW-54	08/19/19	5530.08	41.21	NPP	31.79	5498.29	NPP
	04/01/19	5530.08	41.32	NPP	31.53	5498.55	NPP
	08/01/18	5530.08	41.28	NPP	32.26	5497.82	NPP
	04/16/18	5530.08	41.24	NPP	31.83	5498.25	NPP
	08/22/17	5530.08	41.20	NPP	31.98	5498.10	NPP
	04/17/17	5530.08	38.00	NPP	31.73	5498.35	NPP
	08/16/16	5530.08	38.00	31.87	31.88	5498.21	0.01
	04/15/16	5530.08	38.00	32.46	32.52	5497.61	0.06
	08/13/15	5530.08	38.00	32.40	32.45	5497.67	0.05
04/27/15	5530.08	38.00	32.02	32.05	5498.05	0.03	
MW-55	08/20/19	5519.84	25.98	NPP	21.85	5497.99	NPP
	04/01/19	5519.84	25.87	NPP	21.76	5498.08	NPP
	08/01/18	5519.84	26.19	NPP	21.80	5498.04	NPP
	04/16/18	5519.84	26.18	NPP	21.75	5498.09	NPP
	08/22/17	5519.84	24.18	NPP	21.61	5498.23	NPP
	04/17/17	5519.84	27.25	NPP	21.63	5498.21	NPP
	08/15/16	5519.84	27.25	NPP	21.74	5498.10	NPP
	04/15/16	5519.84	27.25	NPP	21.71	5498.13	NPP
	08/13/15	5519.84	27.25	22.08	22.09	5497.76	0.01
04/27/15	5519.84	27.25	21.85	21.88	5497.98	0.03	
MW-56	08/20/19	5519.31	23.66	NPP	18.02	5501.29	NPP
	04/01/19	5519.31	23.72	NPP	18.16	5501.15	NPP
	08/01/18	5519.31	23.76	18.33	18.42	5500.96	0.09
	04/16/18	5519.31	23.76	NPP	18.25	5501.06	NPP
	08/22/17	5519.31	23.75	NPP	18.05	5501.26	NPP
	04/17/17	5519.31	23.75	NPP	17.88	5501.43	NPP
	08/15/16	5519.31	23.75	NPP	17.85	5501.46	NPP
	04/15/16	5519.31	23.75	NPP	18.03	5501.28	NPP
	08/13/15	5519.31	23.75	17.86	17.87	5501.45	0.01
04/27/15	5519.31	23.75	18.04	18.05	5501.27	0.01	
MW-57	08/20/19	5521.17	23.93	19.35	19.65	5501.76	0.30
	04/01/19	5521.17	23.93	19.52	19.78	5501.60	0.26
	08/01/18	5521.17	23.95	19.74	19.76	5501.43	0.02
	04/16/18	5521.17	23.95	19.65	19.66	5501.52	0.01
	08/22/17	5521.17	24.25	19.43	19.44	5501.74	0.01
	04/17/17	5521.17	24.25	NPP	19.37	5501.80	NPP
	08/15/16	5521.17	24.25	NPP	19.29	5501.88	NPP
	04/15/16	5521.17	24.25	NPP	19.46	5501.71	NPP
	08/13/15	5521.17	24.25	19.42	19.43	5501.75	0.01
04/27/15	5521.17	24.25	19.42	19.43	5501.75	0.01	

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Well ID	Date	Measuring Point Elevation (ft amsl)	Total Well Depth (ft below TOC)	Depth To Product (ft below TOC)	Depth To Water (ft below TOC)	Corrected Groundwater Elevation (ft amsl)	SPH Thickness (ft)
MW-58	08/20/19	5520.29	27.35	20.85	20.88	5499.43	0.03
	04/01/19	5520.29	27.35	20.99	21.46	5499.21	0.47
	08/01/18	5520.29	27.35	NPP	21.15	5499.14	NPP
	04/16/18	5520.29	27.35	NPP	21.03	5499.26	NPP
	08/22/17	5520.29	27.00	20.83	20.84	5499.46	0.01
	04/17/17	5520.29	27.00	NPP	20.78	5499.51	NPP
	08/15/16	5520.29	27.00	20.9	20.93	5499.38	0.03
	04/15/16	5520.29	27.00	20.9	21.06	5499.36	0.16
	08/13/15	5520.29	27.00	20.8	20.83	5499.48	0.03
04/27/15	5520.29	27.00	20.97	21.75	5499.16	0.78	
MW-59	08/19/19	5545.20	46.93	NPP	43.75	5501.45	NPP
	04/02/19	5545.20	46.86	NPP	43.79	5501.41	NPP
	08/02/18	5545.20	46.88	NPP	43.62	5501.58	NPP
	04/16/18	5545.20	46.88	NPP	43.49	5501.71	NPP
	08/22/17	5545.20	46.85	NPP	43.43	5501.77	NPP
	04/18/17	5545.20	44.25	NPP	43.37	5501.83	NPP
	08/16/16	5545.20	44.25	NPP	43.52	5501.68	NPP
	04/18/16	5545.20	44.25	NPP	43.36	5501.84	NPP
	08/13/15	5545.20	44.25	NPP	43.42	5501.78	NPP
04/27/15	5545.20	44.25	NPP	43.55	5501.65	NPP	
MW-60	08/19/19	5543.71	43.43	NPP	42.98	5500.73	NPP
	04/02/19	5543.71	43.31	NPP	42.92	5500.79	NPP
	08/02/18	5543.71	43.38	NPP	42.88	5500.83	NPP
	04/16/18	5543.71	43.38	NPP	42.74	5500.97	NPP
	08/22/17	5543.71	43.36	NPP	42.65	5501.06	NPP
	04/18/17	5543.71	43.33	NPP	42.58	5501.13	NPP
	08/16/16	5543.71	43.33	NPP	42.72	5500.99	NPP
	04/18/16	5543.71	43.33	NPP	42.55	5501.16	NPP
	08/13/15	5543.71	43.33	NPP	42.62	5501.09	NPP
04/27/15	5543.71	43.33	NPP	42.76	5500.95	NPP	
MW-61	08/19/19	5539.41	40.60	36.72	37.03	5502.63	0.31
	04/02/19	5539.41	40.45	37.01	37.35	5502.33	0.34
	08/02/18	5539.41	40.50	36.93	37.23	5502.42	0.30
	04/17/18	5539.41	40.50	36.80	37.04	5502.56	0.24
	08/22/17	5539.41	40.45	36.60	36.81	5502.77	0.21
	04/18/17	5539.41	40.25	36.59	36.80	5502.78	0.21
	08/16/16	5539.41	40.25	36.60	36.93	5502.74	0.33
	04/18/16	5539.41	40.25	36.60	36.86	5502.76	0.26
	08/13/15	5539.41	40.25	36.38	36.70	5502.97	0.32
04/27/15	5539.41	40.25	36.60	36.96	5502.74	0.36	
MW-62	08/19/19	5561.32	61.09	NPP	56.61	5504.71	NPP
	04/02/19	5561.32	60.93	NPP	56.51	5504.81	NPP
	08/02/18	5561.32	61.29	NPP	56.65	5504.67	NPP
	04/16/18	5561.32	61.24	NPP	56.52	5504.80	NPP
	08/22/17	5561.32	61.25	NPP	56.71	5504.61	NPP
	04/18/17	5561.32	58.25	NPP	56.53	5504.79	NPP
	08/16/16	5561.32	58.25	NPP	56.51	5504.81	NPP
	04/18/16	5561.32	58.25	NPP	56.57	5504.75	NPP
	08/13/15	5561.32	58.25	NPP	56.59	5504.73	NPP
04/27/15	5561.32	58.25	NPP	56.33	5504.99	NPP	

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MW-63	08/19/19	5547.26	47.72	NPP	45.20	5502.06	NPP
	04/02/19	5547.26	47.64	NPP	45.31	5501.95	NPP
	08/02/18	5547.26	47.83	NPP	45.17	5502.09	NPP
	04/16/18	5547.26	47.79	NPP	45.02	5502.24	NPP
	08/22/17	5547.26	47.81	NPP	44.92	5502.34	NPP
	04/18/17	5547.26	46.00	NPP	44.87	5502.39	NPP
	08/16/16	5547.26	46.00	NPP	40.01	5507.25	NPP
	04/18/16	5547.26	46.00	NPP	44.87	5502.39	NPP
	08/13/15	5547.26	46.00	NPP	44.84	5502.42	NPP
04/27/15	5547.26	46.00	NPP	45.03	5502.23	NPP	
MW-64	08/19/19	5552.29	52.42	NPP	50.41	5501.88	NPP
	04/02/19	5552.29	52.33	NPP	50.49	5501.80	NPP
	08/02/18	5552.29	52.36	NPP	50.38	5501.91	NPP
	04/16/18	5552.29	52.35	NPP	50.25	5502.04	NPP
	08/22/17	5552.29	52.32	NPP	50.19	5502.10	NPP
	04/18/17	5552.29	52.25	NPP	44.87	5507.42	NPP
	08/16/16	5552.29	52.25	NPP	50.26	5502.03	NPP
	04/18/16	5552.29	52.25	NPP	50.11	5502.18	NPP
	08/13/15	5552.29	52.25	NPP	50.17	5502.12	NPP
04/27/15	5552.29	52.25	NPP	50.27	5502.02	NPP	
MW-65	08/19/19	5539.62	44.28	NPP	37.07	5502.55	NPP
	04/02/19	5539.62	44.19	NPP	37.37	5502.25	NPP
	08/02/18	5539.62	44.21	NPP	37.35	5502.27	NPP
	04/17/18	5539.62	44.21	NPP	37.22	5502.40	NPP
	08/22/17	5539.62	44.22	NPP	37.03	5502.59	NPP
	04/18/17	5539.62	44.25	NPP	36.98	5502.64	NPP
	08/16/16	5539.62	44.25	NPP	36.93	5502.69	NPP
	04/18/16	5539.62	44.25	NPP	36.94	5502.68	NPP
	08/13/15	5539.62	44.25	NPP	36.70	5502.92	NPP
04/27/15	5539.62	44.25	NPP	37.50	5502.12	NPP	
MW-66	08/19/19	5544.62	45.57	41.89	41.95	5502.72	0.06
	04/02/19	5544.62	45.49	42.16	42.24	5502.44	0.08
	08/02/18	5544.62	45.48	42.10	42.17	5502.51	0.07
	04/16/18	5544.62	45.48	41.97	42.01	5502.64	0.04
	08/22/17	5544.62	45.49	41.81	41.82	5502.81	0.01
	04/18/17	5544.62	43.25	NPP	41.77	5502.85	NPP
	08/16/16	5544.62	43.25	41.82	41.83	5502.80	0.01
	04/18/16	5544.62	43.25	NPP	41.75	5502.87	NPP
	08/13/15	5544.62	43.25	41.57	41.58	5503.05	0.01
04/27/15	5544.62	43.25	NPP	41.81	5502.81	NPP	
MW-67	08/19/19	5523.31	26.12	NPP	21.09	5502.22	NPP
	04/01/19	5523.31	26.21	NPP	21.37	5501.94	NPP
	08/01/18	5523.31	26.23	NPP	22.08	5501.23	NPP
	04/16/18	5523.31	26.22	NPP	21.60	5501.71	NPP
	08/22/17	5523.31	26.18	NPP	21.37	5501.94	NPP
	04/18/17	5523.31	25.14	NPP	21.53	5501.78	NPP
	08/16/16	5523.31	25.14	NPP	20.94	5502.37	NPP
	04/15/16	5523.31	25.14	NPP	21.25	5502.06	NPP
	08/13/15	5523.31	25.14	NPP	21.02	5502.29	NPP
04/27/15	5523.31	25.14	NPP	21.10	5502.21	NPP	

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MW-68	08/19/19	5517.37	21.07	NPP	16.53	5500.84	NPP
	04/01/19	5517.37	21.08	NPP	16.93	5500.44	NPP
	08/01/18	5517.37	21.10	NPP	17.33	5500.04	NPP
	04/16/18	5517.37	21.10	NPP	17.13	5500.24	NPP
	08/22/17	5517.37	21.10	NPP	16.72	5500.65	NPP
	04/18/17	5517.37	20.58	NPP	16.91	5500.46	NPP
	08/15/16	5517.37	20.58	NPP	16.20	5501.17	NPP
	04/15/16	5517.37	20.58	NPP	16.66	5500.71	NPP
	08/13/15	5517.37	20.58	NPP	16.23	5501.14	NPP
04/27/15	5517.37	20.58	NPP	16.40	5500.97	NPP	
MW-69	08/19/19	5508.51	11.95	NPP	NWP	NWP	NPP
	04/02/19	5508.51	12.02	NPP	11.97	5496.54	NPP
	08/18/18	5508.51	12.01	NPP	11.95	5496.56	NPP
	04/17/18	5508.51	12.01	NPP	11.94	5496.57	NPP
	08/22/17	5508.51	NM	NM	NM	NM	NM
	04/17/17	5508.51	12.08	NPP	11.90	5496.61	NPP
	08/15/16	5508.51	12.08	NPP	11.89	5496.62	NPP
	04/15/16	5508.51	12.08	NPP	11.89	5496.62	NPP
	08/13/15	5508.51	12.08	NPP	NWP	NWP	NPP
04/27/15	5508.51	12.08	NPP	11.81	5496.70	NPP	
MW-70	08/19/19	5527.96	28.71	NPP	25.19	5502.77	NPP
	04/01/19	5527.96	28.89	NPP	25.84	5502.12	NPP
	08/01/18	5527.96	28.94	NPP	26.36	5501.60	NPP
	04/16/18	5527.96	28.93	NPP	26.16	5501.80	NPP
	08/22/17	5527.96	28.89	NPP	25.83	5502.13	NPP
	04/18/17	5527.96	26.25	NPP	25.99	5501.97	NPP
	08/15/16	5508.51	26.25	NPP	25.43	5483.08	NPP
	04/15/16	5508.51	26.25	NPP	25.63	5482.88	NPP
	08/13/15	5527.96	26.25	NPP	25.29	5502.67	NPP
04/27/15	5527.96	26.25	NPP	25.46	5502.50	NPP	
MW-71	08/20/19	5529.08	38.09	NPP	29.86	5499.22	NPP
	04/01/19	5529.08	37.96	30.05	30.06	5499.03	0.01
	08/01/18	5529.08	37.98	30.20	30.24	5498.87	0.04
	04/16/18	5529.08	37.98	29.96	29.97	5499.12	0.01
	08/22/17	5529.08	37.96	NPP	29.85	5499.23	NPP
	04/17/17	5529.08	38.95	NPP	29.91	5499.17	NPP
	08/16/16	5529.08	38.95	30.14	30.26	5498.92	0.12
	04/15/16	5529.08	38.95	30.12	30.16	5498.95	0.04
	08/13/15	5529.08	38.95	30.05	30.15	5499.01	0.10
04/28/15	5529.08	38.95	30.22	30.35	5498.83	0.13	
MW-72	08/20/19	5528.54	34.85	28.38	28.51	5500.13	0.13
	04/01/19	5528.54	34.85	28.46	28.56	5500.06	0.10
	08/01/18	5528.54	34.94	28.78	29.98	5499.52	1.20
	04/16/18	5528.54	34.95	28.55	28.71	5499.96	0.16
	08/22/17	5528.54	34.91	28.33	28.37	5500.20	0.04
	04/17/17	5528.54	34.94	28.30	28.48	5500.20	0.18
	08/16/16	5528.54	34.94	28.51	28.90	5499.95	0.39
	04/15/16	5528.54	34.94	NPP	28.93	5499.61	NPP
	08/13/15	5528.54	34.94	NPP	28.66	5499.88	NPP
04/28/15	5528.54	34.94	NPP	28.66	5499.88	NPP	

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MW-73	08/20/19	5528.92	36.83	NPP	29.42	5499.50	NPP
	04/01/19	5528.92	36.75	NPP	29.60	5499.32	NPP
	08/01/18	5528.92	36.79	NPP	29.77	5499.15	NPP
	04/16/18	5528.92	36.78	NPP	29.53	5499.39	NPP
	08/22/17	5528.92	36.76	NPP	29.39	5499.53	NPP
	04/17/17	5528.92	36.66	NPP	29.33	5499.59	NPP
	08/16/16	5528.92	36.66	NPP	29.71	5499.21	NPP
	04/15/16	5528.92	36.66	NPP	29.58	5499.34	NPP
	08/13/15	5528.92	36.66	NPP	29.61	5499.31	NPP
04/28/15	5528.92	36.66	NPP	29.80	5499.12	NPP	
MW-74	08/20/19	5528.92	33.85	NPP	28.83	5500.09	NPP
	04/01/19	5528.92	33.94	NPP	28.95	5499.97	NPP
	08/01/18	5528.92	33.93	NPP	29.09	5499.83	NPP
	04/16/18	5528.92	33.94	NPP	28.87	5500.05	NPP
	08/22/17	5528.92	33.91	NPP	28.75	5500.17	NPP
	04/17/17	5528.92	33.91	NPP	28.63	5500.29	NPP
	08/16/16	5528.92	33.91	NPP	28.95	5499.97	NPP
	04/15/16	5528.92	33.91	NPP	28.87	5500.05	NPP
	08/13/15	5528.92	33.91	NPP	28.79	5500.13	NPP
04/28/15	5528.55	33.91	29.00	29.04	5499.54	0.04	
MW-75	08/20/19	5528.76	32.25	NPP	28.43	5500.33	NPP
	04/01/19	5528.76	31.95	NPP	28.43	5500.33	NPP
	08/01/18	5528.76	32.18	NPP	28.66	5500.10	NPP
	04/16/18	5528.76	32.18	NPP	28.46	5500.30	NPP
	08/23/17	5528.76	32.25	NPP	28.21	5500.55	NPP
	04/17/17	5528.76	32.25	NPP	28.13	5500.63	NPP
	08/15/16	5528.76	32.25	NPP	28.37	5500.39	NPP
	04/15/16	5528.76	32.25	NPP	28.35	5500.41	NPP
	08/13/15	5528.76	32.25	28.15	28.16	5500.61	0.01
04/28/15	5528.76	32.25	28.40	28.41	5500.36	0.01	
MW-76	08/20/19	5528.61	34.14	NPP	28.65	5499.96	NPP
	04/01/19	5528.61	34.01	NPP	28.33	5500.28	NPP
	08/01/18	5528.61	34.10	NPP	29.14	5499.47	NPP
	04/16/18	5528.61	34.09	NPP	28.84	5499.77	NPP
	08/22/17	5528.61	34.09	NPP	28.70	5499.91	NPP
	04/17/17	5528.61	34.16	NPP	28.54	5500.07	NPP
	08/15/16	5528.61	34.16	NPP	28.79	5499.82	NPP
	04/15/16	5528.61	34.16	NPP	28.84	5499.77	NPP
	08/13/15	5528.61	34.16	NPP	28.48	5500.13	NPP
04/28/15	5528.61	34.16	NPP	28.97	5499.64	NPP	
MW-77	08/19/19	5527.59	34.23	28.42	29.12	5499.03	0.70
	04/01/19	5527.59	34.27	28.31	28.68	5499.21	0.37
	08/01/18	5527.59	34.30	28.95	29.57	5498.52	0.62
	04/16/18	5527.59	34.30	28.48	29.23	5498.96	0.75
	08/23/17	5527.59	34.30	28.63	29.22	5498.84	0.59
	04/17/17	5527.59	34.30	28.54	29.12	5498.93	0.58
	08/15/16	5527.59	34.30	28.80	29.44	5498.66	0.64
	04/15/16	5527.59	34.30	29.05	29.56	5498.44	0.51
	08/13/15	5527.59	34.30	28.93	29.50	5498.55	0.57
04/28/15	5527.59	34.30	28.86	29.44	5498.61	0.58	

**TABLE 1**  
**Fluid Level Measurements Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Well ID	Date	Measuring Point Elevation (ft amsl)	Total Well Depth (ft below TOC)	Depth To Product (ft below TOC)	Depth To Water (ft below TOC)	Corrected Groundwater Elevation (ft amsl)	SPH Thickness (ft)
P-03	08/19/19	5510.77	22.70	NPP	11.52	5499.25	NPP
	04/02/19	5510.77	22.69	NPP	10.60	5500.17	NPP
	08/02/18	5510.77	22.75	NPP	11.66	5499.11	NPP
	04/16/18	5510.77	22.75	NPP	11.52	5499.25	NPP
	08/23/17	5510.77	22.73	NPP	11.34	5499.43	NPP
	04/18/17	5510.77	22.73	NPP	10.53	5500.24	NPP
	08/16/16	5510.77	22.73	NPP	10.40	5500.37	NPP
	04/18/16	5510.77	22.73	NPP	11.55	5499.22	NPP
	08/13/15	5510.77	22.73	NPP	10.71	5500.06	NPP
04/27/15	5510.77	22.73	NPP	11.09	5499.68	NPP	
BCK-1	08/19/19	5517.80	80.63	NPP	77.37	5440.43	NPP
	04/02/19	5517.80	80.54	NPP	77.32	5440.48	NPP
	08/02/18	5517.80	80.55	NPP	77.35	5440.45	NPP
	04/20/18	5517.80	80.55	NPP	77.35	5440.45	NPP
	08/13/15	5517.80	79.00	NPP	77.43	5440.37	NPP
	04/27/15	5517.80	79.00	NPP	77.30	5440.50	NPP
	08/18/14	5517.80	79.00	NPP	77.37	5440.43	NPP
	08/05/13	5517.80	79.00	NPP	77.28	5440.52	NPP
04/08/13	5517.80	79.00	NPP	77.15	5440.65	NPP	
BCK-2	08/19/19	5620.14	46.99	NPP	26.23	5593.91	NPP
	04/02/19	5620.14	46.90	NPP	25.13	5595.01	NPP
	08/02/18	5620.14	46.95	NPP	25.85	5594.29	NPP
	04/20/18	5620.14	46.95	NPP	25.10	5595.04	NPP
	08/13/15	5620.14	46.97	NPP	26.10	5594.04	NPP
	04/27/15	5620.14	46.97	NPP	25.57	5594.57	NPP
	08/18/14	5620.14	46.97	NPP	28.10	5592.04	NPP
	08/05/13	5620.14	46.97	NPP	26.52	5593.62	NPP
04/08/13	5620.14	46.97	NPP	25.58	5594.56	NPP	
RW-01	08/19/19	5529.34	40.73	NPP	30.63	5498.71	NPP
	04/01/19	5529.34	40.75	NPP	30.33	5499.01	NPP
	08/01/18	5529.34	40.93	NPP	31.12	5498.22	NPP
	04/16/18	5529.34	40.91	NPP	30.80	5498.54	NPP
	08/22/17	5529.34	40.80	NPP	30.84	5498.50	NPP
	04/17/17	5529.34	40.80	NPP	30.52	5498.82	NPP
	08/16/16	5529.34	40.80	30.6	30.71	5498.72	0.11
	04/15/16	5529.34	40.80	NPP	31.31	5498.03	NPP
	08/13/15	5529.34	40.80	30.77	30.78	5498.57	0.01
04/27/15	5529.34	40.80	NPP	30.83	5498.51	NPP	
RW-02	08/20/19	5526.94	35.23	26.59	26.80	5500.31	0.21
	04/01/19	5526.94	35.03	26.45	26.60	5500.46	0.15
	08/01/18	5526.94	35.00	NPP	26.72	5500.22	NPP
	04/16/18	5526.94	35.10	NPP	26.55	5500.39	NPP
	08/22/17	5526.94	35.86	NPP	26.35	5500.59	NPP
	04/17/17	5526.94	35.86	NPP	26.08	5500.86	NPP
	08/15/16	5526.94	35.86	NPP	26.43	5500.51	NPP
	04/15/16	5526.94	35.86	NPP	26.35	5500.59	NPP
	08/13/15	5526.94	35.86	NPP	26.26	5500.68	NPP
04/27/15	5526.94	35.86	NPP	26.37	5500.57	NPP	

**TABLE 1**  
**Fluid Level Measurements Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Well ID	Date	Measuring Point Elevation (ft amsl)	Total Well Depth (ft below TOC)	Depth To Product (ft below TOC)	Depth To Water (ft below TOC)	Corrected Groundwater Elevation (ft amsl)	SPH Thickness (ft)
RW-03	08/19/19	5520.35	33.81	NPP	21.69	5498.66	NPP
	04/02/19	5520.35	33.81	NPP	21.21	5499.14	NPP
	08/01/18	5520.35	33.75	NPP	22.08	5498.27	NPP
	04/16/18	5520.35	33.78	NPP	21.72	5498.63	NPP
	08/22/17	5520.35	34.57	NM	NM	NM	NM
	04/17/17	5520.35	34.57	NPP	21.33	5499.02	NPP
	08/16/16	5520.35	34.57	NPP	21.34	5499.01	NPP
	04/15/16	5520.35	34.57	NPP	22.25	5498.10	NPP
	08/13/15	5520.35	34.57	NPP	22.02	5498.33	NPP
04/27/15	5520.35	34.57	NPP	21.59	5498.76	NPP	
RW-09	08/20/19	5523.21	33.55	24.65	24.68	5498.55	0.03
	04/01/19	5523.21	33.44	24.69	24.70	5498.52	0.01
	08/01/18	5523.21	33.54	24.73	24.74	5498.48	0.01
	04/16/18	5523.21	33.55	NPP	24.65	5498.56	NPP
	08/22/17	5523.21	34.04	24.55	24.58	5498.65	0.03
	04/17/17	5523.21	34.04	24.55	24.56	5498.66	0.01
	08/16/16	5523.21	34.04	24.64	24.67	5498.56	NPP
	04/15/16	5523.21	34.04	24.64	24.67	5498.56	0.03
	08/13/15	5523.21	34.04	24.64	24.70	5498.56	0.06
04/27/15	5523.21	34.04	24.77	24.87	5498.42	0.10	
RW-14	08/19/19	5537.50	41.91	34.88	34.95	5502.61	0.07
	04/01/19	5537.50	41.77	35.39	35.68	5502.05	0.29
	08/01/18	5537.50	41.92	NPP	35.65	5501.85	NPP
	04/16/18	5537.50	41.92	35.49	35.50	5502.01	0.01
	08/22/17	5537.50	41.94	NPP	35.07	5502.43	NPP
	04/17/17	5537.50	41.94	35.13	35.59	5502.28	0.46
	08/15/16	5537.50	41.94	34.79	34.83	5502.70	0.04
	04/15/16	5537.50	41.94	34.79	36.09	5502.45	1.30
	08/13/15	5537.50	41.94	NPP	34.92	5502.58	NPP
04/27/15	5537.50	41.94	NPP	34.95	5502.55	NPP	
RW-15	08/19/19	5536.83	42.25	NPP	34.88	5501.95	NPP
	04/01/19	5536.83	42.20	NPP	35.20	5501.63	NPP
	08/01/18	5536.83	42.22	NPP	35.40	5501.43	NPP
	04/16/18	5536.83	42.22	NPP	35.25	5501.58	NPP
	08/22/17	5536.83	43.43	NPP	34.85	5501.98	NPP
	04/18/17	5536.83	43.43	NPP	34.90	5501.93	NPP
	08/15/16	5536.83	43.43	NPP	34.68	5502.15	NPP
	04/15/16	5536.83	43.43	NPP	34.89	5501.75	NPP
	08/13/15	5536.83	43.43	NPP	34.46	5501.71	NPP
04/27/15	5536.83	43.43	NPP	34.75	5501.86	NPP	
RW-16	08/19/19	5535.45	43.13	NPP	34.12	5501.33	NPP
	04/01/19	5535.45	43.05	NPP	34.32	5501.13	NPP
	08/01/18	5535.45	43.13	NPP	34.42	5501.03	NPP
	04/16/18	5535.45	43.16	NPP	34.26	5501.19	NPP
	08/22/17	5535.45	41.48	NPP	33.94	5501.51	NPP
	04/18/17	5535.45	41.48	NPP	33.90	5501.55	NPP
	08/15/16	5535.45	41.48	NPP	33.85	5501.60	NPP
	04/15/16	5535.45	41.48	33.87	33.90	5501.57	0.03
	08/13/15	5535.45	41.48	33.30	35.50	5501.71	2.20
04/27/15	5535.45	41.48	33.83	34.15	5501.56	0.32	

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Well ID	Date	Measuring Point Elevation (ft amsl)	Total Well Depth (ft below TOC)	Depth To Product (ft below TOC)	Depth To Water (ft below TOC)	Corrected Groundwater Elevation (ft amsl)	SPH Thickness (ft)
RW-17	08/19/19	5533.84	38.05	NPP	33.08	5500.76	NPP
	04/01/19	5533.84	38.37	NPP	32.15	5501.69	NPP
	08/01/18	5533.84	39.88	NPP	33.28	5500.56	NPP
	04/16/18	5533.84	40.10	NPP	33.08	5500.76	NPP
	08/22/17	5533.84	41.89	NPP	32.85	5500.99	NPP
	04/18/17	5533.84	41.89	NPP	32.76	5501.08	NPP
	08/15/16	5533.84	41.89	NPP	32.94	5500.90	NPP
	04/15/16	5533.84	41.89	NPP	32.89	5500.95	NPP
	08/13/15	5533.84	41.89	32.67	32.68	5501.17	0.01
04/27/15	5533.84	41.89	33.04	33.08	5500.79	0.04	
RW-18	08/20/19	5529.38	37.71	NPP	29.83	5499.55	NPP
	04/01/19	5529.38	34.38	NPP	30.07	5499.31	NPP
	08/01/18	5529.38	34.40	NPP	30.08	5499.30	NPP
	04/16/18	5529.38	34.40	NPP	29.87	5499.51	NPP
	08/23/17	5529.38	37.58	NPP	29.76	5499.62	NPP
	04/17/17	5529.38	37.58	NPP	29.71	5499.67	NPP
	08/16/16	5529.38	37.58	NPP	32.92	5496.46	NPP
	04/15/16	5529.38	37.58	NPP	29.84	5499.54	NPP
	08/13/15	5529.38	37.58	NPP	29.88	5499.50	NPP
04/27/15	5529.38	37.58	NPP	30.02	5499.36	NPP	
RW-19	08/20/19	5530.51	35.84	NPP	30.11	5500.40	NPP
	04/01/19	5530.51	35.70	30.11	30.12	5500.40	0.01
	08/01/18	5530.51	35.70	30.21	31.46	5500.05	1.25
	04/16/18	5530.51	35.60	30.10	30.37	5500.36	0.27
	08/23/17	5530.51	36.64	NPP	29.86	5500.65	NPP
	04/17/17	5530.51	36.64	29.70	30.65	5500.62	0.95
	08/15/16	5530.51	36.64	NPP	31.16	5499.35	NPP
	04/15/16	5530.51	36.64	NPP	30.04	5500.47	NPP
	08/13/15	5530.51	36.64	NPP	29.96	5500.55	NPP
04/27/15	5530.51	36.64	NPP	30.15	5500.36	NPP	
RW-22	08/20/19	5524.44	35.35	NPP	25.75	5498.69	NPP
	04/01/19	5524.44	35.30	NPP	25.60	5498.84	NPP
	08/01/18	5524.44	35.32	NPP	25.65	5498.79	NPP
	04/16/18	5524.44	35.33	NPP	25.51	5498.93	NPP
	08/22/17	5524.44	35.60	NPP	25.36	5499.08	NPP
	04/17/17	5524.44	35.60	25.37	25.39	5499.07	0.02
	08/16/16	5524.44	35.60	25.51	25.74	5498.88	0.23
	04/15/16	5524.44	35.60	25.50	25.73	5498.89	0.23
	08/13/15	5524.44	35.60	25.50	25.55	5498.93	0.05
04/27/15	5524.44	35.60	25.70	25.80	5498.72	0.10	
RW-23	08/20/19	5521.38	35.55	NPP	23.18	5498.20	NPP
	04/01/19	5521.38	35.55	23.14	23.16	5498.24	0.02
	08/01/18	5521.38	35.55	23.21	23.25	5498.16	0.04
	04/16/18	5521.38	35.55	23.20	23.25	5498.17	0.05
	08/22/17	5521.38	35.53	NPP	23.09	5498.29	NPP
	04/17/17	5521.38	35.53	23.06	23.15	5498.30	0.09
	08/16/16	5521.38	35.53	22.81	22.93	5498.55	0.12
	04/15/16	5521.38	35.53	23.13	23.39	5498.20	0.26
	08/13/15	5521.38	35.53	23.80	23.82	5497.58	0.02
04/27/15	5521.38	35.53	NPP	23.70	5497.68	NPP	

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RW-28	08/19/19	5527.93	37.07	28.71	28.99	5499.16	0.28
	04/01/19	5527.93	36.98	29.16	29.19	5498.76	0.03
	08/01/18	5527.93	37.00	29.19	29.98	5498.58	0.79
	04/16/18	5527.93	37.00	28.94	28.95	5498.99	0.01
	08/22/17	5527.93	36.99	29.09	29.79	5498.70	0.70
	04/18/17	5527.93	36.99	28.96	30.07	5498.75	1.11
	08/16/16	5527.93	36.99	29.10	29.36	5498.78	0.26
	04/15/16	5527.93	36.99	29.05	29.06	5498.88	0.01
	08/13/15	5527.93	36.99	26.92	26.93	5501.01	0.01
04/27/15	5527.93	36.99	29.18	29.76	5498.63	0.58	
RW-42	08/20/19	5527.48	32.14	NPP	27.05	5500.43	NPP
	04/01/19	5527.48	31.95	NPP	27.06	5500.42	NPP
	08/01/18	5527.48	31.97	NPP	27.36	5500.12	NPP
	04/16/18	5527.48	31.95	NPP	27.11	5500.37	NPP
	08/23/17	5527.48	31.95	NPP	27.00	5500.48	NPP
	04/17/17	5527.48	32.02	NPP	26.96	5500.52	NPP
	08/15/16	5527.48	32.02	NPP	27.10	5500.38	NPP
	04/15/16	5527.48	32.02	NPP	27.03	5500.45	NPP
	08/13/15	5527.48	32.02	26.92	26.93	5500.56	0.01
04/27/15	5527.48	32.02	27.15	27.18	5500.32	0.03	
RW-43	08/20/19	5520.02	24.25	20.38	20.49	5499.62	0.11
	04/01/19	5520.02	24.16	20.58	20.73	5499.41	0.15
	08/01/18	5520.02	24.19	20.72	20.74	5499.30	0.02
	04/16/18	5520.02	24.18	NPP	20.60	5499.42	NPP
	08/22/17	5520.02	24.20	NPP	20.40	5499.62	NPP
	04/17/17	5520.02	24.03	NPP	20.45	5499.57	NPP
	08/15/16	5520.02	24.03	NPP	20.44	5499.58	NPP
	04/15/16	5520.02	24.03	NPP	20.51	5499.51	NPP
	08/13/15	5520.02	24.03	20.30	20.33	5499.71	0.03
04/27/15	5520.02	24.03	20.53	20.75	5499.45	0.22	
OW 0+60	08/19/19	5506.62	12.33	NPP	12.05	5494.57	NPP
	04/02/19	5506.62	12.29	NPP	11.62	5495.00	NPP
	08/01/18	5506.62	12.30	NPP	12.10	5494.52	NPP
	04/17/18	5506.62	12.29	NPP	11.95	5494.67	NPP
	08/23/17	5506.62	12.03	NPP	11.91	5494.71	NPP
	04/18/17	5506.62	12.26	NPP	11.66	5494.96	NPP
	08/16/16	5506.62	12.26	NPP	11.14	5495.48	NPP
	04/15/16	5506.62	12.26	NPP	11.78	5494.84	NPP
	08/13/15	5506.62	12.26	NPP	10.77	5495.85	NPP
04/21/15	5506.62	12.26	NPP	11.24	5495.38	NPP	
OW 1+50	08/19/19	5508.03	14.43	NPP	NWP	NWP	NPP
	04/02/19	5508.03	14.36	NPP	13.72	5494.31	NPP
	08/01/18	5508.03	14.38	14.33	NWP	NWP	NPP
	04/17/18	5508.03	14.36	14.23	14.25	5493.80	0.02
	08/23/17	5508.03	14.37	NPP	14.05	5493.98	NPP
	04/18/17	5508.03	14.36	NPP	13.74	5494.29	NPP
	08/16/16	5508.03	14.36	NPP	13.06	5494.97	NPP
	04/15/16	5508.03	14.36	NPP	13.72	5494.31	NPP
	08/13/15	5508.03	14.36	NPP	12.62	5495.41	NPP
04/21/15	5508.03	14.36	NPP	13.24	5494.79	NPP	

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OW 3+85	08/19/19	5507.31	15.15	NPP	14.07	5493.24	NPP
	04/02/19	5507.31	15.10	NPP	13.45	5493.86	NPP
	08/01/18	5507.31	15.10	NPP	13.92	5493.39	NPP
	04/17/18	5507.31	15.08	NPP	13.73	5493.58	NPP
	08/23/17	5507.31	15.08	NPP	13.56	5493.75	NPP
	04/17/17	5507.31	15.06	NPP	13.14	5494.17	NPP
	08/15/16	5507.31	15.06	NPP	12.83	5494.48	NPP
	04/15/16	5507.31	15.06	NPP	13.15	5494.16	NPP
	08/13/15	5507.31	15.06	NPP	12.31	5495.00	NPP
04/21/15	5507.31	15.06	NPP	12.80	5494.51	NPP	
OW 5+50	08/19/19	5507.59	13.81	NPP	13.49	5494.10	NPP
	04/02/19	5507.59	13.78	NPP	13.65	5493.94	NPP
	08/01/18	5507.59	13.78	NPP	13.57	5494.02	NPP
	04/17/18	5507.59	13.78	NPP	13.65	5493.94	NPP
	08/23/17	5507.59	13.77	NPP	13.41	5494.18	NPP
	04/17/17	5507.59	13.67	NPP	13.42	5494.17	NPP
	08/15/16	5507.59	13.67	NPP	13.29	5494.30	NPP
	04/15/16	5507.59	13.67	NPP	13.43	5494.16	NPP
	08/13/15	5507.59	13.67	NPP	13.32	5494.27	NPP
04/21/15	5507.59	13.67	NPP	13.28	5494.31	NPP	
OW 6+70	08/19/19	5504.78	16.50	NPP	NWP	NWP	NPP
	04/02/19	5504.78	16.46	NPP	16.45	5488.33	NPP
	08/01/18	5504.78	16.47	NPP	NWP	NWP	NPP
	04/17/18	5504.78	16.47	NPP	NWP	NWP	NPP
	08/24/17	5504.78	16.48	NPP	NWP	NWP	NPP
	04/17/17	5504.78	14.67	NPP	NWP	NWP	NPP
	08/15/16	5504.78	14.67	NPP	NWP	NWP	NPP
	04/15/16	5504.78	14.67	NPP	NWP	NWP	NPP
	08/13/15	5504.78	14.67	NPP	NWP	NWP	NPP
04/21/15	5504.78	14.67	NPP	NWP	NWP	NPP	
OW 8+10	08/19/19	5506.53	16.10	NPP	15.09	5491.44	NPP
	04/02/19	5506.53	16.02	NPP	13.58	5492.95	NPP
	08/01/18	5506.53	16.02	NPP	15.54	5490.99	NPP
	04/17/18	5506.53	16.03	NPP	15.55	5490.98	NPP
	08/24/17	5506.53	16.01	NPP	15.25	5491.28	NPP
	04/17/17	5506.53	15.99	NPP	13.99	5492.54	NPP
	08/15/16	5504.78	15.99	NPP	14.69	5490.09	NPP
	04/15/16	5504.78	15.99	NPP	NWP	NWP	NPP
	08/13/15	5506.53	15.99	NPP	NWP	NWP	NPP
04/21/15	5506.53	15.99	NPP	NWP	NWP	NPP	
OW 11+15	08/19/19	5506.70	16.65	NPP	12.63	5494.07	NPP
	04/02/19	5506.70	16.59	NPP	12.74	5493.96	NPP
	08/01/18	5506.70	16.60	NPP	12.65	5494.05	NPP
	04/17/18	5506.70	16.60	NPP	12.64	5494.06	NPP
	08/24/17	5506.70	16.59	NPP	12.53	5494.17	NPP
	04/17/17	5506.70	16.59	NPP	12.56	5494.14	NPP
	08/15/16	5506.70	16.59	NPP	12.53	5494.17	NPP
	04/15/16	5506.70	16.59	NPP	12.65	5494.05	NPP
	08/13/15	5506.70	16.59	NPP	12.47	5494.23	NPP
04/21/15	5506.70	16.59	NPP	12.59	5494.11	NPP	

**TABLE 1**  
**Fluid Level Measurements Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Well ID	Date	Measuring Point Elevation (ft amsl)	Total Well Depth (ft below TOC)	Depth To Product (ft below TOC)	Depth To Water (ft below TOC)	Corrected Groundwater Elevation (ft amsl)	SPH Thickness (ft)
OW 14+10	08/19/19	5508.14	13.03	NPP	NWP	NWP	NPP
	04/02/19	5508.14	12.98	NPP	NWP	NWP	NPP
	08/01/18	5508.14	12.99	NPP	NWP	NWP	NPP
	04/17/18	5508.14	12.97	NPP	NWP	NWP	NPP
	08/24/17	5508.14	12.96	NPP	NWP	NWP	NPP
	04/17/17	5508.14	12.96	NPP	NWP	NWP	NPP
	08/15/16	5508.14	12.96	NPP	NWP	NWP	NPP
	04/15/16	5508.14	12.96	NPP	NWP	NWP	NPP
	08/13/15	5508.14	12.96	NPP	NWP	NWP	NPP
04/21/15	5508.14	12.96	NPP	NWP	NWP	NPP	
OW 16+60	08/19/19	5508.43	15.30	NPP	12.84	5495.59	NPP
	04/02/19	5508.43	15.25	NPP	12.71	5495.72	NPP
	08/01/18	5508.43	15.25	NPP	12.98	5495.45	NPP
	04/17/18	5508.43	15.25	NPP	13.43	5495.00	NPP
	08/24/17	5508.43	15.25	NPP	13.05	5495.38	NPP
	04/17/17	5508.43	15.21	NPP	12.73	5495.70	NPP
	08/15/16	5508.43	15.21	NPP	13.04	5495.39	NPP
	04/15/16	5508.43	15.21	NPP	13.06	5495.37	NPP
	08/13/15	5508.43	15.21	NPP	12.78	5495.65	NPP
04/21/15	5508.43	15.21	NPP	12.78	5495.65	NPP	
OW 19+50	08/19/19	5508.03	13.05	NPP	11.94	5496.09	NPP
	04/02/19	5508.03	13.01	NPP	12.08	5495.95	NPP
	08/01/18	5508.03	13.00	NPP	NWP	NWP	NPP
	04/17/18	5508.03	13.00	NPP	NWP	NWP	NPP
	08/24/17	5508.03	13.00	NPP	12.88	5495.15	NPP
	04/17/17	5508.03	13.00	NPP	11.85	5496.18	NPP
	08/15/16	5508.03	13.00	NPP	12.95	5495.08	NPP
	04/15/16	5508.03	13.00	NPP	12.69	5495.34	NPP
	08/13/15	5508.03	13.00	NPP	NWP	NWP	NPP
04/21/15	5508.03	13.00	NPP	12.92	5495.11	NPP	
OW 22+00	08/19/19	5506.91	14.22	NPP	13.12	5493.79	NPP
	04/02/19	5506.91	14.17	NPP	10.67	5496.24	NPP
	08/01/18	5506.91	14.18	NPP	13.32	5493.59	NPP
	04/17/18	5506.91	14.17	NPP	12.39	5494.52	NPP
	08/24/17	5506.91	14.15	NPP	12.91	5494.00	NPP
	04/17/17	5506.91	14.16	NPP	10.59	5496.32	NPP
	08/15/16	5506.91	14.16	NPP	10.88	5496.03	NPP
	04/15/16	5506.91	14.16	NPP	12.05	5494.86	NPP
	08/13/15	5506.91	14.16	NPP	10.80	5496.11	NPP
04/21/15	5506.91	14.16	NPP	11.37	5495.54	NPP	
OW 23+10	08/19/19	5514.12	18.41	NPP	16.78	5497.34	NPP
	04/02/19	5514.12	18.34	NPP	16.53	5497.59	NPP
	08/01/18	5514.12	18.35	NPP	16.75	5497.37	NPP
	04/17/18	5514.12	18.35	NPP	16.58	5497.54	NPP
	08/24/17	5514.12	18.34	NPP	16.65	5497.47	NPP
	04/17/17	5514.12	18.34	NPP	16.46	5497.66	NPP
	08/15/16	5514.12	18.34	NPP	16.37	5497.75	NPP
	04/15/16	5514.12	18.34	NPP	16.48	5497.64	NPP
	08/13/15	5514.12	18.34	NPP	16.46	5497.66	NPP
04/21/15	5514.12	18.34	NPP	16.40	5497.72	NPP	

**TABLE 1**  
**Fluid Level Measurements Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Well ID	Date	Measuring Point Elevation (ft amsl)	Total Well Depth (ft below TOC)	Depth To Product (ft below TOC)	Depth To Water (ft below TOC)	Corrected Groundwater Elevation (ft amsl)	SPH Thickness (ft)
OW 23+90	08/19/19	5515.18	18.15	NPP	17.71	5497.47	NPP
	04/02/19	5515.18	18.10	NPP	17.45	5497.73	NPP
	08/01/18	5515.18	18.10	NPP	17.58	5497.60	NPP
	04/17/18	5515.18	18.08	NPP	17.42	5497.76	NPP
	08/24/17	5515.18	18.01	NPP	17.47	5497.71	NPP
	04/17/17	5515.18	18.01	NPP	17.37	5497.81	NPP
	08/15/16	5515.18	18.01	NPP	17.25	5497.93	NPP
	04/15/16	5515.18	18.01	NPP	17.34	5497.84	NPP
	08/13/15	5515.18	18.01	NPP	17.30	5497.88	NPP
04/21/15	5515.18	18.01	NPP	17.28	5497.90	NPP	
OW 25+70	08/19/19	5509.00	14.05	NPP	11.25	5497.75	NPP
	04/02/19	5509.00	14.00	NPP	11.10	5497.90	NPP
	08/01/18	5509.00	13.98	NPP	11.20	5497.80	NPP
	04/17/18	5509.00	13.98	NPP	11.10	5497.90	NPP
	08/24/17	5509.00	14.00	NPP	11.17	5497.83	NPP
	04/17/17	5509.00	13.98	NPP	10.97	5498.03	NPP
	08/15/16	5509.00	13.98	NPP	10.90	5498.10	NPP
	04/15/16	5509.00	13.98	NPP	10.97	5498.03	NPP
	08/13/15	5509.00	13.98	NPP	10.97	5498.03	NPP
04/21/15	5509.00	13.98	NPP	10.92	5498.08	NPP	
CW 0+60	08/19/19	5506.68	14.04	NPP	8.39	5498.29	NPP
	04/02/19	5506.68	13.97	NPP	7.92	5498.76	NPP
	08/01/18	5506.68	14.10	NPP	8.76	5497.92	NPP
	04/17/18	5506.68	13.98	NPP	8.41	5498.27	NPP
	08/22/17	5506.68	14.09	NPP	8.49	5498.19	NPP
	04/18/17	5506.68	14.09	NPP	8.00	5498.68	NPP
	08/16/16	5506.68	14.09	NPP	7.99	5498.69	NPP
	04/15/16	5506.68	14.09	NPP	8.88	5497.80	NPP
	08/13/15	5506.68	14.09	NPP	8.23	5498.45	NPP
04/21/15	5506.68	14.09	NPP	8.24	5498.44	NPP	
CW 1+50	08/19/19	5505.13	13.31	NPP	6.70	5498.43	NPP
	04/02/19	5505.13	13.25	NPP	6.38	5498.75	NPP
	08/01/18	5505.13	13.40	NPP	7.05	5498.08	NPP
	04/17/18	5505.13	13.35	NPP	6.75	5498.38	NPP
	08/23/17	5505.13	13.38	NPP	6.80	5498.33	NPP
	04/18/17	5505.13	13.74	NPP	6.51	5498.62	NPP
	08/16/16	5505.13	13.74	NPP	6.59	5498.54	NPP
	04/15/16	5505.13	13.74	NPP	7.22	5497.91	NPP
	08/13/15	5505.13	13.74	NPP	6.84	5498.29	NPP
04/21/15	5505.13	13.74	NPP	6.77	5498.36	NPP	
CW 3+85	08/19/19	5503.87	13.31	NPP	5.55	5498.32	NPP
	04/02/19	5503.87	13.10	NPP	5.48	5498.39	NPP
	08/01/18	5503.87	13.12	NPP	5.45	5498.42	NPP
	04/17/18	5503.87	13.12	NPP	5.65	5498.22	NPP
	08/23/17	5503.87	13.11	NPP	5.60	5498.27	NPP
	04/17/17	5503.87	13.11	NPP	5.48	5498.39	NPP
	08/15/16	5503.87	13.11	NPP	5.52	5498.35	NPP
	04/15/16	5503.87	13.11	NPP	5.91	5497.96	NPP
	08/13/15	5503.87	13.11	NPP	5.70	5498.17	NPP
04/21/15	5503.87	13.11	NPP	5.60	5498.27	NPP	

**TABLE 1**  
**Fluid Level Measurements Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Well ID	Date	Measuring Point Elevation (ft amsl)	Total Well Depth (ft below TOC)	Depth To Product (ft below TOC)	Depth To Water (ft below TOC)	Corrected Groundwater Elevation (ft amsl)	SPH Thickness (ft)
CW 5+50	08/19/19	5503.76	12.31	NPP	6.43	5497.33	NPP
	04/02/19	5503.76	12.22	NPP	6.33	5497.43	NPP
	08/01/18	5503.76	12.25	NPP	6.55	5497.21	NPP
	04/17/18	5503.76	12.23	NPP	6.40	5497.36	NPP
	08/23/17	5503.76	12.27	NPP	6.45	5497.31	NPP
	04/17/17	5503.76	12.27	NPP	6.36	5497.40	NPP
	08/15/16	5503.76	12.27	NPP	6.30	5497.46	NPP
	04/15/16	5503.76	12.27	NPP	6.39	5497.37	NPP
	08/13/15	5503.76	12.27	NPP	6.38	5497.38	NPP
04/21/15	5503.76	12.27	NPP	6.35	5497.41	NPP	
CW 6+70	08/19/19	5503.84	6.75	NPP	NWP	NWP	NPP
	04/02/19	5503.84	6.75	NPP	6.65	5497.19	NPP
	08/01/18	5503.84	6.80	NPP	NWP	NWP	NPP
	04/17/18	5503.84	6.80	NPP	6.72	5497.12	NPP
	08/24/17	5503.84	11.50	NPP	6.94	5496.90	NPP
	04/17/17	5503.84	11.45	NPP	6.61	5497.23	NPP
	08/15/16	5503.84	11.45	NPP	6.54	5497.30	NPP
	04/15/16	5503.84	11.45	NPP	6.61	5497.23	NPP
	08/13/15	5503.84	11.45	NPP	6.38	5497.46	NPP
04/21/15	5503.84	11.45	NPP	6.63	5497.21	NPP	
CW 8+10	08/19/19	5504.02	11.39	NPP	7.71	5496.31	NPP
	04/02/19	5504.02	11.35	NPP	7.64	5496.38	NPP
	08/01/18	5504.02	11.37	NPP	7.87	5496.15	NPP
	04/17/18	5504.02	11.35	NPP	7.70	5496.32	NPP
	08/24/17	5504.02	11.35	NPP	7.69	5496.33	NPP
	04/17/17	5504.02	11.63	NPP	7.45	5496.57	NPP
	08/15/16	5504.02	11.63	NPP	7.35	5496.67	NPP
	04/15/16	5504.02	11.63	NPP	7.56	5496.46	NPP
	08/13/15	5504.02	11.63	NPP	7.48	5496.54	NPP
04/21/15	5504.02	11.63	NPP	7.43	5496.59	NPP	
CW 8+45	08/19/19	5503.80	12.71	7.99	8.10	5495.79	0.11
	04/02/19	5503.80	12.63	7.96	7.99	5495.83	0.03
	08/01/18	5503.80	12.61	NPP	8.15	5495.65	NPP
	04/17/18	5503.80	12.61	NPP	7.95	5495.85	NPP
	08/24/17	5503.80	12.60	NPP	7.92	5495.88	NPP
	04/17/17	5503.80	12.60	NPP	7.67	5496.13	NPP
	08/15/16	5503.80	12.60	NPP	7.51	5496.29	NPP
	04/15/16	5503.80	12.60	NPP	7.70	5496.10	NPP
	08/13/15	5503.80	12.60	NPP	7.65	5496.15	NPP
04/21/15	5503.80	12.60	NPP	7.68	5496.12	NPP	
CW 11+15	08/19/19	5503.95	12.35	5.91	5.97	5498.03	0.06
	04/02/19	5503.95	12.26	5.91	5.94	5498.03	0.03
	08/01/18	5503.95	12.29	6.10	6.14	5497.84	0.04
	04/17/18	5503.95	12.29	NPP	6.00	5497.95	NPP
	08/24/17	5503.95	12.40	5.91	6.13	5498.00	0.22
	04/17/17	5503.95	12.27	5.81	6.23	5498.06	0.42
	08/15/16	5503.95	12.27	NPP	5.99	5497.96	NPP
	04/15/16	5503.95	12.27	5.91	6.36	5497.95	0.45
	08/13/15	5503.95	12.27	5.87	6.85	5497.88	0.98
04/21/15	5503.95	12.27	5.97	7.05	5497.76	1.08	

**TABLE 1**  
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Well ID	Date	Measuring Point Elevation (ft amsl)	Total Well Depth (ft below TOC)	Depth To Product (ft below TOC)	Depth To Water (ft below TOC)	Corrected Groundwater Elevation (ft amsl)	SPH Thickness (ft)
CW 14+10	08/19/19	5504.39	13.12	NPP	6.52	5497.87	NPP
	04/02/19	5504.39	13.04	NPP	6.35	5498.04	NPP
	08/01/18	5504.39	13.04	NPP	6.48	5497.91	NPP
	04/17/18	5504.39	13.04	NPP	6.52	5497.87	NPP
	08/24/17	5504.39	13.05	NPP	6.50	5497.89	NPP
	04/17/17	5504.39	13.05	NPP	6.39	5498.00	NPP
	08/15/16	5504.39	13.05	NPP	6.29	5498.10	NPP
	04/15/16	5504.39	13.05	NPP	6.25	5498.14	NPP
	08/13/15	5504.39	13.05	NPP	6.44	5497.95	NPP
04/21/15	5504.39	13.05	NPP	6.38	5498.01	NPP	
CW 16+60	08/19/19	5504.32	12.97	NPP	7.39	5496.93	NPP
	04/02/19	5504.32	12.92	NPP	6.23	5498.09	NPP
	08/01/18	5504.32	12.88	NPP	6.30	5498.02	NPP
	04/17/18	5504.32	12.88	NPP	6.33	5497.99	NPP
	08/24/17	5504.32	12.86	NPP	6.24	5498.08	NPP
	04/17/17	5504.32	12.86	NPP	6.20	5498.12	NPP
	08/15/16	5504.32	12.86	NPP	6.09	5498.23	NPP
	04/15/16	5504.32	12.86	NPP	6.20	5498.12	NPP
	08/13/15	5504.32	12.86	NPP	6.23	5498.09	NPP
04/21/15	5504.32	12.86	NPP	6.18	5498.14	NPP	
CW 19+50	08/19/19	5504.52	10.05	NPP	6.39	5498.13	NPP
	04/02/19	5504.52	10.00	NPP	6.24	5498.28	NPP
	08/01/18	5504.52	9.97	NPP	6.30	5498.22	NPP
	04/17/18	5504.52	9.97	NPP	6.30	5498.22	NPP
	08/24/17	5504.52	9.99	NPP	6.25	5498.27	NPP
	04/17/17	5504.52	9.99	NPP	6.18	5498.34	NPP
	08/15/16	5504.52	9.99	NPP	6.18	5498.34	NPP
	04/15/16	5504.52	9.99	NPP	6.16	5498.36	NPP
	08/13/15	5504.52	9.99	NPP	6.23	5498.29	NPP
04/21/15	5504.52	9.99	NPP	6.24	5498.28	NPP	
CW 22+00	08/19/19	5508.04	12.43	NPP	8.83	5499.21	NPP
	04/02/19	5508.04	12.35	NPP	8.84	5499.20	NPP
	08/01/18	5508.04	12.35	NPP	8.96	5499.08	NPP
	04/17/18	5508.04	12.35	NPP	8.91	5499.13	NPP
	08/24/17	5508.04	12.34	NPP	8.81	5499.23	NPP
	04/17/17	5508.04	12.34	NPP	8.71	5499.33	NPP
	08/15/16	5508.04	12.34	NPP	8.57	5499.47	NPP
	04/15/16	5508.04	12.34	NPP	8.73	5499.31	NPP
	08/13/15	5508.04	12.34	NPP	8.56	5499.48	NPP
04/21/15	5508.04	12.34	NPP	8.69	5499.35	NPP	
CW 23+10	08/19/19	5510.04	14.82	NPP	10.33	5499.71	NPP
	04/02/19	5510.04	14.64	NPP	10.40	5499.64	NPP
	08/01/18	5510.04	14.80	NPP	10.60	5499.44	NPP
	04/17/18	5510.04	14.80	NPP	10.55	5499.49	NPP
	08/24/17	5510.04	14.65	NPP	7.77	5502.27	NPP
	04/17/17	5510.04	14.65	NPP	10.32	5499.72	NPP
	08/15/16	5508.04	14.65	NPP	10.14	5497.90	NPP
	04/15/16	5508.04	14.65	NPP	10.31	5497.73	NPP
	08/13/15	5510.04	14.65	NPP	10.10	5499.94	NPP
04/21/15	5510.04	14.65	NPP	10.28	5499.76	NPP	

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**Fluid Level Measurements Summary**  
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Well ID	Date	Measuring Point Elevation (ft amsl)	Total Well Depth (ft below TOC)	Depth To Product (ft below TOC)	Depth To Water (ft below TOC)	Corrected Groundwater Elevation (ft amsl)	SPH Thickness (ft)
CW 23+90	08/19/19	5507.32	11.81	NPP	7.79	5499.53	NPP
	04/02/19	5507.32	11.77	NPP	7.85	5499.47	NPP
	08/01/18	5507.32	11.70	NPP	7.95	5499.37	NPP
	04/17/18	5507.32	11.71	NPP	7.95	5499.37	NPP
	08/24/17	5507.32	11.72	NPP	8.10	5499.22	NPP
	04/17/17	5507.32	11.72	NPP	7.77	5499.55	NPP
	08/15/16	5507.32	11.72	NPP	7.61	5499.71	NPP
	04/15/16	5507.32	11.72	NPP	7.82	5499.50	NPP
	08/13/15	5507.32	11.72	NPP	7.54	5499.78	NPP
04/21/15	5507.32	11.72	NPP	7.74	5499.58	NPP	
CW 25+95	08/19/19	5505.90	12.32	NPP	7.35	5498.55	NPP
	04/04/19	5505.90	12.25	NPP	7.31	5498.59	NPP
	08/01/18	5505.90	12.26	NPP	7.35	5498.55	NPP
	04/17/18	5505.90	12.26	NPP	7.30	5498.60	NPP
	08/24/17	5505.90	12.25	NPP	7.25	5498.65	NPP
	04/17/17	5505.90	12.25	NPP	7.21	5498.69	NPP
	08/15/16	5505.90	12.25	NPP	7.15	5498.75	NPP
	04/15/16	5505.90	12.25	NPP	8.10	5497.80	NPP
	08/13/15	5505.90	12.25	Active Recovery Well			
04/21/15	5505.90	12.25	Active Recovery Well				
*SW1-0206	08/19/19	5508.27	53.17	NPP	52.59	5455.68	NPP
	04/02/19	5508.27	53.07	NPP	52.57	5455.70	NPP
	08/01/18	5508.27	53.10	NPP	52.60	5455.67	NPP
	04/17/18	5508.27	53.10	NPP	52.60	5455.67	NPP
	08/24/17	5508.27	53.08	NPP	52.58	5455.69	NPP
	04/17/17	5508.27	53.08	NPP	52.58	5455.69	NPP
	08/15/16	5508.27	53.08	NPP	52.61	5455.66	NPP
	04/15/16	5508.27	53.08	NPP	52.58	5455.69	NPP
	08/12/15	5508.27	53.08	NPP	52.62	5455.65	NPP
	05/19/15	5508.27	53.08	NPP	52.63	5455.64	NPP
04/27/15	5508.27	53.08	NPP	52.61	5455.66	NPP	
03/05/15	5508.27	53.08	NPP	52.61	5455.66	NPP	
*SW2-0206	08/19/19	5508.27	27.80	NPP	25.32	5482.95	NPP
	04/02/19	5508.27	27.70	NPP	24.77	5483.50	NPP
	08/01/18	5508.27	27.72	NPP	24.87	5483.40	NPP
	04/17/18	5508.27	27.70	NPP	24.56	5483.71	NPP
	08/24/17	5508.27	27.69	NPP	24.80	5483.47	NPP
	04/17/17	5508.27	27.69	NPP	24.90	5483.37	NPP
	08/15/16	5508.27	27.69	NPP	25.43	5482.84	NPP
	04/15/16	5508.27	27.69	NPP	25.38	5482.89	NPP
	08/12/15	5507.75	27.69	NPP	25.80	5481.95	NPP
	05/19/15	5507.75	27.69	NPP	25.74	5482.01	NPP
	04/27/15	5507.75	27.69	NPP	25.69	5482.06	NPP
03/05/15	5507.75	27.69	NPP	25.48	5482.27	NPP	

**TABLE 1**  
**Fluid Level Measurements Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Well ID	Date	Measuring Point Elevation (ft amsl)	Total Well Depth (ft below TOC)	Depth To Product (ft below TOC)	Depth To Water (ft below TOC)	Corrected Groundwater Elevation (ft amsl)	SPH Thickness (ft)
*SW3-0206	08/19/19	5505.29	52.62	NPP	27.03	5478.26	NPP
	04/02/19	5505.29	52.54	NPP	26.61	5478.68	NPP
	08/01/18	5505.29	52.58	NPP	26.90	5478.39	NPP
	04/17/18	5505.29	52.58	NPP	26.50	5478.79	NPP
	08/24/17	5505.29	52.56	NPP	26.42	5478.87	NPP
	04/17/17	5505.29	52.56	NPP	26.55	5478.74	NPP
	08/15/16	5505.29	52.56	NPP	26.36	5478.93	NPP
	04/15/16	5505.29	52.56	NPP	26.56	5478.73	NPP
	08/12/15	5505.29	52.56	NPP	26.53	5478.76	NPP
	05/19/15	5505.29	52.56	NPP	26.62	5478.67	NPP
	04/27/15	5505.29	52.56	NPP	26.64	5478.65	NPP
03/05/15	5505.29	52.56	NPP	26.53	5478.76	NPP	
*SW4-0206	08/19/19	5504.45	42.40	NPP	33.60	5470.85	NPP
	04/02/19	5504.45	42.33	NPP	32.88	5471.57	NPP
	08/01/18	5504.45	42.35	NPP	33.10	5471.35	NPP
	04/17/18	5504.45	42.35	NPP	32.70	5471.75	NPP
	08/24/17	5504.45	42.34	NPP	33.09	5471.36	NPP
	04/17/17	5504.45	42.34	NPP	32.72	5471.73	NPP
	08/15/16	5504.45	42.34	NPP	33.08	5471.37	NPP
	04/15/16	5504.45	42.34	NPP	32.71	5471.74	NPP
	08/12/15	5504.45	42.34	NPP	33.08	5471.37	NPP
	05/19/15	5504.45	42.34	NPP	32.81	5471.64	NPP
	04/27/15	5504.45	42.34	NPP	32.78	5471.67	NPP
03/05/15	5504.45	42.34	NPP	32.75	5471.70	NPP	
*SW5-0206	08/19/19	5514.34	52.34	NPP	33.99	5480.35	NPP
	04/02/19	5514.34	52.18	NPP	33.38	5480.96	NPP
	08/01/18	5514.34	52.25	NPP	34.26	5480.08	NPP
	04/17/18	5514.34	52.27	NPP	33.85	5480.49	NPP
	08/24/17	5514.34	52.24	NPP	34.04	5480.30	NPP
	04/17/17	5514.34	52.24	NPP	33.29	5481.05	NPP
	08/15/16	5514.34	52.24	NPP	34.03	5480.31	NPP
	04/15/16	5514.34	52.24	NPP	33.93	5480.41	NPP
	08/12/15	5514.34	52.24	NPP	34.20	5480.14	NPP
	05/19/15	5514.34	52.24	NPP	33.82	5480.52	NPP
	04/27/15	5514.34	52.24	NPP	33.73	5480.61	NPP
03/05/15	5514.34	52.24	NPP	33.78	5480.56	NPP	
*SW6-0206	08/19/19	5519.72	47.35	NPP	40.43	5479.29	NPP
	04/02/19	5519.72	47.41	NPP	38.68	5481.04	NPP
	08/01/18	5519.72	47.43	NPP	39.75	5479.97	NPP
	04/17/18	5519.72	47.44	NPP	38.52	5481.20	NPP
	08/24/17	5519.72	47.43	NPP	40.92	5478.80	NPP
	04/17/17	5519.72	47.41	NPP	39.06	5480.66	NPP
	08/15/16	5519.72	47.41	NPP	NWP	NWP	NPP
	04/15/16	5519.72	47.41	NPP	39.40	5480.32	NPP
	08/12/15	5519.72	47.41	NPP	41.65	5478.07	NPP
	05/19/15	5519.72	47.41	NPP	40.88	5478.84	NPP
	04/27/15	5519.72	47.41	NPP	40.74	5478.98	NPP
03/05/15	5519.72	47.41	NPP	40.23	5479.49	NPP	

**TABLE 1**  
**Fluid Level Measurements Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Well ID	Date	Measuring Point Elevation (ft amsl)	Total Well Depth (ft below TOC)	Depth To Product (ft below TOC)	Depth To Water (ft below TOC)	Corrected Groundwater Elevation (ft amsl)	SPH Thickness (ft)
*SW7-0206	08/19/19	5517.63	32.11	NPP	20.99	5496.64	NPP
	04/02/19	5517.63	32.05	NPP	20.53	5497.10	NPP
	08/01/18	5517.63	32.08	NPP	20.95	5496.68	NPP
	04/17/18	5517.63	32.07	NPP	20.56	5497.07	NPP
	08/24/17	5517.63	32.00	NPP	20.71	5496.92	NPP
	04/17/17	5517.63	32.95	NPP	20.83	5496.80	NPP
	08/15/16	5517.63	32.95	NPP	20.76	5496.87	NPP
	04/15/16	5517.63	32.95	NPP	20.48	5497.15	NPP
	08/12/15	5517.63	32.95	NPP	20.84	5496.79	NPP
	05/19/15	5517.63	32.95	NPP	20.67	5496.96	NPP
	04/27/15	5517.63	32.95	NPP	20.73	5496.90	NPP
03/05/15	5517.63	32.95	NPP	20.39	5497.24	NPP	

**Notes:**

\*SW = Wells sampled during significant rain events only  
ft = feet  
amsl = above mean sea level  
NPP = No Product Present  
NWP = No Water Present  
SPH = Separate Phase Hydrocarbon  
NM = Not Measured

**TABLE 2**  
**Groundwater Field Parameter Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Location ID	Date	Electrical Conductivity (uS/cm)	Total Dissolved Solids (mg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)	pH	Temperature (°F)
<b>Terminal Wells</b>							
MW-04	08/20/19	ns	ns	ns	ns	ns	ns
	08/10/18	ns	ns	ns	ns	ns	ns
	08/24/17	ns	ns	ns	ns	ns	ns
	04/21/17	ns	ns	ns	ns	ns	ns
	08/23/16	2438	1.556	5.15	-104.6	6.91	63.84
	08/24/15	2706	1759	2.23	-110.7	7.05	63.56
MW-08	2019	well is not scheduled to be sampled					
	2018	well is not scheduled to be sampled					
	08/24/17	ns	ns	ns	ns	ns	ns
	04/21/17	2514	1.633	4.14	43.2	7.68	57.78
	08/22/16	2149	1.398	2.72	107.2	8.04	59.41
	04/20/16	ns	ns	ns	ns	ns	ns
	08/18/15	ns	ns	ns	ns	ns	ns
	04/20/15	ns	ns	ns	ns	ns	ns
MW-20	08/20/19	ns	ns	ns	ns	ns	ns
	04/01/19	ns	ns	ns	ns	ns	ns
	08/01/18	ns	ns	ns	ns	ns	ns
	04/18/18	ns	ns	ns	ns	ns	ns
	08/24/17	ns	ns	ns	ns	ns	ns
	04/21/17	ns	ns	ns	ns	ns	ns
	08/17/16	ns	ns	ns	ns	ns	ns
	04/15/16	ns	ns	ns	ns	ns	ns
	08/24/15	ns	ns	ns	ns	ns	ns
	04/20/15	ns	ns	ns	ns	ns	ns
MW-21	08/20/19	ns	ns	ns	ns	ns	ns
	08/13/18	3933	2554	0.59	-68.3	7.01	61.10
	08/24/17	ns	ns	ns	ns	ns	ns
	04/21/17	ns	ns	ns	ns	ns	ns
	08/23/16	4165	2.704	1.83	52.8	7.32	61.16
	04/20/16	ns	ns	ns	ns	ns	ns
	08/24/15	ns	ns	ns	ns	ns	ns
	04/20/15	ns	ns	ns	ns	ns	ns

**TABLE 2**  
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**2019 Groundwater Remediation and Monitoring Annual Report**

Location ID	Date	Electrical Conductivity (uS/cm)	Total Dissolved Solids (mg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)	pH	Temperature (°F)
MW-29	08/23/19	940	735	1.25	158.0	6.91	61.50
	08/08/18	1840	1202	2.29	200.0	7.07	62.60
	08/24/17	2305	1638	1.80	71.6	7.09	63.95
	04/21/17	ns	ns	ns	ns	ns	ns
	08/23/16	1021	663	4.63	56.0	7.52	68.73
	04/20/16	ns	ns	ns	ns	ns	ns
	08/24/15	961	624	1.81	-16.0	7.49	61.70
	04/20/15	ns	ns	ns	ns	ns	ns
MW-30	08/20/19	ns	ns	ns	ns	ns	ns
	04/04/19	ns	ns	ns	ns	ns	ns
	08/10/18	ns	ns	ns	ns	ns	ns
	04/18/18	ns	ns	ns	ns	ns	ns
	08/24/17	ns	ns	ns	ns	ns	ns
	04/21/17	3338	2168	5.17	-61.4	7.28	53.78
	08/23/16	2757	1784	4.05	-247.5	7.08	62.52
	04/21/16	3582	2329	2.19	-260.5	7.75	64.46
	08/24/15	3009	1957	1.79	-236.3	7.19	62.18
04/20/15	ns	ns	ns	ns	ns	ns	
MW-31	08/22/19	2428	1794	2.15	-139.7	7.01	65.10
	08/07/18	2797	1820	1.09	-143.8	7.08	65.40
	08/25/17	2647	1722	1.49	-63.1	7.25	62.60
	04/21/17	ns	ns	ns	ns	ns	ns
	08/22/16	3048	1983	2.11	7.8	8.10	63.37
	04/20/16	ns	ns	ns	ns	ns	ns
	08/24/15	ns	ns	ns	ns	ns	ns
	04/20/15	ns	ns	ns	ns	ns	ns
MW-40	08/20/19	ns	ns	ns	ns	ns	ns
	08/10/18	ns	ns	ns	ns	ns	ns
	08/24/17	ns	ns	ns	ns	ns	ns
	04/21/17	ns	ns	ns	ns	ns	ns
	08/17/16	ns	ns	ns	ns	ns	ns
	04/20/16	ns	ns	ns	ns	ns	ns
	08/24/15	ns	ns	ns	ns	ns	ns
	04/20/15	ns	ns	ns	ns	ns	ns

**TABLE 2**  
**Groundwater Field Parameter Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Location ID	Date	Electrical Conductivity (uS/cm)	Total Dissolved Solids (mg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)	pH	Temperature (°F)
MW-44	08/22/19	5228	3958	2.14	-4.4	6.71	63.40
	08/07/18	6072	3945	2.08	134.4	7.04	63.30
	08/24/17	2919	1974	2.00	-6.0	7.10	63.53
	04/21/17	ns	ns	ns	ns	ns	ns
	08/23/16	3460	2.253	5.87	-15.8	7.30	61.32
	04/20/16	ns	ns	ns	ns	ns	ns
	08/24/15	5750	3740	1.93	-97.8	7.26	61.28
	04/20/15	ns	ns	ns	ns	ns	ns
MW-52	08/23/19	4519	3530	2.30	19.9	6.70	61.00
	08/08/18	5589	3581	1.33	187.2	6.77	61.90
	04/18/18	4916	3198	2.33	141.0	6.99	58.60
	08/24/17	4891	3180	2.10	180.0	6.88	62.00
	04/21/17	4912	3193	3.87	120.6	7.30	58.60
	08/22/16	5336	3469.000	2.81	109.6	7.63	60.04
	08/17/15	4172	2713	1.92	62.7	7.02	59.24
RW-01	08/19/19	ns	ns	ns	ns	ns	ns
	08/09/18	ns	ns	ns	ns	ns	ns
	08/24/17	ns	ns	ns	ns	ns	ns
	04/21/17	ns	ns	ns	ns	ns	ns
	08/17/16	ns	ns	ns	ns	ns	ns
	04/20/16	ns	ns	ns	ns	ns	ns
	08/24/15	ns	ns	ns	ns	ns	ns
	04/20/15	ns	ns	ns	ns	ns	ns
RW-09	08/20/19	ns	ns	ns	ns	ns	ns
	08/01/18	ns	ns	ns	ns	ns	ns
	08/24/17	ns	ns	ns	ns	ns	ns
	04/21/17	ns	ns	ns	ns	ns	ns
	08/17/16	ns	ns	ns	ns	ns	ns
	04/20/16	ns	ns	ns	ns	ns	ns
	08/24/15	ns	ns	ns	ns	ns	ns
	04/20/15	ns	ns	ns	ns	ns	ns
RW-15	08/20/19	ns	ns	ns	ns	ns	ns
	08/10/18	ns	ns	ns	ns	ns	ns
	08/24/17	ns	ns	ns	ns	ns	ns
	04/21/17	ns	ns	ns	ns	ns	ns
	08/23/16	2472	1.601	6.48	-123.8	7.67	61.15
	04/20/16	ns	ns	ns	ns	ns	ns
	08/24/15	ns	ns	ns	ns	ns	ns
	04/20/15	ns	ns	ns	ns	ns	ns

**TABLE 2**  
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Location ID	Date	Electrical Conductivity (uS/cm)	Total Dissolved Solids (mg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)	pH	Temperature (°F)
RW-18	08/20/19	ns	ns	ns	ns	ns	ns
	08/10/18	ns	ns	ns	ns	ns	ns
	08/24/17	ns	ns	ns	ns	ns	ns
	04/21/17	ns	ns	ns	ns	ns	ns
	08/23/16	3666	2.383	0.66	4.6	7.49	63.02
	04/20/16	ns	ns	ns	ns	ns	ns
	08/24/15	ns	ns	ns	ns	ns	ns
	04/20/15	ns	ns	ns	ns	ns	ns
RW-23	08/20/19	ns	ns	ns	ns	ns	ns
	08/01/18	ns	ns	ns	ns	ns	ns
	08/24/17	ns	ns	ns	ns	ns	ns
	04/21/17	ns	ns	ns	ns	ns	ns
	08/17/16	ns	ns	ns	ns	ns	ns
	04/20/16	ns	ns	ns	ns	ns	ns
	08/24/15	ns	ns	ns	ns	ns	ns
	04/20/15	ns	ns	ns	ns	ns	ns
RW-28	08/19/19	ns	ns	ns	ns	ns	ns
	08/01/18	ns	ns	ns	ns	ns	ns
	08/24/17	ns	ns	ns	ns	ns	ns
	04/21/17	ns	ns	ns	ns	ns	ns
	08/17/16	ns	ns	ns	ns	ns	ns
	04/20/16	ns	ns	ns	ns	ns	ns
	08/24/15	ns	ns	ns	ns	ns	ns
	04/20/15	ns	ns	ns	ns	ns	ns
RW-42	08/20/19	ns	ns	ns	ns	ns	ns
	08/10/18	ns	ns	ns	ns	ns	ns
	08/24/17	ns	ns	ns	ns	ns	ns
	04/21/17	ns	ns	ns	ns	ns	ns
	08/24/16	2325	1.511	5.07	-228.7	7.60	64.02
	04/20/16	ns	ns	ns	ns	ns	ns
	08/24/15	ns	ns	ns	ns	ns	ns
	04/20/15	ns	ns	ns	ns	ns	ns
RW-43	08/01/18	ns	ns	ns	ns	ns	ns
	08/01/18	ns	ns	ns	ns	ns	ns
	08/24/17	ns	ns	ns	ns	ns	ns
	04/21/17	ns	ns	ns	ns	ns	ns
	08/24/16	2904	1888	2.10	-151.1	9.50	67.91
	04/20/16	ns	ns	ns	ns	ns	ns
	08/24/15	ns	ns	ns	ns	ns	ns
	04/20/15	ns	ns	ns	ns	ns	ns

**TABLE 2**  
**Groundwater Field Parameter Summary**  
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Location ID	Date	Electrical Conductivity (uS/cm)	Total Dissolved Solids (mg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)	pH	Temperature (°F)
<b>Cross-Gradient Wells</b>							
MW-01	08/21/19	676	526	0.65	75.7	7.12	61.40
	04/03/19	905	592	3.80	124.2	6.97	54.50
	08/06/18	872	592	3.40	168.0	7.11	60.70
	04/18/18	796	520	2.91	102.7	7.19	53.20
	08/25/17	765	496	2.08	126.1	7.35	64.57
	04/20/17	827	538	3.01	233.4	7.99	57.65
	08/19/16	685	444	3.81	57.4	8.09	62.83
	04/21/16	863	561	3.57	32.3	8.41	56.24
	08/18/15	852	555	2.10	47.4	7.74	63.74
	04/20/15	992	646	4.80	86.9	7.62	55.40
MW-13	08/21/19	3140	2418	2.14	144.9	7.07	62.40
	04/03/19	3747	2437	1.77	133.0	7.14	61.50
	08/06/18	4038	2620	0.90	170.6	7.07	62.30
	04/18/18	3556	2314	1.61	129.0	7.11	61.10
	08/25/17	3528	2294	1.81	114.7	7.10	62.03
	04/20/17	3561	2314	1.86	195.6	7.45	63.41
	08/19/16	3560	2314	2.30	84.7	7.84	62.51
	04/21/16	3698	2404	1.66	0.0	7.46	63.61
	08/18/15	3986	2591	1.99	28.8	7.28	65.12
	04/20/15	4588	2981	3.17	80.6	7.19	61.70
MW-26	08/19/19	ns	ns	ns	ns	ns	ns
	08/02/18	ns	ns	ns	ns	ns	ns
	08/28/17	ns	ns	ns	ns	ns	ns
	04/20/17	ns	ns	ns	ns	ns	ns
	08/17/16	ns	ns	ns	ns	ns	ns
	04/21/16	ns	ns	ns	ns	ns	ns
	08/18/15	ns	ns	ns	ns	ns	ns
	04/20/15	ns	ns	ns	ns	ns	ns
MW-27	08/27/19	6774	5057	2.59	-103.0	6.95	64.80
	08/21/19	6421	4849	6.96	105.7	6.90	63.90
	08/06/18	8295	5395	1.55	262.3	7.03	65.70
	08/28/17	5587	3633	1.28	-49.2	7.05	63.10
	04/21/16	ns	ns	ns	ns	ns	ns
	08/19/16	5598	3640	2.30	-122.5	7.79	60.80
	04/21/16	ns	ns	ns	ns	ns	ns
	08/18/15	ns	ns	ns	ns	ns	ns
	04/20/15	ns	ns	ns	ns	ns	ns

**TABLE 2**  
**Groundwater Field Parameter Summary**  
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Location ID	Date	Electrical Conductivity (uS/cm)	Total Dissolved Solids (mg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)	pH	Temperature (°F)
MW-32	08/21/19	4297	3373	13.13	97.1	7.69	60.70
	08/06/18	5818	3777	6.98	232.8	7.64	60.00
	08/28/17	4694	3055	7.20	144.6	7.44	64.10
	04/21/16	ns	ns	ns	ns	ns	ns
	08/19/16	5094	3309	6.86	77.7	8.32	58.73
	04/21/16	ns	ns	ns	ns	ns	ns
	08/18/15	5171	3363	8.00	41.5	7.71	60.50
	04/20/15	ns	ns	ns	ns	ns	ns
MW-33	08/21/19	4188	3120	6.38	149.3	7.59	64.60
	04/03/19	4754	3094	3.71	141.6	7.74	59.50
	08/06/18	5539	3601	2.55	2461.0	7.52	65.50
	04/18/18	5003	3243	3.32	145.0	7.58	59.50
	08/28/17	4947	3211	4.20	146.4	7.24	65.10
	04/20/17	5288	3439	5.64	180.0	7.91	60.19
	08/19/16	5280	3429	6.11	70.1	8.49	60.62
	04/22/16	ns	ns	ns	ns	ns	ns
	08/18/15	5594	3633	4.84	42.7	7.45	62.96
	04/20/15	6078	3950	7.37	76.4	7.76	60.08
<b>Downgradient Wells</b>							
MW-11	08/21/19	2328	1774	3.64	-95.5	7.14	63.00
	08/06/18	3014	1956	3.69	-62.6	7.05	61.70
	08/29/17	2847	1850	1.48	-74.17	6.74	65.03
	04/20/16	ns	ns	ns	ns	ns	ns
	08/18/16	2203	1432	1.77	-61.3	7.66	64.99
	04/22/16	ns	ns	ns	ns	ns	ns
	08/19/15	2221	1443	2.28	-99.3	7.06	62.84
	04/20/15	ns	ns	ns	ns	ns	ns
MW-12	08/21/19	365	274	4.90	-84.2	6.90	64.40
	04/03/19	765	500	3.42	130.0	7.72	51.80
	08/06/18	459	298	1.17	226.1	7.24	65.50
	04/18/18	1183	773	4.60	84.4	7.44	54.40
	08/28/17	405	2639	3.48	124.9	7.28	69.30
	04/20/17	633	411	4.26	151.3	7.99	53.78
	08/18/16	402	261	2.55	42.2	9.49	65.93
	04/22/16	653	425	5.62	49.5	8.33	55.28
	08/19/15	763	496	3.25	32.7	7.65	65.72
	04/20/15	691	449	6.54	84.8	7.67	51.74

**TABLE 2**  
**Groundwater Field Parameter Summary**  
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Location ID	Date	Electrical Conductivity (uS/cm)	Total Dissolved Solids (mg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)	pH	Temperature (°F)
MW-34	08/21/19	2430	1833	1.51	-87.8	7.07	62.60
	08/06/18	3240	2041	2.95	-35.1	7.11	63.90
	08/29/17	2853	1854	1.81	-84.3	7.03	63.13
	04/20/16	ns	ns	ns	ns	ns	ns
	08/18/16	2789	1814	2.05	-77.5	7.88	60.58
	04/22/16	ns	ns	ns	ns	ns	ns
	08/19/15	2289	1489	1.54	-110.8	7.26	60.80
	04/20/15	ns	ns	ns	ns	ns	ns
MW-35	08/21/19	2044	1599	1.36	-87.6	7.09	60.90
	04/03/19	2352	1526	2.58	-76.4	7.08	58.50
	08/06/18	2714	1762	1.16	-50.7	7.11	62.00
	04/18/18	2100	1365	1.19	-78.7	7.12	58.60
	08/29/17	2480	1610	1.55	-91.3	7.10	62.13
	04/20/17	2059	1337	1.97	-16.5	7.64	59.99
	08/18/16	2331	1515	1.97	-86.7	8.01	59.90
	04/22/16	2001	1300	1.69	-106.9	7.64	59.60
	08/19/15	2116	1374	1.30	-103.4	7.28	60.32
	04/20/15	2054	1335	2.41	-70.2	7.37	58.40
MW-37	08/21/19	2765	2125	2.35	-100.6	7.27	62.30
	04/03/19	2898	1885	2.94	17.1	7.41	59.20
	08/06/18	2717	1762	2.25	-50.4	7.35	63.90
	04/18/18	2200	1450	2.14	-63.2	7.59	58.90
	08/29/17	2855	1859	2.40	-106.7	7.36	63.25
	04/20/17	2296	1490	3.42	8.1	7.64	58.91
	08/18/16	2518	1635	3.31	-67.1	8.12	59.90
	04/22/16	ns	ns	ns	ns	ns	ns
	08/19/15	2417	1571	3.62	-118.1	7.61	60.50
	04/20/15	2730	1772	2.98	22.1	7.58	60.20
MW-38	08/21/19	1461	1131	0.77	-85.8	7.09	60.90
	04/03/19	1616	1053	2.67	-75.8	7.42	59.00
	08/06/18	1922	1248	2.20	-54.2	7.19	62.50
	04/18/18	1589	1034	1.37	-104.0	7.29	58.50
	08/29/17	1610	1047	2.00	-95.0	7.18	64.80
	04/20/17	1560	1014	2.37	34.9	8.06	59.48
	08/18/16	1085	705	3.11	-46.5	8.42	60.26
	04/22/16	ns	ns	ns	ns	ns	ns
	08/19/15	1171	761	2.01	-124.7	7.55	59.00
	04/20/15	1395	906	3.13	10.1	7.76	59.48

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Location ID	Date	Electrical Conductivity (uS/cm)	Total Dissolved Solids (mg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)	pH	Temperature (°F)
<b>RCRA Investigation Wells</b>							
MW-50	2019	ns	ns	ns	ns	ns	ns
	2018	ns	ns	ns	ns	ns	ns
	2017	ns	ns	ns	ns	ns	ns
	08/23/16	590	0.383	4.99	-123.3	8.38	61.06
	08/17/15	ns	ns	ns	ns	ns	ns
MW-51	2019	ns	ns	ns	ns	ns	ns
	08/03/18	652	423	1.57	214.1	7.25	60.80
	08/23/17	729	429	4.09	172.0	7.32	62.90
	08/23/16	1180	732	5.92	-38.6	7.67	62.12
	08/17/15	723	470	2.55	70.2	7.31	58.76
MW-53	08/23/19	4658	3620	1.56	152.7	7.06	51.40
	08/03/18	5438	3536	1.38	229.9	7.25	61.50
	08/23/17	5204	3395	1.43	189.4	7.28	60.40
	08/24/16	4393	2868	4.99	27.5	7.40	59.49
	08/17/15	5470	3556	2.31	96.0	7.14	59.78
MW-54	08/20/19	ns	ns	ns	ns	ns	ns
	08/09/18	ns	ns	ns	ns	ns	ns
	08/24/17	ns	ns	ns	ns	ns	ns
	08/17/16	ns	ns	ns	ns	ns	ns
	08/17/15	ns	ns	ns	ns	ns	ns
MW-55	08/20/19	ns	ns	ns	ns	ns	ns
	08/10/18	ns	ns	ns	ns	ns	ns
	08/24/17	ns	ns	ns	ns	ns	ns
	08/17/16	ns	ns	ns	ns	ns	ns
	08/17/15	ns	ns	ns	ns	ns	ns
MW-56	08/20/19	ns	ns	ns	ns	ns	ns
	08/01/18	ns	ns	ns	ns	ns	ns
	08/24/17	ns	ns	ns	ns	ns	ns
	08/23/16	3032	1972	1.47	68.4	7.36	68.40
	08/17/15	ns	ns	ns	ns	ns	ns
MW-57	08/20/19	ns	ns	ns	ns	ns	ns
	08/01/18	ns	ns	ns	ns	ns	ns
	08/24/17	ns	ns	ns	ns	ns	ns
	08/24/16	3066	1994	2.99	-149.0	7.42	65.61
	08/17/15	ns	ns	ns	ns	ns	ns

**TABLE 2**  
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Location ID	Date	Electrical Conductivity (uS/cm)	Total Dissolved Solids (mg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)	pH	Temperature (°F)
MW-58	08/20/19	ns	ns	ns	ns	ns	ns
	08/10/18	ns	ns	ns	ns	ns	ns
	08/24/17	ns	ns	ns	ns	ns	ns
	08/17/16	ns	ns	ns	ns	ns	ns
	08/17/15	ns	ns	ns	ns	ns	ns
MW-59	08/22/19	3012	2301	1.91	-101.6	7.04	63.00
	08/03/18	3000	1956	1.10	-59.7	6.92	64.00
	08/22/17	2649	1720	1.32	-74.5	6.99	63.50
	08/22/16	3241	2106	2.34	70.3	7.83	62.15
	08/17/15	3381	220	1.30	-112.3	7.16	62.48
MW-60	08/19/19	ns	ns	ns	ns	ns	ns
	08/07/18	ns	ns	ns	ns	ns	ns
	08/22/17	4074	2653	3.41	169.5	7.15	64.50
	08/17/16	ns	ns	ns	ns	ns	ns
	08/17/15	ns	ns	ns	ns	ns	ns
MW-61	08/19/19	ns	ns	ns	ns	ns	ns
	08/02/18	ns	ns	ns	ns	ns	ns
	08/24/17	ns	ns	ns	ns	ns	ns
	08/17/16	ns	ns	ns	ns	ns	ns
	08/17/15	ns	ns	ns	ns	ns	ns
MW-62	08/22/19	6708	5057	2.75	58.3	6.86	63.00
	08/07/18	7891	5129	2.81	79.9	7.13	64.30
	08/23/17	7036	4569	2.06	50.8	7.00	62.90
	08/22/16	7905	5139	2.18	120.3	8.00	62.06
	08/17/15	7273	473	2.03	48.1	7.05	61.46
MW-63	08/22/19	4595	3380	2.87	103.0	6.90	66.20
	08/08/18	4005	2605	6.99	154.5	6.99	65.20
	08/22/17	3530	2310	1.20	112.1	25.88	65.60
	08/17/15	4931	320	0.80	57.8	6.84	64.64
MW-64	08/22/19	5248	4017	5.32	95.3	7.11	62.80
	08/08/18	6353	4128	5.94	159.2	7.13	61.60
	08/22/17	3946	3866	5.29	154.6	6.95	65.77
	08/22/16	6658	4329	6.29	131.2	7.83	62.11
	08/17/15	6310	410	6.16	68.3	7.04	63.38
MW-65	08/22/19	1983	1384	0.65	-42.5	7.29	68.40
	08/07/18	3172	4898	2.25	-80.4	7.03	68.00
	08/22/17	4861	3172	1.06	-64.9	7.05	65.90
	08/22/16	5228	3398	1.83	-21.8	7.75	63.32
	08/17/15	4861	316	1.83	-182.3	7.10	63.38

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Location ID	Date	Electrical Conductivity (uS/cm)	Total Dissolved Solids (mg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)	pH	Temperature (°F)
MW-66	08/19/19	ns	ns	ns	ns	ns	ns
	08/02/18	ns	ns	ns	ns	ns	ns
	08/24/17	ns	ns	ns	ns	ns	ns
	08/17/16	ns	ns	ns	ns	ns	ns
	08/17/15	ns	ns	ns	ns	ns	ns
MW-67	08/23/19	1089	852	2.07	93.5	6.72	61.00
	08/03/18	1977	1287	1.37	250.0	7.12	60.90
	08/23/17	1359	1040	1.60	143.8	7.17	63.13
	08/24/16	1078	714	5.87	5.4	7.52	59.79
	08/17/15	1320	860	2.71	73.0	7.24	59.48
MW-68	08/23/19	1182	910	4.21	76.1	6.89	62.50
	08/03/18	1431	930	1.53	208.0	7.03	60.90
	08/23/17	1190	762	2.10	174.9	7.06	52.67
	08/24/16	1210	785	5.45	29.0	7.71	62.18
	08/17/15	1257	819	2.36	69.8	7.30	62.42
MW-69	08/19/19	ns	ns	ns	ns	ns	ns
	08/01/18	ns	ns	ns	ns	ns	ns
	08/24/17	ns	ns	ns	ns	ns	ns
	08/17/16	ns	ns	ns	ns	ns	ns
	08/17/15	ns	ns	ns	ns	ns	ns
MW-70	08/22/19	5095	3907	1.91	-69.7	6.88	62.60
	08/07/18	5598	3647	2.61	-24.6	6.92	66.20
	08/23/17	5387	3516	1.88	-69.6	6.79	62.60
	08/17/16	ns	ns	ns	ns	ns	ns
	08/17/15	6258	407	3.21	-49.5	6.89	60.68
<b>North Boundary Barrier Wells</b>							
CW 0+60	08/26/19	1784	1287	1.33	-80.3	6.63	67.5
	04/03/19	1840	1196	1.25	-60.01	6.80	51.8
	08/09/18	1451	940	0.79	-57.2	6.76	67.3
	04/18/18	1123	728	1.57	-50.3	6.75	55.4
	08/28/17	886	576	1.46	-66.17	6.83	67.03
	04/27/17	911	593	3.47	-56.2	6.99	53.92
	08/17/16	878	570	2.84	47.78	6.91	70.55
	04/19/16	571	371	1.84	-63.41	7.17	54.99
	08/25/15	914	592	1.34	-94.9	7.04	68.54
	04/20/15	733	477	2.83	-80.2	7.54	58.58

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Location ID	Date	Electrical Conductivity (uS/cm)	Total Dissolved Solids (mg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)	pH	Temperature (°F)
CW 25+95	08/26/19	1519	1111	0.30	-240.9	7.14	66.60
	04/04/19	1992	1294	3.61	-14.1	7.24	54.50
	08/09/18	2815	1833	0.94	-216.9	7.40	67.10
	04/18/18	1679	1092	1.04	-81.3	7.61	56.10
	08/28/17	1989	1294	0.80	-254.4	7.20	69.60
	04/28/17	1759	1125	4.08	-211.4	7.43	53.95
	08/17/16	1511	982	1.35	44.3	7.25	68.40
	04/21/16	1721	1177	0.68	-222.0	7.87	62.24
	08/26/15	np	np	np	np	np	np
	04/20/15	1547	1008	1.95	-193.1	7.54	59.30
OW 0+60	08/19/19	ns	ns	ns	ns	ns	ns
	04/03/19	ns	ns	ns	ns	ns	ns
	08/01/18	ns	ns	ns	ns	ns	ns
	04/18/18	ns	ns	ns	ns	ns	ns
	08/28/17	ns	ns	ns	ns	ns	ns
	04/27/17	np	np	np	np	np	np
	08/17/16	1208	785	1.15	22.9	7.55	70.00
	04/19/16	ns	ns	ns	ns	ns	ns
	08/25/15	1014	659	1.03	-135.1	6.96	68.78
	04/20/15	ns	ns	ns	ns	ns	ns
OW 1+50	08/19/19	ns	ns	ns	ns	ns	ns
	04/03/19	ns	ns	ns	ns	ns	ns
	08/01/18	ns	ns	ns	ns	ns	ns
	04/18/18	ns	ns	ns	ns	ns	ns
	08/28/17	ns	ns	ns	ns	ns	ns
	04/27/17	np	np	np	np	np	np
	08/17/16	1225	797	1.70	-96.7	7.40	70.41
	04/19/16	758	493	1.65	-87.9	6.63	57.11
	08/25/15	ns	ns	ns	ns	ns	ns
	04/20/15	ns	ns	ns	ns	ns	ns
OW 3+85	08/26/19	ns	ns	ns	ns	ns	ns
	04/03/19	ns	ns	ns	ns	ns	ns
	08/09/18	ns	ns	ns	ns	ns	ns
	04/19/18	2800	1846	1.42	-111.7	7.20	56.90
	08/28/17	ns	ns	ns	ns	ns	ns
	04/27/17	2355	1532	1.10	-18.7	7.41	13.05
	08/17/16	2776	1804	1.33	-215.3	7.09	67.70
	04/19/16	2471	1606	1.84	-74.55	6.92	55.67
	08/25/15	2522	1638	0.86	-263.9	7.15	67.16
	04/20/15	ns	ns	ns	ns	ns	ns

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Location ID	Date	Electrical Conductivity (uS/cm)	Total Dissolved Solids (mg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)	pH	Temperature (°F)
OW 5+50	08/19/19	ns	ns	ns	ns	ns	ns
	04/02/19	ns	ns	ns	ns	ns	ns
	08/01/18	ns	ns	ns	ns	ns	ns
	04/18/18	ns	ns	ns	ns	ns	ns
	08/28/17	ns	ns	ns	ns	ns	ns
	04/27/17	np	np	np	np	np	np
	08/17/16	ns	ns	ns	ns	ns	ns
	04/15/16	ns	ns	ns	ns	ns	ns
	08/25/15	ns	ns	ns	ns	ns	ns
	04/20/15	ns	ns	ns	ns	ns	ns
OW 6+70	08/19/19	ns	ns	ns	ns	ns	ns
	04/02/19	ns	ns	ns	ns	ns	ns
	08/01/18	ns	ns	ns	ns	ns	ns
	04/18/18	ns	ns	ns	ns	ns	ns
	08/28/17	ns	ns	ns	ns	ns	ns
	04/17/17	ns	ns	ns	ns	ns	ns
	08/17/16	ns	ns	ns	ns	ns	ns
	04/15/16	ns	ns	ns	ns	ns	ns
	08/25/15	ns	ns	ns	ns	ns	ns
OW 8+10	08/26/19	3817	2743	2.26	122.9	6.93	67.90
	04/04/19	3751	2457	2.28	141.5	7.38	55.00
	08/09/18	ns	ns	ns	ns	ns	ns
	04/19/18	ns	ns	ns	ns	ns	ns
	08/28/17	3663	2381	1.99	129.0	6.89	68.03
	04/27/17	4183	2719	3.16	137.0	7.83	55.94
	08/17/16	ns	ns	ns	ns	ns	ns
	04/15/16	ns	ns	ns	ns	ns	ns
	08/25/15	ns	ns	ns	ns	ns	ns
	04/20/15	ns	ns	ns	ns	ns	ns
OW 11+15	08/26/19	ns	ns	ns	ns	ns	ns
	04/04/19	ns	ns	ns	ns	ns	ns
	08/09/18	ns	ns	ns	ns	ns	ns
	04/19/18	2233	1443	0.67	-85.1	7.09	59.80
	08/28/17	ns	ns	ns	ns	ns	ns
	04/27/17	2399	1558	2.78	67.6	7.56	55.99
	08/17/16	2171	1414	0.78	152.9	6.65	68.23
	04/19/16	1284	834	3.49	52.2	7.68	57.66
	08/25/15	2452	1593	0.86	-208.4	6.98	66.38
	04/20/15	2672	1738	1.34	-99.6	7.16	58.52

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Location ID	Date	Electrical Conductivity (uS/cm)	Total Dissolved Solids (mg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)	pH	Temperature (°F)
OW 14+10	08/19/19	ns	ns	ns	ns	ns	ns
	04/02/19	ns	ns	ns	ns	ns	ns
	08/01/18	ns	ns	ns	ns	ns	ns
	04/19/18	ns	ns	ns	ns	ns	ns
	08/28/17	ns	ns	ns	ns	ns	ns
	04/17/17	ns	ns	ns	ns	ns	ns
	08/17/16	ns	ns	ns	ns	ns	ns
	04/15/16	ns	ns	ns	ns	ns	ns
	08/25/15	ns	ns	ns	ns	ns	ns
	04/20/15	ns	ns	ns	ns	ns	ns
OW 16+60	08/26/19	ns	ns	ns	ns	ns	ns
	04/04/19	ns	ns	ns	ns	ns	ns
	08/09/18	ns	ns	ns	ns	ns	ns
	04/19/18	4102	2665	1.02	-122.0	7.29	61.80
	08/28/17	ns	ns	ns	ns	ns	ns
	04/27/17	3481	2262	3.01	-26.6	7.32	57.43
	08/17/16	3749	2438	1.43	-249.4	7.77	69.32
	04/19/16	2973	2334	2.80	-116.2	7.52	59.62
	08/25/15	3936	2557	0.77	-219.3	7.16	68.84
	04/20/15	4057	2635	1.65	-211.1	7.24	60.98
OW 19+50	08/26/19	5123	3692	2.26	123.6	7.19	67.70
	04/04/19	2580	1671	2.57	165.9	7.55	55.80
	08/01/18	ns	ns	ns	ns	ns	ns
	04/18/18	ns	ns	ns	ns	ns	ns
	08/28/17	ns	ns	ns	ns	ns	ns
	04/27/17	np	np	np	np	np	np
	08/17/16	ns	ns	ns	ns	ns	ns
	04/15/16	ns	ns	ns	ns	ns	ns
	08/25/15	ns	ns	ns	ns	ns	ns
OW 22+00	08/26/19	3358	2411	2.30	128.1	7.01	68.10
	04/04/19	1148	748	3.75	157.3	7.70	53.80
	08/09/18	ns	ns	ns	ns	ns	ns
	04/19/18	3451	2243	2.43	114.5	7.15	57.40
	08/28/17	2840	1846	3.21	179.6	7.08	70.00
	04/28/17	3264	1875	7.90	123.8	6.28	54.37
	08/17/16	1913	1242	6.99	185.7	7.40	72.55
	04/19/16	2205	1434	6.71	15.0	8.01	57.38
	08/25/15	3048	1983	3.28	18.1	7.41	67.88
	04/20/15	3102	2017	4.57	24.8	7.56	57.62

**TABLE 2**  
**Groundwater Field Parameter Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Location ID	Date	Electrical Conductivity (uS/cm)	Total Dissolved Solids (mg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)	pH	Temperature (°F)
OW 23+10	08/26/19	ns	ns	ns	ns	ns	ns
	04/04/19	2101	1365	2.53	148.9	7.59	58.60
	08/09/18	2111	1372	1.20	207.8	7.32	70.10
	04/19/18	1939	1255	3.03	116.2	7.53	61.30
	08/28/17	ns	ns	ns	ns	ns	ns
	04/28/17	1860	1200	7.34	70.7	7.18	56.04
	08/17/16	1589	1036	1.89	-61.8	8.28	70.16
	04/19/16	ns	ns	ns	ns	ns	ns
	08/25/15	1676	1090	1.57	-83.5	7.36	68.78
	04/20/15	1985	1289	2.22	-102.5	7.50	58.76
OW 23+90	08/26/19	1868	1313	2.02	151.8	7.06	69.80
	04/04/19	1866	1209	3.27	143.6	7.82	60.40
	08/09/18	ns	ns	ns	ns	ns	ns
	04/18/18	ns	ns	ns	ns	ns	ns
	08/28/17	ns	ns	ns	ns	ns	ns
	04/28/17	np	np	np	np	np	np
	08/17/16	ns	ns	ns	ns	ns	ns
	04/19/16	ns	ns	ns	ns	ns	ns
	08/25/15	1396	908	3.50	-10.3	7.53	67.34
	04/20/15	1263	821	6.56	-1.9	7.74	59.36
OW 25+70	08/26/19	1536	1085	1.84	-72.7	7.08	69.10
	04/04/19	1604	1040	2.30	-9.0	7.49	55.00
	08/09/18	2487	1612	1.98	26.0	7.12	69.90
	04/19/18	1354	877	2.00	-51.7	7.39	57.90
	08/28/17	2205	1432	1.76	-45.0	7.19	71.07
	04/28/17	2318	1340	6.99	-20.4	7.18	55.32
	08/17/16	1431	930	1.72	-73.8	8.08	69.59
	04/21/16	1947	1265	2.22	-72.8	8.24	57.56
	08/25/15	1600	1040	1.62	-113.4	7.33	69.32
	04/20/15	1529	995	2.08	-110.0	7.32	56.96

**TABLE 2**  
**Groundwater Field Parameter Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Location ID	Date	Electrical Conductivity (uS/cm)	Total Dissolved Solids (mg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)	pH	Temperature (°F)
<b>San Juan River Bluff</b>							
Outfall No. 2	08/15/19	985	676	6.31	62.7	7.17	70.00
	04/04/19	1166	754	12.09	159.3	7.62	54.30
	08/10/18	650	423	5.80	179.4	7.51	63.60
	04/20/18	820	619	6.52	181.2	7.45	61.10
	08/30/17	1111	722	6.76	180.0	7.41	70.00
	04/21/17	785	507	6.66	180.7	7.77	58.64
	08/17/16	ns	ns	ns	ns	ns	ns
	05/18/16	306	1989	6.78	94.9	6.25	55.22
	04/22/16	ns	ns	ns	ns	ns	ns
	08/26/15	ns	ns	ns	ns	ns	ns
04/21/15	1064	693	9.80	4.4	7.98	51.80	
**Outfall No. 3	08/15/19	915	656	6.40	42.5	7.32	68.00
	04/04/19	1151	748	13.48	170.6	7.70	53.10
	08/09/18	380	247	4.21	226.1	7.38	68.20
	04/20/18	437	277	5.29	190.9	7.25	55.90
	08/30/17	467	284	5.94	170.7	7.17	61.90
	04/21/17	820	533	5.77	144.7	7.90	56.30
	08/19/16	297	193	9.33	38.0	8.79	61.16
	05/18/16	306	1989	8.67	96.4	6.84	51.98
	04/22/16	ns	ns	ns	ns	ns	ns
	08/26/15	307	199	7.84	23.7	7.87	60.02
04/21/15	422	275	10.48	59.2	7.95	53.66	
**Seep 1	2019	ns	ns	ns	ns	ns	ns
	2018	ns	ns	ns	ns	ns	ns
	08/30/17	ns	ns	ns	ns	ns	ns
	04/21/17	3245	2106	5.43	238.1	7.63	57.20
	08/19/16	ns	ns	ns	ns	ns	ns
	04/22/16	ns	ns	ns	ns	ns	ns
	08/26/15	ns	ns	ns	ns	ns	ns
	04/21/15	5072	3296	4.99	49.7	6.54	53.60
**Seep 2	2019	ns	ns	ns	ns	ns	ns
	2018	ns	ns	ns	ns	ns	ns
	08/30/17	ns	ns	ns	ns	ns	ns
	04/21/17	ns	ns	ns	ns	ns	ns
	08/19/16	ns	ns	ns	ns	ns	ns
	04/22/16	ns	ns	ns	ns	ns	ns
	08/26/15	ns	ns	ns	ns	ns	ns
	04/21/15	ns	ns	ns	ns	ns	ns

**TABLE 2**  
**Groundwater Field Parameter Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Location ID	Date	Electrical Conductivity (uS/cm)	Total Dissolved Solids (mg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)	pH	Temperature (°F)	
**Seep 3	2019	ns	ns	ns	ns	ns	ns	
	2018	ns	ns	ns	ns	ns	ns	
	08/30/17	ns	ns	ns	ns	ns	ns	
	04/21/17	ns	ns	ns	ns	ns	ns	
	08/19/16	ns	ns	ns	ns	ns	ns	
	04/22/16	ns	ns	ns	ns	ns	ns	
	08/26/15	ns	ns	ns	ns	ns	ns	
	04/21/15	ns	ns	ns	ns	ns	ns	
**Seep 4	08/19/16	Seep no longer exists						
	04/22/16	ns	ns	ns	ns	ns	ns	
	08/26/15	ns	ns	ns	ns	ns	ns	
	04/21/15	ns	ns	ns	ns	ns	ns	
	08/26/14	ns	ns	ns	ns	ns	ns	
	04/12/14	ns	ns	ns	ns	ns	ns	
	08/06/13	ns	ns	ns	ns	ns	ns	
	04/24/13	ns	ns	ns	ns	ns	ns	
	08/07/12	ns	ns	ns	ns	ns	ns	
	03/18/12	ns	ns	ns	ns	ns	ns	
**Seep 5	2019	ns	ns	ns	ns	ns	ns	
	2018	ns	ns	ns	ns	ns	ns	
	08/30/17	ns	ns	ns	ns	ns	ns	
	08/30/17	ns	ns	ns	ns	ns	ns	
	04/21/17	ns	ns	ns	ns	ns	ns	
	08/19/16	ns	ns	ns	ns	ns	ns	
	04/22/16	ns	ns	ns	ns	ns	ns	
	08/26/15	ns	ns	ns	ns	ns	ns	
	04/21/15	ns	ns	ns	ns	ns	ns	
**Seep 6	08/19/16	Seep no longer exists						
	04/22/16	ns	ns	ns	ns	ns	ns	
	08/26/15	ns	ns	ns	ns	ns	ns	
	04/21/15	ns	ns	ns	ns	ns	ns	
	08/26/14	ns	ns	ns	ns	ns	ns	
	04/12/14	8810	5727	13.46	105.2	7.24	44.84	
	08/06/13	28663	18631	90.40	153.6	6.68	66.26	
	04/24/13	9510	6180	129.16	219.0	7.07	42.00	
	08/07/12	ns	ns	ns	ns	ns	ns	
	03/18/12	7291	6851	12.60	121.6	7.61	48.02	

**TABLE 2**  
**Groundwater Field Parameter Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Location ID	Date	Electrical Conductivity (uS/cm)	Total Dissolved Solids (mg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)	pH	Temperature (°F)
**Seep 7	08/19/16	Seep no longer exists					
	04/22/16	ns	ns	ns	ns	ns	ns
	08/26/15	ns	ns	ns	ns	ns	ns
	04/21/15	ns	ns	ns	ns	ns	ns
	08/26/14	ns	ns	ns	ns	ns	ns
	04/12/14	ns	ns	ns	ns	ns	ns
	08/06/13	ns	ns	ns	ns	ns	ns
	04/24/13	ns	ns	ns	ns	ns	ns
	08/07/12	ns	ns	ns	ns	ns	ns
	03/18/12	ns	ns	ns	ns	ns	ns
**Seep 8	08/19/16	Seep no longer exists					
	04/22/16	ns	ns	ns	ns	ns	ns
	08/26/15	ns	ns	ns	ns	ns	ns
	04/21/15	ns	ns	ns	ns	ns	ns
	08/26/14	ns	ns	ns	ns	ns	ns
	04/12/14	ns	ns	ns	ns	ns	ns
	08/06/13	ns	ns	ns	ns	ns	ns
	04/24/13	ns	ns	ns	ns	ns	ns
	08/07/12	ns	ns	ns	ns	ns	ns
	03/18/12	ns	ns	ns	ns	ns	ns
**Seep 9	08/19/16	Seep no longer exists					
	04/22/16	ns	ns	ns	ns	ns	ns
	08/26/15	ns	ns	ns	ns	ns	ns
	04/21/15	ns	ns	ns	ns	ns	ns
	08/26/14	ns	ns	ns	ns	ns	ns
	04/12/14	5271	3.4255	12.90	43.9	7.73	43.10
	08/06/13	ns	ns	ns	ns	ns	ns
	04/24/13	5644	3670	136.90	214.3	7.35	35.00
	08/07/12	ns	ns	ns	ns	ns	ns
	03/18/12	3004	2841	7.62	139.4	7.64	47.48
**Upstream	08/16/19	241	207	10.18	67.5	8.01	54.20
	04/05/19	427	278	7.69	110.7	8.24	54.50
	08/02/18	454	294	8.85	173.7	7.60	68.50
	04/20/18	360	235	9.70	181.1	8.39	59.90
	08/30/17	192	125	12.16	170.0	8.26	66.10
	04/21/17	382	248	9.21	182.9	8.69	55.22
	08/19/16	290	189	8.90	22.6	8.94	64.04
	04/22/16	ns	ns	ns	ns	ns	ns
	08/26/15	169	110	9.28	23.6	7.98	57.74
	04/22/15	540	351	13.08	34.2	8.16	58.64

**TABLE 2**  
**Groundwater Field Parameter Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Location ID	Date	Electrical Conductivity (uS/cm)	Total Dissolved Solids (mg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)	pH	Temperature (°F)
**North of MW-45	08/16/19	231	195	9.89	115.4	8.04	54.90
	04/05/19	417	271	8.66	145.6	8.13	52.70
	08/02/18	314	205	8.97	211.4	7.87	65.00
	04/20/18	320	210	8.25	201.5	8.03	60.10
	08/30/17	335	218	7.86	182.7	8.27	72.70
	04/21/17	314	204	7.77	230.9	8.49	59.72
	08/19/16	293	191	9.40	37.8	9.67	60.08
	04/22/16	ns	ns	ns	ns	ns	ns
	08/26/15	ns	ns	ns	ns	ns	ns
	04/22/15	498	324	12.93	33.4	8.03	60.08
**North of MW-46	08/16/19	236	195	10.80	99.5	7.73	56.60
	04/05/19	239	155	7.48	134.0	8.30	55.60
	08/02/18	309	202	8.77	213.2	7.29	67.60
	04/20/18	340	219	7.95	207.5	8.45	62.30
	08/30/17	330	215	7.74	191.7	8.20	69.10
	04/21/17	490	319	8.74	269.6	8.66	60.62
	08/19/16	296	192	8.75	45.1	9.02	60.98
	04/22/16	ns	ns	ns	ns	ns	ns
	08/26/15	ns	ns	ns	ns	ns	ns
	04/22/15	500	325	13.71	20.3	8.24	60.26
**Downstream	08/16/19	250	194	10.69	65.1	7.52	60.00
	04/05/19	494	321	7.78	169.1	8.06	55.60
	08/02/18	302	196	8.22	244.9	7.38	65.60
	04/20/18	319	200	7.98	181.1	7.92	61.10
	08/30/17	325	211	6.31	173.6	8.13	69.10
	04/21/17	437	284	8.34	263.4	8.85	61.52
	08/19/16	290	189	8.76	20.5	8.90	63.86
	04/22/16	ns	ns	ns	ns	ns	ns
	08/26/15	315	205	9.81	14.7	8.13	57.20
	04/22/15	536	348	12.39	35.7	8.16	59.72

**TABLE 2**  
**Groundwater Field Parameter Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Location ID	Date	Electrical Conductivity (uS/cm)	Total Dissolved Solids (mg/l)	Dissolved Oxygen (mg/l)	Oxidation Reduction Potential (mV)	pH	Temperature (°F)
<b>Background Wells</b>							
**MW-03	08/19/19	ns	ns	ns	ns	ns	ns
	04/02/18	ns	ns	ns	ns	ns	ns
	08/01/18	ns	ns	ns	ns	ns	ns
	04/16/18	ns	ns	ns	ns	ns	ns
	08/30/17	ns	ns	ns	ns	ns	ns
	04/18/17	ns	ns	ns	ns	ns	ns
	08/17/16	ns	ns	ns	ns	ns	ns
	04/22/16	ns	ns	ns	ns	ns	ns
	08/26/15	ns	ns	ns	ns	ns	ns
04/22/15	ns	ns	ns	ns	ns	ns	
**MW-05	08/19/19	ns	ns	ns	ns	ns	ns
	04/02/19	ns	ns	ns	ns	ns	ns
	08/02/18	ns	ns	ns	ns	ns	ns
	04/16/18	ns	ns	ns	ns	ns	ns
	08/30/17	ns	ns	ns	ns	ns	ns
	04/18/17	ns	ns	ns	ns	ns	ns
	08/17/16	ns	ns	ns	ns	ns	ns
	04/22/16	ns	ns	ns	ns	ns	ns
	08/26/15	ns	ns	ns	ns	ns	ns
04/22/15	ns	ns	ns	ns	ns	ns	
**MW-06	08/19/19	ns	ns	ns	ns	ns	ns
	04/02/19	ns	ns	ns	ns	ns	ns
	08/02/18	ns	ns	ns	ns	ns	ns
	04/16/18	ns	ns	ns	ns	ns	ns
	08/30/17	ns	ns	ns	ns	ns	ns
	04/18/17	ns	ns	ns	ns	ns	ns
	08/17/16	ns	ns	ns	ns	ns	ns
	04/22/16	ns	ns	ns	ns	ns	ns
	08/26/15	ns	ns	ns	ns	ns	ns
04/22/15	ns	ns	ns	ns	ns	ns	
MW BCK1	2019	ns	ns	ns	ns	ns	ns
	2018	ns	ns	ns	ns	ns	ns
	2017	ns	ns	ns	ns	ns	ns
	2016	ns	ns	ns	ns	ns	ns
	08/17/15	ns	ns	ns	ns	ns	ns
	04/22/15	ns	ns	ns	ns	ns	ns

**TABLE 2**  
**Groundwater Field Parameter Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Location ID	Date	Electrical Conductivity ( <i>uS/cm</i> )	Total Dissolved Solids ( <i>mg/l</i> )	Dissolved Oxygen ( <i>mg/l</i> )	Oxidation Reduction Potential ( <i>mV</i> )	pH	Temperature ( <i>°F</i> )
MW BCK2	2019	ns	ns	ns	ns	ns	ns
	2018	ns	ns	ns	ns	ns	ns
	2017	ns	ns	ns	ns	ns	ns
	2016	ns	ns	ns	ns	ns	ns
	08/17/15	ns	ns	ns	ns	ns	ns
	04/22/15	ns	ns	ns	ns	ns	ns

**Notes:**

ns = no sample

np = no purge parameters, low water volume

\* = Field result was confirmed with field notes.

\*\* = Discrete sample reading

**TABLE 3**  
**Terminal Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

	Screening Levels	Source	**RW-1	MW-4					1 MW-8		**RW-9	RW-15					**RW-18	**MW-20	**MW-21	**RW-23	**RW-28
			Aug-19	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-16	Aug-13	Aug-19	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-19	Aug-19	Aug-19	Aug-19
<b>Volatile Organic Compounds (ug/L)</b>																					
1,1,1,2-Tetrachloroethane	5.74	(4)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
1,1,1-Trichloroethane	5	(3)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
1,1,2,2-Tetrachloroethane	10	(3)	---	---	---	---	< 2.0	< 2.0	< 2.0	< 2.0	---	---	---	---	< 200	< 40	---	---	---	---	
1,1,2-Trichloroethane	5	(3)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
1,1-Dichloroethane	25	(3)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
1,1-Dichloroethene	7	(3)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
1,1-Dichloropropene	-		---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
1,2,3-Trichlorobenzene	7	(1)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 100	< 20	---	---	---	---	
1,2,3-Trichloropropane	0.01	(4)	---	---	---	---	< 2.0	< 2.0	< 2.0	< 2.0	---	---	---	---	< 200	< 40	---	---	---	---	
1,2,4-Trichlorobenzene	11.55	(4)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 100	< 20	---	---	---	---	
1,2,4-Trimethylbenzene	56	(1)	---	---	---	---	1.7	4.1	1.0	8.0	---	---	---	---	2100	650	---	---	---	---	
1,2-Dibromo-3-chloropropane	0.2	(2)	---	---	---	---	< 2.0	< 2.0	< 2.0	< 2.0	---	---	---	---	< 200	< 40	---	---	---	---	
1,2-Dibromoethane (EDB)	0.05	(3)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
1,2-Dichlorobenzene	302	(4)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 100	< 20	---	---	---	---	
1,2-Dichloroethane (EDC)	1.71	(4)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
1,2-Dichloropropane	4.376	(4)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
1,3,5-Trimethylbenzene	60	(1)	---	---	---	---	< 1.0	< 1.0	< 1.0	2.0	---	---	---	---	200	92	---	---	---	---	
1,3-Dichlorobenzene	-		---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 100	< 20	---	---	---	---	
1,3-Dichloropropane	370	(1)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
1,4-Dichlorobenzene	75	(2)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 100	< 20	---	---	---	---	
1-Methylnaphthalene	11	(5)	---	---	---	---	22	21	< 4.0	< 4.0	---	---	---	---	< 400	< 80	---	---	---	---	
2,2-Dichloropropane	-		---	---	---	---	< 2.0	< 2.0	< 2.0	< 2.0	---	---	---	---	< 20	< 40	---	---	---	---	
2-Butanone	5565	(4)	---	---	---	---	< 10	< 10	< 10	< 10	---	---	---	---	< 100	< 200	---	---	---	---	
2-Chlorotoluene	240	(1)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 100	< 20	---	---	---	---	
2-Hexanone	-		---	---	---	---	< 10	< 10	< 10	< 10	---	---	---	---	< 100	< 200	---	---	---	---	
2-Methylnaphthalene	36	(1)	---	---	---	---	35	37	< 4.0	< 4.0	---	---	---	---	< 400	95	---	---	---	---	
4-Chlorotoluene	250	(1)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 100	< 20	---	---	---	---	
4-Isopropyltoluene	-		---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 100	< 20	---	---	---	---	
4-Methyl-2-pentanone	-		---	---	---	---	< 10	< 10	< 10	< 10	---	---	---	---	< 100	< 200	---	---	---	---	
Acetone	14064	(4)	---	---	---	---	< 10	< 10	< 10	< 10	---	---	---	---	< 100	< 200	---	---	---	---	
Benzene	5	(3)	---	---	---	---	37	210	< 1.0	< 1.0	---	---	---	---	1800	1200	---	---	---	---	
Bromobenzene	62	(1)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 100	< 20	---	---	---	---	
Bromodichloromethane	1.34	(4)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
Bromoform	33	(5)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 100	< 20	---	---	---	---	
Bromomethane	7.545	(4)	---	---	---	---	< 3.0	< 3.0	< 3.0	< 3.0	---	---	---	---	< 30	< 60	---	---	---	---	
Carbon disulfide	810	(4)	---	---	---	---	< 10	< 10	< 10	< 10	---	---	---	---	< 100	< 200	---	---	---	---	
Carbon Tetrachloride	5	(2)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
Chlorobenzene	100	(2)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
Chloroethane	20900	(4)	---	---	---	---	< 2.0	< 2.0	< 2.0	< 2.0	---	---	---	---	< 20	< 40	---	---	---	---	
Chloroform	2.29	(4)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
Chloromethane	20.3	(4)	---	---	---	---	< 3.0	< 3.0	< 3.0	< 3.0	---	---	---	---	< 30	< 60	---	---	---	---	
cis-1,2-DCE	70	(2)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
cis-1,3-Dichloropropene	4.7	(4)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
Dibromochloromethane	1.68	(4)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
Dibromomethane	8.3	(1)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
Dichlorodifluoromethane	197	(4)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
Ethylbenzene	700	(3)	---	---	---	---	7	17	< 1.0	1.2	---	---	---	---	2400	610	---	---	---	---	
Hexachlorobutadiene	1.39	(4)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 100	< 20	---	---	---	---	
Isopropylbenzene	447	(4)	---	---	---	---	40	49	< 1.0	< 1.0	---	---	---	---	100	23	---	---	---	---	
Methyl tert-butyl ether (MTBE)	100	(3)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	110	---	---	---	---	
Methylene Chloride	5	(2)	---	---	---	---	< 3.0	< 3.0	< 3.0	< 3.0	---	---	---	---	< 30	< 60	---	---	---	---	
Naphthalene	1.65	(4)	---	---	---	---	71	78	< 2.0	< 2.0	---	---	---	---	500	170	---	---	---	---	
n-Butylbenzene	1000	(1)	---	---	---	---	< 3.0	< 3.0	< 3.0	< 3.0	---	---	---	---	< 300	< 60	---	---	---	---	
n-Propylbenzene	660	(1)	---	---	---	---	33	39	< 1.0	1.2	---	---	---	---	350	59	---	---	---	---	
sec-Butylbenzene	2000	(1)	---	---	---	---	5.7	7.7	< 1.0	< 1.0	---	---	---	---	< 100	< 20	---	---	---	---	
Styrene	100	(2)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
tert-Butylbenzene	690	(1)	---	---	---	---	1.2	1.2	< 1.0	< 1.0	---	---	---	---	< 100	< 20	---	---	---	---	
Tetrachloroethene (PCE)	5	(2)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
Toluene	1000	(3)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	18	740	---	---	---	---	
trans-1,2-DCE	100	(2)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
trans-1,3-Dichloropropene	4.71	(4)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
Trichloroethene (TCE)	5	(2)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
Trichlorofluoromethane	1136	(4)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
Vinyl chloride	2	(3)	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	< 10	< 20	---	---	---	---	
Xylenes, Total	620	(3)	---	---	---	---	11	11	< 1.5	3.6	---	---	---	---	1300	1000	---	---	---	---	

**TABLE 3**  
**Terminal Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

	Screening Levels	Source	**RW-1	MW-4					1 MW-8		**RW-9	RW-15					**RW-18	**MW-20	**MW-21	**RW-23	**RW-28
			Aug-19	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-16	Aug-13	Aug-19	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-19	Aug-19	Aug-19	Aug-19
<b>Semi-Volatile Organic Compounds (ug/L)</b>																					
1,2,4-Trichlorobenzene	70	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
1,2-Dichlorobenzene	600	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
1,3-Dichlorobenzene	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
1,4-Dichlorobenzene	75	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
1-Methylnaphthalene	11	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
2,4,5-Trichlorophenol	1166	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
2,4,6-Trichlorophenol	11.9	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
2,4-Dichlorophenol	45.3	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
2,4-Dimethylphenol	354	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
2,4-Dinitrophenol	38.7	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
2,4-Dinitrotoluene	2.375	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
2,6-Dinitrotoluene	0.485	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
2-Chloronaphthalene	733	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
2-Chlorophenol	91	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
2-Methylnaphthalene	36	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
2-Methylphenol	930	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
2-Nitroaniline	190	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
2-Nitrophenol	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
3,3'-Dichlorobenzidine	1.25	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
3+4-Methylphenol	930	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
3-Nitroaniline	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
4,6-Dinitro-2-methylphenol	1.52	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
4-Bromophenyl phenyl ether	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
4-Chloro-3-methylphenol	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
4-Chloroaniline	3.7	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
4-Chlorophenyl phenyl ether	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
4-Nitroaniline	38	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
4-Nitrophenol	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Acenaphthene	535	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Acenaphthylene	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Aniline	130	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Anthracene	1721	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Azobenzene	1.2	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Benzo(a)anthracene	0.1199	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Benzo(a)pyrene	0.2	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Benzo(b)fluoranthene	0.3432	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Benzo(g,h,i)perylene	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Benzo(k)fluoranthene	3.43	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Benzoic acid	75000	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Benzyl alcohol	2000	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Bis(2-chloroethoxy)methane	59	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Bis(2-chloroethyl)ether	0.137	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Bis(2-chloroisopropyl)ether	9.81	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	6	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Butyl benzyl phthalate	160	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Carbazole	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Chrysene	34.3171	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Dibenz(a,h)anthracene	0.0343	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Dibenzofuran	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Diethyl phthalate	14800	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Dimethyl phthalate	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Di-n-butyl phthalate	885	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Di-n-octyl phthalate	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Fluoranthene	802	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Fluorene	288	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Hexachlorobenzene	0.0976	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Hexachlorobutadiene	1.387	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Hexachlorocyclopentadiene	0.411	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Hexachloroethane	3.2842	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	0.3432	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Isophorone	781	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Naphthalene	1.65	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Nitrobenzene	1.4	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
N-Nitrosodimethylamine	0.0049	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
N-Nitrosodi-n-propylamine	0.11	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
N-Nitrosodiphenylamine	121.922	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	

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	Screening Levels	Source	**RW-1	MW-4					<sup>1</sup> MW-8		**RW-9	RW-15					**RW-18	**MW-20	**MW-21	**RW-23	**RW-28
			Aug-19	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-16	Aug-13	Aug-19	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-19	Aug-19	Aug-19	Aug-19
Pentachlorophenol	0.4129	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Phenanthrene	170.4146	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Phenol	5761	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pyrene	117	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pyridine	20	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
<b>General Chemistry (mg/L)</b>																					
Fluoride	1.6	(3)	---	---	---	---	< 0.50	0.29	0.61	0.67	---	---	---	---	< 0.50	< 0.50	---	---	---	---	---
Chloride	250	(3)	---	---	---	---	270	250	160	120	---	---	---	---	330	480	---	---	---	---	---
Nitrite	1	(3)	---	---	---	---	< 0.50	< 0.10	13.0	0.88	---	---	---	---	< 0.50	< 0.50	---	---	---	---	---
Bromide	-		---	---	---	---	4.6	< 0.10	0.78	0.86	---	---	---	---	8.5	6.3	---	---	---	---	---
Nitrate	10	(3)	---	---	---	---	< 0.50	0.74	13.0	13	---	---	---	---	< 0.50	< 0.50	---	---	---	---	---
Phosphorus	-		---	---	---	---	< 2.5	< 0.50	< 0.5	< 2.5	---	---	---	---	< 2.5	< 2.5	---	---	---	---	---
Sulfate	600	(3)	---	---	---	---	< 2.5	1	700	990	---	---	---	---	19	< 2.5	---	---	---	---	---
Carbon Dioxide (CO <sub>2</sub> )	-		---	---	---	---	1200	1100	190	61	---	---	---	---	1200	1200	---	---	---	---	---
Alkalinity (CaCO <sub>3</sub> )	-		---	---	---	---	1176	1148	198	31	---	---	---	---	1248	1221	---	---	---	---	---
Bicarbonate (CaCO <sub>3</sub> )	-		---	---	---	---	1176	1148	198	31	---	---	---	---	1248	1221	---	---	---	---	---
<b>Total Metals (mg/L)</b>																					
Arsenic	0.01	(3)	---	---	---	---	< 0.020	< 0.020	0.02	< 0.020	---	---	---	---	< 0.020	< 0.020	---	---	---	---	---
Barium	2.0	(3)	---	---	---	---	2.5	2	0.063	0.021	---	---	---	---	1.4	1.5	---	---	---	---	---
Cadmium	0.005	(3)	---	---	---	---	< 0.0020	< 0.0020	< 0.0020	< 0.0020	---	---	---	---	< 0.0020	< 0.0020	---	---	---	---	---
Chromium	0.05	(3)	---	---	---	---	0.071	< 0.0060	2	0.46	---	---	---	---	< 0.0060	< 0.0060	---	---	---	---	---
Lead	0.015	(3)	---	---	---	---	0.012	0.005	< 0.005	< 0.0010	---	---	---	---	0.0085	< 0.0050	---	---	---	---	---
Selenium	0.05	(3)	---	---	---	---	< 0.050	< 0.050	< 0.050	0.084	---	---	---	---	< 0.050	< 0.050	---	---	---	---	---
Silver	0.05	(3)	---	---	---	---	< 0.0050	< 0.0050	< 0.0050	< 0.025	---	---	---	---	< 0.0050	< 0.0050	---	---	---	---	---
Mercury	0.002	(3)	---	---	---	---	< 0.00020	< 0.00020	0.0029	0.0012	---	---	---	---	< 0.00020	< 0.00020	---	---	---	---	---
<b>Dissolved Metals (mg/L)</b>																					
Arsenic	0.01	(3)	---	---	---	---	< 0.020	< 0.020	< 0.020	< 0.0050	---	---	---	---	< 0.020	< 0.020	---	---	---	---	---
Barium	1.0	(3)	---	---	---	---	2.3	2.3	< 0.02	0.012	---	---	---	---	1.2	1.6	---	---	---	---	---
Cadmium	0.005	(3)	---	---	---	---	< 0.0020	< 0.0020	< 0.0020	< 0.0020	---	---	---	---	< 0.0020	< 0.0020	---	---	---	---	---
Calcium	-		---	---	---	---	170	170	180	140	---	---	---	---	150	170	---	---	---	---	---
Chromium	0.05	(3)	---	---	---	---	0.011	< 0.0060	0.016	0.019	---	---	---	---	< 0.0060	< 0.0060	---	---	---	---	---
Copper	1	(3)	---	---	---	---	0.16	< 0.0060	< 0.006	0.0076	---	---	---	---	0.0098	< 0.0060	---	---	---	---	---
Iron	1	(3)	---	---	---	---	43	6.2	1.4	2.5	---	---	---	---	12	48	---	---	---	---	---
Lead	0.015	(3)	---	---	---	---	0.014	0.0065	< 0.005	< 0.0010	---	---	---	---	0.0077	< 0.0050	---	---	---	---	---
Magnesium	-		---	---	---	---	61	66	30	31	---	---	---	---	45	49	---	---	---	---	---
Manganese	0.2	(3)	---	---	---	---	8.6	3.5	0.54	2.7	---	---	---	---	3.1	3	---	---	---	---	---
Potassium	-		---	---	---	---	4.7	4.3	2.9	3.1	---	---	---	---	3.7	3.7	---	---	---	---	---
Selenium	0.05	(3)	---	---	---	---	< 0.050	< 0.050	< 0.050	0.04	---	---	---	---	< 0.050	< 0.050	---	---	---	---	---
Silver	0.05	(3)	---	---	---	---	< 0.0050	< 0.0050	< 0.0050	< 0.0050	---	---	---	---	< 0.0050	< 0.0050	---	---	---	---	---
Sodium	-		---	---	---	---	380	360	290	250	---	---	---	---	560	560	---	---	---	---	---
Uranium	0.03	(3)	---	---	---	---	< 0.10	< 0.10	< 0.10	0.001	---	---	---	---	< 0.10	< 0.10	---	---	---	---	---
Zinc	10	(3)	---	---	---	---	0.033	0.024	< 0.02	0.076	---	---	---	---	1.3	0.15	---	---	---	---	---
<b>Total Petroleum Hydrocarbons (mg/L)</b>																					
Diesel Range Organics	0.0167	(6)	---	---	---	---	1.3	2.1	< 0.2	< 0.20	---	---	---	---	100	20	---	---	---	---	---
Gasoline Range Organics	0.0101	(6)	---	---	---	---	6.1	14	< 0.05	0.083	---	---	---	---	29	16	---	---	---	---	---
Motor Oil Range Organics	0.0858	(6)	---	---	---	---	< 2.5	< 2.5	< 2.5	< 2.5	---	---	---	---	44	12	---	---	---	---	---

**Notes:**

- (1) EPA - Regional Screening Levels (November 2019) -Tap Water
  - (2) EPA - Regional Screening Levels (April 2019) - MCL
  - (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3103 Standards for Ground Water of 10,000 mg/l TDS Concentration or less (December 2018)
  - (4) NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation (February 2019)
  - (5) EPA Screening Level - Tap Water x 10 for carcinogenic compounds
  - (6) NMED SSG (June 2019)
- = No screening level available
  - \* = Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
  - = Analysis not required and/or well contains separate phase
  - Yellow background = Analytical result exceeds the respective screening level.
  - <sup>1</sup> = 6/27/13 modification on FWGWM Plan to remove MW-8 and replace with MW-52.
  - \*\* = Columns hidden when there are 4 or more consecutive years recorded that analysis was not required and/or the well contained separate phase

**TABLE 3**  
**Terminal Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Screening Levels	Source	MW-29					MW-30								MW-31							
		Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	
<b>Volatile Organic Compounds (ug/L)</b>																						
1,1,1,2-Tetrachloroethane	5.74	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
1,1,1-Trichloroethane	5	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
1,1,2,2-Tetrachloroethane	10	(3)	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	---	---	---	---	---	< 200	---	< 200	---	< 20	< 20	< 20	< 20	< 40
1,1,2-Trichloroethane	5	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
1,1-Dichloroethane	25	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
1,1-Dichloroethene	7	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
1,1-Dichloropropene	-		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
1,2,3-Trichlorobenzene	7	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
1,2,3-Trichloropropane	0.01	(4)	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	---	---	---	---	---	< 200	---	< 200	---	< 20	< 20	< 20	< 20	< 40
1,2,4-Trichlorobenzene	11.55	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
1,2,4-Trimethylbenzene	56	(1)	0.38 J	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	4200	---	3000	---	330	940	230	600	1700
1,2-Dibromo-3-chloropropane	0.2	(2)	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	---	---	---	---	---	< 200	---	< 200	---	< 20	< 20	< 20	< 20	< 40
1,2-Dibromoethane (EDB)	0.05	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
1,2-Dichlorobenzene	302	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
1,2-Dichloroethane (EDC)	1.71	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
1,2-Dichloropropane	4.376	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
1,3,5-Trimethylbenzene	60	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	860	---	740	---	33	24	1.4 J	< 10	82
1,3-Dichlorobenzene	-		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
1,3-Dichloropropane	370	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
1,4-Dichlorobenzene	75	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
1-Methylnaphthalene	11	(5)	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	---	---	---	---	---	---	< 400	---	< 400	---	78	45	19 J	41	< 80
2,2-Dichloropropane	-		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	---	---	---	---	---	< 200	---	< 200	---	< 20	< 20	< 20	< 20	< 40
2-Butanone	5565	(4)	< 10	< 10	< 10	< 10	< 10	---	---	---	---	---	---	< 1000	---	< 1000	---	< 100	< 100	< 100	< 100	< 200
2-Chlorotoluene	240	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
2-Hexanone	-		< 10	< 10	< 10	< 10	< 10	---	---	---	---	---	---	< 1000	---	< 1000	---	< 100	< 100	< 100	< 100	< 200
2-Methylnaphthalene	36	(1)	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	---	---	---	---	---	---	< 400	---	< 400	---	74	45	12	< 40	96
4-Chlorotoluene	250	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	12 J	< 10	< 20
4-Isopropyltoluene	-		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	2.6	3.1 J	< 10	< 10	< 20
4-Methyl-2-pentanone	-		< 10	< 10	< 10	< 10	< 10	---	---	---	---	---	---	< 1000	---	< 1000	---	< 100	< 100	< 100	< 100	< 200
Acetone	14064	(4)	< 10	< 10	2.2 J	< 10	< 10	---	---	---	---	---	---	< 1000	---	< 1000	---	< 100	< 100	< 100	< 100	< 200
Benzene	5	(3)	0.36 J	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	2900	2700	3000	4200	1500	1500	320	270	3900
Bromobenzene	62	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
Bromodichloromethane	1.34	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
Bromoform	33	(5)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
Bromomethane	7.545	(4)	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	---	---	---	---	---	---	< 300	---	< 300	---	< 30	< 30	< 30	< 30	< 60
Carbon disulfide	810	(4)	< 10	< 10	< 10	< 10	< 10	---	---	---	---	---	---	< 1000	---	< 1000	---	< 100	< 100	< 100	< 100	< 200
Carbon Tetrachloride	5	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
Chlorobenzene	100	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
Chloroethane	20900	(4)	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	---	---	---	---	---	< 200	---	< 200	---	< 20	< 20	< 20	< 20	< 40
Chloroform	2.29	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
Chloromethane	20.3	(4)	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	---	---	---	---	---	---	< 300	---	< 300	---	< 30	< 30	< 30	< 30	< 60
cis-1,2-DCE	70	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
cis-1,3-Dichloropropene	4.7	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
Dibromochloromethane	1.68	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
Dibromomethane	8.3	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
Dichlorodifluoromethane	197	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
Ethylbenzene	700	(3)	0.18 J	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	5700	4400	4700	4000	710	820	170	240	1600
Hexachlorobutadiene	1.39	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	< 10	< 10	< 10	< 10	< 20
Isopropylbenzene	447	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	< 100	---	< 100	---	55	63	27	37	100
Methyl tert-butyl ether (MTBE)	100	(3)	0.51 J	0.67 J	0.56 J	< 1.0	< 1.0	---	---	---	---	---	< 100	< 100	< 100	< 100	---	< 10	< 10	< 10	< 10	< 20
Methylene Chloride	5	(2)	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	---	---	---	---	---	---	< 300	---	< 300	---	< 30	< 30	< 30	< 30	< 60
Naphthalene	1.65	(4)	0.30 J	< 2.0	< 2.0	< 2.0	< 2.0	---	---	---	---	---	---	700	---	600	---	160	160	50	74	210
n-Butylbenzene	1000	(1)	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	---	---	---	---	---	---	< 300	---	< 300	---	< 3.0	16 J	4.2 J	< 30	< 60
n-Propylbenzene	660	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	---	---	---	---	710	---	470	---	190	210	68	130	290
sec-Butylbenzene	2000																					

**TABLE 3**  
**Terminal Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Semi-Volatile Organic Compounds (ug/L)	Screening Levels	Source	MW-29					MW-30								MW-31						
			Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15
1,2,4-Trichlorobenzene	70	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,2-Dichlorobenzene	600	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,3-Dichlorobenzene	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,4-Dichlorobenzene	75	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1-Methylnaphthalene	11	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4,5-Trichlorophenol	1166	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4,6-Trichlorophenol	11.9	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dichlorophenol	45.3	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dimethylphenol	354	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dinitrophenol	38.7	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dinitrotoluene	2.375	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,6-Dinitrotoluene	0.485	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Chloronaphthalene	733	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Chlorophenol	91	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Methylnaphthalene	36	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Methylphenol	930	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Nitroaniline	190	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Nitrophenol	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3,3'-Dichlorobenzidine	1.25	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3+4-Methylphenol	930	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3-Nitroaniline	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4,6-Dinitro-2-methylphenol	1.52	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Bromophenyl phenyl ether	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Chloro-3-methylphenol	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Chloroaniline	3.7	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Chlorophenyl phenyl ether	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Nitroaniline	38	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Nitrophenol	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Acenaphthene	535	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Acenaphthylene	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Aniline	130	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Anthracene	1721	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Azobenzene	1.2	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(a)anthracene	0.1199	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(a)pyrene	0.2	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(b)fluoranthene	0.3432	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(g,h,i)perylene	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(k)fluoranthene	3.43	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzoic acid	75000	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzyl alcohol	2000	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bis(2-chloroethoxy)methane	59	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bis(2-chloroethyl)ether	0.137	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bis(2-chloroisopropyl)ether	9.81	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bis(2-ethylhexyl)phthalate	6	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Butyl benzyl phthalate	160	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Carbazole	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Chrysene	34.3171	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dibenz(a,h)anthracene	0.0343	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dibenzofuran	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Diethyl phthalate	14800	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dimethyl phthalate	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Di-n-butyl phthalate	885	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Di-n-octyl phthalate	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fluoranthene	802	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fluorene	288	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexachlorobenzene	0.0976	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexachlorobutadiene	1.387	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexachlorocyclopentadiene	0.411	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexachloroethane	3.2842	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Indeno(1,2,3-cd)pyrene	0.3432	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Isophorone	781	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Naphthalene	1.65	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Nitrobenzene	1.4	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
N-Nitrosodimethylamine	0.0049	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
N-Nitrosodi-n-propylamine	0.11	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
N-Nitrosodiphenylamine	121.922	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

**TABLE 3**  
**Terminal Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

	Screening Levels	Source	MW-29					MW-30						MW-31								
			Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15
Pentachlorophenol	0.4129	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Phenanthrene	170.4146	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Phenol	5761	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pyrene	117	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pyridine	20	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
<b>General Chemistry (mg/L)</b>																						
Fluoride	1.6	(3)	0.14	<0.50	0.22	0.32	0.26	---	---	---	---	---	---	< 0.50	---	< 0.10	---	<0.50	< 0.10	< 0.10	< 0.10	< 0.10
Chloride	250	(3)	40	110	110	45	33	---	---	---	---	---	---	230	---	230	---	130	170	170	220	200
Nitrite	1	(3)	0.92	7.1	< 0.10	< 0.10	< 0.10	---	---	---	---	---	---	< 0.50	---	< 2.0	---	0.13 J	< 1.0	< 1.0	< 1.0	< 0.10
Bromide	-		0.28	0.87	0.98	0.38	0.34	---	---	---	---	---	---	3.8	---	< 0.10	---	2.9	1.7	1.7	< 0.10	< 0.10
Nitrate	10	(3)	7.1	7.1	5.0	1.2	0.5	---	---	---	---	---	---	< 0.50	---	1	---	0.13 J	< 1.0	< 1.0	< 1.0	0.63
Phosphorus	-		<2.5 H	1.4 JH	< 0.50	< 0.50	< 0.50	---	---	---	---	---	---	< 2.5	---	< 0.50	---	<2.5 H	< 0.50	< 0.50	< 0.50	< 0.50
Sulfate	600	(3)	210	320	350	180	160	---	---	---	---	---	---	69	---	36	---	79	78	78	160	17
Carbon Dioxide (CO <sub>2</sub> )	-		250	280	300	260	230	---	---	---	---	---	---	1300	---	1400	---	960	1100 H	1100	1000	1100
Alkalinity (CaCO <sub>3</sub> )	-		266.8	309.2	318.6	284.2	250.8	---	---	---	---	---	---	1403	---	1493	---	1073	1217	1164	1115	1264
Bicarbonate (CaCO <sub>3</sub> )	-		266.8	309.2	318.6	284.2	250.8	---	---	---	---	---	---	1403	---	1493	---	1073	1217	1164	1115	1264
<b>Total Metals (mg/L)</b>																						
Arsenic	0.01	(3)	<0.020	0.0022	< 0.050	< 0.020	< 0.020	---	---	---	---	---	---	< 0.020	---	< 0.020	---	<0.020	<0.020	0.015 J	< 0.020	< 0.020
Barium	2.0	(3)	0.066	0.038	0.049	0.24	0.041	---	---	---	---	---	---	0.74	---	1.1	---	0.92	0.90	0.37	0.7	1.4
Cadmium	0.005	(3)	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	---	---	---	---	---	---	< 0.0020	---	< 0.0020	---	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Chromium	0.05	(3)	< 0.0060	< 0.0060	< 0.0060	0.0088	< 0.0060	---	---	---	---	---	---	0.01	---	< 0.0060	---	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060
Lead	0.015	(3)	0.0072	0.00031 J	< 0.0050	< 0.0050	< 0.0050	---	---	---	---	---	---	0.019	---	< 0.0050	---	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Selenium	0.05	(3)	<0.050	0.0017	< 0.050	< 0.050	< 0.050	---	---	---	---	---	---	< 0.050	---	< 0.050	---	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Silver	0.05	(3)	0.00066	0.0036	< 0.0050	< 0.0050	< 0.0050	---	---	---	---	---	---	< 0.0050	---	< 0.0050	---	0.0020 J	0.0033 J	< 0.0050	< 0.0050	< 0.0050
Mercury	0.002	(3)	0.00012J	0.000085J	< 0.00020	< 0.00020	< 0.00020	---	---	---	---	---	---	< 0.00020	---	< 0.00020	---	0.000082J	< 0.00020	< 0.00020	< 0.00020	< 0.00020
<b>Dissolved Metals (mg/L)</b>																						
Arsenic	0.01	(3)	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	---	---	---	---	---	---	< 0.020	---	< 0.020	---	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Barium	1.0	(3)	0.014	0.031	0.03	0.023	< 0.020	---	---	---	---	---	---	0.56	---	1	---	0.87	0.89	0.76	0.58	1.4
Cadmium	0.005	(3)	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	---	---	---	---	---	---	< 0.0020	---	< 0.0020	---	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Calcium	-		75	130	130	83	74	---	---	---	---	---	---	150	---	160	---	110	110	100	110	110
Chromium	0.05	(3)	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	---	---	---	---	---	---	< 0.0060	---	< 0.0060	---	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060
Copper	1	(3)	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	---	---	---	---	---	---	< 0.0060	---	< 0.0060	---	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060
Iron	1	(3)	< 0.020	< 0.020	< 0.020	0.12	< 0.020	---	---	---	---	---	---	7.4	---	1.5	---	0.035	0.097	0.14	1.2	0.26
Lead	0.015	(3)	<0.0050	0.0053	< 0.0050	< 0.0050	< 0.0050	---	---	---	---	---	---	0.0066	---	0.0074	---	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Magnesium	-		17	30	28	18	17	---	---	---	---	---	---	36	---	52	---	37	38	32	38	45
Manganese	0.2	(3)	1.1	2.6	2.7	1.4	1.3	---	---	---	---	---	---	1.2	---	2.9	---	0.63	0.65	0.42	0.4	1.1
Potassium	-		1.8	2.7	2.6	2.1	2.2	---	---	---	---	---	---	3.3	---	3.5	---	3.8	4.0	3.7	4.1	4.4
Selenium	0.05	(3)	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	---	---	---	---	---	---	< 0.050	---	< 0.050	---	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Silver	0.05	(3)	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	---	---	---	---	---	---	< 0.0050	---	< 0.0050	---	0.0016 J	0.0032	< 0.0050	< 0.0050	< 0.0050
Sodium	-		120	190	180	120	99	---	---	---	---	---	---	590	---	560	---	480	480	480	540	500
Uranium	0.03	(3)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---	---	---	---	---	---	< 0.10	---	< 0.10	---	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Zinc	10	(3)	0.016	0.020	0.035	< 0.020	0.022	---	---	---	---	---	---	0.031	---	0.034	---	0.011 J	< 0.020	0.01 J	< 0.020	0.031
<b>Total Petroleum Hydrocarbons (mg/L)</b>																						
Diesel Range Organics	0.0167	(6)	< 0.40	< 0.40	< 0.20	0.28	< 0.20	---	---	---	---	---	---	71	---	7.7	---	1.1	0.64	0.71	1.1	4.2
Gasoline Range Organics	0.0101	(6)	<0.050	0.024 J	< 0.050	< 0.050	< 0.050	---	---	---	---	---	---	100	---	120	---	11	18	3.1	3.5	45
Motor Oil Range Organics	0.0858	(6)	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	---	---	---	---	---	---	< 25	---	< 2.5	---	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5

**Notes:**

- (1) EPA - Regional Screening Levels (November 2019) -Tap Water
  - (2) EPA - Regional Screening Levels (April 2019) - MCL
  - (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3103 Standards for Ground Water of 10,000 mg/l TDS Concentration or less (December 2018)
  - (4) NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation (February 2019)
  - (5) EPA Screening Level - Tap Water x 10 for carcinogenic compounds
  - (6) NMED SSG (June 2019)
- = No screening level available
  - \* = Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
  - = Analysis not required and/or well contains separate phase
  - J = Analytical result exceeds the respective screening level.
  - 1 = 6/27/13 modification on FWGWM Plan to remove MW-8 and replace with MW-52.
  - \*\* = Columns hidden when there are 4 or more consecutive years recorded that analysis was not required and/or the well contained separate phase

**TABLE 3**  
**Terminal Wells Analytical Summary**  
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Screening Levels	Source	MW-40					RW-42					RW-43					MW-44				
		Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	
<b>Volatile Organic Compounds (ug/L)</b>																					
1,1,1,2-Tetrachloroethane	5.74	(4)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
1,1,1-Trichloroethane	5	(3)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
1,1,2,2-Tetrachloroethane	10	(3)	---	---	---	< 100	---	---	---	< 20	---	---	---	< 100	---	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	
1,1,2-Trichloroethane	5	(3)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
1,1-Dichloroethane	25	(3)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
1,1-Dichloroethene	7	(3)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
1,1-Dichloropropene	-		---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
1,2,3-Trichlorobenzene	7	(1)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
1,2,3-Trichloropropane	0.01	(4)	---	---	---	< 100	---	---	---	< 20	---	---	---	< 100	---	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	
1,2,4-Trichlorobenzene	11.55	(4)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
1,2,4-Trimethylbenzene	56	(1)	---	---	---	< 50	---	---	---	120	---	---	---	770	---	< 1.0	< 1.0	< 1.0	1.1	< 2.0	
1,2-Dibromo-3-chloropropane	0.2	(2)	---	---	---	< 100	---	---	---	< 20	---	---	---	< 100	---	< 2.0	< 2.0	< 2.0	< 2.0	< 4.0	
1,2-Dibromoethane (EDB)	0.05	(3)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
1,2-Dichlorobenzene	302	(4)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
1,2-Dichloroethane (EDC)	1.71	(4)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
1,2-Dichloropropane	4.376	(4)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
1,3,5-Trimethylbenzene	60	(1)	---	---	---	< 50	---	---	---	13	---	---	---	180	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
1,3-Dichlorobenzene	-		---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
1,3-Dichloropropane	370	(1)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
1,4-Dichlorobenzene	75	(2)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
1-Methylnaphthalene	11	(5)	---	---	---	< 200	---	---	---	160	---	---	---	< 200	---	< 1.0	< 1.0	< 1.0	< 4.0	< 8.0	
2,2-Dichloropropane	-		---	---	---	< 100	---	---	---	< 20	---	---	---	< 100	---	< 1.0	< 1.0	< 1.0	< 2.0	< 4.0	
2-Butanone	5565	(4)	---	---	---	< 500	---	---	---	< 100	---	---	---	< 500	---	< 10	< 10	< 10	< 10	< 20	
2-Chlorotoluene	240	(1)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
2-Hexanone	-		---	---	---	< 500	---	---	---	< 100	---	---	---	< 500	---	< 1.0	< 1.0	< 1.0	< 1.0	< 20	
2-Methylnaphthalene	36	(1)	---	---	---	< 200	---	---	---	220	---	---	---	< 200	---	< 1.0	< 1.0	< 1.0	< 4.0	< 8.0	
4-Chlorotoluene	250	(1)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
4-Isopropyltoluene	-		---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
4-Methyl-2-pentanone	-		---	---	---	< 500	---	---	---	< 100	---	---	---	< 500	---	< 3.0	< 3.0	< 3.0	< 10	< 20	
Acetone	14064	(4)	---	---	---	< 500	---	---	---	< 100	---	---	---	< 500	---	< 10	< 10	< 10	< 10	< 20	
Benzene	5	(3)	---	---	---	< 50	---	---	---	6300	---	---	---	2600	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
Bromobenzene	62	(1)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
Bromodichloromethane	1.34	(4)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 2.0	< 2.0	< 2.0	< 1.0	< 2.0	
Bromoform	33	(5)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
Bromomethane	7.545	(4)	---	---	---	< 150	---	---	---	< 30	---	---	---	< 150	---	< 3.0	< 3.0	< 3.0	< 3.0	< 6.0	
Carbon disulfide	810	(4)	---	---	---	< 500	---	---	---	< 100	---	---	---	< 500	---	< 1.0	< 1.0	< 1.0	< 1.0	< 20	
Carbon Tetrachloride	5	(2)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
Chlorobenzene	100	(2)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
Chloroethane	20900	(4)	---	---	---	< 100	---	---	---	< 20	---	---	---	< 100	---	< 1.0	< 1.0	< 1.0	< 2.0	< 4.0	
Chloroform	2.29	(4)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
Chloromethane	20.3	(4)	---	---	---	< 150	---	---	---	< 30	---	---	---	< 150	---	< 1.0	< 1.0	< 1.0	< 3.0	< 6.0	
cis-1,2-DCE	70	(2)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
cis-1,3-Dichloropropene	4.7	(4)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
Dibromochloromethane	1.68	(4)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
Dibromomethane	8.3	(1)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 3.0	< 3.0	< 3.0	< 1.0	< 2.0	
Dichlorodifluoromethane	197	(4)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 3.0	< 3.0	< 3.0	< 1.0	< 2.0	
Ethylbenzene	700	(3)	---	---	---	< 50	---	---	---	160	---	---	---	320	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
Hexachlorobutadiene	1.39	(4)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 2.0	< 2.0	< 2.0	< 1.0	< 2.0	
Isopropylbenzene	447	(4)	---	---	---	55	---	---	---	65	---	---	---	89	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
Methyl tert-butyl ether (MTBE)	100	(3)	---	---	---	< 50	---	---	---	14	---	---	---	670	---	1.0	1.1	0.98J	< 1.0	< 2.0	
Methylene Chloride	5	(2)	---	---	---	< 150	---	---	---	< 30	---	---	---	< 150	---	< 1.0	< 1.0	< 1.0	< 3.0	< 6.0	
Naphthalene	1.65	(4)	---	---	---	110	---	---	---	300	---	---	---	370	---	< 1.0	< 1.0	< 1.0	< 2.0	< 4.0	
n-Butylbenzene	1000	(1)	---	---	---	< 150	---	---	---	< 30	---	---	---	< 150	---	< 1.0	< 1.0	< 1.0	< 3.0	< 6.0	
n-Propylbenzene	660	(1)	---	---	---	63	---	---	---	110	---	---	---	84	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
sec-Butylbenzene	2000	(1)	---	---	---	< 50	---	---	---	17	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
Styrene	100	(2)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
tert-Butylbenzene	690	(1)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
Tetrachloroethene (PCE)	5	(2)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 4.0	< 4.0	< 4.0	< 1.0	< 2.0	
Toluene	1000	(3)	---	---	---	< 50	---	---	---	< 10	---	---	---	51	---	< 2.0	< 2.0	< 2.0	< 1.0	< 2.0	
trans-1,2-DCE	100	(2)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
trans-1,3-Dichloropropene	4.71	(4)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
Trichloroethene (TCE)	5	(2)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 1.0	< 1.0	< 1.0	< 1.0	< 2.0	
Trichlorofluoromethane	1136	(4)	---	---	---	< 50	---	---	---	< 10	---	---	---	< 50	---	< 4.0	< 4.0	< 4.0	< 1.0	< 2.0	
Vinyl chloride	2	(3)	---	---	---	< 50	---	---	---	< 10	---	---									

**TABLE 3**  
**Terminal Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Screening Levels	Source	MW-40					RW-42				RW-43					MW-44				
		Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15
<b>Semi-Volatile Organic Compounds (ug/L)</b>																				
1,2,4-Trichlorobenzene	70 (2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,2-Dichlorobenzene	600 (2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,3-Dichlorobenzene	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,4-Dichlorobenzene	75 (2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1-Methylnaphthalene	11 (5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4,5-Trichlorophenol	1166 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4,6-Trichlorophenol	11.9 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dichlorophenol	45.3 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dimethylphenol	354 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dinitrophenol	38.7 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dinitrotoluene	2.375 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,6-Dinitrotoluene	0.485 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Chloronaphthalene	733 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Chlorophenol	91 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Methylnaphthalene	36 (1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Methylphenol	930 (1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Nitroaniline	190 (1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Nitrophenol	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3,3'-Dichlorobenzidine	1.25 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3+4-Methylphenol	930 (1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3-Nitroaniline	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4,6-Dinitro-2-methylphenol	1.52 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Bromophenyl phenyl ether	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Chloro-3-methylphenol	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Chloroaniline	3.7 (5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Chlorophenyl phenyl ether	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Nitroaniline	38 (5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Nitrophenol	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Acenaphthene	535 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Acenaphthylene	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Aniline	130 (5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Anthracene	1721 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Azobenzene	1.2 (5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(a)anthracene	0.1199 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(a)pyrene	0.2 (2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(b)fluoranthene	0.3432 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(g,h,i)perylene	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(k)fluoranthene	3.43 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzoic acid	75000 (1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzyl alcohol	2000 (1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bis(2-chloroethoxy)methane	59 (1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bis(2-chloroethyl)ether	0.137 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bis(2-chloroisopropyl)ether	9.81 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bis(2-ethylhexyl)phthalate	6 (2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Butyl benzyl phthalate	160 (5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Carbazole	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Chrysene	34.3171 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dibenz(a,h)anthracene	0.0343 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dibenzofuran	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Diethyl phthalate	14800 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dimethyl phthalate	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Di-n-butyl phthalate	885 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Di-n-octyl phthalate	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fluoranthene	802 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fluorene	288 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexachlorobenzene	0.0976 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexachlorobutadiene	1.387 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexachlorocyclopentadiene	0.411 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexachloroethane	3.2842 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Indeno(1,2,3-cd)pyrene	0.3432 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Isophorone	781 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Naphthalene	1.65 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Nitrobenzene	1.4 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
N-Nitrosodimethylamine	0.0049 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
N-Nitrosodi-n-propylamine	0.11 (5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
N-Nitrosodiphenylamine	121.922 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

**TABLE 3**  
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	Screening Levels	Source	MW-40					RW-42					RW-43					MW-44				
			Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	
Pentachlorophenol	0.4129	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
Phenanthrene	170.4146	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
Phenol	5761	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
Pyrene	117	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
Pyridine	20	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---		
<b>General Chemistry (mg/L)</b>																						
Fluoride	1.6	(3)	---	---	---	< 0.50	---	---	---	0.62	---	---	---	< 0.50	---	< 0.50	< 0.50	< 0.10	0.6	< 0.10		
Chloride	250	(3)	---	---	---	290	---	---	---	260	---	---	---	390	---	50	48	46	56	55		
Nitrite	1	(3)	---	---	---	< 0.50	---	---	---	< 0.50	---	---	---	< 0.50	---	0.11	0.079 J	< 1.0	< 0.10	< 0.10		
Bromide	-		---	---	---	5	---	---	---	4.6	---	---	---	3.9	---	<0.50	0.16	0.14	0.18	0.47		
Nitrate	10	(3)	---	---	---	< 0.50	---	---	---	< 0.50	---	---	---	< 0.50	---	0.11	0.050 J	< 1.0	< 0.10	0.13		
Phosphorus	-		---	---	---	< 2.5	---	---	---	3.4	---	---	---	3.1	---	<10 H	< 10	< 10	< 10	< 10		
Sulfate	600	(3)	---	---	---	< 2.5	---	---	---	< 2.5	---	---	---	6.9	---	3500	3000	3000	3000	3000		
Carbon Dioxide (CO <sub>2</sub> )	-		---	---	---	1200	---	---	---	1100	---	---	---	1100	---	340	350	350	360	340		
Alkalinity (CaCO <sub>3</sub> )	-		---	---	---	1190	---	---	---	1130	---	---	---	1165	---	371.1	373.5	371.8	376.3	377.6		
Bicarbonate (CaCO <sub>3</sub> )	-		---	---	---	1190	---	---	---	1130	---	---	---	1165	---	371.1	373.5	371.8	376.3	377.6		
<b>Total Metals (mg/L)</b>																						
Arsenic	0.01	(3)	---	---	---	< 0.020	---	---	---	0.094	---	---	---	< 0.020	---	0.017 J	<0.020	0.026	< 0.020	< 0.020		
Barium	2.0	(3)	---	---	---	2.3	---	---	---	13	---	---	---	13	---	0.082	0.068	0.066	0.17	0.19		
Cadmium	0.005	(3)	---	---	---	< 0.0020	---	---	---	< 0.0020	---	---	---	< 0.0020	---	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020		
Chromium	0.05	(3)	---	---	---	0.018	---	---	---	0.16	---	---	---	0.37	---	0.0072	0.0059	0.0062	0.026	0.029		
Lead	0.015	(3)	---	---	---	0.0098	---	---	---	0.092	---	---	---	0.055	---	0.0042	< 0.0050	< 0.0050	< 0.0050	0.0053		
Selenium	0.05	(3)	---	---	---	< 0.050	---	---	---	< 0.050	---	---	---	< 0.050	---	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050		
Silver	0.05	(3)	---	---	---	0.014	---	---	---	< 0.0050	---	---	---	< 0.0050	---	0.0056	0.013	< 0.0050	< 0.0050	< 0.0050		
Mercury	0.002	(3)	---	---	---	< 0.00020	---	---	---	< 0.00020	---	---	---	< 0.00020	---	0.00014 J	0.000085J	< 0.00020	< 0.00020	< 0.00020		
<b>Dissolved Metals (mg/L)</b>																						
Arsenic	0.01	(3)	---	---	---	< 0.020	---	---	---	< 0.020	---	---	---	< 0.020	---	<0.020	<0.020	0.034	< 0.020	< 0.020		
Barium	1.0	(3)	---	---	---	1.8	---	---	---	6.4	---	---	---	1.1	---	0.0096	0.01	0.011J	0.02	< 0.020		
Cadmium	0.005	(3)	---	---	---	< 0.0020	---	---	---	< 0.0020	---	---	---	< 0.0020	---	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020		
Calcium	-		---	---	---	97	---	---	---	120	---	---	---	180	---	470	480	480	480	470		
Chromium	0.05	(3)	---	---	---	< 0.0060	---	---	---	0.014	---	---	---	0.27	---	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060		
Copper	1	(3)	---	---	---	< 0.0060	---	---	---	< 0.0060	---	---	---	0.017	---	0.0024 J	< 0.0060	< 0.0060	< 0.0060	< 0.0060		
Iron	1	(3)	---	---	---	4.9	---	---	---	69	---	---	---	27	---	0.014 J	0.029	0.032	2.9	0.036		
Lead	0.015	(3)	---	---	---	< 0.0050	---	---	---	0.036	---	---	---	0.015	---	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050		
Magnesium	-		---	---	---	44	---	---	---	74	---	---	---	63	---	59	58	58	59	59		
Manganese	0.2	(3)	---	---	---	2.3	---	---	---	4	---	---	---	6.5	---	0.43	0.68	0.79	1.2	0.99		
Potassium	-		---	---	---	3.5	---	---	---	5.4	---	---	---	14	---	7.6	7.2	7.1	7.9	7.9		
Selenium	0.05	(3)	---	---	---	< 0.050	---	---	---	< 0.050	---	---	---	< 0.050	---	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050		
Silver	0.05	(3)	---	---	---	< 0.0050	---	---	---	< 0.0050	---	---	---	< 0.0050	---	0.0063	0.014	< 0.0050	< 0.0050	< 0.0050		
Sodium	-		---	---	---	440	---	---	---	400	---	---	---	440	---	880	850	910	990	960		
Uranium	0.03	(3)	---	---	---	< 0.10	---	---	---	< 0.10	---	---	---	< 0.10	---	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10		
Zinc	10	(3)	---	---	---	0.031	---	---	---	0.17	---	---	---	3	---	0.024	< 0.020	0.032	0.056	< 0.020		
<b>Total Petroleum Hydrocarbons (mg/L)</b>																						
Diesel Range Organics	0.0167	(6)	---	---	---	110	---	---	---	85	---	---	---	1200	---	< 0.40	< 0.40	< 0.20	< 0.20	< 0.20		
Gasoline Range Organics	0.0101	(6)	---	---	---	4.9	---	---	---	24	---	---	---	27	---	< 0.050	0.026 J	< 0.050	0.057	< 0.050		
Motor Oil Range Organics	0.0858	(6)	---	---	---	< 25	---	---	---	< 25	---	---	---	< 250	---	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5		

**Notes:**

- (1) EPA - Regional Screening Levels (November 2019) - Tap Water
  - (2) EPA - Regional Screening Levels (April 2019) - MCL
  - (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3103 Standards for Ground Water of 10,000 mg/l TDS Concentration or less (December 2018)
  - (4) NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation (February 2019)
  - (5) EPA Screening Level - Tap Water x 10 for carcinogenic compounds
  - (6) NMED SSG (June 2019)
- = No screening level available  
\* = Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time  
--- = Analysis not required and/or well contains separate phase  
= Analytical result exceeds the respective screening level.  
1 = 6/27/13 modification on FWGWM Plan to remove MW-8 and replace with MW-52.  
\*\* = Columns hidden when there are 4 or more consecutive years recorded that analysis was not required and/or the well contained separate phase

**TABLE 3**  
**Terminal Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

	Screening Levels	Source	<sup>1</sup> MW-52							
			Aug-19	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	
<b>Volatile Organic Compounds (ug/L)</b>										
1,1,1,2-Tetrachloroethane	5.74	(4)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
1,1,1-Trichloroethane	5	(3)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
1,1,2,2-Tetrachloroethane	10	(3)	< 2.0	< 2.0	---	< 2.0	---	< 2.0	---	
1,1,2-Trichloroethane	5	(3)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
1,1-Dichloroethane	25	(3)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
1,1-Dichloroethene	7	(3)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
1,1-Dichloropropene	-		< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
1,2,3-Trichlorobenzene	7	(1)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
1,2,3-Trichloropropane	0.01	(4)	< 2.0	< 2.0	---	< 2.0	---	< 2.0	---	
1,2,4-Trichlorobenzene	11.55	(4)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
1,2,4-Trimethylbenzene	56	(1)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
1,2-Dibromo-3-chloropropane	0.2	(2)	< 2.0	< 2.0	---	< 2.0	---	< 2.0	---	
1,2-Dibromoethane (EDB)	0.05	(3)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
1,2-Dichlorobenzene	302	(4)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
1,2-Dichloroethane (EDC)	1.71	(4)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
1,2-Dichloropropane	4.376	(4)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
1,3,5-Trimethylbenzene	60	(1)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
1,3-Dichlorobenzene	-		< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
1,3-Dichloropropane	370	(1)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
1,4-Dichlorobenzene	75	(2)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
1-Methylnaphthalene	11	(5)	< 4.0	< 4.0	---	< 4.0	---	< 4.0	---	
2,2-Dichloropropane	-		< 2.0	< 2.0	---	< 2.0	---	< 2.0	---	
2-Butanone	5565	(4)	< 10	< 10	---	< 10	---	< 10	---	
2-Chlorotoluene	240	(1)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
2-Hexanone	-		< 10	< 10	---	< 10	---	< 10	---	
2-Methylnaphthalene	36	(1)	< 4.0	< 4.0	---	< 4.0	---	< 4.0	---	
4-Chlorotoluene	250	(1)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
4-Isopropyltoluene	-		< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
4-Methyl-2-pentanone	-		< 10	< 10	---	< 10	---	< 10	---	
Acetone	14064	(4)	<0.010	2.5 J	---	< 10	---	< 10	---	
Benzene	5	(3)	< 1.0	< 1.0	<1.0	< 1.0	<1.0	< 1.0	<1.0	
Bromobenzene	62	(1)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
Bromodichloromethane	1.34	(4)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
Bromoform	33	(5)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
Bromomethane	7.545	(4)	< 3.0	< 3.0	---	< 3.0	---	< 3.0	---	
Carbon disulfide	810	(4)	< 10	< 10	---	< 10	---	< 10	---	
Carbon Tetrachloride	5	(2)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
Chlorobenzene	100	(2)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
Chloroethane	20900	(4)	< 2.0	< 2.0	---	< 2.0	---	< 2.0	---	
Chloroform	2.29	(4)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
Chloromethane	20.3	(4)	< 3.0	< 3.0	---	< 3.0	---	< 3.0	---	
cis-1,2-DCE	70	(2)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
cis-1,3-Dichloropropene	4.7	(4)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
Dibromochloromethane	1.68	(4)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
Dibromomethane	8.3	(1)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
Dichlorodifluoromethane	197	(4)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
Ethylbenzene	700	(3)	< 1.0	< 1.0	<1.0	< 1.0	<1.0	< 1.0	<1.0	
Hexachlorobutadiene	1.39	(4)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
Isopropylbenzene	447	(4)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
Methyl tert-butyl ether (MTBE)	100	(3)	0.57 J	< 1.0	<1.0	< 1.0	<1.0	< 1.0	<1.0	
Methylene Chloride	5	(2)	< 3.0	< 3.0	---	< 3.0	---	< 3.0	---	
Naphthalene	1.65	(4)	< 2.0	< 2.0	---	< 2.0	---	< 2.0	---	
n-Butylbenzene	1000	(1)	< 3.0	< 3.0	---	< 3.0	---	< 3.0	---	
n-Propylbenzene	660	(1)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
sec-Butylbenzene	2000	(1)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
Styrene	100	(2)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
tert-Butylbenzene	690	(1)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
Tetrachloroethene (PCE)	5	(2)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
Toluene	1000	(3)	< 1.0	< 1.0	<1.0	< 1.0	<1.0	< 1.0	<1.0	
trans-1,2-DCE	100	(2)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
trans-1,3-Dichloropropene	4.71	(4)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
Trichloroethene (TCE)	5	(2)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
Trichlorofluoromethane	1136	(4)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
Vinyl chloride	2	(3)	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	
Xylenes, Total	620	(3)	< 1.5	< 1.5	<1.5	< 1.5	<1.5	< 1.5	<1.5	

**TABLE 3**  
**Terminal Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

	Screening Levels	Source	<sup>1</sup> MW-52							
			Aug-19	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	
<b>Semi-Volatile Organic Compounds (ug/L)</b>										
1,2,4-Trichlorobenzene	70	(2)	---	---	---	< 10	---	---	---	---
1,2-Dichlorobenzene	600	(2)	---	---	---	< 10	---	---	---	---
1,3-Dichlorobenzene	-		---	---	---	< 10	---	---	---	---
1,4-Dichlorobenzene	75	(2)	---	---	---	< 10	---	---	---	---
1-Methylnaphthalene	11	(5)	---	---	---	< 10	---	---	---	---
2,4,5-Trichlorophenol	1166	(4)	---	---	---	< 10	---	---	---	---
2,4,6-Trichlorophenol	11.9	(4)	---	---	---	< 10	---	---	---	---
2,4-Dichlorophenol	45.3	(4)	---	---	---	< 20	---	---	---	---
2,4-Dimethylphenol	354	(4)	---	---	---	< 10	---	---	---	---
2,4-Dinitrophenol	38.7	(4)	---	---	---	< 20	---	---	---	---
2,4-Dinitrotoluene	2.375	(4)	---	---	---	< 10	---	---	---	---
2,6-Dinitrotoluene	0.485	(4)	---	---	---	< 10	---	---	---	---
2-Chloronaphthalene	733	(4)	---	---	---	< 10	---	---	---	---
2-Chlorophenol	91	(4)	---	---	---	< 10	---	---	---	---
2-Methylnaphthalene	36	(1)	---	---	---	< 10	---	---	---	---
2-Methylphenol	930	(1)	---	---	---	< 10	---	---	---	---
2-Nitroaniline	190	(1)	---	---	---	< 10	---	---	---	---
2-Nitrophenol	-		---	---	---	< 10	---	---	---	---
3,3'-Dichlorobenzidine	1.25	(4)	---	---	---	< 10	---	---	---	---
3+4-Methylphenol	930	(1)	---	---	---	< 10	---	---	---	---
3-Nitroaniline	-		---	---	---	< 10	---	---	---	---
4,6-Dinitro-2-methylphenol	1.52	(4)	---	---	---	< 20	---	---	---	---
4-Bromophenyl phenyl ether	-		---	---	---	< 10	---	---	---	---
4-Chloro-3-methylphenol	-		---	---	---	< 10	---	---	---	---
4-Chloroaniline	3.7	(5)	---	---	---	< 10	---	---	---	---
4-Chlorophenyl phenyl ether	-		---	---	---	< 10	---	---	---	---
4-Nitroaniline	38	(5)	---	---	---	< 10	---	---	---	---
4-Nitrophenol	-		---	---	---	< 10	---	---	---	---
Acenaphthene	535	(4)	---	---	---	< 10	---	---	---	---
Acenaphthylene	-		---	---	---	< 10	---	---	---	---
Aniline	130	(5)	---	---	---	< 10	---	---	---	---
Anthracene	1721	(4)	---	---	---	< 10	---	---	---	---
Azobenzene	1.2	(5)	---	---	---	< 10	---	---	---	---
Benzo(a)anthracene	0.1199	(4)	---	---	---	< 10	---	---	---	---
Benzo(a)pyrene	0.2	(2)	---	---	---	< 10	---	---	---	---
Benzo(b)fluoranthene	0.3432	(4)	---	---	---	< 10	---	---	---	---
Benzo(g,h,i)perylene	-		---	---	---	< 10	---	---	---	---
Benzo(k)fluoranthene	3.43	(4)	---	---	---	< 10	---	---	---	---
Benzoic acid	75000	(1)	---	---	---	< 20	---	---	---	---
Benzyl alcohol	2000	(1)	---	---	---	< 10	---	---	---	---
Bis(2-chloroethoxy)methane	59	(1)	---	---	---	< 10	---	---	---	---
Bis(2-chloroethyl)ether	0.137	(4)	---	---	---	< 10	---	---	---	---
Bis(2-chloroisopropyl)ether	9.81	(4)	---	---	---	< 10	---	---	---	---
Bis(2-ethylhexyl)phthalate	6	(2)	---	---	---	< 10	---	---	---	---
Butyl benzyl phthalate	160	(5)	---	---	---	< 10	---	---	---	---
Carbazole	-		---	---	---	< 10	---	---	---	---
Chrysene	34.3171	(4)	---	---	---	< 10	---	---	---	---
Dibenz(a,h)anthracene	0.0343	(4)	---	---	---	< 10	---	---	---	---
Dibenzofuran	-		---	---	---	< 10	---	---	---	---
Diethyl phthalate	14800	(4)	---	---	---	< 10	---	---	---	---
Dimethyl phthalate	-		---	---	---	< 10	---	---	---	---
Di-n-butyl phthalate	885	(4)	---	---	---	< 10	---	---	---	---
Di-n-octyl phthalate	-		---	---	---	< 10	---	---	---	---
Fluoranthene	802	(4)	---	---	---	< 10	---	---	---	---
Fluorene	288	(4)	---	---	---	< 10	---	---	---	---
Hexachlorobenzene	0.0976	(4)	---	---	---	< 10	---	---	---	---
Hexachlorobutadiene	1.387	(4)	---	---	---	< 10	---	---	---	---
Hexachlorocyclopentadiene	0.411	(4)	---	---	---	< 10	---	---	---	---
Hexachloroethane	3.2842	(4)	---	---	---	< 10	---	---	---	---
Indeno(1,2,3-cd)pyrene	0.3432	(4)	---	---	---	< 10	---	---	---	---
Isophorone	781	(4)	---	---	---	< 10	---	---	---	---
Naphthalene	1.65	(4)	---	---	---	< 10	---	---	---	---
Nitrobenzene	1.4	(4)	---	---	---	< 10	---	---	---	---
N-Nitrosodimethylamine	0.0049	(4)	---	---	---	< 10	---	---	---	---
N-Nitrosodi-n-propylamine	0.11	(5)	---	---	---	< 10	---	---	---	---
N-Nitrosodiphenylamine	121.922	(4)	---	---	---	< 10	---	---	---	---

**TABLE 3**  
**Terminal Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

	Screening Levels	Source	<sup>1</sup> MW-52						
			Aug-19	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15
Pentachlorophenol	0.4129	(4)	---	---	---	< 20	---	---	---
Phenanthrene	170.4146	(4)	---	---	---	< 10	---	---	---
Phenol	5761	(4)	---	---	---	< 10	---	---	---
Pyrene	117	(4)	---	---	---	< 10	---	---	---
Pyridine	20	(1)	---	---	---	< 10	---	---	---
<b>General Chemistry (mg/L)</b>									
Fluoride	1.6	(3)	<0.50	<b>0.83</b>	---	< 0.50	---	<b>0.44</b>	---
Chloride	250	(3)	<b>830</b>	<b>750</b>	---	<b>640</b>	---	<b>560</b>	---
Nitrite	1	(3)	<b>39</b>	< 2.0	---	<b>42</b>	---	< 2.0	---
Bromide	-		<b>2.3</b>	<b>4.8</b>	---	<b>4.1</b>	---	<b>2.2</b>	---
Nitrate	10	(3)	<b>39</b>	<b>40</b>	---	<b>42</b>	---	<b>19</b>	---
Phosphorus	-		<1.2	< 10	---	< 10	---	< 10	---
Sulfate	600	(3)	<b>1400</b>	<b>1200</b>	---	<b>1400</b>	---	<b>1100</b>	---
Carbon Dioxide (CO <sub>2</sub> )	-		<b>340</b>	<b>220</b>	---	<b>180</b>	---	<b>200</b>	---
Alkalinity (CaCO <sub>3</sub> )	-		<b>358.2</b>	<b>203.2</b>	---	<b>175</b>	---	<b>207.5</b>	---
Bicarbonate (CaCO <sub>3</sub> )	-		<b>358.2</b>	<b>203.2</b>	---	<b>175</b>	---	<b>207.5</b>	---
<b>Total Metals (mg/L)</b>									
Arsenic	0.01	(3)	< 0.020	< 0.050	---	< 0.020	---	< 0.020	---
Barium	2.0	(3)	<b>0.057</b>	<b>0.24</b>	---	<b>0.14</b>	---	<b>0.099</b>	---
Cadmium	0.005	(3)	< 0.0020	< 0.0020	---	< 0.0020	---	< 0.0020	---
Chromium	0.05	(3)	<0.0060	<b>0.0056 J</b>	---	< 0.0060	---	< 0.0060	---
Lead	0.015	(3)	<b>0.0045 J</b>	< 0.0050	---	<b>0.0059</b>	---	< 0.0050	---
Selenium	0.05	(3)	< 0.050	< 0.050	---	<b>0.065</b>	---	<b>0.069</b>	---
Silver	0.05	(3)	<b>0.0023 J</b>	< 0.0050	---	< 0.0050	---	< 0.0050	---
Mercury	0.002	(3)	<b>0.00013 J</b>	< 0.00020	---	< 0.00020	---	< 0.00020	---
<b>Dissolved Metals (mg/L)</b>									
Arsenic	0.01	(3)	<0.020	< 0.10	---	< 0.020	---	< 0.020	---
Barium	1.0	(3)	<b>0.032</b>	<b>0.015 J</b>	---	<b>0.021</b>	---	< 0.020	---
Cadmium	0.005	(3)	< 0.0020	< 0.0020	---	< 0.0020	---	< 0.0020	---
Calcium	-		<b>160</b>	<b>360</b>	---	<b>380</b>	---	<b>320</b>	---
Chromium	0.05	(3)	< 0.0060	< 0.0060	---	< 0.0060	---	< 0.0060	---
Copper	1	(3)	< 0.0060	< 0.0060	---	< 0.0060	---	< 0.0060	---
Iron	1	(3)	<0.020	<b>0.0079 J</b>	---	<b>3.9</b>	---	<b>2.2</b>	---
Lead	0.015	(3)	< 0.0050	< 0.0050	---	< 0.0050	---	< 0.0050	---
Magnesium	-		<b>31</b>	<b>90</b>	---	<b>100</b>	---	<b>77</b>	---
Manganese	0.2	(3)	<b>0.15</b>	<b>2.2</b>	---	<b>5.7</b>	---	<b>3.9</b>	---
Potassium	-		<b>3.8</b>	<b>4.8</b>	---	<b>5.6</b>	---	<b>4.7</b>	---
Selenium	0.05	(3)	< 0.050	< 0.050	---	<b>0.057</b>	---	<b>0.09</b>	---
Silver	0.05	(3)	<b>0.0020 J</b>	< 0.0050	---	< 0.0050	---	< 0.0050	---
Sodium	-		<b>72</b>	<b>640</b>	---	<b>650</b>	---	<b>560</b>	---
Uranium	0.03	(3)	< 0.10	< 0.10	---	< 0.10	---	< 0.10	---
Zinc	10	(3)	<b>0.044</b>	<b>0.033</b>	---	<b>0.2</b>	---	<b>0.066</b>	---
<b>Total Petroleum Hydrocarbons (mg/L)</b>									
Diesel Range Organics	0.0167	(6)	< 0.40	< 0.20	---	< 0.20	---	< 0.20	---
Gasoline Range Organics	0.0101	(6)	< 0.050	< 0.050	---	< 0.050	---	< 0.050	---
Motor Oil Range Organics	0.0858	(6)	< 2.5	< 2.5	---	< 2.5	---	< 2.5	---

**Notes:**

- (1) EPA - Regional Screening Levels (November 2019) -Tap Water
  - (2) EPA - Regional Screening Levels (April 2019) - MCL
  - (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3103 Standards for Ground Water of 10,000 mg/l TDS Concentration or less (December 2018)
  - (4) NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation (February 2019)
  - (5) EPA Screening Level - Tap Water x 10 for carcinogenic compounds
  - (6) NMED SSG (June 2019)
- = No screening level available  
\* = Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time  
--- = Analysis not required and/or well contains separate phase  
= Analytical result exceeds the respective screening level.  
<sup>1</sup> = 6/27/13 modification on FWGWM Plan to remove MW-8 and replace with MW-52.  
\*\* = Columns hidden when there are 4 or more consecutive years recorded that analysis was not required and/or the well contained separate phase

**TABLE 4**  
**Cross-Gradient Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Screening Levels	Source	MW-1										MW-13										
		Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	
<b>Volatile Organic Compounds (ug/L)</b>																						
1,1,1,2-Tetrachloroethane	5.74	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,1,1-Trichloroethane	5	(3)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,1,2,2-Tetrachloroethane	10	(3)	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---
1,1,2-Trichloroethane	5	(3)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,1-Dichloroethane	25	(3)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,1-Dichloroethene	7	(3)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,1-Dichloropropene	-		< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2,3-Trichlorobenzene	7	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2,3-Trichloropropane	0.01	(4)	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---
1,2,4-Trichlorobenzene	11.55	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2,4-Trimethylbenzene	56	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2-Dibromo-3-chloropropane	0.2	(2)	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---
1,2-Dibromoethane (EDB)	0.05	(3)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2-Dichlorobenzene	302	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2-Dichloroethane (EDC)	1.71	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2-Dichloropropane	4.376	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,3,5-Trimethylbenzene	60	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,3-Dichlorobenzene	-		< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,3-Dichloropropane	370	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,4-Dichlorobenzene	75	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1-Methylnaphthalene	11	(5)	< 4.0	---	0.51 J	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---
2,2-Dichloropropane	-		< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---
2-Butanone	5565	(4)	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---
2-Chlorotoluene	240	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
2-Hexanone	-		< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---
2-Methylnaphthalene	36	(1)	< 4.0	---	0.75 J	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---
4-Chlorotoluene	250	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
4-Isopropyltoluene	-		< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
4-Methyl-2-pentanone	-		< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---
Acetone	14064	(4)	< 10	---	< 10	---	2.2 J	---	< 10	---	< 10	---	< 10	---	< 10	---	3.2 J	---	< 10	---	< 10	---
Benzene	5	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	62	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Bromodichloromethane	1.34	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Bromoform	33	(5)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Bromomethane	7.545	(4)	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---
Carbon disulfide	810	(4)	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---
Carbon Tetrachloride	5	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Chlorobenzene	100	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Chloroethane	20900	(4)	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---
Chloroform	2.29	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Chloromethane	20.3	(4)	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---
cis-1,2-DCE	70	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
cis-1,3-Dichloropropene	4.7	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Dibromochloromethane	1.68	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Dibromomethane	8.3	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Dichlorodifluoromethane	197	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Ethylbenzene	700	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	1.39	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Isopropylbenzene	447	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---

**TABLE 4**  
**Cross-Gradient Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

	Screening Levels	Source	MW-1										MW-13												
			Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15			
Methyl tert-butyl ether (MTBE)	100	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.72 J	< 1.0	0.51 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylene Chloride	5	(2)	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0
Naphthalene	1.65	(4)	< 2.0	---	0.59 J	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0
n-Butylbenzene	1000	(1)	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0
n-Propylbenzene	660	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0
sec-Butylbenzene	2000	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0
Styrene	100	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0
tert-Butylbenzene	690	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0
Tetrachloroethene (PCE)	5	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0
Toluene	1000	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-DCE	100	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0
trans-1,3-Dichloropropene	4.71	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0
Trichloroethene (TCE)	5	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0
Trichlorofluoromethane	1136	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0
Vinyl chloride	2	(3)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0
Xylenes, Total	620	(3)	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
<b>Semi-Volatile Organic Compounds (ug/L)</b>																									
1,2,4-Trichlorobenzene	70	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,2-Dichlorobenzene	600	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,3-Dichlorobenzene	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,4-Dichlorobenzene	75	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1-Methylnaphthalene	11	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4,5-Trichlorophenol	1166	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4,6-Trichlorophenol	11.9	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dichlorophenol	45.3	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dimethylphenol	354	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dinitrophenol	38.7	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dinitrotoluene	2.375	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,6-Dinitrotoluene	0.485	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Chloronaphthalene	733	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Chlorophenol	91	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Methylnaphthalene	36	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Methylphenol	930	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Nitroaniline	190	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Nitrophenol	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3,3'-Dichlorobenzidine	1.25	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3+4-Methylphenol	930	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3-Nitroaniline	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4,6-Dinitro-2-methylphenol	1.52	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Bromophenyl phenyl ether	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Chloro-3-methylphenol	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Chloroaniline	3.7	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Chlorophenyl phenyl ether	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Nitroaniline	38	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Nitrophenol	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Acenaphthene	535	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Acenaphthylene	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Aniline	130	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Anthracene	1721	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Azobenzene	1.2	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

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	Screening Levels	Source	MW-1										MW-13									
			Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15
Benzo(a)anthracene	0.1199	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(a)pyrene	0.2	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(b)fluoranthene	0.3432	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(g,h,i)perylene	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(k)fluoranthene	3.43	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzoic acid	75000	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzyl alcohol	2000	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bis(2-chloroethoxy)methane	59	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bis(2-chloroethyl)ether	0.137	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bis(2-chloroisopropyl)ether	9.81	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bis(2-ethylhexyl)phthalate	6	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Butyl benzyl phthalate	160	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Carbazole	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Chrysene	34.3171	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dibenz(a,h)anthracene	0.0343	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dibenzofuran	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Diethyl phthalate	14800	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dimethyl phthalate	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Di-n-butyl phthalate	885	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Di-n-octyl phthalate	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fluoranthene	802	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fluorene	288	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexachlorobenzene	0.0976	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexachlorobutadiene	1.387	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexachlorocyclopentadiene	0.411	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexachloroethane	3.2842	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Indeno(1,2,3-cd)pyrene	0.3432	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Isophorone	781	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Naphthalene	1.65	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Nitrobenzene	1.4	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
N-Nitrosodimethylamine	0.0049	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
N-Nitrosodi-n-propylamine	0.11	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
N-Nitrosodiphenylamine	121.922	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pentachlorophenol	0.4129	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Phenanthrene	170.4146	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Phenol	5761	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pyrene	117	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pyridine	20	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
<b>General Chemistry (mg/L)</b>																						
Fluoride	1.6	(3)	<0.50	---	<b>0.32</b>	---	<b>0.32</b>	---	<b>0.45</b>	---	<b>0.51</b>	---	<0.50	---	< 0.10	---	< 0.10	---	< 0.10	---	< 0.10	---
Chloride	250	(3)	<b>10</b>	---	<b>15</b>	---	<b>15</b>	---	<b>11</b>	---	<b>11</b>	---	<b>180</b>	---	<b>230</b>	---	<b>240</b>	---	<b>230</b>	---	<b>170</b>	---
Nitrite	1	(3)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 0.10	---	<b>1.8</b>	---	<b>3.5</b>	---	<b>2.7</b>	---	<b>1.8</b>	---	<b>0.16</b>	---
Bromide	-		<0.50	---	<b>0.12</b>	---	<b>0.12</b>	---	< 0.10	---	< 0.10	---	<b>2.3</b>	---	<b>2.9</b>	---	<b>2.9</b>	---	<b>3</b>	---	<b>1.2</b>	---
Nitrate	10	(3)	<1.0	---	<b>0.78 J</b>	---	<b>0.78 J</b>	---	< 1.0	---	<b>0.54</b>	---	<b>1.8</b>	---	<b>3.5</b>	---	<b>2.7</b>	---	<b>1.8</b>	---	<b>0.25</b>	---
Phosphorus	-		< 2.5 H	---	< 0.50	---	< 0.50	---	< 0.50	---	< 0.50	---	< 2.5 H	---	< 0.50	---	< 0.50	---	< 0.50	---	< 0.50	---
Sulfate	600	(3)	<b>120</b>	---	<b>110</b>	---	<b>110</b>	---	<b>84</b>	---	<b>110</b>	---	<b>1100</b>	---	<b>920</b>	---	<b>860</b>	---	<b>850</b>	---	<b>1100</b>	---
Carbon Dioxide (CO <sub>2</sub> )	-		<b>280 H</b>	---	<b>320</b>	---	<b>280</b>	---	<b>240</b>	---	<b>230</b>	---	<b>860</b>	---	<b>890</b>	---	<b>950</b>	---	<b>950</b>	---	<b>890</b>	---
Alkalinity (CaCO <sub>3</sub> )	-		<b>297.3</b>	---	<b>355.9</b>	---	<b>301.8</b>	---	<b>266.4</b>	---	<b>246.5</b>	---	<b>875.1</b>	---	<b>954.5</b>	---	<b>958.8</b>	---	<b>954.3</b>	---	<b>909.4</b>	---
Bicarbonate (CaCO <sub>3</sub> )	-		<b>297.3</b>	---	<b>355.9</b>	---	<b>301.8</b>	---	<b>266.4</b>	---	<b>246.5</b>	---	<b>875.1</b>	---	<b>954.5</b>	---	<b>958.8</b>	---	<b>954.3</b>	---	<b>909.4</b>	---

**TABLE 4**  
**Cross-Gradient Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Screening Levels	Source	MW-1											MW-13										
		Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15		
<b>Total Metals (mg/L)</b>																							
Arsenic	0.01	(3)	< 0.020	---	< 0.020	---	< 0.020	---	< 0.020	---	< 0.020	---	< 0.020	---	< 0.020	---	< 0.020	---	< 0.020	---	< 0.020	---	
Barium	2.0	(3)	<b>0.070</b>	---	<b>0.13</b>	---	<b>0.061</b>	---	<b>0.28</b>	---	<b>0.031</b>	---	<b>0.026</b>	---	<b>0.028</b>	---	<b>0.025</b>	---	<b>0.052</b>	---	<b>0.022</b>	---	
Cadmium	0.005	(3)	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---	
Chromium	0.05	(3)	< 0.0060	---	< 0.0060	---	< 0.0060	---	< 0.0060	---	< 0.0060	---	<b>0.011</b>	---	<b>0.017</b>	---	<b>0.0027 J</b>	---	<b>0.059</b>	---	< 0.0060	---	
Lead	0.015	(3)	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	
Selenium	0.05	(3)	< 0.050	---	< 0.050	---	< 0.050	---	< 0.050	---	< 0.050	---	< 0.050	---	< 0.050	---	< 0.050	---	< 0.050	---	< 0.050	---	
Silver	0.05	(3)	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	<b>0.0079</b>	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	
Mercury	0.002	(3)	< 0.00020	---	<b>0.000083 J</b>	---	<b>0.000067 J</b>	---	< 0.00020	---	< 0.00020	---	< 0.010	---	<b>0.000074 J</b>	---	< 0.00020	---	< 0.00020	---	< 0.00020	---	
<b>Dissolved Metals (mg/L)</b>																							
Arsenic	0.01	(3)	<0.020	---	<0.020	---	<b>0.0096 J</b>	---	< 0.020	---	< 0.020	---	< 0.020	---	< 0.020	---	<b>0.013 J</b>	---	< 0.020	---	< 0.020	---	
Barium	1.0	(3)	<b>0.036</b>	---	<b>0.036</b>	---	<b>0.036</b>	---	<b>0.022</b>	---	<b>0.031</b>	---	<b>0.022</b>	---	<b>0.022</b>	---	<b>0.024</b>	---	<b>0.022</b>	---	<b>0.023</b>	---	
Cadmium	0.005	(3)	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---	
Calcium	-		<b>86</b>	---	<b>90</b>	---	<b>83</b>	---	<b>65</b>	---	<b>77</b>	---	<b>270</b>	---	<b>250</b>	---	<b>230</b>	---	<b>230</b>	---	<b>260</b>	---	
Chromium	0.05	(3)	< 0.0060	---	< 0.0060	---	< 0.0060	---	< 0.0060	---	< 0.0060	---	< 0.0060	---	< 0.0060	---	< 0.0060	---	< 0.0060	---	< 0.0060	---	
Copper	1	(3)	< 0.0060	---	< 0.0060	---	< 0.0060	---	< 0.0060	---	< 0.0060	---	< 0.0060	---	<b>0.0027</b>	---	< 0.0060	---	< 0.0060	---	< 0.0060	---	
Iron	1	(3)	<0.020	---	<b>0.030</b>	---	<b>0.012 J</b>	---	<b>0.22</b>	---	< 0.020	---	< 0.020	---	< 0.020	---	< 0.020	---	<b>0.044</b>	---	< 0.020	---	
Lead	0.015	(3)	0.0051	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	
Magnesium	-		<b>18</b>	---	<b>19</b>	---	<b>19</b>	---	<b>16</b>	---	<b>17</b>	---	<b>96</b>	---	<b>81</b>	---	<b>84</b>	---	<b>82</b>	---	<b>96</b>	---	
Manganese	0.2	(3)	<b>0.012</b>	---	<b>0.037</b>	---	<b>0.016</b>	---	<b>0.2</b>	---	<b>0.037</b>	---	<b>1.5</b>	---	<b>1.6</b>	---	<b>1.3</b>	---	<b>0.95</b>	---	<b>0.6</b>	---	
Potassium	-		<b>2.1</b>	---	<b>1.9</b>	---	<b>2.4</b>	---	<b>2.8</b>	---	<b>2.2</b>	---	<b>3.8</b>	---	<b>3.4</b>	---	<b>3.6</b>	---	<b>4</b>	---	<b>4.1</b>	---	
Selenium	0.05	(3)	< 0.050	---	< 0.050	---	< 0.050	---	< 0.050	---	< 0.050	---	< 0.050	---	< 0.25	---	< 0.050	---	< 0.050	---	< 0.050	---	
Silver	0.05	(3)	<0.0050	---	<b>0.0024</b>	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	<b>0.0051</b>	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	
Sodium	-		<b>60</b>	---	<b>57</b>	---	<b>73</b>	---	<b>81</b>	---	<b>68</b>	---	<b>530</b>	---	<b>570</b>	---	<b>530</b>	---	<b>540</b>	---	<b>570</b>	---	
Uranium	0.03	(3)	< 0.10	---	< 0.10	---	< 0.10	---	< 0.10	---	< 0.10	---	< 0.10	---	< 0.10	---	< 0.10	---	< 0.10	---	< 0.10	---	
Zinc	10	(3)	<0.020	---	<b>0.15</b>	---	<b>0.031</b>	---	<b>0.024</b>	---	<b>0.027</b>	---	<0.020	---	<b>0.040</b>	---	<b>0.017 J</b>	---	< 0.020	---	<b>0.027</b>	---	
<b>Total Petroleum Hydrocarbons (mg/L)</b>																							
Diesel Range Organics	0.0167	(6)	< 0.40	< 0.40	< 0.20	< 0.40	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.40	---	< 0.40	---	< 0.20	---	< 0.20	---	<b>0.28</b>	---	
Gasoline Range Organics	0.0101	(6)	<0.050	< 0.050	<b>0.024 J</b>	< 0.050	< 0.050	< 0.050	< 0.050	---	< 0.050	< 0.050	<0.050	---	<b>0.033 J</b>	---	<0.050	---	< 0.050	---	< 0.050	---	
Motor Oil Range Organics	0.0858	(6)	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	<2.5	---	<2.5	---	<2.5	---	< 2.5	---	< 2.5	---	

**Notes:**

- (1) EPA - Regional Screening Levels (November 2019) -Tap Water
- (2) EPA - Regional Screening Levels (April 2019) - MCL
- (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3103 Standards for Ground Water of 10,000 mg/l TDS Concentration or less (December 2018)
- (4) NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation (February 2019)
- (5) EPA Screening Level - Tap Water x 10 for carcinogenic compounds
- (6) NMED SSG (June 2019)

-	= No screening level available
*	= Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
---	= Analysis not required and/or well contains separate phase
J	= Analytical result exceeds the respective screening level.
†	= 6/27/13 modification on FWGWM Plan to remove MW-8 and replace with MW-52.
**	= Columns hidden when there are 4 or more consecutive years recorded that analysis was not required and/or the well contained separate phase

**TABLE 4**  
**Cross-Gradient Wells Analytical Summary**  
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	Screening Levels	Source	**MW-26			MW-27					MW-32				
			Aug-19	Aug-18	Aug-17	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15
<b>Volatile Organic Compounds (ug/L)</b>															
1,1,1,2-Tetrachloroethane	5.74	(4)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	5	(3)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	10	(3)	---	---	---	< 2.0	< 2.0	< 2.0	< 4.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,1,2-Trichloroethane	5	(3)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	25	(3)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	7	(3)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	-		---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	7	(1)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichloropropane	0.01	(4)	---	---	---	< 2.0	< 2.0	< 2.0	< 4.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,2,4-Trichlorobenzene	11.55	(4)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	56	(1)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	0.2	(2)	---	---	---	< 2.0	< 2.0	< 2.0	< 4.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,2-Dibromoethane (EDB)	0.05	(3)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	302	(4)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane (EDC)	1.71	(4)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	4.376	(4)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	60	(1)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	-		---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	370	(1)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	75	(2)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1-Methylnaphthalene	11	(5)	---	---	---	< 4.0	< 4.0	< 4.0	< 8.0	< 8.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
2,2-Dichloropropane	-		---	---	---	< 2.0	< 2.0	< 2.0	< 4.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
2-Butanone	5565	(4)	---	---	---	< 10	< 10	< 10	< 20	< 20	< 10	< 10	< 10	< 10	< 10
2-Chlorotoluene	240	(1)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Hexanone	-		---	---	---	< 10	< 10	< 10	< 20	< 20	< 10	< 10	< 10	< 10	< 10
2-Methylnaphthalene	36	(1)	---	---	---	< 4.0	< 4.0	< 4.0	< 8.0	< 8.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
4-Chlorotoluene	250	(1)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Isopropyltoluene	-		---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Methyl-2-pentanone	-		---	---	---	< 10	< 10	< 10	< 20	< 20	< 10	< 10	< 10	< 10	< 10
Acetone	14064	(4)	---	---	---	< 10	< 10	< 10	< 20	< 20	< 10	< 10	< 10	< 10	< 10
Benzene	5	(3)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	62	(1)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	1.34	(4)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	33	(5)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	7.545	(4)	---	---	---	< 3.0	< 3.0	< 3.0	< 6.0	< 6.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Carbon disulfide	810	(4)	---	---	---	< 10	< 10	< 10	< 20	< 20	< 10	< 10	< 10	< 10	< 10
Carbon Tetrachloride	5	(2)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	100	(2)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	20900	(4)	---	---	---	< 2.0	< 2.0	< 2.0	< 4.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroform	2.29	(4)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	20.3	(4)	---	---	---	< 3.0	< 3.0	< 3.0	< 6.0	< 6.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
cis-1,2-DCE	70	(2)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,3-Dichloropropene	4.7	(4)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	1.68	(4)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	8.3	(1)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorodifluoromethane	197	(4)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	700	(3)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	1.39	(4)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	447	(4)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

**TABLE 4**  
**Cross-Gradient Wells Analytical Summary**  
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	Screening Levels	Source	**MW-26			MW-27					MW-32				
			Aug-19	Aug-18	Aug-17	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15
Methyl tert-butyl ether (MTBE)	100	(3)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylene Chloride	5	(2)	---	---	---	< 3.0	< 3.0	< 3.0	< 6.0	< 6.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Naphthalene	1.65	(4)	---	---	---	< 2.0	< 2.0	< 2.0	< 4.0	< 4.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
n-Butylbenzene	1000	(1)	---	---	---	< 3.0	< 3.0	< 3.0	< 6.0	< 6.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
n-Propylbenzene	660	(1)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	2000	(1)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Styrene	100	(2)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
tert-Butylbenzene	690	(1)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Tetrachloroethene (PCE)	5	(2)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Toluene	1000	(3)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-DCE	100	(2)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,3-Dichloropropene	4.71	(4)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichloroethene (TCE)	5	(2)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Trichlorofluoromethane	1136	(4)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vinyl chloride	2	(3)	---	---	---	< 1.0	< 1.0	< 1.0	< 2.0	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Xylenes, Total	620	(3)	---	---	---	< 1.5	< 1.5	< 1.5	< 3.0	< 3.0	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
<b>Semi-Volatile Organic Compounds (ug/L)</b>															
1,2,4-Trichlorobenzene	70	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---
1,2-Dichlorobenzene	600	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---
1,3-Dichlorobenzene	-		---	---	---	---	---	---	---	---	---	---	---	---	---
1,4-Dichlorobenzene	75	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---
1-Methylnaphthalene	11	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4,5-Trichlorophenol	1166	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4,6-Trichlorophenol	11.9	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dichlorophenol	45.3	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dimethylphenol	354	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dinitrophenol	38.7	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dinitrotoluene	2.375	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---
2,6-Dinitrotoluene	0.485	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Chloronaphthalene	733	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Chlorophenol	91	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Methylnaphthalene	36	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Methylphenol	930	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Nitroaniline	190	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Nitrophenol	-		---	---	---	---	---	---	---	---	---	---	---	---	---
3,3'-Dichlorobenzidine	1.25	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---
3+4-Methylphenol	930	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---
3-Nitroaniline	-		---	---	---	---	---	---	---	---	---	---	---	---	---
4,6-Dinitro-2-methylphenol	1.52	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Bromophenyl phenyl ether	-		---	---	---	---	---	---	---	---	---	---	---	---	---
4-Chloro-3-methylphenol	-		---	---	---	---	---	---	---	---	---	---	---	---	---
4-Chloroaniline	3.7	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Chlorophenyl phenyl ether	-		---	---	---	---	---	---	---	---	---	---	---	---	---
4-Nitroaniline	38	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Nitrophenol	-		---	---	---	---	---	---	---	---	---	---	---	---	---
Acenaphthene	535	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---
Acenaphthylene	-		---	---	---	---	---	---	---	---	---	---	---	---	---
Aniline	130	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---
Anthracene	1721	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---
Azobenzene	1.2	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---

**TABLE 4**  
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	Screening Levels	Source	**MW-26			MW-27					MW-32				
			Aug-19	Aug-18	Aug-17	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15
Benzo(a)anthracene	0.1199	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Benzo(a)pyrene	0.2	(2)	---	---	---	---	---	---	---	---	---	---	---	---	
Benzo(b)fluoranthene	0.3432	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Benzo(g,h,i)perylene	-		---	---	---	---	---	---	---	---	---	---	---	---	
Benzo(k)fluoranthene	3.43	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Benzoic acid	75000	(1)	---	---	---	---	---	---	---	---	---	---	---	---	
Benzyl alcohol	2000	(1)	---	---	---	---	---	---	---	---	---	---	---	---	
Bis(2-chloroethoxy)methane	59	(1)	---	---	---	---	---	---	---	---	---	---	---	---	
Bis(2-chloroethyl)ether	0.137	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Bis(2-chloroisopropyl)ether	9.81	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	6	(2)	---	---	---	---	---	---	---	---	---	---	---	---	
Butyl benzyl phthalate	160	(5)	---	---	---	---	---	---	---	---	---	---	---	---	
Carbazole	-		---	---	---	---	---	---	---	---	---	---	---	---	
Chrysene	34.3171	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Dibenz(a,h)anthracene	0.0343	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Dibenzofuran	-		---	---	---	---	---	---	---	---	---	---	---	---	
Diethyl phthalate	14800	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Dimethyl phthalate	-		---	---	---	---	---	---	---	---	---	---	---	---	
Di-n-butyl phthalate	885	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Di-n-octyl phthalate	-		---	---	---	---	---	---	---	---	---	---	---	---	
Fluoranthene	802	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Fluorene	288	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Hexachlorobenzene	0.0976	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Hexachlorobutadiene	1.387	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Hexachlorocyclopentadiene	0.411	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Hexachloroethane	3.2842	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	0.3432	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Isophorone	781	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Naphthalene	1.65	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Nitrobenzene	1.4	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
N-Nitrosodimethylamine	0.0049	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
N-Nitrosodi-n-propylamine	0.11	(5)	---	---	---	---	---	---	---	---	---	---	---	---	
N-Nitrosodiphenylamine	121.922	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Pentachlorophenol	0.4129	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Phenanthrene	170.4146	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Phenol	5761	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Pyrene	117	(4)	---	---	---	---	---	---	---	---	---	---	---	---	
Pyridine	20	(1)	---	---	---	---	---	---	---	---	---	---	---	---	
<b>General Chemistry (mg/L)</b>															
Fluoride	1.6	(3)	---	---	---	0.11 J	<2.0	< 0.50	< 0.50	< 0.50	< 0.50	< 0.10	< 0.10	< 0.10	< 0.10
Chloride	250	(3)	---	---	---	960	870	440	360	450	740	680	630	630	530
Nitrite	1	(3)	---	---	---	<1.0	<1.0	< 0.50	< 1.0	< 0.50	37	43	< 2.0	40	< 2.0
Bromide	-		---	---	---	9.5	8.4	4.7	3.2	4.4	4.4	4.3	5.8	4.4	4.5
Nitrate	10	(3)	---	---	---	<1.0	<1.0	< 0.50	< 1.0	< 0.50	37	43	47	40	55
Phosphorus	-		---	---	---	<2.5 H	<10 H	< 2.5	< 10	< 2.5	<10 H	<10 H	< 0.50	< 10	< 10
Sulfate	600	(3)	---	---	---	2900	3100	2800	2700	2200	1800	1600	1600	1600	1400
Carbon Dioxide (CO <sub>2</sub> )	-		---	---	---	230 H	260	380	400	490	160 H	170 H	170	170	180
Alkalinity (CaCO <sub>3</sub> )	-		---	---	---	250.6	264	395.6	408.9	527.8	178.6	180.7	188.4	186.9	201.7
Bicarbonate (CaCO <sub>3</sub> )	-		---	---	---	250.6	264	395.6	408.9	527.8	178.6	180.7	188.4	186.9	201.7

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	Screening Levels	Source	**MW-26			MW-27					MW-32				
			Aug-19	Aug-18	Aug-17	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15
<b>Total Metals (mg/L)</b>															
Arsenic	0.01	(3)	---	---	---	<0.020	<0.020	< 0.20	< 0.020	< 0.020	< 0.020	< 0.020	< 0.20	< 0.020	< 0.020
Barium	2.0	(3)	---	---	---	<b>0.059</b>	<b>0.066</b>	<b>0.073</b>	<b>0.17</b>	<b>0.068</b>	<b>0.024</b>	<0.020	<b>0.019</b>	<b>0.033</b>	< 0.020
Cadmium	0.005	(3)	---	---	---	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Chromium	0.05	(3)	---	---	---	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060
Lead	0.015	(3)	---	---	---	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Selenium	0.05	(3)	---	---	---	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Silver	0.05	(3)	---	---	---	<b>0.0086</b>	<b>0.022</b>	< 0.0050	< 0.0050	< 0.0050	<b>0.0045 J</b>	<b>0.011</b>	< 0.0050	< 0.0050	< 0.0050
Mercury	0.002	(3)	---	---	---	<b>0.000055J</b>	< 0.00020	< 0.00020	< 0.00020	< 0.00020	<b>0.000054J</b>	< 0.00020	< 0.00020	< 0.00020	< 0.00020
<b>Dissolved Metals (mg/L)</b>															
Arsenic	0.01	(3)	---	---	---	<0.020	<0.020	<b>0.023</b>	< 0.020	< 0.020	< 0.020	< 0.020	<b>0.012 J</b>	< 0.020	< 0.020
Barium	1.0	(3)	---	---	---	<b>0.045</b>	<b>0.050</b>	<b>0.034</b>	<b>0.044</b>	<b>0.054</b>	<b>0.018 J</b>	< 0.020	<b>0.018 J</b>	< 0.020	< 0.020
Cadmium	0.005	(3)	---	---	---	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Calcium	-		---	---	---	<b>670</b>	<b>740</b>	<b>690</b>	<b>550</b>	<b>590</b>	<b>320</b>	<b>320</b>	<b>340</b>	<b>340</b>	<b>310</b>
Chromium	0.05	(3)	---	---	---	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060
Copper	1	(3)	---	---	---	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060
Iron	1	(3)	---	---	---	<b>1.1</b>	<b>0.89</b>	<b>1.3</b>	<b>0.74</b>	<b>0.13</b>	<0.020	<0.020	<b>0.0052 J</b>	< 0.020	< 0.020
Lead	0.015	(3)	---	---	---	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Magnesium	-		---	---	---	<b>110</b>	<b>110</b>	<b>99</b>	<b>92</b>	<b>93</b>	<b>50</b>	<b>47</b>	<b>48</b>	<b>50</b>	<b>45</b>
Manganese	0.2	(3)	---	---	---	<b>1.8</b>	<b>0.75</b>	<b>2.1</b>	<b>2.7</b>	<b>6</b>	<0.0020	<0.0020	<b>0.00085 J</b>	< 0.0020	< 0.0020
Potassium	-		---	---	---	<b>6.0</b>	<b>3.7</b>	<b>4.0</b>	<b>5.3</b>	<b>5.8</b>	<b>3.7</b>	<b>3.4</b>	<b>3.6</b>	<b>4</b>	<b>3.9</b>
Selenium	0.05	(3)	---	---	---	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Silver	0.05	(3)	---	---	---	<b>0.0086</b>	<b>0.018</b>	< 0.0050	< 0.0050	< 0.0050	<b>0.0049 J</b>	<b>0.0082</b>	<b>0.0039 J</b>	< 0.0050	< 0.0050
Sodium	-		---	---	---	<b>870</b>	<b>890</b>	<b>800</b>	<b>720</b>	<b>730</b>	<b>800</b>	<b>770</b>	<b>800</b>	<b>810</b>	<b>750</b>
Uranium	0.03	(3)	---	---	---	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 10	< 10	< 0.10	< 0.10	< 0.10
Zinc	10	(3)	---	---	---	<b>0.015 J</b>	<0.020	<b>0.014 J</b>	< 0.020	< 0.020	<b>0.020</b>	< 0.020	<b>0.025</b>	< 0.020	<b>0.023</b>
<b>Total Petroleum Hydrocarbons (mg/L)</b>															
Diesel Range Organics	0.0167	(6)	---	---	---	<b>0.23 J</b>	<b>3.2</b>	<b>3.2</b>	<b>2.2</b>	<b>3.9</b>	< 0.40	< 0.40	< 0.20	< 0.20	<b>0.28</b>
Gasoline Range Organics	0.0101	(6)	---	---	---	< 0.050	< 0.050	< 0.050	<b>0.2</b>	<b>0.25</b>	< 0.050	< 0.050	< 0.050	< 0.050	<b>0.19</b>
Motor Oil Range Organics	0.0858	(6)	---	---	---	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5

**Notes:**

- (1) EPA - Regional Screening Levels (November 2019) -Tap Water
- (2) EPA - Regional Screening Levels (April 2019) - MCL
- (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3103 Standards for Ground Water of 10,000 mg/l TDS Concentration or less (December 2019)
- (4) NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation (February 2019)
- (5) EPA Screening Level - Tap Water x 10 for carcinogenic compounds
- (6) NMED SSG (June 2019)

-	= No screening level available
*	= Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
---	= Analysis not required and/or well contains separate phase
	= Analytical result exceeds the respective screening level.
†	= 6/27/13 modification on FWGWM Plan to remove MW-8 and replace with MW-52.
**	= Columns hidden when there are 4 or more consecutive years recorded that analysis was not required and/or the well contained separate ph

**TABLE 4**  
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	Screening Levels	Source	MW-33									
			Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15
<b>Volatile Organic Compounds (ug/L)</b>												
1,1,1,2-Tetrachloroethane	5.74	(4)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
1,1,1-Trichloroethane	5	(3)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
1,1,2,2-Tetrachloroethane	10	(3)	---	---	---	---	< 2.0	---	< 2.0	---	---	---
1,1,2-Trichloroethane	5	(3)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
1,1-Dichloroethane	25	(3)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
1,1-Dichloroethene	7	(3)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
1,1-Dichloropropene	-		---	---	---	---	< 1.0	---	< 1.0	---	---	---
1,2,3-Trichlorobenzene	7	(1)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
1,2,3-Trichloropropane	0.01	(4)	---	---	---	---	< 2.0	---	< 2.0	---	---	---
1,2,4-Trichlorobenzene	11.55	(4)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
1,2,4-Trimethylbenzene	56	(1)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
1,2-Dibromo-3-chloropropane	0.2	(2)	---	---	---	---	< 2.0	---	< 2.0	---	---	---
1,2-Dibromoethane (EDB)	0.05	(3)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
1,2-Dichlorobenzene	302	(4)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
1,2-Dichloroethane (EDC)	1.71	(4)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
1,2-Dichloropropane	4.376	(4)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
1,3,5-Trimethylbenzene	60	(1)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
1,3-Dichlorobenzene	-		---	---	---	---	< 1.0	---	< 1.0	---	---	---
1,3-Dichloropropane	370	(1)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
1,4-Dichlorobenzene	75	(2)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
1-Methylnaphthalene	11	(5)	---	---	---	---	< 4.0	---	< 4.0	---	---	---
2,2-Dichloropropane	-		---	---	---	---	< 2.0	---	< 2.0	---	---	---
2-Butanone	5565	(4)	---	---	---	---	< 10	---	< 10	---	---	---
2-Chlorotoluene	240	(1)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
2-Hexanone	-		---	---	---	---	< 10	---	< 10	---	---	---
2-Methylnaphthalene	36	(1)	---	---	---	---	< 4.0	---	< 4.0	---	---	---
4-Chlorotoluene	250	(1)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
4-Isopropyltoluene	-		---	---	---	---	< 1.0	---	< 1.0	---	---	---
4-Methyl-2-pentanone	-		---	---	---	---	< 10	---	< 10	---	---	---
Acetone	14064	(4)	---	---	---	---	< 10	---	< 10	---	---	---
Benzene	5	(3)	---	---	---	---	< 1.0	<1.0	< 1.0	<1.0	---	<1.0
Bromobenzene	62	(1)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
Bromodichloromethane	1.34	(4)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
Bromoform	33	(5)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
Bromomethane	7.545	(4)	---	---	---	---	< 3.0	---	< 3.0	---	---	---
Carbon disulfide	810	(4)	---	---	---	---	< 10	---	< 10	---	---	---
Carbon Tetrachloride	5	(2)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
Chlorobenzene	100	(2)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
Chloroethane	20900	(4)	---	---	---	---	< 2.0	---	< 2.0	---	---	---
Chloroform	2.29	(4)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
Chloromethane	20.3	(4)	---	---	---	---	< 3.0	---	< 3.0	---	---	---
cis-1,2-DCE	70	(2)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
cis-1,3-Dichloropropene	4.7	(4)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
Dibromochloromethane	1.68	(4)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
Dibromomethane	8.3	(1)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
Dichlorodifluoromethane	197	(4)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
Ethylbenzene	700	(3)	---	---	---	---	< 1.0	<1.0	< 1.0	<1.0	---	<1.0
Hexachlorobutadiene	1.39	(4)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
Isopropylbenzene	447	(4)	---	---	---	---	< 1.0	---	< 1.0	---	---	---

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	Screening Levels	Source	MW-33									
			Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15
Methyl tert-butyl ether (MTBE)	100	(3)	---	---	---	---	< 1.0	<1.0	< 1.0	<1.0	---	<1.0
Methylene Chloride	5	(2)	---	---	---	---	< 3.0	---	< 3.0	---	---	---
Naphthalene	1.65	(4)	---	---	---	---	< 2.0	---	< 2.0	---	---	---
n-Butylbenzene	1000	(1)	---	---	---	---	< 3.0	---	< 3.0	---	---	---
n-Propylbenzene	660	(1)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
sec-Butylbenzene	2000	(1)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
Styrene	100	(2)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
tert-Butylbenzene	690	(1)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
Tetrachloroethene (PCE)	5	(2)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
Toluene	1000	(3)	---	---	---	---	< 1.0	<1.0	< 1.0	<1.0	---	<1.0
trans-1,2-DCE	100	(2)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
trans-1,3-Dichloropropene	4.71	(4)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
Trichloroethene (TCE)	5	(2)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
Trichlorofluoromethane	1136	(4)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
Vinyl chloride	2	(3)	---	---	---	---	< 1.0	---	< 1.0	---	---	---
Xylenes, Total	620	(3)	---	---	---	---	< 1.5	<1.5	< 1.5	<1.5	---	<1.5
<b>Semi-Volatile Organic Compounds (ug/L)</b>												
1,2,4-Trichlorobenzene	70	(2)	---	---	---	---	---	---	---	---	---	---
1,2-Dichlorobenzene	600	(2)	---	---	---	---	---	---	---	---	---	---
1,3-Dichlorobenzene	-		---	---	---	---	---	---	---	---	---	---
1,4-Dichlorobenzene	75	(2)	---	---	---	---	---	---	---	---	---	---
1-Methylnaphthalene	11	(5)	---	---	---	---	---	---	---	---	---	---
2,4,5-Trichlorophenol	1166	(4)	---	---	---	---	---	---	---	---	---	---
2,4,6-Trichlorophenol	11.9	(4)	---	---	---	---	---	---	---	---	---	---
2,4-Dichlorophenol	45.3	(4)	---	---	---	---	---	---	---	---	---	---
2,4-Dimethylphenol	354	(4)	---	---	---	---	---	---	---	---	---	---
2,4-Dinitrophenol	38.7	(4)	---	---	---	---	---	---	---	---	---	---
2,4-Dinitrotoluene	2.375	(4)	---	---	---	---	---	---	---	---	---	---
2,6-Dinitrotoluene	0.485	(4)	---	---	---	---	---	---	---	---	---	---
2-Chloronaphthalene	733	(4)	---	---	---	---	---	---	---	---	---	---
2-Chlorophenol	91	(4)	---	---	---	---	---	---	---	---	---	---
2-Methylnaphthalene	36	(1)	---	---	---	---	---	---	---	---	---	---
2-Methylphenol	930	(1)	---	---	---	---	---	---	---	---	---	---
2-Nitroaniline	190	(1)	---	---	---	---	---	---	---	---	---	---
2-Nitrophenol	-		---	---	---	---	---	---	---	---	---	---
3,3'-Dichlorobenzidine	1.25	(4)	---	---	---	---	---	---	---	---	---	---
3+4-Methylphenol	930	(1)	---	---	---	---	---	---	---	---	---	---
3-Nitroaniline	-		---	---	---	---	---	---	---	---	---	---
4,6-Dinitro-2-methylphenol	1.52	(4)	---	---	---	---	---	---	---	---	---	---
4-Bromophenyl phenyl ether	-		---	---	---	---	---	---	---	---	---	---
4-Chloro-3-methylphenol	-		---	---	---	---	---	---	---	---	---	---
4-Chloroaniline	3.7	(5)	---	---	---	---	---	---	---	---	---	---
4-Chlorophenyl phenyl ether	-		---	---	---	---	---	---	---	---	---	---
4-Nitroaniline	38	(5)	---	---	---	---	---	---	---	---	---	---
4-Nitrophenol	-		---	---	---	---	---	---	---	---	---	---
Acenaphthene	535	(4)	---	---	---	---	---	---	---	---	---	---
Acenaphthylene	-		---	---	---	---	---	---	---	---	---	---
Aniline	130	(5)	---	---	---	---	---	---	---	---	---	---
Anthracene	1721	(4)	---	---	---	---	---	---	---	---	---	---
Azobenzene	1.2	(5)	---	---	---	---	---	---	---	---	---	---

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	Screening Levels	Source	MW-33									
			Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15
Benzo(a)anthracene	0.1199	(4)	---	---	---	---	---	---	---	---	---	---
Benzo(a)pyrene	0.2	(2)	---	---	---	---	---	---	---	---	---	---
Benzo(b)fluoranthene	0.3432	(4)	---	---	---	---	---	---	---	---	---	---
Benzo(g,h,i)perylene	-		---	---	---	---	---	---	---	---	---	---
Benzo(k)fluoranthene	3.43	(4)	---	---	---	---	---	---	---	---	---	---
Benzoic acid	75000	(1)	---	---	---	---	---	---	---	---	---	---
Benzyl alcohol	2000	(1)	---	---	---	---	---	---	---	---	---	---
Bis(2-chloroethoxy)methane	59	(1)	---	---	---	---	---	---	---	---	---	---
Bis(2-chloroethyl)ether	0.137	(4)	---	---	---	---	---	---	---	---	---	---
Bis(2-chloroisopropyl)ether	9.81	(4)	---	---	---	---	---	---	---	---	---	---
Bis(2-ethylhexyl)phthalate	6	(2)	---	---	---	---	---	---	---	---	---	---
Butyl benzyl phthalate	160	(5)	---	---	---	---	---	---	---	---	---	---
Carbazole	-		---	---	---	---	---	---	---	---	---	---
Chrysene	34.3171	(4)	---	---	---	---	---	---	---	---	---	---
Dibenz(a,h)anthracene	0.0343	(4)	---	---	---	---	---	---	---	---	---	---
Dibenzofuran	-		---	---	---	---	---	---	---	---	---	---
Diethyl phthalate	14800	(4)	---	---	---	---	---	---	---	---	---	---
Dimethyl phthalate	-		---	---	---	---	---	---	---	---	---	---
Di-n-butyl phthalate	885	(4)	---	---	---	---	---	---	---	---	---	---
Di-n-octyl phthalate	-		---	---	---	---	---	---	---	---	---	---
Fluoranthene	802	(4)	---	---	---	---	---	---	---	---	---	---
Fluorene	288	(4)	---	---	---	---	---	---	---	---	---	---
Hexachlorobenzene	0.0976	(4)	---	---	---	---	---	---	---	---	---	---
Hexachlorobutadiene	1.387	(4)	---	---	---	---	---	---	---	---	---	---
Hexachlorocyclopentadiene	0.411	(4)	---	---	---	---	---	---	---	---	---	---
Hexachloroethane	3.2842	(4)	---	---	---	---	---	---	---	---	---	---
Indeno(1,2,3-cd)pyrene	0.3432	(4)	---	---	---	---	---	---	---	---	---	---
Isophorone	781	(4)	---	---	---	---	---	---	---	---	---	---
Naphthalene	1.65	(4)	---	---	---	---	---	---	---	---	---	---
Nitrobenzene	1.4	(4)	---	---	---	---	---	---	---	---	---	---
N-Nitrosodimethylamine	0.0049	(4)	---	---	---	---	---	---	---	---	---	---
N-Nitrosodi-n-propylamine	0.11	(5)	---	---	---	---	---	---	---	---	---	---
N-Nitrosodiphenylamine	121.922	(4)	---	---	---	---	---	---	---	---	---	---
Pentachlorophenol	0.4129	(4)	---	---	---	---	---	---	---	---	---	---
Phenanthrene	170.4146	(4)	---	---	---	---	---	---	---	---	---	---
Phenol	5761	(4)	---	---	---	---	---	---	---	---	---	---
Pyrene	117	(4)	---	---	---	---	---	---	---	---	---	---
Pyridine	20	(1)	---	---	---	---	---	---	---	---	---	---
<b>General Chemistry (mg/L)</b>												
Fluoride	1.6	(3)	---	---	---	---	LW	---	0.51	---	---	---
Chloride	250	(3)	---	---	---	---	LW	---	250	---	---	---
Nitrite	1	(3)	---	---	---	---	LW	---	40	---	---	---
Bromide	-		---	---	---	---	LW	---	1.4	---	---	---
Nitrate	10	(3)	---	---	---	---	LW	---	40	---	---	---
Phosphorus	-		---	---	---	---	LW	---	< 10	---	---	---
Sulfate	600	(3)	---	---	---	---	LW	---	2500	---	---	---
Carbon Dioxide (CO <sub>2</sub> )	-		---	---	---	---	LW	---	110	---	---	---
Alkalinity (CaCO <sub>3</sub> )	-		---	---	---	---	LW	---	125.5	---	---	---
Bicarbonate (CaCO <sub>3</sub> )	-		---	---	---	---	LW	---	125.5	---	---	---

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	Screening Levels	Source	MW-33										
			Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	
<b>Total Metals (mg/L)</b>													
Arsenic	0.01	(3)	---	---	---	---	LW	---	< 0.020	---	---	---	
Barium	2.0	(3)	---	---	---	---	LW	---	0.021	---	---	---	
Cadmium	0.005	(3)	---	---	---	---	LW	---	< 0.0020	---	---	---	
Chromium	0.05	(3)	---	---	---	---	LW	---	< 0.0060	---	---	---	
Lead	0.015	(3)	---	---	---	---	LW	---	< 0.0050	---	---	---	
Selenium	0.05	(3)	---	---	---	---	LW	---	0.063	---	---	---	
Silver	0.05	(3)	---	---	---	---	LW	---	< 0.0050	---	---	---	
Mercury	0.002	(3)	---	---	---	---	LW	---	< 0.00020	---	---	---	
<b>Dissolved Metals (mg/L)</b>													
Arsenic	0.01	(3)	---	---	---	---	LW	---	< 0.020	---	---	---	
Barium	1.0	(3)	---	---	---	---	LW	---	< 0.020	---	---	---	
Cadmium	0.005	(3)	---	---	---	---	LW	---	< 0.0020	---	---	---	
Calcium	-		---	---	---	---	LW	---	480	---	---	---	
Chromium	0.05	(3)	---	---	---	---	LW	---	< 0.0060	---	---	---	
Copper	1	(3)	---	---	---	---	LW	---	< 0.0060	---	---	---	
Iron	1	(3)	---	---	---	---	LW	---	< 0.020	---	---	---	
Lead	0.015	(3)	---	---	---	---	LW	---	< 0.0050	---	---	---	
Magnesium	-		---	---	---	---	LW	---	69	---	---	---	
Manganese	0.2	(3)	---	---	---	---	LW	---	< 0.0020	---	---	---	
Potassium	-		---	---	---	---	LW	---	5.5	---	---	---	
Selenium	0.05	(3)	---	---	---	---	LW	---	0.097	---	---	---	
Silver	0.05	(3)	---	---	---	---	LW	---	< 0.0050	---	---	---	
Sodium	-		---	---	---	---	LW	---	820	---	---	---	
Uranium	0.03	(3)	---	---	---	---	LW	---	< 0.10	---	---	---	
Zinc	10	(3)	---	---	---	---	LW	---	< 0.020	---	---	---	
<b>Total Petroleum Hydrocarbons (mg/L)</b>													
Diesel Range Organics	0.0167	(6)	---	---	---	---	< 0.20	< 0.20	< 0.20	< 0.20	---	< 0.20	
Gasoline Range Organics	0.0101	(6)	---	---	---	---	< 0.050	< 0.050	< 0.050	< 0.050	---	< 0.050	
Motor Oil Range Organics	0.0858	(6)	---	---	---	---	< 2.5	< 2.5	< 2.5	< 2.5	---	< 2.5	

**Notes:**

- (1) EPA - Regional Screening Levels (November 2019) - Tap Water
- (2) EPA - Regional Screening Levels (April 2019) - MCL
- (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3103 Standards for Ground Water of 1
- (4) NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation
- (5) EPA Screening Level - Tap Water x 10 for carcinogenic compounds
- (6) NMED SSG (June 2019)

-	= No screening level available
*	= Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
---	= Analysis not required and/or well contains separate phase
	= Analytical result exceeds the respective screening level.
†	= 6/27/13 modification on FWGWM Plan to remove MW-8 and replace with MW-52.
**	= Columns hidden when there are 4 or more consecutive years recorded that analysis was not required.

**TABLE 5**  
**Downgradient Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Screening Levels	Source	MW-11					MW-12								MW-34							
		Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	
<b>Volatile Organic Compounds (ug/L)</b>																						
1,1,1,2-Tetrachloroethane	5.74	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
1,1,1-Trichloroethane	5	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
1,1,2,2-Tetrachloroethane	10	(3)	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	
1,1,2-Trichloroethane	5	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
1,1-Dichloroethane	25	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
1,1-Dichloroethene	7	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
1,1-Dichloropropene	-		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
1,2,3-Trichlorobenzene	7	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
1,2,3-Trichloropropane	0.01	(4)	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	
1,2,4-Trichlorobenzene	11.55	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
1,2,4-Trimethylbenzene	56	(1)	110	67	97	120	390	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
1,2-Dibromo-3-chloropropane	0.2	(2)	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	
1,2-Dibromoethane (EDB)	0.05	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
1,2-Dichlorobenzene	302	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
1,2-Dichloroethane (EDC)	1.71	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
1,2-Dichloropropane	4.376	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
1,3,5-Trimethylbenzene	60	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
1,3-Dichlorobenzene	-		< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
1,3-Dichloropropane	370	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
1,4-Dichlorobenzene	75	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
1-Methylnaphthalene	11	(5)	18	15	15	17	16	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	< 4.0	< 4.0	< 4.0	
2,2-Dichloropropane	-		< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	
2-Butanone	5565	(4)	< 10	< 10	< 10	< 10	< 10	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	< 10	< 10	< 10	
2-Chlorotoluene	240	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
2-Hexanone	-		< 10	< 10	< 10	< 10	< 10	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	< 10	< 10	< 10	
2-Methylnaphthalene	36	(1)	28	25	17	23	18	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	0.28 J	< 4.0	< 4.0	
4-Chlorotoluene	250	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
4-Isopropyltoluene	-		3.0	1.9	1.6	3.5	5	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
4-Methyl-2-pentanone	-		< 10	< 10	< 10	< 10	< 10	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	< 10	< 10	< 10	
Acetone	14064	(4)	< 10	< 10	< 10	19	< 10	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	8.0 J	< 10	< 10	
Benzene	5	(3)	8	66	29	9.9	14	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Bromobenzene	62	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
Bromodichloromethane	1.34	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
Bromoform	33	(5)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
Bromomethane	7.545	(4)	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	< 3.0	< 3.0	< 3.0	
Carbon disulfide	810	(4)	< 10	< 10	< 10	< 10	< 10	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	< 10	< 10	< 10	
Carbon Tetrachloride	5	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
Chlorobenzene	100	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
Chloroethane	20900	(4)	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	
Chloroform	2.29	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
Chloromethane	20.3	(4)	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	< 3.0	< 3.0	< 3.0	
cis-1,2-DCE	70	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
cis-1,3-Dichloropropene	4.7	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
Dibromochloromethane	1.68	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
Dibromomethane	8.3	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
Dichlorodifluoromethane	197	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
Ethylbenzene	700	(3)	< 1.0	0.68 J	0.5 J	< 1.0	1	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Hexachlorobutadiene	1.39	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
Isopropylbenzene	447	(4)	81	63	58	59	62	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	3.8	3.8	2.6	4.6

**TABLE 5**  
**Downgradient Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

	Screening Levels	Source	MW-11					MW-12								MW-34						
			Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15
Methyl tert-butyl ether (MTBE)	100	(3)	< 1.0	1.3	2.4	2.5	2	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	0.57 J	0.48 J	< 1.0	< 1.0
Methylene Chloride	5	(2)	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	< 3.0	< 3.0	< 3.0	
Naphthalene	1.65	(4)	99	98	80	70	71	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0	
n-Butylbenzene	1000	(1)	3.3	2.1 J	1.9 J	< 3.0	< 3.0	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	< 3.0	0.24 J	< 3.0	
n-Propylbenzene	660	(1)	86	70	63	64	54	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	2.4	1.5	
sec-Butylbenzene	2000	(1)	13	9.1	7.8	12	12	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	0.40 J	1.9	2.6	
Styrene	100	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
tert-Butylbenzene	690	(1)	2.5	2	1.9	2.4	2.5	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	1.4	1.7	1.6	1.7	
Tetrachloroethene (PCE)	5	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
Toluene	1000	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
trans-1,2-DCE	100	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
trans-1,3-Dichloropropene	4.71	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
Trichloroethene (TCE)	5	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
Trichlorofluoromethane	1136	(4)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
Vinyl chloride	2	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	
Xylenes, Total	620	(3)	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	
<b>Semi-Volatile Organic Compounds (ug/L)</b>																						
1,2,4-Trichlorobenzene	70	(2)	< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
1,2-Dichlorobenzene	600	(2)	< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
1,3-Dichlorobenzene	-		< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
1,4-Dichlorobenzene	75	(2)	< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
1-Methylnaphthalene	11	(5)	34	< 50	---	25	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
2,4,5-Trichlorophenol	1166	(4)	< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
2,4,6-Trichlorophenol	11.9	(4)	< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
2,4-Dichlorophenol	45.3	(4)	< 20	< 100	---	< 20	---	< 20	---	< 20	---	---	---	< 20	---	---	---	---	---	---	---	
2,4-Dimethylphenol	354	(4)	< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
2,4-Dinitrophenol	38.7	(4)	< 20	< 100	---	< 20	---	< 20	---	< 20	---	---	---	< 20	---	---	---	---	---	---	---	
2,4-Dinitrotoluene	2.375	(4)	< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
2,6-Dinitrotoluene	0.485	(4)	< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
2-Chloronaphthalene	733	(4)	< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
2-Chlorophenol	91	(4)	< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
2-Methylnaphthalene	36	(1)	24	< 50	---	11	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
2-Methylphenol	930	(1)	< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
2-Nitroaniline	190	(1)	< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
2-Nitrophenol	-		< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
3,3'-Dichlorobenzidine	1.25	(4)	< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
3+4-Methylphenol	930	(1)	< 10	< 50	---	17	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
3-Nitroaniline	-		< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
4,6-Dinitro-2-methylphenol	1.52	(4)	< 20	< 100	---	< 20	---	< 20	---	< 20	---	---	---	< 20	---	---	---	---	---	---	---	
4-Bromophenyl phenyl ether	-		< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
4-Chloro-3-methylphenol	-		< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
4-Chloroaniline	3.7	(5)	< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
4-Chlorophenyl phenyl ether	-		< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
4-Nitroaniline	38	(5)	< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
4-Nitrophenol	-		< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Acenaphthene	535	(4)	< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Acenaphthylene	-		< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Aniline	130	(5)	< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Anthracene	1721	(4)	< 10	< 50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	

**TABLE 5**  
**Downgradient Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

	Screening Levels	Source	MW-11					MW-12								MW-34						
			Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15
Azobenzene	1.2	(5)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Benzo(a)anthracene	0.1199	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Benzo(a)pyrene	0.2	(2)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Benzo(b)fluoranthene	0.3432	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Benzo(g,h,i)perylene	-		< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Benzo(k)fluoranthene	3.43	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Benzoic acid	75000	(1)	< 20	<100	---	< 20	---	< 20	---	< 20	---	---	---	< 20	---	---	---	---	---	---	---	
Benzyl alcohol	2000	(1)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Bis(2-chloroethoxy)methane	59	(1)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Bis(2-chloroethyl)ether	0.137	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Bis(2-chloroisopropyl)ether	9.81	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Bis(2-ethylhexyl)phthalate	6	(2)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Butyl benzyl phthalate	160	(5)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Carbazole	-		< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Chrysene	34.3171	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Dibenz(a,h)anthracene	0.0343	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Dibenzofuran	-		< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Diethyl phthalate	14800	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Dimethyl phthalate	-		< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Di-n-butyl phthalate	885	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Di-n-octyl phthalate	-		< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Fluoranthene	802	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Fluorene	288	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Hexachlorobenzene	0.0976	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Hexachlorobutadiene	1.387	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Hexachlorocyclopentadiene	0.411	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Hexachloroethane	3.2842	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Indeno(1,2,3-cd)pyrene	0.3432	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Isophorone	781	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Naphthalene	1.65	(4)	<b>85</b>	<b>61</b>	---	<b>43</b>	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Nitrobenzene	1.4	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
N-Nitrosodimethylamine	0.0049	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
N-Nitrosodi-n-propylamine	0.11	(5)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
N-Nitrosodiphenylamine	121.922	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Pentachlorophenol	0.4129	(4)	< 20	<100	---	< 20	---	< 20	---	< 20	---	---	---	< 20	---	---	---	---	---	---	---	
Phenanthrene	170.4146	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Phenol	5761	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Pyrene	117	(4)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
Pyridine	20	(1)	< 10	<50	---	< 10	---	< 10	---	< 10	---	---	---	< 10	---	---	---	---	---	---	---	
<b>General Chemistry (mg/L)</b>																						
Fluoride	1.6	(3)	<0.50	<b>0.28 J</b>	<b>0.37 J</b>	<b>0.41</b>	<b>0.35</b>	<b>0.34 J</b>	---	<b>0.31</b>	---	<b>0.33</b>	---	<b>0.45</b>	---	<b>0.63</b>	---	<b>0.64</b>	<b>0.55</b>	<b>0.54</b>	<b>0.38</b>	<b>0.56</b>
Chloride	250	(3)	<b>240</b>	<b>220</b>	<b>210</b>	<b>120</b>	<b>78</b>	<b>5.7</b>	---	<b>3.5</b>	---	<b>3.4</b>	---	<b>4.7</b>	---	<b>4</b>	---	<b>250</b>	<b>240</b>	<b>240</b>	<b>260</b>	<b>190</b>
Nitrite	1	(3)	<0.50	<1.0	< 0.50	< 1.0	< 0.10	<b>0.08 J</b>	---	<1.0	---	< 0.10	---	< 1.0	---	< 0.10	---	<0.50	< 1.0	< 0.50	< 1.0	< 0.10
Bromide	-		<b>3.8</b>	<b>3.5</b>	<b>3.2</b>	<b>0.92</b>	<b>0.15</b>	<0.50	---	<0.10	---	<b>0.041 J</b>	---	< 0.10	---	< 0.10	---	<b>3.4</b>	<b>3.5</b>	<b>3.5</b>	<b>2.2</b>	<b>0.7</b>
Nitrate	10	(3)	<0.50	<1.0	< 0.50	< 1.0	<b>0.15</b>	<b>0.08 J</b>	---	<1.0	---	<b>0.030 J</b>	---	< 1.0	---	<b>0.11</b>	---	<0.50	< 1.0	< 0.50	< 1.0	<b>0.27</b>
Phosphorus	-		< 2.5	< 2.5	< 2.5	<b>2.8</b>	< 0.50	< 0.50 H	---	< 0.50 H	---	< 0.50	---	< 0.50	---	< 0.50	---	< 2.5	< 2.5	< 2.5	< 2.5	< 0.50
Sulfate	600	(3)	<b>6.9</b>	<b>2.2 J</b>	<b>1.3 J</b>	<b>7.6</b>	<b>5.7</b>	<b>57</b>	---	<b>45</b>	---	<b>44</b>	---	<b>48</b>	---	<b>79</b>	---	<b>30</b>	<b>30</b>	<b>3.6</b>	<b>340</b>	<b>23</b>
Carbon Dioxide (CO <sub>2</sub> )	-		<b>970 H</b>	<b>900</b>	<b>1100</b>	<b>1000</b>	<b>1000</b>	<b>140</b>	---	<b>140</b>	---	<b>140</b>	---	<b>130</b>	---	<b>130</b>	---	<b>1100 H</b>	<b>870 H</b>	<b>1000</b>	<b>930</b>	<b>820</b>
Alkalinity (CaCO <sub>3</sub> )	-		<b>1084</b>	<b>1006</b>	<b>1140</b>	<b>1082</b>	<b>1038</b>	<b>154.4</b>	---	<b>155.4</b>	---	<b>155.6</b>	---	<b>149</b>	---	<b>148.4</b>	---	<b>1152</b>	<b>970</b>	<b>1088</b>	<b>979</b>	<b>876</b>
Bicarbonate (CaCO <sub>3</sub> )	-		<b>1084</b>	<b>1006</b>	<b>1140</b>	<b>1082</b>	<b>1038</b>	<b>154.4</b>	---	<b>155.4</b>	---	<b>155.6</b>	---	<b>149</b>	---	<b>148.4</b>	---	<b>1152</b>	<b>970</b>	<b>1088</b>	<b>979</b>	<b>876</b>

**TABLE 5  
Downgradient Wells Analytical Summary  
2019 Groundwater Remediation and Monitoring Annual Report**

Screening Levels	Source	MW-11					MW-12								MW-34							
		Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	
<b>Total Metals (mg/L)</b>																						
Arsenic	0.01	(3)	<0.020	<0.020	<b>0.026</b>	<b>0.047</b>	<b>0.035</b>	< 0.020	---	< 0.020	---	< 0.020	---	< 0.020	---	< 0.020	---	<0.020	<b>0.015</b>	<b>0.032</b>	< 0.020	< 0.020
Barium	2.0	(3)	<b>0.99</b>	<b>0.75</b>	<b>0.75</b>	<b>0.96</b>	<b>0.92</b>	<b>0.071</b>	---	<b>0.064</b>	---	<b>0.043</b>	---	<b>0.36</b>	---	<b>0.13</b>	---	<b>0.17</b>	<b>0.42</b>	<b>0.93</b>	<b>0.56</b>	<b>0.78</b>
Cadmium	0.005	(3)	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Chromium	0.05	(3)	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	<b>0.31</b>	---	<b>0.14</b>	---	<b>0.015</b>	---	<b>0.058</b>	---	<b>0.34</b>	---	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060
Lead	0.015	(3)	<b>0.014</b>	< 0.0050	< 0.0050	<b>0.028</b>	<b>0.0075</b>	<b>0.0069</b>	---	< 0.0050	---	< 0.0050	---	<b>0.019</b>	---	<b>0.0064</b>	---	<b>0.0087</b>	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Selenium	0.05	(3)	< 0.050	< 0.050	< 0.0050	< 0.050	< 0.050	< 0.050	---	< 0.050	---	< 0.050	---	< 0.050	---	< 0.050	---	< 0.050	< 0.050	< 0.0050	< 0.050	< 0.050
Silver	0.05	(3)	<0.0050	<b>0.0040 J</b>	< 0.050	< 0.0050	< 0.0050	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	<0.0050	<b>0.0035 J</b>	< 0.050	< 0.0050	< 0.0050
Mercury	0.002	(3)	< 0.00020	<b>0.000087 J</b>	< 0.00020	< 0.00020	< 0.00020	<b>0.000079 J</b>	---	< 0.00020	---	< 0.00020	---	< 0.00020	---	< 0.00020	---	< 0.00020	<b>0.000092 J</b>	< 0.00020	< 0.00020	< 0.00020
<b>Dissolved Metals (mg/L)</b>																						
Arsenic	0.01	(3)	<0.020	<b>0.021</b>	<b>0.017 J</b>	<b>0.033</b>	< 0.020	< 0.020	---	< 0.020	---	< 0.020	---	< 0.020	---	< 0.020	---	<b>0.027</b>	< 0.020	< 0.020	< 0.020	< 0.020
Barium	1.0	(3)	<b>0.97</b>	<b>0.74</b>	<b>0.7</b>	<b>0.86</b>	<b>0.85</b>	<b>0.045</b>	---	<b>0.038</b>	---	<b>0.044</b>	---	<b>0.27</b>	---	<b>0.047</b>	---	<b>0.14</b>	<b>0.38</b>	<b>0.91</b>	<b>0.4</b>	<b>0.73</b>
Cadmium	0.005	(3)	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Calcium	-		<b>130</b>	<b>120</b>	<b>130</b>	<b>87</b>	<b>96</b>	<b>50</b>	---	<b>42</b>	---	<b>46</b>	---	<b>58</b>	---	<b>48</b>	---	<b>140</b>	<b>120</b>	<b>120</b>	<b>150</b>	<b>93</b>
Chromium	0.05	(3)	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	<b>0.0036</b>	---	< 0.0060	---	< 0.0060	---	<b>0.089</b>	---	< 0.0060	---	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060
Copper	1	(3)	< 0.0060	< 0.0060	< 0.0060	<b>0.015</b>	< 0.0060	< 0.0060	---	< 0.0060	---	< 0.0060	---	<b>0.023</b>	---	< 0.0060	---	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060
Iron	1	(3)	<b>6.5</b>	<b>1.9</b>	<b>4.2</b>	<b>18</b>	<b>9.6</b>	<b>0.02</b>	---	< 0.020	---	< 0.020	---	<b>9.2</b>	---	< 0.020	---	<b>2.5</b>	<b>3</b>	<b>3.2</b>	<b>4.5</b>	<b>2.8</b>
Lead	0.015	(3)	<b>0.0068</b>	< 0.0050	< 0.0050	<b>0.027</b>	<b>0.006</b>	<b>0.0054</b>	---	< 0.0050	---	< 0.0050	---	<b>0.032</b>	---	< 0.0050	---	< 0.0050	< 0.0050	< 0.0050	< 0.0050	<b>0.005</b>
Magnesium	-		<b>31</b>	<b>27</b>	<b>27</b>	<b>21</b>	<b>22</b>	<b>7.3</b>	---	<b>6.5</b>	---	<b>6.9</b>	---	<b>11</b>	---	<b>6.9</b>	---	<b>23</b>	<b>23</b>	<b>20</b>	<b>30</b>	<b>16</b>
Manganese	0.2	(3)	<b>2.2</b>	<b>2</b>	<b>2.1</b>	<b>1.8</b>	<b>1.5</b>	<b>0.0095</b>	---	<b>0.0077</b>	---	<b>0.0066</b>	---	<b>2.1</b>	---	<b>0.03</b>	---	<b>3.6</b>	<b>3.8</b>	<b>3.7</b>	<b>3.6</b>	<b>3.2</b>
Potassium	-		<b>1.9</b>	<b>1.8</b>	<b>1.7</b>	<b>2.8</b>	<b>1.5</b>	<b>0.57</b>	---	<1.0	---	<b>0.58 J</b>	---	<b>1.6</b>	---	< 1.0	---	<b>1.3</b>	<b>1.2</b>	<b>1.1</b>	<b>2.1</b>	<b>1.3</b>
Selenium	0.05	(3)	<0.050	<0.050	<b>0.043 J</b>	< 0.050	< 0.050	< 0.050	---	< 0.050	---	< 0.050	---	< 0.050	---	< 0.050	---	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Silver	0.05	(3)	<0.0050	<b>0.0031 J</b>	< 0.0050	< 0.0050	< 0.0050	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	<0.0050	0.0027	< 0.0050	< 0.0050	< 0.0050
Sodium	-		<b>490</b>	<b>440</b>	<b>440</b>	<b>410</b>	<b>390</b>	<b>29</b>	---	<b>31</b>	---	<b>30</b>	---	<b>32</b>	---	<b>31</b>	---	<b>490</b>	<b>440</b>	<b>440</b>	<b>490</b>	<b>380</b>
Uranium	0.03	(3)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---	< 0.10	---	< 0.10	---	< 0.10	---	< 0.10	---	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Zinc	10	(3)	<0.020	<0.020	<b>0.093</b>	<b>0.063</b>	< 0.020	<b>0.017</b>	---	<0.020	---	<b>0.047</b>	---	<b>0.1</b>	---	< 0.020	---	<0.020	<b>0.046</b>	<b>0.041</b>	< 0.020	< 0.020
<b>Total Petroleum Hydrocarbons (mg/L)</b>																						
Diesel Range Organics	0.0167	(6)	<b>0.52</b>	<b>0.45</b>	<b>1.4</b>	<b>1.8</b>	<b>1.5</b>	< 0.40	<0.40	< 0.40	<0.40	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	<0.40	<b>0.4</b>	<b>1.1</b>	<b>0.89</b>	<b>0.56</b>
Gasoline Range Organics	0.0101	(6)	<b>2.4</b>	<b>1.3</b>	<b>0.98</b>	<b>1.4</b>	<b>2.4</b>	< 0.050	<0.050	< 0.050	<0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	<2.5	<b>1.2</b>	<b>1.1</b>	<b>0.87</b>	<b>1.3</b>
Motor Oil Range Organics	0.0858	(6)	<2.5	<2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5

**Notes:**

- (1) EPA - Regional Screening Levels (November 2019) -Tap Water
- (2) EPA - Regional Screening Levels (April 2019) - MCL
- (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3103 Standards for Ground Water of 10,000 mg/l TDS Concentration or less (December 2018)
- (4) NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation (February 2019)
- (5) EPA Screening Level - Tap Water x 10 for carcinogenic compounds
- (6) NMED SSG (June 2019)

-	= No screening level available
*	= Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
---	= Analysis not required and/or well contains separate phase
	= Analytical result exceeds the respective screening level.
**	= Columns hidden when there are 4 or more consecutive years recorded that analysis was not required and/or the well contained separate phase

**TABLE 5**  
**Downgradient Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Screening Levels	Source	MW-35										MW-37										
		Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	
<b>Volatile Organic Compounds (ug/L)</b>																						
1,1,1,2-Tetrachloroethane	5.74	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,1,1-Trichloroethane	5	(3)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,1,2,2-Tetrachloroethane	10	(3)	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---
1,1,2-Trichloroethane	5	(3)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,1-Dichloroethane	25	(3)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,1-Dichloroethene	7	(3)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,1-Dichloropropene	-		< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2,3-Trichlorobenzene	7	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2,3-Trichloropropane	0.01	(4)	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---
1,2,4-Trichlorobenzene	11.55	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2,4-Trimethylbenzene	56	(1)	< 1.0	---	< 1.0	---	0.77 J	---	25	---	19	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2-Dibromo-3-chloropropane	0.2	(2)	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---
1,2-Dibromoethane (EDB)	0.05	(3)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2-Dichlorobenzene	302	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2-Dichloroethane (EDC)	1.71	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2-Dichloropropane	4.376	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,3,5-Trimethylbenzene	60	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,3-Dichlorobenzene	-		< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,3-Dichloropropane	370	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,4-Dichlorobenzene	75	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1-Methylnaphthalene	11	(5)	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---
2,2-Dichloropropane	-		< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---
2-Butanone	5565	(4)	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---
2-Chlorotoluene	240	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
2-Hexanone	-		< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---
2-Methylnaphthalene	36	(1)	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---
4-Chlorotoluene	250	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
4-Isopropyltoluene	-		< 1.0	---	< 1.0	---	< 1.0	---	1.1	---	1.1	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
4-Methyl-2-pentanone	-		< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---
Acetone	14064	(4)	4.7 J	---	11	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	1.0 J	---	< 10	---	< 10	---
Benzene	5	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	62	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Bromodichloromethane	1.34	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Bromoform	33	(5)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Bromomethane	7.545	(4)	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---
Carbon disulfide	810	(4)	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---
Carbon Tetrachloride	5	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Chlorobenzene	100	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Chloroethane	20900	(4)	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---
Chloroform	2.29	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Chloromethane	20.3	(4)	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---
cis-1,2-DCE	70	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
cis-1,3-Dichloropropene	4.7	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Dibromochloromethane	1.68	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Dibromomethane	8.3	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Dichlorodifluoromethane	197	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Ethylbenzene	700	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	1.39	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Isopropylbenzene	447	(4)	< 1.0	---	< 1.0	---	2.3	---	4.7	---	1.5	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---

**TABLE 5**  
**Downgradient Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

	Screening Levels	Source	MW-35										MW-37									
			Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15
Methyl tert-butyl ether (MTBE)	100	(3)	0.62 J	< 1.0	< 1.0	< 1.0	0.6 J	0.0012	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylene Chloride	5	(2)	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---
Naphthalene	1.65	(4)	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---
n-Butylbenzene	1000	(1)	< 3.0	---	< 3.0	---	0.15 J	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---
n-Propylbenzene	660	(1)	< 1.0	---	< 1.0	---	1.8	---	4.1	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
sec-Butylbenzene	2000	(1)	< 1.0	---	< 1.0	---	1.3	---	3.6	---	1.1	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Styrene	100	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
tert-Butylbenzene	690	(1)	1.4	---	< 1.0	---	1.4	---	1.9	---	< 1.0	---	< 1.0	---	< 1.0	---	0.14 J	---	< 1.0	---	< 1.0	---
Tetrachloroethene (PCE)	5	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Toluene	1000	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
trans-1,2-DCE	100	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
trans-1,3-Dichloropropene	4.71	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Trichloroethene (TCE)	5	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Trichlorofluoromethane	1136	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Vinyl chloride	2	(3)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Xylenes, Total	620	(3)	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5
<b>Semi-Volatile Organic Compounds (ug/L)</b>																						
1,2,4-Trichlorobenzene	70	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,2-Dichlorobenzene	600	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,3-Dichlorobenzene	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1,4-Dichlorobenzene	75	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
1-Methylnaphthalene	11	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4,5-Trichlorophenol	1166	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4,6-Trichlorophenol	11.9	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dichlorophenol	45.3	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dimethylphenol	354	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dinitrophenol	38.7	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,4-Dinitrotoluene	2.375	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2,6-Dinitrotoluene	0.485	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Chloronaphthalene	733	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Chlorophenol	91	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Methylnaphthalene	36	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Methylphenol	930	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Nitroaniline	190	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
2-Nitrophenol	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3,3'-Dichlorobenzidine	1.25	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3+4-Methylphenol	930	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
3-Nitroaniline	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4,6-Dinitro-2-methylphenol	1.52	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Bromophenyl phenyl ether	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Chloro-3-methylphenol	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Chloroaniline	3.7	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Chlorophenyl phenyl ether	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Nitroaniline	38	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
4-Nitrophenol	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Acenaphthene	535	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Acenaphthylene	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Aniline	130	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Anthracene	1721	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

**TABLE 5  
Downgradient Wells Analytical Summary  
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	Screening Levels	Source	MW-35										MW-37									
			Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15
Azobenzene	1.2	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(a)anthracene	0.1199	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(a)pyrene	0.2	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(b)fluoranthene	0.3432	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(g,h,i)perylene	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzo(k)fluoranthene	3.43	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzoic acid	75000	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Benzyl alcohol	2000	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bis(2-chloroethoxy)methane	59	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bis(2-chloroethyl)ether	0.137	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bis(2-chloroisopropyl)ether	9.81	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Bis(2-ethylhexyl)phthalate	6	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Butyl benzyl phthalate	160	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Carbazole	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Chrysene	34.3171	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dibenz(a,h)anthracene	0.0343	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dibenzofuran	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Diethyl phthalate	14800	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Dimethyl phthalate	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Di-n-butyl phthalate	885	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Di-n-octyl phthalate	-		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fluoranthene	802	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Fluorene	288	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexachlorobenzene	0.0976	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexachlorobutadiene	1.387	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexachlorocyclopentadiene	0.411	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Hexachloroethane	3.2842	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Indeno(1,2,3-cd)pyrene	0.3432	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Isophorone	781	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Naphthalene	1.65	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Nitrobenzene	1.4	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
N-Nitrosodimethylamine	0.0049	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
N-Nitrosodi-n-propylamine	0.11	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
N-Nitrosodiphenylamine	121.922	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pentachlorophenol	0.4129	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Phenanthrene	170.4146	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Phenol	5761	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pyrene	117	(4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Pyridine	20	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
<b>General Chemistry (mg/L)</b>																						
Fluoride	1.6	(3)	0.61	---	<0.50	---	0.46	---	0.47	---	0.55	---	0.51	---	0.44	---	0.45	---	0.6	---	0.59	---
Chloride	250	(3)	210	---	210	---	220	---	240	---	180	---	220	---	180	---	150	---	220	---	220	---
Nitrite	1	(3)	<1.0	---	<1.0	---	< 0.10	---	< 1.0	---	< 0.10	---	0.18 J	---	<1.0	---	0.25 J	---	< 1.0	---	< 0.10	---
Bromide	-		2.9	---	2.8	---	0.71	---	2.2	---	0.74	---	3.0	---	2.6	---	2.5	---	2.9	---	1.2	---
Nitrate	10	(3)	<1.0	---	<1.0	---	0.022 J	---	< 1.0	---	0.25	---	0.18 J	---	<1.0	---	0.25 J	---	< 1.0	---	< 0.10	---
Phosphorus	-		<2.5 H	---	<2.5 H	---	< 0.50	---	< 0.50	---	< 0.50	---	<2.5 H	---	<0.50 H	---	< 2.5	---	< 0.50	---	< 0.50	---
Sulfate	600	(3)	91	---	16	---	1.5	---	14	---	11	---	1200	---	420	---	720	---	270	---	110	---
Carbon Dioxide (CO <sub>2</sub> )	-		920 H	---	940 H	---	830	---	850	---	790	---	520 H	---	640 H	---	450	---	690	---	770	---
Alkalinity (CaCO <sub>3</sub> )	-		1005	---	1004	---	905.4	---	905	---	845	---	572.6	---	703	---	503.5	---	766.7	---	855.5	---
Bicarbonate (CaCO <sub>3</sub> )	-		1005	---	1004	---	905.4	---	905	---	845	---	572.6	---	703	---	503.5	---	766.7	---	855.5	---

**TABLE 5  
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Screening Levels	Source	MW-35										MW-37										
		Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	
<b>Total Metals (mg/L)</b>																						
Arsenic	0.01	(3)	0.016 J	---	<0.020	---	0.076	---	0.047	---	0.11	---	<0.020	---	<0.020	---	0.019 J	---	<0.020	---	<0.020	---
Barium	2.0	(3)	1.2	---	0.94	---	0.92	---	1.3	---	1.6	---	0.17	---	0.10	---	0.49	---	0.27	---	0.42	---
Cadmium	0.005	(3)	<0.0020	---	<0.0020	---	<0.0020	---	<0.0020	---	<0.0020	---	<0.0020	---	<0.0020	---	<0.0020	---	<0.0020	---	<0.0020	---
Chromium	0.05	(3)	0.0038 J	---	<0.0060	---	0.016	---	<0.0060	---	<0.0060	---	0.0040 J	---	<0.0060	---	0.022	---	<0.0060	---	<0.0060	---
Lead	0.015	(3)	0.0042 J	---	<0.0050	---	0.005 J	---	0.0098	---	<0.0050	---	<0.0050	---	<0.0050	---	<0.0050	---	0.0068	---	<0.0050	---
Selenium	0.05	(3)	<0.050	---	<0.050	---	<0.050	---	<0.050	---	<0.050	---	<0.050	---	<0.050	---	<0.050	---	<0.050	---	<0.050	---
Silver	0.05	(3)	0.00077	---	<0.0050	---	<0.0050	---	<0.0050	---	<0.0050	---	0.0024 J	---	<0.0050	---	<0.0050	---	<0.0050	---	<0.0050	---
Mercury	0.002	(3)	0.00012 J	---	<0.00020	---	0.000044 J	---	<0.00020	---	<0.00020	---	0.00007 J	---	<0.00020	---	<0.00020	---	<0.00020	---	<0.00020	---
<b>Dissolved Metals (mg/L)</b>																						
Arsenic	0.01	(3)	0.037	---	<0.020	---	0.036	---	0.038	---	0.038	---	<0.020	---	<0.020	---	<0.020	---	<0.020	---	<0.020	---
Barium	1.0	(3)	1.1	---	0.79	---	0.57	---	0.82	---	1.6	---	0.053	---	0.079	---	0.11	---	0.22	---	0.4	---
Cadmium	0.005	(3)	<0.0020	---	<0.0020	---	<0.0020	---	<0.0020	---	<0.0020	---	<0.0020	---	<0.0020	---	<0.0020	---	<0.0020	---	<0.0020	---
Calcium	-		140	---	120	---	120	---	120	---	110	---	220	---	120	---	110	---	86	---	92	---
Chromium	0.05	(3)	<0.0060	---	<0.0060	---	<0.0060	---	<0.0060	---	<0.0060	---	<0.0060	---	<0.0060	---	<0.0060	---	<0.0060	---	<0.0060	---
Copper	1	(3)	<0.0060	---	<0.0060	---	<0.0060	---	<0.0060	---	<0.0060	---	0.0024 J	---	<0.0060	---	<0.0060	---	<0.0060	---	<0.0060	---
Iron	1	(3)	1.9	---	0.13	---	1.7	---	3.4	---	0.1	---	0.63	---	0.20	---	0.13	---	1.6	---	<0.020	---
Lead	0.015	(3)	0.0061	---	<0.0050	---	<0.0050	---	<0.0050	---	<0.0050	---	<0.0050	---	<0.0050	---	<0.0050	---	<0.0050	---	<0.0050	---
Magnesium	-		24	---	22	---	21	---	21	---	21	---	41	---	21	---	21	---	19	---	21	---
Manganese	0.2	(3)	2.4	---	1.9	---	1.8	---	2.5	---	2.4	---	2.0	---	1.1	---	0.89	---	0.96	---	1	---
Potassium	-		3.0	---	2.9	---	2.9	---	2.8	---	2.5	---	3.6	---	2.7	---	2.7	---	2.9	---	2.8	---
Selenium	0.05	(3)	<0.050	---	<0.050	---	<0.050	---	<0.050	---	<0.050	---	<0.050	---	<0.050	---	<0.050	---	<0.050	---	<0.050	---
Silver	0.05	(3)	0.0017 J	---	<0.0050	---	<0.0050	---	<0.0050	---	<0.0050	---	0.0030 J	---	<0.0050	---	<0.0050	---	<0.0050	---	<0.0050	---
Sodium	-		400	---	380	---	370	---	380	---	340	---	530	---	430	---	460	---	460	---	420	---
Uranium	0.03	(3)	<0.10	---	<0.10	---	<0.10	---	<0.10	---	<0.10	---	<0.10	---	<0.10	---	<0.10	---	<0.10	---	<0.10	---
Zinc	10	(3)	0.021	---	<0.020	---	0.037	---	<0.020	---	0.023	---	0.015 J	---	<0.020	---	0.018 J	---	<0.020	---	<0.020	---
<b>Total Petroleum Hydrocarbons (mg/L)</b>																						
Diesel Range Organics	0.0167	(6)	0.26 J	---	<0.40	---	0.5	0.44	0.62	0.55	0.38	0.55	<0.40	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	0.45
Gasoline Range Organics	0.0101	(6)	0.35	---	0.30	---	0.34	0.81	0.52	0.25	0.54	0.25	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Motor Oil Range Organics	0.0858	(6)	<2.5	---	<2.5	---	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5

**Notes:**

- (1) EPA - Regional Screening Levels (November 2019) -Tap Water
- (2) EPA - Regional Screening Levels (April 2019) - MCL
- (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3103 Standards for Ground Water of 10,000 mg/l TDS Concentration or less (December 2018)
- (4) NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation (February 2019)
- (5) EPA Screening Level - Tap Water x 10 for carcinogenic compounds
- (6) NMED SSG (June 2019)

-	= No screening level available
*	= Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
---	= Analysis not required and/or well contains separate phase
J	= Analytical result exceeds the respective screening level.
**	= Columns hidden when there are 4 or more consecutive years recorded that analysis was not required and/or the well contained separate phase

**TABLE 5**  
**Downgradient Wells Analytical Summary**  
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Volatile Organic Compounds (ug/L)	Screening Levels	Source	MW-38									
			Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15
1,1,1,2-Tetrachloroethane	5.74	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,1,1-Trichloroethane	5	(3)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,1,2,2-Tetrachloroethane	10	(3)	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---
1,1,2-Trichloroethane	5	(3)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,1-Dichloroethane	25	(3)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,1-Dichloroethene	7	(3)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,1-Dichloropropene	-		< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2,3-Trichlorobenzene	7	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2,3-Trichloropropane	0.01	(4)	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---
1,2,4-Trichlorobenzene	11.55	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2,4-Trimethylbenzene	56	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2-Dibromo-3-chloropropane	0.2	(2)	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---
1,2-Dibromoethane (EDB)	0.05	(3)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2-Dichlorobenzene	302	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2-Dichloroethane (EDC)	1.71	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,2-Dichloropropane	4.376	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,3,5-Trimethylbenzene	60	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,3-Dichlorobenzene	-		< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,3-Dichloropropane	370	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1,4-Dichlorobenzene	75	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
1-Methylnaphthalene	11	(5)	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---
2,2-Dichloropropane	-		< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---
2-Butanone	5565	(4)	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---
2-Chlorotoluene	240	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
2-Hexanone	-		< 10	---	< 10	---	< 10	---	< 10	---	< 10	---
2-Methylnaphthalene	36	(1)	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---	< 4.0	---
4-Chlorotoluene	250	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
4-Isopropyltoluene	-		< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
4-Methyl-2-pentanone	-		< 10	---	< 10	---	< 10	---	< 10	---	< 10	---
Acetone	14064	(4)	2.6 J	---	2.6 J	---	2.6 J	---	< 10	---	< 10	---
Benzene	5	(3)	< 1.0	<1.0	< 1.0	<1.0	< 1.0	<1.0	< 1.0	<1.0	< 1.0	<1.0
Bromobenzene	62	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Bromodichloromethane	1.34	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Bromoform	33	(5)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Bromomethane	7.545	(4)	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---
Carbon disulfide	810	(4)	< 10	---	< 10	---	< 10	---	< 10	---	< 10	---
Carbon Tetrachloride	5	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Chlorobenzene	100	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Chloroethane	20900	(4)	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---
Chloroform	2.29	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Chloromethane	20.3	(4)	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---
cis-1,2-DCE	70	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
cis-1,3-Dichloropropene	4.7	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Dibromochloromethane	1.68	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Dibromomethane	8.3	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Dichlorodifluoromethane	197	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Ethylbenzene	700	(3)	< 1.0	<1.0	< 1.0	<1.0	< 1.0	<1.0	< 1.0	<1.0	< 1.0	<1.0
Hexachlorobutadiene	1.39	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---
Isopropylbenzene	447	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---

**TABLE 5**  
**Downgradient Wells Analytical Summary**  
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	Screening Levels	Source	MW-38										
			Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	
Methyl tert-butyl ether (MTBE)	100	(3)	0.65 J	< 1.0	< 1.0	< 1.0	< 1.0	0.41 J	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methylene Chloride	5	(2)	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0	---	< 3.0
Naphthalene	1.65	(4)	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0	---	< 2.0
n-Butylbenzene	1000	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 3.0	---	< 3.0	---	< 3.0
n-Propylbenzene	660	(1)	< 3.0	---	< 3.0	---	< 3.0	---	< 1.0	---	< 1.0	---	< 1.0
sec-Butylbenzene	2000	(1)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0
Styrene	100	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0
tert-Butylbenzene	690	(1)	0.57 J	---	< 1.0	---	0.48 J	---	< 1.0	---	< 1.0	---	< 1.0
Tetrachloroethene (PCE)	5	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0
Toluene	1000	(3)	< 1.0	<1.0	< 1.0	<1.0	< 1.0	<1.0	< 1.0	<1.0	< 1.0	<1.0	<1.0
trans-1,2-DCE	100	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0
trans-1,3-Dichloropropene	4.71	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0
Trichloroethene (TCE)	5	(2)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0
Trichlorofluoromethane	1136	(4)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0
Vinyl chloride	2	(3)	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0	---	< 1.0
Xylenes, Total	620	(3)	< 1.5	<1.5	< 1.5	<1.5	< 1.5	<1.5	< 1.5	<1.5	< 1.5	<1.5	<1.5
<b>Semi-Volatile Organic Compounds (ug/L)</b>													
1,2,4-Trichlorobenzene	70	(2)	< 10	---	< 10	---	---	---	< 10	---	---	---	---
1,2-Dichlorobenzene	600	(2)	< 10	---	< 10	---	---	---	< 10	---	---	---	---
1,3-Dichlorobenzene	-		< 10	---	< 10	---	---	---	< 10	---	---	---	---
1,4-Dichlorobenzene	75	(2)	< 10	---	< 10	---	---	---	< 10	---	---	---	---
1-Methylnaphthalene	11	(5)	< 10	---	< 10	---	---	---	< 10	---	---	---	---
2,4,5-Trichlorophenol	1166	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---	---
2,4,6-Trichlorophenol	11.9	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---	---
2,4-Dichlorophenol	45.3	(4)	< 20	---	< 20	---	---	---	< 20	---	---	---	---
2,4-Dimethylphenol	354	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---	---
2,4-Dinitrophenol	38.7	(4)	< 20	---	< 20	---	---	---	< 20	---	---	---	---
2,4-Dinitrotoluene	2.375	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---	---
2,6-Dinitrotoluene	0.485	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---	---
2-Chloronaphthalene	733	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---	---
2-Chlorophenol	91	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---	---
2-Methylnaphthalene	36	(1)	< 10	---	< 10	---	---	---	< 10	---	---	---	---
2-Methylphenol	930	(1)	< 10	---	< 10	---	---	---	< 10	---	---	---	---
2-Nitroaniline	190	(1)	< 10	---	< 10	---	---	---	< 10	---	---	---	---
2-Nitrophenol	-		< 10	---	< 10	---	---	---	< 10	---	---	---	---
3,3'-Dichlorobenzidine	1.25	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---	---
3+4-Methylphenol	930	(1)	< 10	---	< 10	---	---	---	< 10	---	---	---	---
3-Nitroaniline	-		< 10	---	< 10	---	---	---	< 10	---	---	---	---
4,6-Dinitro-2-methylphenol	1.52	(4)	< 20	---	< 20	---	---	---	< 20	---	---	---	---
4-Bromophenyl phenyl ether	-		< 10	---	< 10	---	---	---	< 10	---	---	---	---
4-Chloro-3-methylphenol	-		< 10	---	< 10	---	---	---	< 10	---	---	---	---
4-Chloroaniline	3.7	(5)	< 10	---	< 10	---	---	---	< 10	---	---	---	---
4-Chlorophenyl phenyl ether	-		< 10	---	< 10	---	---	---	< 10	---	---	---	---
4-Nitroaniline	38	(5)	< 10	---	< 10	---	---	---	< 10	---	---	---	---
4-Nitrophenol	-		< 10	---	< 10	---	---	---	< 10	---	---	---	---
Acenaphthene	535	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---	---
Acenaphthylene	-		< 10	---	< 10	---	---	---	< 10	---	---	---	---
Aniline	130	(5)	< 10	---	< 10	---	---	---	< 10	---	---	---	---
Anthracene	1721	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---	---

**TABLE 5  
Downgradient Wells Analytical Summary  
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	Screening Levels	Source	MW-38									
			Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15
Azobenzene	1.2	(5)	< 10	---	< 10	---	---	---	< 10	---	---	---
Benzo(a)anthracene	0.1199	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Benzo(a)pyrene	0.2	(2)	< 10	---	< 10	---	---	---	< 10	---	---	---
Benzo(b)fluoranthene	0.3432	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Benzo(g,h,i)perylene	-		< 10	---	< 10	---	---	---	< 10	---	---	---
Benzo(k)fluoranthene	3.43	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Benzoic acid	75000	(1)	< 20	---	< 20	---	---	---	< 20	---	---	---
Benzyl alcohol	2000	(1)	< 10	---	< 10	---	---	---	< 10	---	---	---
Bis(2-chloroethoxy)methane	59	(1)	< 10	---	< 10	---	---	---	< 10	---	---	---
Bis(2-chloroethyl)ether	0.137	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Bis(2-chloroisopropyl)ether	9.81	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Bis(2-ethylhexyl)phthalate	6	(2)	< 10	---	< 10	---	---	---	< 10	---	---	---
Butyl benzyl phthalate	160	(5)	< 10	---	< 10	---	---	---	< 10	---	---	---
Carbazole	-		< 10	---	< 10	---	---	---	< 10	---	---	---
Chrysene	34.3171	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Dibenz(a,h)anthracene	0.0343	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Dibenzofuran	-		< 10	---	< 10	---	---	---	< 10	---	---	---
Diethyl phthalate	14800	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Dimethyl phthalate	-		< 10	---	< 10	---	---	---	< 10	---	---	---
Di-n-butyl phthalate	885	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Di-n-octyl phthalate	-		< 10	---	< 10	---	---	---	< 10	---	---	---
Fluoranthene	802	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Fluorene	288	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Hexachlorobenzene	0.0976	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Hexachlorobutadiene	1.387	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Hexachlorocyclopentadiene	0.411	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Hexachloroethane	3.2842	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Indeno(1,2,3-cd)pyrene	0.3432	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Isophorone	781	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Naphthalene	1.65	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Nitrobenzene	1.4	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
N-Nitrosodimethylamine	0.0049	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
N-Nitrosodi-n-propylamine	0.11	(5)	< 10	---	< 10	---	---	---	< 10	---	---	---
N-Nitrosodiphenylamine	121.922	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Pentachlorophenol	0.4129	(4)	< 20	---	< 20	---	---	---	< 20	---	---	---
Phenanthrene	170.4146	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Phenol	5761	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Pyrene	117	(4)	< 10	---	< 10	---	---	---	< 10	---	---	---
Pyridine	20	(1)	< 10	---	< 10	---	---	---	< 10	---	---	---
<b>General Chemistry (mg/L)</b>												
Fluoride	1.6	(3)	<b>0.6</b>	---	<b>0.4</b>	---	<b>0.53</b>	---	<b>0.64</b>	---	<b>0.84</b>	---
Chloride	250	(3)	<b>170</b>	---	<b>140</b>	---	<b>100</b>	---	<b>75</b>	---	<b>30</b>	---
Nitrite	1	(3)	<b>0.097 J</b>	---	<1.0	---	<b>0.17 J</b>	---	< 1.0	---	< 0.10	---
Bromide	-		<b>2.3</b>	---	<b>1.9</b>	---	<b>1.4</b>	---	<b>0.98</b>	---	<b>0.38</b>	---
Nitrate	10	(3)	<b>0.097 J</b>	---	<1.0	---	<b>0.17 J</b>	---	< 1.0	---	< 0.10	---
Phosphorus	-		<2.5 H	---	<0.50 H	---	< 2.5	---	< 0.50	---	< 0.50	---
Sulfate	600	(3)	<b>13</b>	---	<b>21</b>	---	<b>3.4</b>	---	<b>4.6</b>	---	<b>30</b>	---
Carbon Dioxide (CO <sub>2</sub> )	-		<b>620 H</b>	---	<b>630 H</b>	---	<b>530</b>	---	<b>450</b>	---	<b>310</b>	---
Alkalinity (CaCO <sub>3</sub> )	-		<b>686.8</b>	---	<b>682.4</b>	---	<b>587.7</b>	---	<b>497</b>	---	<b>345.6</b>	---
Bicarbonate (CaCO <sub>3</sub> )	-		<b>686.8</b>	---	<b>682.4</b>	---	<b>587.7</b>	---	<b>497</b>	---	<b>345.6</b>	---

**TABLE 5  
Downgradient Wells Analytical Summary  
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Screening Levels	Source	MW-38										
		Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	
<b>Total Metals (mg/L)</b>												
Arsenic	0.01	(3)	<0.020	---	<0.020	---	<b>0.015 J</b>	---	< 0.020	---	< 0.020	---
Barium	2.0	(3)	<b>0.56</b>	---	<b>0.57</b>	---	<b>0.69</b>	---	<b>0.6</b>	---	<b>0.16</b>	---
Cadmium	0.005	(3)	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---
Chromium	0.05	(3)	<b>0.0070</b>	---	<0.0060	---	<b>0.042</b>	---	< 0.0060	---	< 0.0060	---
Lead	0.015	(3)	< 0.0050	---	< 0.0050	---	< 0.0050	---	<b>0.0093</b>	---	< 0.0050	---
Selenium	0.05	(3)	< 0.050	---	< 0.050	---	< 0.050	---	< 0.050	---	< 0.050	---
Silver	0.05	(3)	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---
Mercury	0.002	(3)	<b>0.000044 J</b>	---	<0.00020	---	<b>&lt; 0.000039 J</b>	---	< 0.00020	---	< 0.00020	---
<b>Dissolved Metals (mg/L)</b>												
Arsenic	0.01	(3)	< 0.020	---	< 0.020	---	< 0.020	---	< 0.020	---	< 0.020	---
Barium	1.0	(3)	<b>0.55</b>	---	<b>0.52</b>	---	<b>0.43</b>	---	<b>0.55</b>	---	<b>0.16</b>	---
Cadmium	0.005	(3)	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---	< 0.0020	---
Calcium	-		<b>130</b>	---	<b>120</b>	---	<b>100</b>	---	<b>98</b>	---	<b>37</b>	---
Chromium	0.05	(3)	< 0.0060	---	< 0.0060	---	< 0.0060	---	< 0.0060	---	< 0.0060	---
Copper	1	(3)	< 0.0060	---	< 0.0060	---	< 0.0060	---	<b>0.033</b>	---	< 0.0060	---
Iron	1	(3)	<b>0.18</b>	---	<b>0.13</b>	---	<b>0.16</b>	---	<b>13</b>	---	<b>0.032</b>	---
Lead	0.015	(3)	< 0.0050	---	< 0.0050	---	< 0.0050	---	<b>0.014</b>	---	< 0.0050	---
Magnesium	-		<b>21</b>	---	<b>20</b>	---	<b>16</b>	---	<b>16</b>	---	<b>6</b>	---
Manganese	0.2	(3)	<b>2.8</b>	---	<b>2.7</b>	---	<b>2.4</b>	---	<b>3</b>	---	<b>0.93</b>	---
Potassium	-		<b>2.3</b>	---	<b>2.2</b>	---	<b>1.9</b>	---	<b>2.8</b>	---	<b>1.1</b>	---
Selenium	0.05	(3)	<0.050	---	<0.050	---	<b>0.030 J</b>	---	< 0.050	---	< 0.050	---
Silver	0.05	(3)	<b>0.0018 J</b>	---	< 0.0050	---	< 0.0050	---	< 0.0050	---	< 0.0050	---
Sodium	-		<b>220</b>	---	<b>210</b>	---	<b>190</b>	---	<b>180</b>	---	<b>130</b>	---
Uranium	0.03	(3)	< 0.10	---	< 0.10	---	< 0.10	---	< 0.10	---	< 0.10	---
Zinc	10	(3)	<b>0.025</b>	---	<0.020	---	<b>0.034</b>	---	<b>0.053</b>	---	<b>0.022</b>	---
<b>Total Petroleum Hydrocarbons (mg/L)</b>												
Diesel Range Organics	0.0167	(6)	< 0.40	<b>0.43</b>	< 0.40	<0.40	< 0.20	<0.20	<b>0.28</b>	<0.20	< 0.20	<0.20
Gasoline Range Organics	0.0101	(6)	<b>0.052</b>	<0.050	<b>0.18</b>	<b>0.058</b>	<b>0.047 J</b>	<0.050	< 0.050	<0.050	< 0.050	<0.050
Motor Oil Range Organics	0.0858	(6)	< 2.5	<2.5	< 2.5	<2.5	<2.5	<2.5	< 2.5	<2.5	< 2.5	<2.5

**Notes:**

- (1) EPA - Regional Screening Levels (November 2019) -Tap Water
- (2) EPA - Regional Screening Levels (April 2019) - MCL
- (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3103 Standards for Ground Water of 10,000 mg/l TDS Concentration or less (December 2018)
- (4) NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation (February 2019)
- (5) EPA Screening Level - Tap Water x 10 for carcinogenic compounds
- (6) NMED SSG (June 2019)

-	= No screening level available
*	= Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
---	= Analysis not required and/or well contains separate phase
	= Analytical result exceeds the respective screening level.
**	= Columns hidden when there are 4 or more consecutive years recorded that analysis was not required and/or the well contained separate phase

**TABLE 6**  
**RCRA Wells Analytical Summary**  
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	Screening Levels	Source	MW-50				MW-51					MW-53					**MW-54	**MW-55
			Aug-17	Aug-16	Aug-15	Aug-14	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-19
<b>Volatile Organic Compounds (ug/L)</b>																		
1,1,1,2-Tetrachloroethane	5.74	(4)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 2.0	< 1.0	< 1.0	---	---
1,1,1-Trichloroethane	5	(3)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
1,1,2,2-Tetrachloroethane	10	(3)	---	< 2.0	---	---	---	---	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	---	---
1,1,2-Trichloroethane	5	(3)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
1,1-Dichloroethane	25	(3)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
1,1-Dichloroethene	7	(3)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
1,1-Dichloropropene	-		---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
1,2,3-Trichlorobenzene	7	(1)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
1,2,3-Trichloropropane	0.01	(4)	---	< 2.0	---	---	---	---	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	---	---
1,2,4-Trichlorobenzene	11.55	(4)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
1,2,4-Trimethylbenzene	56	(1)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
1,2-Dibromo-3-chloropropane	0.2	(2)	---	< 2.0	---	---	---	---	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	---	---
1,2-Dibromoethane (EDB)	0.05	(3)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
1,2-Dichlorobenzene	302	(4)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
1,2-Dichloroethane (EDC)	1.71	(4)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
1,2-Dichloropropane	4.376	(4)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
1,3,5-Trimethylbenzene	60	(1)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
1,3-Dichlorobenzene	-		---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
1,3-Dichloropropane	370	(1)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
1,4-Dichlorobenzene	75	(2)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
1-Methylnaphthalene	11	(5)	---	< 4.0	---	---	---	---	< 4.0	< 4.0	< 4.0	< 4.0	---	< 4.0	< 4.0	< 4.0	---	---
2,2-Dichloropropane	-		---	< 2.0	---	---	---	---	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	---	---
2-Butanone	5565	(4)	---	< 10	---	---	---	---	< 10	< 10	< 10	< 10	---	< 10	< 10	< 10	---	---
2-Chlorotoluene	240	(1)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
2-Hexanone	-		---	< 10	---	---	---	---	< 10	< 10	< 10	< 10	---	< 10	< 10	< 10	---	---
2-Methylnaphthalene	36	(1)	---	< 4.0	---	---	---	---	< 4.0	< 4.0	< 4.0	< 4.0	---	< 4.0	< 4.0	< 4.0	---	---
4-Chlorotoluene	250	(1)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
4-Isopropyltoluene	-		---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
4-Methyl-2-pentanone	-		---	< 10	---	---	---	---	< 10	< 10	< 10	< 10	---	< 10	< 10	< 10	---	---
Acetone	14064	(4)	---	< 10	---	---	---	---	1.6 J	< 10	< 10	< 10	---	3.2 J	< 10	< 10	---	---
Benzene	5	(3)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---
Bromobenzene	62	(1)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
Bromodichloromethane	1.34	(4)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
Bromoform	33	(5)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
Bromomethane	7.545	(4)	---	< 3.0	---	---	---	---	< 3.0	< 3.0	< 3.0	< 3.0	---	< 3.0	< 3.0	< 3.0	---	---
Carbon disulfide	810	(4)	---	< 10	---	---	---	---	< 10	< 10	< 10	< 10	---	< 10	< 10	< 10	---	---
Carbon Tetrachloride	5	(2)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
Chlorobenzene	100	(2)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
Chloroethane	20900	(4)	---	< 2.0	---	---	---	---	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	---	---
Chloroform	2.29	(4)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
Chloromethane	20.3	(4)	---	< 3.0	---	---	---	---	< 3.0	< 3.0	< 3.0	< 3.0	---	< 3.0	< 3.0	< 3.0	---	---
cis-1,2-DCE	70	(2)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
cis-1,3-Dichloropropene	4.7	(4)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
Dibromochloromethane	1.68	(4)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
Dibromomethane	8.3	(1)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
Dichlorodifluoromethane	197	(4)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
Ethylbenzene	700	(3)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---
Hexachlorobutadiene	1.39	(4)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
Isopropylbenzene	447	(4)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
Methyl tert-butyl ether (MTBE)	100	(3)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	0.69 J	< 1.0	0.63 J	< 1.0	< 1.0	---
Methylene Chloride	5	(2)	---	< 3.0	---	---	---	---	< 3.0	< 3.0	< 3.0	< 3.0	---	< 3.0	< 3.0	< 3.0	---	---
Naphthalene	1.65	(4)	---	< 2.0	---	---	---	---	< 2.0	< 2.0	< 2.0	< 2.0	---	< 2.0	< 2.0	< 2.0	---	---
n-Butylbenzene	1000	(1)	---	< 3.0	---	---	---	---	< 3.0	< 3.0	< 3.0	< 3.0	---	< 3.0	< 3.0	< 3.0	---	---
n-Propylbenzene	660	(1)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
sec-Butylbenzene	2000	(1)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
Styrene	100	(2)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
tert-Butylbenzene	690	(1)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
Tetrachloroethene (PCE)	5	(2)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
Toluene	1000	(3)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---
trans-1,2-DCE	100	(2)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
trans-1,3-Dichloropropene	4.71	(4)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
Trichloroethene (TCE)	5	(2)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
Trichlorofluoromethane	1136	(4)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
Vinyl chloride	2	(3)	---	< 1.0	---	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---
Xylenes, Total	620	(3)	---	< 1.5	---	---	---	---	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	---	---

**TABLE 6**  
**RCRA Wells Analytical Summary**  
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Semi-Volatile Organic Compounds (ug/L)	Screening Levels	Source	MW-50				MW-51					MW-53					**MW-54	**MW-55
			Aug-17	Aug-16	Aug-15	Aug-14	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-19
1,2,4-Trichlorobenzene	70	(2)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
1,2-Dichlorobenzene	600	(2)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
1,3-Dichlorobenzene	-		---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
1,4-Dichlorobenzene	75	(2)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
1-Methylnaphthalene	11	(5)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
2,4,5-Trichlorophenol	1166	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
2,4,6-Trichlorophenol	11.9	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
2,4-Dichlorophenol	45.3	(4)	---	< 20	---	---	---	< 20	---	< 20	---	---	---	---	< 20	---	---	
2,4-Dimethylphenol	354	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
2,4-Dinitrophenol	38.7	(4)	---	< 20	---	---	---	< 20	---	< 20	---	---	---	---	< 20	---	---	
2,4-Dinitrotoluene	2.375	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
2,6-Dinitrotoluene	0.485	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
2-Chloronaphthalene	733	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
2-Chlorophenol	91	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
2-Methylnaphthalene	36	(1)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
2-Methylphenol	930	(1)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
2-Nitroaniline	190	(1)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
2-Nitrophenol	-		---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
3,3'-Dichlorobenzidine	1.25	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
3+4-Methylphenol	930	(1)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
3-Nitroaniline	-		---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
4,6-Dinitro-2-methylphenol	1.52	(4)	---	< 20	---	---	---	< 20	---	< 20	---	---	---	---	< 20	---	---	
4-Bromophenyl phenyl ether	-		---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
4-Chloro-3-methylphenol	-		---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
4-Chloroaniline	3.7	(5)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
4-Chlorophenyl phenyl ether	-		---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
4-Nitroaniline	38	(5)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
4-Nitrophenol	-		---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Acenaphthene	535	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Acenaphthylene	-		---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Aniline	130	(5)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Anthracene	1721	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Azobenzene	1.2	(5)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Benzo(a)anthracene	0.1199	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Benzo(a)pyrene	0.2	(2)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Benzo(b)fluoranthene	0.3432	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Benzo(g,h,i)perylene	-		---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Benzo(k)fluoranthene	3.43	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Benzoic acid	75000	(1)	---	< 20	---	---	---	< 20	---	< 20	---	---	---	---	< 20	---	---	
Benzyl alcohol	2000	(1)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Bis(2-chloroethoxy)methane	59	(1)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Bis(2-chloroethyl)ether	0.137	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Bis(2-chloroisopropyl)ether	9.81	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Bis(2-ethylhexyl)phthalate	6	(2)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	12	---	---	---	
Butyl benzyl phthalate	160	(5)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Carbazole	-		---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Chrysene	34.3171	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Dibenz(a,h)anthracene	0.0343	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Dibenzofuran	-		---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Diethyl phthalate	14800	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Dimethyl phthalate	-		---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Di-n-butyl phthalate	885	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Di-n-octyl phthalate	-		---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Fluoranthene	802	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Fluorene	288	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Hexachlorobenzene	0.0976	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Hexachlorobutadiene	1.387	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Hexachlorocyclopentadiene	0.411	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Hexachloroethane	3.2842	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Indeno(1,2,3-cd)pyrene	0.3432	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Isophorone	781	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	

**TABLE 6**  
**RCRA Wells Analytical Summary**  
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	Screening Levels	Source	MW-50				MW-51					MW-53					**MW-54	**MW-55
			Aug-17	Aug-16	Aug-15	Aug-14	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-19
Naphthalene	1.65	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Nitrobenzene	1.4	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
N-Nitrosodimethylamine	0.0049	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
N-Nitrosodi-n-propylamine	0.11	(5)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
N-Nitrosodiphenylamine	121.922	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Pentachlorophenol	0.4129	(4)	---	< 20	---	---	---	< 20	---	< 20	---	---	---	---	< 20	---	---	
Phenanthrene	170.4146	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Phenol	5761	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Pyrene	117	(4)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
Pyridine	20	(1)	---	< 10	---	---	---	< 10	---	< 10	---	---	---	---	< 10	---	---	
<b>General Chemistry (mg/L)</b>																		
Fluoride	1.6	(3)	---	0.23	---	---	---	0.40	0.37	0.5	0.52	<0.050	< 2.0	< 0.10	< 0.10	< 0.10	---	
Chloride	250	(3)	---	4.5	---	---	---	8.3	11	11	8.3	920	890	1000	920	960	---	
Nitrite	1	(3)	---	< 0.10	---	---	---	<1.0	< 0.10	< 0.10	< 0.10	14	15	< 2.0	< 2.0	< 2.0	---	
Bromide	-		---	< 0.10	---	---	---	< 0.10	< 0.10	0.15	< 0.10	1.8	2.2	2.2	3	2.1	---	
Nitrate	10	(3)	---	0.23	---	---	---	<1.0	0.44	1.7	0.34	14	15	12	12	9.3	---	
Phosphorus	-		---	< 0.50	---	---	---	< 0.50	< 0.50	< 0.50	< 0.50	<2.5 H	< 0.50	< 0.50	< 0.50	< 10	---	
Sulfate	600	(3)	---	37	---	---	---	12	45	120	43	960	900	1100	980	1000	---	
Carbon Dioxide (CO <sub>2</sub> )	-		---	230	---	---	---	230	270	220	240	320	330	300	300	290	---	
Alkalinity (CaCO <sub>3</sub> )	-		---	255.9	---	---	---	254.1	287.7	243	264.9	350.9	350.6	331.1	329.8	318.5	---	
Bicarbonate (CaCO <sub>3</sub> )	-		---	255.9	---	---	---	254.1	287.7	243	264.9	350.9	350.6	331.1	329.8	318.5	---	
<b>Total Metals (mg/L)</b>																		
Arsenic	0.01	(3)	---	< 0.020	---	---	---	< 0.020	< 0.050	< 0.020	< 0.020	< 0.020	< 0.020	< 0.050	< 0.020	< 0.020	---	
Barium	2.0	(3)	---	0.31	---	---	---	0.17	0.12	0.12	0.11	0.28	< 0.020	0.12	0.051	0.64	---	
Cadmium	0.005	(3)	---	< 0.0020	---	---	---	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	---	
Chromium	0.05	(3)	---	0.0092	---	---	---	< 0.0060	< 0.0060	< 0.0060	< 0.0060	0.0040 J	< 0.0060	0.0034 J	< 0.0060	0.012	---	
Lead	0.015	(3)	---	0.0059	---	---	---	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0043 J	< 0.0050	< 0.0050	< 0.0050	0.01	---	
Selenium	0.05	(3)	---	< 0.050	---	---	---	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	---	
Silver	0.05	(3)	---	< 0.0050	---	---	---	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0040 J	0.01	< 0.0050	< 0.0050	< 0.050	---	
Mercury	0.002	(3)	---	< 0.00020	---	---	---	< 0.00020	< 0.00020	< 0.00020	< 0.00020	0.00015 J	< 0.00020	< 0.00020	< 0.00020	< 0.00020	---	
<b>Dissolved Metals (mg/L)</b>																		
Arsenic	0.01	(3)	---	< 0.020	---	---	---	0.020	0.015 J	< 0.020	< 0.020	< 0.020	< 0.020	0.052	< 0.020	< 0.020	---	
Barium	1.0	(3)	---	0.077	---	---	---	0.12	0.11	0.063	0.05	0.011 J	< 0.020	0.013 J	< 0.020	0.026	---	
Cadmium	0.005	(3)	---	< 0.0020	---	---	---	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	---	
Calcium	-		---	65	---	---	---	60	71	91	63	330	380	380	390	360	---	
Chromium	0.05	(3)	---	< 0.0060	---	---	---	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	---	
Copper	1	(3)	---	< 0.0060	---	---	---	< 0.0060	< 0.0060	< 0.0060	< 0.0060	0.0034 J	< 0.0060	< 0.0060	< 0.0060	< 0.0060	---	
Iron	1	(3)	---	0.2	---	---	---	0.075	0.037	0.15	0.041	<0.020	<0.020	0.0065 J	< 0.020	0.21	---	
Lead	0.015	(3)	---	< 0.0050	---	---	---	0.0086	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	---	
Magnesium	-		---	14	---	---	---	12	14	18	13	50	52	54	56	54	---	
Manganese	0.2	(3)	---	1.6	---	---	---	2.5	2.4	0.95	0.77	0.30	0.48	0.57	0.61	0.41	---	
Potassium	-		---	1.9	---	---	---	1.5	1.7	1.8	1.7	4.4	4.1	4.6	5	5.3	---	
Selenium	0.05	(3)	---	< 0.050	---	---	---	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	---	
Silver	0.05	(3)	---	< 0.0050	---	---	---	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0043 J	0.011	< 0.0050	< 0.0050	< 0.0050	---	
Sodium	-		---	41	---	---	---	37	40	51	47	720	770	770	780	800	---	
Uranium	0.03	(3)	---	< 0.10	---	---	---	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---	
Zinc	10	(3)	---	0.021	---	---	---	< 0.020	0.016 J	0.031	< 0.020	0.022	< 0.020	0.026	0.025	0.028	---	
<b>Total Petroleum Hydrocarbons (mg/L)</b>																		
Diesel Range Organics	0.0167	(6)	---	< 0.20	---	---	---	< 0.40	< 0.20	< 0.20	< 0.20	< 0.40	< 0.40	< 0.20	< 0.20	< 0.20	---	
Gasoline Range Organics	0.0101	(6)	---	< 0.050	---	---	---	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	---	
Motor Oil Range Organics	0.0858	(6)	---	< 2.5	---	---	---	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	---	

**Notes:**

- (1) EPA - Regional Screening Levels (November 2019) -Tap Water
- (2) EPA - Regional Screening Levels (April 2019) - MCL
- (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3103 Standards for Ground Water of 10,000 mg/l TDS Concentration or less (December 2018)
- (4) NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation (February 2019)
- (5) EPA Screening Level - Tap Water x 10 for carcinogenic compounds
- (6) NMED SSG (June 2019)

-	= No screening level available
*	= Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
---	= Analysis not required and/or well contains separate phase
	= Analytical result exceeds the respective screening level.
**	= Columns hidden when there are 4 or more consecutive years recorded that analysis was not required and/or the well contained separate phase

**TABLE 6**  
**RCRA Wells Analytical Summary**  
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	Screening Levels	Source	MW-56					MW-57					**MW-58	MW-59					**MW-60			
			Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	
<b>Volatile Organic Compounds (ug/L)</b>																						
1,1,1,2-Tetrachloroethane	5.74	(4)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
1,1,1-Trichloroethane	5	(3)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
1,1,2,2-Tetrachloroethane	10	(3)	---	---	---	< 2.0	---	---	---	---	< 20	---	---	< 2.0	---	< 2.0	< 2.0	< 2.0	---	---	< 2.0	
1,1,2-Trichloroethane	5	(3)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
1,1-Dichloroethane	25	(3)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
1,1-Dichloroethene	7	(3)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
1,1-Dichloropropene	-		---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
1,2,3-Trichlorobenzene	7	(1)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
1,2,3-Trichloropropane	0.01	(4)	---	---	---	< 2.0	---	---	---	---	< 20	---	---	< 2.0	---	< 2.0	< 2.0	< 2.0	---	---	< 2.0	
1,2,4-Trichlorobenzene	11.55	(4)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
1,2,4-Trimethylbenzene	56	(1)	---	---	---	300	---	---	---	---	37	---	---	< 1.0	---	0.35 J	< 1.0	< 1.0	---	---	0.24 J	
1,2-Dibromo-3-chloropropane	0.2	(2)	---	---	---	< 2.0	---	---	---	---	< 20	---	---	< 2.0	---	< 2.0	< 2.0	< 2.0	---	---	< 2.0	
1,2-Dibromoethane (EDB)	0.05	(3)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
1,2-Dichlorobenzene	302	(4)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
1,2-Dichloroethane (EDC)	1.71	(4)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	10	---	38	25	18	---	---	< 1.0	
1,2-Dichloropropane	4.376	(4)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
1,3,5-Trimethylbenzene	60	(1)	---	---	---	97	---	---	---	---	16	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
1,3-Dichlorobenzene	-		---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
1,3-Dichloropropane	370	(1)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
1,4-Dichlorobenzene	75	(2)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
1-Methylnaphthalene	11	(5)	---	---	---	19	---	---	---	---	100	---	---	< 4.0	---	< 4.0	< 4.0	< 4.0	---	---	0.51 J	
2,2-Dichloropropane	-		---	---	---	< 2.0	---	---	---	---	< 20	---	---	< 2.0	---	< 2.0	< 2.0	< 2.0	---	---	< 2.0	
2-Butanone	5565	(4)	---	---	---	26	---	---	---	---	< 100	---	---	< 10	---	< 10	< 10	< 10	---	---	< 10	
2-Chlorotoluene	240	(1)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
2-Hexanone	-		---	---	---	< 10	---	---	---	---	< 100	---	---	< 10	---	< 10	< 10	< 10	---	---	< 10	
2-Methylnaphthalene	36	(1)	---	---	---	26	---	---	---	---	95	---	---	< 4.0	---	< 4.0	< 4.0	< 4.0	---	---	0.32 J	
4-Chlorotoluene	250	(1)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
4-Isopropyltoluene	-		---	---	---	11	---	---	---	---	< 10	---	---	0.53 J	---	0.84 J	1.5	< 1.0	---	---	< 1.0	
4-Methyl-2-pentanone	-		---	---	---	< 10	---	---	---	---	< 100	---	---	< 10	---	< 10	< 10	< 10	---	---	< 10	
Acetone	14064	(4)	---	---	---	150	---	---	---	---	< 100	---	---	< 10	---	4.9 J	< 10	< 10	---	---	< 10	
Benzene	5	(3)	---	---	---	180	---	---	---	---	2900	---	---	7.5	23	24	7.7	7.3	---	---	0.30 J	
Bromobenzene	62	(1)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
Bromodichloromethane	1.34	(4)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
Bromoform	33	(5)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
Bromomethane	7.545	(4)	---	---	---	< 3.0	---	---	---	---	< 30	---	---	< 3.0	---	< 3.0	< 3.0	< 3.0	---	---	< 3.0	
Carbon disulfide	810	(4)	---	---	---	< 10	---	---	---	---	< 100	---	---	< 10	---	< 10	< 10	< 10	---	---	< 10	
Carbon Tetrachloride	5	(2)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
Chlorobenzene	100	(2)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
Chloroethane	20900	(4)	---	---	---	< 2.0	---	---	---	---	< 20	---	---	< 2.0	---	< 2.0	< 2.0	< 2.0	---	---	< 2.0	
Chloroform	2.29	(4)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
Chloromethane	20.3	(4)	---	---	---	< 3.0	---	---	---	---	< 30	---	---	< 3.0	---	< 3.0	< 3.0	< 3.0	---	---	< 3.0	
cis-1,2-DCE	70	(2)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
cis-1,3-Dichloropropene	4.7	(4)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
Dibromochloromethane	1.68	(4)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
Dibromomethane	8.3	(1)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
Dichlorodifluoromethane	197	(4)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
Ethylbenzene	700	(3)	---	---	---	88	---	---	---	---	270	---	---	64	76	40	65	29	---	---	0.14 J	
Hexachlorobutadiene	1.39	(4)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
Isopropylbenzene	447	(4)	---	---	---	13	---	---	---	---	40	---	---	14	---	8.4	12	5	---	---	< 1.0	
Methyl tert-butyl ether (MTBE)	100	(3)	---	---	---	380	---	---	---	---	33	---	---	830	1400	1900	1200	1400	---	---	< 1.0	
Methylene Chloride	5	(2)	---	---	---	< 3.0	---	---	---	---	< 30	---	---	< 3.0	---	< 3.0	< 3.0	< 3.0	---	---	< 3.0	
Naphthalene	1.65	(4)	---	---	---	52	---	---	---	---	160	---	---	< 2.0	---	0.53 J	2.8	< 2.0	---	---	< 2.0	
n-Butylbenzene	1000	(1)	---	---	---	10	---	---	---	---	< 30	---	---	2.8 J	---	2.3 J	< 3.0	< 3.0	---	---	< 3.0	
n-Propylbenzene	660	(1)	---	---	---	19	---	---	---	---	53	---	---	21	---	7.8	12	4.4	---	---	< 1.0	
sec-Butylbenzene	2000	(1)	---	---	---	7.8	---	---	---	---	< 10	---	---	4.7	---	4.9	5.4	4.5	---	---	< 1.0	
Styrene	100	(2)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
tert-Butylbenzene	690	(1)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	0.46 J	---	0.56 J	< 1.0	< 1.0	---	---	< 1.0	
Tetrachloroethene (PCE)	5	(2)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
Toluene	1000	(3)	---	---	---	1.4	---	---	---	---	< 10	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
trans-1,2-DCE	100	(2)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
trans-1,3-Dichloropropene	4.71	(4)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
Trichloroethene (TCE)	5	(2)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
Trichlorofluoromethane	1136	(4)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---	< 1.0	< 1.0	< 1.0	---	---	< 1.0	
Vinyl chloride	2	(3)	---	---	---	< 1.0	---	---	---	---	< 10	---	---	< 1.0	---							

**TABLE 6**  
**RCRA Wells Analytical Summary**  
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	Screening Levels	Source	MW-56					MW-57					**MW-58	MW-59					**MW-60			
			Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	
<b>Semi-Volatile Organic Compounds (ug/L)</b>																						
1,2,4-Trichlorobenzene	70	(2)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
1,2-Dichlorobenzene	600	(2)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
1,3-Dichlorobenzene	-		---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
1,4-Dichlorobenzene	75	(2)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
1-Methylnaphthalene	11	(5)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
2,4,5-Trichlorophenol	1166	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
2,4,6-Trichlorophenol	11.9	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
2,4-Dichlorophenol	45.3	(4)	---	---	---	< 20	---	---	---	---	< 100	---	---	< 20	< 20	< 100	< 20	---	---	---	< 20	
2,4-Dimethylphenol	354	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
2,4-Dinitrophenol	38.7	(4)	---	---	---	< 20	---	---	---	---	< 100	---	---	< 20	< 20	< 100	< 20	---	---	---	< 20	
2,4-Dinitrotoluene	2.375	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
2,6-Dinitrotoluene	0.485	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
2-Chloronaphthalene	733	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
2-Chlorophenol	91	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
2-Methylnaphthalene	36	(1)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
2-Methylphenol	930	(1)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
2-Nitroaniline	190	(1)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
2-Nitrophenol	-		---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
3,3'-Dichlorobenzidine	1.25	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
3+4-Methylphenol	930	(1)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
3-Nitroaniline	-		---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
4,6-Dinitro-2-methylphenol	1.52	(4)	---	---	---	< 20	---	---	---	---	< 100	---	---	< 20	< 20	< 100	< 20	---	---	---	< 20	
4-Bromophenyl phenyl ether	-		---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
4-Chloro-3-methylphenol	-		---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
4-Chloroaniline	3.7	(5)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
4-Chlorophenyl phenyl ether	-		---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
4-Nitroaniline	38	(5)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
4-Nitrophenol	-		---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Acenaphthene	535	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Acenaphthylene	-		---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Aniline	130	(5)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Anthracene	1721	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Azobenzene	1.2	(5)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Benzo(a)anthracene	0.1199	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Benzo(a)pyrene	0.2	(2)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Benzo(b)fluoranthene	0.3432	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Benzo(g,h,i)perylene	-		---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Benzo(k)fluoranthene	3.43	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Benzoic acid	75000	(1)	---	---	---	< 20	---	---	---	---	< 100	---	---	< 20	< 20	<b>36 J</b>	< 20	---	---	---	<b>10 J</b>	
Benzyl alcohol	2000	(1)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Bis(2-chloroethoxy)methane	59	(1)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Bis(2-chloroethyl)ether	0.137	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Bis(2-chloroisopropyl)ether	9.81	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Bis(2-ethylhexyl)phthalate	6	(2)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Butyl benzyl phthalate	160	(5)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Carbazole	-		---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Chrysene	34.3171	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Dibenz(a,h)anthracene	0.0343	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Dibenzofuran	-		---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Diethyl phthalate	14800	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Dimethyl phthalate	-		---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Di-n-butyl phthalate	885	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Di-n-octyl phthalate	-		---	---	---	<b>26</b>	---	---	---	---	<b>83</b>	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Fluoranthene	802	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Fluorene	288	(4)	---	---	---	< 10	---	---	---	---	<b>76</b>	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Hexachlorobenzene	0.0976	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Hexachlorobutadiene	1.387	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Hexachlorocyclopentadiene	0.411	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Hexachloroethane	3.2842	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Indeno(1,2,3-cd)pyrene	0.3432	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Isophorone	781	(4)	---	---	---	< 10	---	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	

**TABLE 6**  
**RCRA Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

	Screening Levels	Source	MW-56					MW-57					**MW-58	MW-59					**MW-60		
			Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17
Naphthalene	1.65	(4)	---	---	---	16	---	---	---	240	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Nitrobenzene	1.4	(4)	---	---	---	< 10	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
N-Nitrosodimethylamine	0.0049	(4)	---	---	---	< 10	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
N-Nitrosodi-n-propylamine	0.11	(5)	---	---	---	< 10	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
N-Nitrosodiphenylamine	121.922	(4)	---	---	---	< 10	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Pentachlorophenol	0.4129	(4)	---	---	---	< 20	---	---	---	< 100	---	---	< 20	< 20	< 100	< 20	---	---	---	< 20	
Phenanthrene	170.4146	(4)	---	---	---	< 10	---	---	---	150	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Phenol	5761	(4)	---	---	---	< 10	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Pyrene	117	(4)	---	---	---	< 10	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
Pyridine	20	(1)	---	---	---	< 10	---	---	---	< 50	---	---	< 10	< 10	< 50	< 10	---	---	---	< 10	
<b>General Chemistry (mg/L)</b>																					
Fluoride	1.6	(3)	---	---	---	< 0.50	---	---	---	< 0.50	---	---	<0.50	< 0.10	< 0.50	< 0.10	< 0.10	---	---	< 0.10	
Chloride	250	(3)	---	---	---	370	---	---	---	340	---	---	240	190	200	190	240	---	---	190	
Nitrite	1	(3)	---	---	---	< 0.50	---	---	---	< 0.50	---	---	0.32 J	<1.0	< 0.50	< 0.10	< 0.10	---	---	< 0.10	
Bromide	-		---	---	---	5	---	---	---	2.8	---	---	3.1	3.1	3.4	< 0.10	1.2	---	---	3.8	
Nitrate	10	(3)	---	---	---	< 0.50	---	---	---	< 0.50	---	---	0.32 J	<1.0	0.26 J	0.6	0.28	---	---	26	
Phosphorus	-		---	---	---	< 2.5	---	---	---	3.1	---	---	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	---	---	< 0.50	
Sulfate	600	(3)	---	---	---	7.9	---	---	---	< 2.5	---	---	180	180	170	200	780	---	---	1300	
Carbon Dioxide (CO <sub>2</sub> )	-		---	---	---	890	---	---	---	940	---	---	1100	1000	1000	1000	940	---	---	720	
Alkalinity (CaCO <sub>3</sub> )	-		---	---	---	952.6	---	---	---	981.8	---	---	1050	1050	1105	1094	1035	---	---	786.2	
Bicarbonate (CaCO <sub>3</sub> )	-		---	---	---	952.6	---	---	---	981.8	---	---	1050	1050	1105	1094	1035	---	---	786.2	
<b>Total Metals (mg/L)</b>																					
Arsenic	0.01	(3)	---	---	---	< 0.020	---	---	---	< 0.020	---	---	< 0.020	< 0.020	< 0.050	< 0.020	0.022	---	---	< 0.050	
Barium	2.0	(3)	---	---	---	2.4	---	---	---	2.1	---	---	0.11	0.12	0.11	0.17	0.21	---	---	0.033	
Cadmium	0.005	(3)	---	---	---	< 0.0020	---	---	---	< 0.0020	---	---	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	---	---	< 0.0020	
Chromium	0.05	(3)	---	---	---	< 0.0060	---	---	---	< 0.0060	---	---	< 0.0060	< 0.0060	< 0.0060	0.0062	< 0.0060	---	---	0.0031 J	
Lead	0.015	(3)	---	---	---	< 0.0050	---	---	---	< 0.0050	---	---	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	---	---	< 0.0050	
Selenium	0.05	(3)	---	---	---	< 0.050	---	---	---	< 0.050	---	---	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	---	---	< 0.050	
Silver	0.05	(3)	---	---	---	< 0.0050	---	---	---	< 0.0050	---	---	0.0018 J	< 0.0050	< 0.0050	< 0.0050	< 0.0050	---	---	< 0.0050	
Mercury	0.002	(3)	---	---	---	< 0.00020	---	---	---	< 0.00020	---	---	0.00013 J	< 0.00020	< 0.00020	< 0.00020	< 0.00020	---	---	0.000054 J	
<b>Dissolved Metals (mg/L)</b>																					
Arsenic	0.01	(3)	---	---	---	< 0.020	---	---	---	< 0.020	---	---	0.027	< 0.020	0.032	< 0.020	< 0.020	---	---	0.054	
Barium	1.0	(3)	---	---	---	2.1	---	---	---	1.9	---	---	0.073	0.073	0.083	0.076	0.055	---	---	0.023	
Cadmium	0.005	(3)	---	---	---	< 0.0020	---	---	---	< 0.0020	---	---	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	---	---	< 0.0020	
Calcium	-		---	---	---	110	---	---	---	120	---	---	200	170	160	200	250	---	---	230	
Chromium	0.05	(3)	---	---	---	< 0.0060	---	---	---	< 0.0060	---	---	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	---	---	< 0.0060	
Copper	1	(3)	---	---	---	0.082	---	---	---	< 0.0060	---	---	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	---	---	0.0027 J	
Iron	1	(3)	---	---	---	28	---	---	---	2.6	---	---	7.6	7.5	6.9	5.2	4.3	---	---	0.0048 J	
Lead	0.015	(3)	---	---	---	< 0.0050	---	---	---	< 0.0050	---	---	< 0.0050	0.0090	< 0.0050	< 0.0050	< 0.0050	---	---	< 0.0050	
Magnesium	-		---	---	---	50	---	---	---	44	---	---	62	50	49	56	69	---	---	88	
Manganese	0.2	(3)	---	---	---	2.8	---	---	---	3.3	---	---	1.5	1.5	1.8	1.9	1.9	---	---	0.0011 J	
Potassium	-		---	---	---	4.4	---	---	---	4.1	---	---	3.3	3	2.8	3.7	3.6	---	---	4	
Selenium	0.05	(3)	---	---	---	< 0.050	---	---	---	< 0.0050	---	---	< 0.050	0.11	< 0.050	< 0.050	< 0.050	---	---	< 0.050	
Silver	0.05	(3)	---	---	---	< 0.0050	---	---	---	< 0.050	---	---	0.0020 J	< 0.0050	< 0.0050	< 0.0050	< 0.0050	---	---	< 0.0050	
Sodium	-		---	---	---	460	---	---	---	410	---	---	480	430	390	480	470	---	---	660	
Uranium	0.03	(3)	---	---	---	< 0.10	---	---	---	< 0.10	---	---	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---	---	< 0.10	
Zinc	10	(3)	---	---	---	0.55	---	---	---	0.081	---	---	0.025	< 0.020	0.022	0.021	0.036	---	---	0.036	
<b>Total Petroleum Hydrocarbons (mg/L)</b>																					
Diesel Range Organics	0.0167	(6)	---	---	---	93	---	---	---	17	---	---	0.31 J	< 0.40	0.75	0.85	0.32	---	---	< 0.20	
Gasoline Range Organics	0.0101	(6)	---	---	---	29	---	---	---	520	---	---	1.2	2.3	1.0	1.8	1.1	---	---	< 0.050	
Motor Oil Range Organics	0.0858	(6)	---	---	---	< 25	---	---	---	< 250	---	---	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	---	---	< 2.5	

**Notes:**

- (1) EPA - Regional Screening Levels (November 2019) -Tap Water
- (2) EPA - Regional Screening Levels (April 2019) - MCL
- (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3103 Standards for Ground Water of 10,000 mg/l TDS Concentration or less (December 2018)
- (4) NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation (February 2019)
- (5) EPA Screening Level - Tap Water x 10 for carcinogenic compounds
- (6) NMED SSG (June 2019)

-	= No screening level available
*	= Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
---	= Analysis not required and/or well contains separate phase
	= Analytical result exceeds the respective screening level.
**	= Columns hidden when there are 4 or more consecutive years recorded that analysis was not required and/or the well contained separate phase



**TABLE 6**  
**RCRA Wells Analytical Summary**  
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Screening Levels	Source	**MW-61					MW-62					MW-63					MW-64					MW-65					
		Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	
<b>Semi-Volatile Organic Compounds (ug/L)</b>																											
1,2,4-Trichlorobenzene	70	(2)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
1,2-Dichlorobenzene	600	(2)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
1,3-Dichlorobenzene	-		---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
1,4-Dichlorobenzene	75	(2)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
1-Methylnaphthalene	11	(5)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	100	100	14	---	
2,4,5-Trichlorophenol	1166	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
2,4,6-Trichlorophenol	11.9	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
2,4-Dichlorophenol	45.3	(4)	---	---	---	---	---	---	< 20	< 20	---	---	---	< 20	< 20	---	---	---	< 20	< 20	---	---	< 20	< 100	< 20	---	
2,4-Dimethylphenol	354	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	21	< 50	< 10	---	
2,4-Dinitrophenol	38.7	(4)	---	---	---	---	---	---	< 20	< 20	---	---	---	< 20	< 20	---	---	---	< 20	< 20	---	---	< 20	< 100	< 20	---	
2,4-Dinitrotoluene	2.375	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
2,6-Dinitrotoluene	0.485	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
2-Chloronaphthalene	733	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
2-Chlorophenol	91	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
2-Methylnaphthalene	36	(1)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
2-Methylphenol	930	(1)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
2-Nitroaniline	190	(1)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
2-Nitrophenol	-		---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
3,3'-Dichlorobenzidine	1.25	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
3+4-Methylphenol	930	(1)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	10	< 50	< 10	---	
3-Nitroaniline	-		---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
4,6-Dinitro-2-methylphenol	1.52	(4)	---	---	---	---	---	---	< 20	< 20	---	---	---	< 20	< 20	---	---	---	< 20	< 20	---	---	< 20	< 100	< 20	---	
4-Bromophenyl phenyl ether	-		---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
4-Chloro-3-methylphenol	-		---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
4-Chloroaniline	3.7	(5)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
4-Chlorophenyl phenyl ether	-		---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
4-Nitroaniline	38	(5)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
4-Nitrophenol	-		---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Acenaphthene	535	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Acenaphthylene	-		---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Aniline	130	(5)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Anthracene	1721	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Azobenzene	1.2	(5)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Benzo(a)anthracene	0.1199	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Benzo(a)pyrene	0.2	(2)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Benzo(b)fluoranthene	0.3432	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Benzo(g,h,i)perylene	-		---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Benzo(k)fluoranthene	3.43	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Benzoic acid	75000	(1)	---	---	---	---	---	---	11 J	< 20	---	---	---	18 J	< 20	---	---	---	8.3 J	< 20	---	---	< 20	92 J	< 20	---	
Benzyl alcohol	2000	(1)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Bis(2-chloroethoxy)methane	59	(1)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Bis(2-chloroethyl)ether	0.137	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Bis(2-chloroisopropyl)ether	9.81	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Bis(2-ethylhexyl)phthalate	6	(2)	---	---	---	---	---	---	< 10	< 10	---	---	---	4.9 J	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Butyl benzyl phthalate	160	(5)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Carbazole	-		---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Chrysene	34.3171	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Dibenz(a,h)anthracene	0.0343	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Dibenzofuran	-		---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Diethyl phthalate	14800	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Dimethyl phthalate	-		---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Di-n-butyl phthalate	885	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	
Di-n-octyl phthalate	-		---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	< 10	< 50	< 10	---	

**TABLE 6**  
**RCRA Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

	Screening Levels	Source	**MW-61					MW-62					MW-63					MW-64					MW-65					
			Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	
Naphthalene	1.65	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	21	19 J	< 10	---	
Nitrobenzene	1.4	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 50	< 10	---	
N-Nitrosodimethylamine	0.0049	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 50	< 10	---	
N-Nitrosodi-n-propylamine	0.11	(5)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 50	< 10	---	
N-Nitrosodiphenylamine	121.922	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 50	< 10	---	
Pentachlorophenol	0.4129	(4)	---	---	---	---	---	---	< 20	< 20	---	---	---	< 20	< 20	---	---	---	< 20	< 20	---	---	---	< 20	< 100	< 20	---	
Phenanthrene	170.4146	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 50	< 10	---	
Phenol	5761	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	13	22 J	< 10	---	
Pyrene	117	(4)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 50	< 10	---	
Pyridine	20	(1)	---	---	---	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 10	---	---	---	< 10	< 50	< 10	---	
<b>General Chemistry (mg/L)</b>																												
Fluoride	1.6	(3)	---	---	---	---	---	<0.50	<0.50	< 0.10	< 2.0	< 0.10	<0.50	< 0.10	< 0.10	0.16	< 0.10	<0.50	<2.0	< 0.10	< 10	< 0.10	---	---	<0.50	< 0.10	< 0.50	< 0.50
Chloride	250	(3)	---	---	---	---	---	12	11	13	14	14	160	92	110	100	270	860	840	790	860	940	---	---	200	230	220	210
Nitrite	1	(3)	---	---	---	---	---	0.076 J	0.068 J	0.016 J	< 1.0	< 0.10	66	0.057	0.13	< 0.10	< 0.10	45	< 2.0	< 2.0	< 10	< 2.0	---	---	<0.50	< 0.10	< 0.50	< 0.50
Bromide	-	(3)	---	---	---	---	---	<0.50	0.22	0.071 J	< 0.10	< 0.10	3.2	1.2	1.8	1.5	4	2.4	2.5	3.5	5.1	3.4	---	---	5	0.99	4.2	4.5
Nitrate	10	(3)	---	---	---	---	---	0.076 J	0.078 J	0.094 J	< 1.0	< 0.10	66	32	35	39	78	45	52	55	58	40	---	---	0.21 J	0.035 J	< 0.50	< 0.50
Phosphorus	-	(3)	---	---	---	---	---	< 10 H	6.7 J	< 10	< 10	< 10	<2.5 H	5.3 J	< 0.50	< 0.50	< 10	<2.5 H	5.7 J	< 0.50	< 50	< 10	---	---	3	< 0.50	< 2.5	< 2.5
Sulfate	600	(3)	---	---	---	---	---	4000	3600	3700	4000	4000	2200	1200	1300	1200	1700	1500	1500	1500	1500	1500	---	---	560	1400	1600	970
Carbon Dioxide (CO <sub>2</sub> )	-	(3)	---	---	---	---	---	590 H	600 H	580	500	520	600 H	610	580	470	480	270	270	260	260	260	---	---	1200	1100	860	1300
Alkalinity (CaCO <sub>3</sub> )	-	(3)	---	---	---	---	---	630.2	622.9	626.3	550	573.9	593.4	616.5	597	500.7	522.5	276.5	275.2	276.3	279	287.7	---	---	1305	1177	946	1335
Bicarbonate (CaCO <sub>3</sub> )	-	(3)	---	---	---	---	---	630.2	622.9	626.3	550	573.9	593.4	616.5	597	500.7	522.5	276.5	275.2	276.3	279	287.7	---	---	1305	1177	946	1335
<b>Total Metals (mg/L)</b>																												
Arsenic	0.01	(3)	---	---	---	---	---	< 0.020	< 0.020	< 0.050	< 0.020	< 0.020	< 0.020	< 0.020	< 0.050	< 0.020	< 0.020	< 0.020	< 0.020	< 0.010	< 0.020	< 0.020	---	---	< 0.020	< 0.050	0.02	< 0.020
Barium	2.0	(3)	---	---	---	---	---	0.017 J	0.030	0.033	0.33	< 0.020	0.35	0.12	0.019 J	0.28	< 0.020	0.35	0.29	0.12	0.095	0.077	---	---	0.061	0.058	0.11	0.21
Cadmium	0.005	(3)	---	---	---	---	---	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	---	---	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Chromium	0.05	(3)	---	---	---	---	---	< 0.0060	< 0.0060	< 0.0060	0.0071	< 0.0060	0.0099	0.0048 J	< 0.0060	0.016	< 0.0060	0.011	0.0097	0.0050 J	< 0.0060	< 0.0060	---	---	< 0.0060	< 0.0060	< 0.0060	< 0.0060
Lead	0.015	(3)	---	---	---	---	---	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0088	< 0.0050	---	---	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Selenium	0.05	(3)	---	---	---	---	---	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	---	---	< 0.050	< 0.050	< 0.050	< 0.050
Silver	0.05	(3)	---	---	---	---	---	0.0061	0.013	< 0.0050	< 0.0050	< 0.0050	0.0027 J	0.0064	< 0.0050	< 0.0050	< 0.0050	0.0032 J	< 0.0050	< 0.0050	< 0.0050	< 0.0050	---	---	0.0065	< 0.0050	< 0.0050	< 0.0050
Mercury	0.002	(3)	---	---	---	---	---	0.00012 J	0.000066 J	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	0.00021	0.00012 J	< 0.00020	< 0.00020	< 0.00020	---	---	0.000075 J	< 0.00020	< 0.00020	< 0.00020
<b>Dissolved Metals (mg/L)</b>																												
Arsenic	0.01	(3)	---	---	---	---	---	< 0.020	< 0.020	0.046	< 0.020	< 0.020	< 0.020	< 0.020	0.034	< 0.020	< 0.020	< 0.020	< 0.020	0.048	< 0.020	< 0.020	---	---	< 0.020	0.049	< 0.020	< 0.020
Barium	1.0	(3)	---	---	---	---	---	0.0091 J	0.011 J	0.01 J	< 0.020	< 0.020	0.013 J	0.011	< 0.020	0.023	< 0.020	0.0098 J	0.011 J	0.012 J	0.024	< 0.020	---	---	0.12	0.039	0.045	0.2
Cadmium	0.005	(3)	---	---	---	---	---	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	---	---	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Calcium	-	(3)	---	---	---	---	---	440	450	450	450	470	420	330	310	320	470	440	450	480	500	530	---	---	200	350	370	270
Chromium	0.05	(3)	---	---	---	---	---	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	---	---	< 0.0060	< 0.0060	< 0.0060	< 0.0060
Copper	1	(3)	---	---	---	---	---	0.0023 J	< 0.0060	< 0.0060	< 0.0060	< 0.0060	0.0043 J	< 0.0060	< 0.0060	< 0.0060	< 0.0060	0.0029 J	< 0.0060	< 0.0060	< 0.0060	< 0.0060	---	---	< 0.0060	< 0.0060	< 0.0060	< 0.0060
Iron	1	(3)	---	---	---	---	---	< 0.020	0.015 J	0.0046 J	1.3	0.15	< 0.020	0.054	< 0.020	3.9	< 0.020	0.027	0.057	0.025	1.8	< 0.020	---	---	5.3	7.1	6.7	7
Lead	0.015	(3)	---	---	---	---	---	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0059	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	---	---	< 0.0050	< 0.0050	< 0.0050	0.0055
Magnesium	-	(3)	---	---	---	---	---	39	37	38	38	38	180	110	110	99	130	67	66	73	78	72	---	---	95	120	110	97
Manganese	0.2	(3)	---	---	---	---	---	1.4	1.5	1.8	1.2	1.4	0.55	0.48	0.5	0.73	0.81	0.00036 J	0.0015 J	0.0011 J	0.037	< 0.0020	---	---	1.5	3.2	2.7	1.8
Potassium	-	(3)	---	---	---	---	---	8.8	9	9.1	10	9.5	4.5	3.7	3.7	4.1	4.6	4.4	4.5	4.7	5.5	5.1	---	---	3.6	3.8	4.1	3.6
Selenium	0.05	(3)	---	---	---	---	---	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	---	---	0.032	< 0.050	< 0.050	< 0.050
Silver	0.05	(3)	---	---	---	---	---	0.0058	0.012	< 0.0050	< 0.0050	< 0.0050	0.0053	0.0088	< 0.0050	< 0.0050	< 0.0050	0.0060	0.012	< 0.0050	< 0.0050	< 0.0050	---	---	0.0045	< 0.0050	< 0.0050	< 0.0050
Sodium	-	(																										



**TABLE 6**  
**RCRA Wells Analytical Summary**  
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Screening Levels	Source	**MW-66					MW-67					MW-68					**MW-69	MW-70					
		Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	
<b>Semi-Volatile Organic Compounds (ug/L)</b>																							
1,2,4-Trichlorobenzene	70	(2)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
1,2-Dichlorobenzene	600	(2)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
1,3-Dichlorobenzene	-		---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
1,4-Dichlorobenzene	75	(2)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
1-Methylnaphthalene	11	(5)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
2,4,5-Trichlorophenol	1166	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
2,4,6-Trichlorophenol	11.9	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
2,4-Dichlorophenol	45.3	(4)	---	---	---	---	---	---	---	---	< 20	---	---	---	---	< 20	---	---	---	< 20	< 20	---	---
2,4-Dimethylphenol	354	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
2,4-Dinitrophenol	38.7	(4)	---	---	---	---	---	---	---	---	< 20	---	---	---	---	< 20	---	---	---	< 20	< 20	---	---
2,4-Dinitrotoluene	2.375	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
2,6-Dinitrotoluene	0.485	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
2-Chloronaphthalene	733	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
2-Chlorophenol	91	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
2-Methylnaphthalene	36	(1)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
2-Methylphenol	930	(1)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
2-Nitroaniline	190	(1)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
2-Nitrophenol	-		---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
3,3'-Dichlorobenzidine	1.25	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
3+4-Methylphenol	930	(1)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
3-Nitroaniline	-		---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
4,6-Dinitro-2-methylphenol	1.52	(4)	---	---	---	---	---	---	---	---	< 20	---	---	---	---	< 20	---	---	---	< 20	< 20	---	---
4-Bromophenyl phenyl ether	-		---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
4-Chloro-3-methylphenol	-		---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
4-Chloroaniline	3.7	(5)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
4-Chlorophenyl phenyl ether	-		---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
4-Nitroaniline	38	(5)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
4-Nitrophenol	-		---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Acenaphthene	535	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Acenaphthylene	-		---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Aniline	130	(5)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Anthracene	1721	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Azobenzene	1.2	(5)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Benzo(a)anthracene	0.1199	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Benzo(a)pyrene	0.2	(2)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Benzo(b)fluoranthene	0.3432	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Benzo(g,h,i)perylene	-		---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Benzo(k)fluoranthene	3.43	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Benzoic acid	75000	(1)	---	---	---	---	---	---	---	---	< 20	---	---	---	---	< 20	---	---	---	6.7 J	6.7 J	---	---
Benzyl alcohol	2000	(1)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Bis(2-chloroethoxy)methane	59	(1)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Bis(2-chloroethyl)ether	0.137	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Bis(2-chloroisopropyl)ether	9.81	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Bis(2-ethylhexyl)phthalate	6	(2)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Butyl benzyl phthalate	160	(5)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Carbazole	-		---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Chrysene	34.3171	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Dibenz(a,h)anthracene	0.0343	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Dibenzofuran	-		---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Diethyl phthalate	14800	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Dimethyl phthalate	-		---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Di-n-butyl phthalate	885	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Di-n-octyl phthalate	-		---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Fluoranthene	802	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Fluorene	288	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Hexachlorobenzene	0.0976	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Hexachlorobutadiene	1.387	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Hexachlorocyclopentadiene	0.411	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Hexachloroethane	3.2842	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Indeno(1,2,3-cd)pyrene	0.3432	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Isophorone	781	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---

**TABLE 6**  
**RCRA Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

	Screening Levels	Source	**MW-66					MW-67					MW-68					**MW-69	MW-70				
			Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15	Aug-19	Aug-19	Aug-18	Aug-17	Aug-16	Aug-15
Naphthalene	1.65	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Nitrobenzene	1.4	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
N-Nitrosodimethylamine	0.0049	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
N-Nitrosodi-n-propylamine	0.11	(5)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
N-Nitrosodiphenylamine	121.922	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Pentachlorophenol	0.4129	(4)	---	---	---	---	---	---	---	---	< 20	---	---	---	---	< 20	---	---	---	< 20	< 20	---	---
Phenanthrene	170.4146	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Phenol	5761	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Pyrene	117	(4)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
Pyridine	20	(1)	---	---	---	---	---	---	---	---	< 10	---	---	---	---	< 10	---	---	---	< 10	< 10	---	---
<b>General Chemistry (mg/L)</b>																							
Fluoride	1.6	(3)	---	---	---	---	---	0.52	0.62	0.87	< 0.10	0.62	0.24 J	0.27	0.26	0.41	0.35	---	0.26 J	< 0.50	0.45 J	---	0.7
Chloride	250	(3)	---	---	---	---	---	17	14	12	12	14	50	60	52	38	42	---	340	280	330	---	420
Nitrite	1	(3)	---	---	---	---	---	3.8	8.6	< 0.10	< 0.10	< 0.10	6.8	4.5	< 0.10	< 0.10	< 0.10	---	0.33	< 0.50	< 0.50	---	< 0.50
Bromide	-	---	---	---	---	---	---	< 0.50	0.16	0.15	0.16	0.13	< 0.50	0.23	0.22	0.21	0.23	---	1.6	1.6	1.7	---	2.4
Nitrate	10	(3)	---	---	---	---	---	3.8	8.6	13	9.9	13	6.8	4.5	7.6	5.6	7.6	---	0.33	0.23	< 0.50	---	< 0.50
Phosphorus	-	---	---	---	---	---	---	< 2.5 H	< 0.50	< 0.50	< 0.50	< 0.50	< 2.5 H	< 0.50	< 0.50	< 0.50	< 0.50	---	< 2.5 H	< 2.5	< 2.5	---	< 2.5
Sulfate	600	(3)	---	---	---	---	---	260	240	180	270	240	260	200	250	260	280	---	2100	1900	1900	---	2400
Carbon Dioxide (CO <sub>2</sub> )	-	---	---	---	---	---	---	340	330	320	290	310	220	250	220	210	180	---	790	790	830	---	780
Alkalinity (CaCO <sub>3</sub> )	-	---	---	---	---	---	---	351.6	351.6	345.5	314.7	342.5	238.3	264.4	236.7	236.3	200.2	---	785.4	811.5	804.5	---	809.4
Bicarbonate (CaCO <sub>3</sub> )	-	---	---	---	---	---	---	351.6	351.6	345.5	314.7	342.5	238.3	264.4	236.7	236.3	200.2	---	785.4	811.5	804.5	---	809.4
<b>Total Metals (mg/L)</b>																							
Arsenic	0.01	(3)	---	---	---	---	---	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.050	< 0.020	< 0.020	---	< 0.020	< 0.020	< 0.25	---	< 0.020
Barium	2.0	(3)	---	---	---	---	---	0.057	0.081	0.05	0.23	0.12	0.15	0.038	0.053	0.28	0.038	---	0.15	0.23	0.19	---	0.023
Cadmium	0.005	(3)	---	---	---	---	---	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	---	< 0.0020	< 0.0020	< 0.0020	---	< 0.0020
Chromium	0.05	(3)	---	---	---	---	---	< 0.0060	< 0.0060	< 0.0060	0.0089	< 0.0060	0.0049 J	< 0.0060	< 0.0060	0.012	< 0.0060	---	< 0.0060	0.011	0.0086	---	< 0.0060
Lead	0.015	(3)	---	---	---	---	---	0.0045 J	< 0.0050	< 0.0050	0.005	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	---	< 0.0050	< 0.0050	< 0.0050	---	< 0.0050
Selenium	0.05	(3)	---	---	---	---	---	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	---	< 0.050	< 0.050	< 0.050	---	< 0.050
Silver	0.05	(3)	---	---	---	---	---	0.0023 J	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0011 J	< 0.0050	< 0.0050	< 0.0050	< 0.0050	---	0.0051	0.0044 J	< 0.0050	---	< 0.0050
Mercury	0.002	(3)	---	---	---	---	---	0.00013 J	< 0.00020	< 0.00020	< 0.00020	< 0.00020	0.00015 J	< 0.00020	< 0.00020	< 0.00020	< 0.00020	---	0.00012 J	0.00010 J	< 0.00020	---	< 0.00020
<b>Dissolved Metals (mg/L)</b>																							
Arsenic	0.01	(3)	---	---	---	---	---	< 0.020	< 0.020	0.022	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	---	< 0.020	< 0.020	0.028	---	< 0.020
Barium	1.0	(3)	---	---	---	---	---	0.032	0.026	0.031	0.043	0.039	0.019 J	0.027	0.023	0.029	0.022	---	0.013 J	0.014 J	0.016 J	---	0.024
Cadmium	0.005	(3)	---	---	---	---	---	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	---	< 0.0020	< 0.0020	< 0.0020	---	< 0.0020
Calcium	-	---	---	---	---	---	---	160	130	130	140	150	100	130	100	90	93	---	610	560	620	---	640
Chromium	0.05	(3)	---	---	---	---	---	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	---	< 0.0060	< 0.0060	< 0.0060	---	< 0.0060
Copper	1	(3)	---	---	---	---	---	< 0.0060	< 0.0060	0.0016 J	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	---	0.0037 J	< 0.0060	< 0.0060	---	< 0.0060
Iron	1	(3)	---	---	---	---	---	< 0.020	< 0.020	< 0.020	0.29	< 0.020	< 0.020	< 0.020	< 0.020	0.25	< 0.020	---	5.3	9.6	25	---	8.5
Lead	0.015	(3)	---	---	---	---	---	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	---	< 0.0050	< 0.0050	< 0.0050	---	< 0.0050
Magnesium	-	---	---	---	---	---	---	31	27	27	28	31	28	27	25	21	24	---	150	110	130	---	180
Manganese	0.2	(3)	---	---	---	---	---	0.15	0.16	0.14	0.4	0.38	0.00059 J	0.0041	0.0028	0.06	0.0045	---	1.6	1.8	2.3	---	4.3
Potassium	-	---	---	---	---	---	---	3.8	2.8	3.8	3.4	3	2.7	2.8	3.0	2.7	2.6	---	3.5	4.0	3.5	---	4.2
Selenium	0.05	(3)	---	---	---	---	---	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	---	< 0.050	< 0.050	< 0.050	---	< 0.050
Silver	0.05	(3)	---	---	---	---	---	0.0020 J	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0014 J	< 0.0050	< 0.0050	< 0.0050	< 0.0050	---	0.0071	0.015	< 0.0050	---	< 0.0050
Sodium	-	---	---	---	---	---	---	72	80	68	79	74	100	120	110	110	110	---	610	530	580	---	730
Uranium	0.03	(3)	---	---	---	---	---	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	---	< 0.10	< 0.10	< 0.10	---	< 0.10
Zinc	10	(3)	---	---	---	---	---	0.044	< 0.020	0.023	< 0.020	0.025	0.010 J	< 0.020	0.026	< 0.020	0.027	---	0.017 J	< 0.020	0.024	---	0.028
<b>Total Petroleum Hydrocarbons (mg/L)</b>																							
Diesel Range Organics	0.0167	(6)	---	---	---	---	---	< 0.40	< 0.40	< 0.20	0.64	0.21	< 0.40	< 0.40	< 0.20	< 0.20	< 0.20	---	< 0.40	< 0.40	< 0.20	---	< 0.20
Gasoline Range Organics	0.0101	(6)	---	---	---	---	---	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	---	< 0.050	0.034 J	< 0.050	---	< 0.050
Motor Oil Range Organics	0.0858	(6)	---	---	---	---	---	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	---	< 2.5	< 2.5	< 2.5	---	< 2.5

**Notes:**

- (1) EPA - Regional Screening Levels (November 2019) - Tap Water
- (2) EPA - Regional Screening Levels (April 2019) - MCL
- (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3103 Standards for Ground Water of 10,000 mg/l TDS Concentration or less (December 2018)
- (4) NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation (February 2019)
- (5) EPA Screening Level - Tap Water x 10 for carcinogenic compounds
- (6) NMED SSG (June 2019)

-	= No screening level available	= No screening level available
*	= Laboratory analyzed for combined Nitrate = Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time	
---	= Analysis not required and/or well contains = Analysis not required and/or well contains separate phase	
	= Analytical result exceeds the respective s = Analytical result exceeds the respective screening level.	
**	= Columns hidden when there are 4 or mor = Columns hidden when there are 4 or more consecutive years recorded that analysis was not required and/or the well contained separate phase	

**TABLE 7**  
**Collection and Observation Wells Analytical Summary**  
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Constituents				CW 0+60								CW 25+95										
				Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15
<b>Volatile Organic Compounds (mg/L)</b>																						
Benzene	0.005	(1)	0.001 J	0.0021	0.0007 J	0.0012	< 1.0	< 0.001	<0.001	0.0025	0.0012	0.0016	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	0.0071	0.0039	0.110	0.210
Toluene	1.000	(1)	<0.001	<0.001	<0.001	<0.001	< 1.0	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.005	<0.001	< 0.005	<0.050
Ethylbenzene	0.700	(1)	0.0041	0.004	0.0018	0.0037	0.0035	0.0031	0.0018	0.0023	< 0.001	0.0017	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.005	<0.001	< 0.005	<0.050
Xylene	0.620	(1)	0.0013 J	0.0018	<0.0015	0.0015	< 1.5	< 0.0015	< 0.0015	< 0.0015	< 0.0015	<0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0015	<0.0075	<0.0015	< 0.0075	<0.075
MTBE	0.100	(1)	0.0011	0.0012	<0.001	<0.001	< 1.0	< 0.001	< 0.001	< 0.001	< 0.001	<0.001	0.00067 J	< 0.001	0.00089 J	< 0.001	< 0.001	< 0.001	< 0.005	<0.001	< 0.005	<0.050
<b>Total Petroleum Hydrocarbons (mg/L)</b>																						
Diesel Range Organics	0.0167	(2)	0.70	1.7	0.33 J	1.2	1.2	1.4	0.83	0.73	1.7	1.4	<0.40	<0.40	<0.40	<0.40	< 0.20	<0.20	<0.20	<0.20	1.3	<0.20
Gasoline Range Organics	0.0101	(2)	---	3.1	---	---	3.2	---	---	---	0.51	2.7	---	0.36	0.44	---	0.18	---	---	---	1.7	0.88
Motor Oil Range Organics	0.0858	(2)	<2.5	<2.5	<2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	<2.5	<2.5	<2.5	<2.5	< 2.5	<2.5	< 2.5	< 2.5	3.1	< 2.5

Constituents				OW 0+60								OW 14+10										
				Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15
<b>Volatile Organic Compounds (mg/L)</b>																						
Benzene	0.005	(1)	---	---	---	---	---	0.00007J	< 0.001	---	< 0.001	<0.001	---	---	---	---	---	---	---	---	---	---
Toluene	1.000	(1)	---	---	---	---	---	0.00043J	< 0.001	---	< 0.001	< 0.001	---	---	---	---	---	---	---	---	---	---
Ethylbenzene	0.700	(1)	---	---	---	---	---	0.00058J	< 0.001	---	< 0.001	< 0.001	---	---	---	---	---	---	---	---	---	---
Xylene	0.620	(1)	---	---	---	---	---	0.0025	< 0.0015	---	< 0.0015	<0.0015	---	---	---	---	---	---	---	---	---	---
MTBE	0.100	(1)	---	---	---	---	---	< 0.001	< 0.001	---	< 0.001	< 0.001	---	---	---	---	---	---	---	---	---	---
<b>Total Petroleum Hydrocarbons (mg/L)</b>																						
Diesel Range Organics	0.0167	(2)	---	---	---	---	---	13	1.3	---	1.7	3.2	---	---	---	---	---	---	---	---	---	---
Gasoline Range Organics	0.0101	(2)	---	---	---	---	---	2.1	0.7	---	0.38	0.3	---	---	---	---	---	---	---	---	---	---
Motor Oil Range Organics	0.0858	(2)	---	---	---	---	---	< 5	< 2.5	---	< 2.5	< 2.5	---	---	---	---	---	---	---	---	---	---

Constituents				OW 1+50								OW 16+60										
				Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15
<b>Volatile Organic Compounds (mg/L)</b>																						
Benzene	0.005	(1)	---	---	---	---	---	< 0.001	< 0.001	<0.005	---	---	---	---	---	---	---	0.000084J	<0.010	<0.010	< 0.001	<0.005
Toluene	1.000	(1)	---	---	---	---	---	< 0.001	< 0.001	<0.005	---	---	---	---	---	---	---	< 0.001	<0.010	<0.010	< 0.001	<0.010
Ethylbenzene	0.700	(1)	---	---	---	---	---	< 0.001	< 0.001	<0.005	---	---	---	---	---	---	---	0.0011	<0.010	<0.010	0.0017	<0.010
Xylene	0.620	(1)	---	---	---	---	---	0.0025	< 0.0015	<0.0075	---	---	---	---	---	---	---	0.00048J	<0.015	<0.015	< 0.0015	<0.015
MTBE	0.100	(1)	---	---	---	---	---	< 0.001	< 0.001	<0.005	---	---	---	---	---	---	---	0.39	0.41	0.28	0.41	0.460
<b>Total Petroleum Hydrocarbons (mg/L)</b>																						
Diesel Range Organics	0.0167	(2)	---	---	---	---	---	13	4.2	2.5	---	---	---	---	---	---	---	86	3.8	28.0	5.0	12
Gasoline Range Organics	0.0101	(2)	---	---	---	---	---	2.1	2.9	3.2	---	---	---	---	---	---	---	1.5	1.5	1.8	1.00	1.8
Motor Oil Range Organics	0.0858	(2)	---	---	---	---	---	< 5	< 2.5	<2.5	---	---	---	---	---	---	---	<5	<2.5	<2.5	< 2.5	< 2.5

**TABLE 7**  
**Collection and Observation Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Constituents				OW 3+85								OW 19+50											
				Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15
<b>Volatile Organic Compounds (mg/L)</b>																							
Benzene	0.005	(1)		---	---	---	< 0.001	---	< 0.001	<0.010	<0.010	< 0.001	---	< 0.001	< 0.001	---	---	---	< 0.001	---	---	---	---
Toluene	1.000	(1)		---	---	---	< 0.001	---	< 0.001	<0.010	<0.010	< 0.001	---	< 0.001	< 0.001	---	---	---	< 0.001	---	---	---	---
Ethylbenzene	0.700	(1)		---	---	---	< 0.001	---	<b>0.00067J</b>	<b>0.011</b>	<b>0.011</b>	< 0.001	---	< 0.001	< 0.001	---	---	---	< 0.001	---	---	---	---
Xylene	0.620	(1)		---	---	---	< 0.015	---	< 0.0015	<0.0015	<0.0015	< 0.015	---	< 0.0015	< 0.0015	---	---	---	< 0.0015	---	---	---	---
MTBE	0.100	(1)		---	---	---	< 0.001	---	< 0.001	<0.010	<0.010	< 0.001	---	<b>0.0051</b>	<b>0.130</b>	---	---	---	<b>0.0025</b>	---	---	---	---
<b>Total Petroleum Hydrocarbons (mg/L)</b>																							
Diesel Range Organics	0.0167	(2)		---	---	---	<b>7.9</b>	---	<b>75</b>	<b>9</b>	<b>56</b>	<b>12.0</b>	---	<b>0.19 J</b>	<0.40	---	---	---	<b>7.9</b>	---	---	---	---
Gasoline Range Organics	0.0101	(2)		---	---	---	<2.5	---	<b>4.2</b>	<b>3.1</b>	<b>14</b>	<b>4.7</b>	---	<2.5	<b>0.077</b>	---	---	---	< 0.050	---	---	---	---
Motor Oil Range Organics	0.0858	(2)		---	---	---	<b>3.7</b>	---	<b>7.2</b>	<2.5	<25	< 2.5	---	<0.050	<2.5	---	---	---	<5	---	---	---	---

Constituents				OW 5+50								OW 22+00											
				Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15
<b>Volatile Organic Compounds (mg/L)</b>																							
Benzene	0.005	(1)		---	---	---	---	---	< 0.001	---	---	---	---	< 0.001	< 0.001	---	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001
Toluene	1.000	(1)		---	---	---	---	---	< 0.001	---	---	---	---	< 0.001	< 0.001	---	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001
Ethylbenzene	0.700	(1)		---	---	---	---	---	< 0.001	---	---	---	---	< 0.001	< 0.001	---	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	<0.001
Xylene	0.620	(1)		---	---	---	---	---	< 0.0015	---	---	---	---	< 0.0015	< 0.0015	---	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0015	<0.0015
MTBE	0.100	(1)		---	---	---	---	---	<b>0.00039J</b>	---	---	---	---	<b>0.0012</b>	< 0.001	---	<b>0.0059</b>	<b>0.0057</b>	<b>0.00029J</b>	< 0.001	<b>0.018</b>	< 0.001	<0.001
<b>Total Petroleum Hydrocarbons (mg/L)</b>																							
Diesel Range Organics	0.0167	(2)		---	---	---	---	---	<b>370</b>	---	---	---	---	<0.40	<0.40	---	< 0.40	< 0.20	<b>3.1</b>	< 0.20	< 0.20	< 0.20	<b>0.24</b>
Gasoline Range Organics	0.0101	(2)		---	---	---	---	---	<b>0.12</b>	---	---	---	---	<0.05	<0.05	---	<0.05	<0.05	< 0.050	<0.05	< 0.05	< 0.05	< 0.050
Motor Oil Range Organics	0.0858	(2)		---	---	---	---	---	<b>70</b>	---	---	---	---	<2.5	<2.5	---	<2.5	<2.5	<5	<2.5	<2.5	< 2.5	< 2.5

Constituents				OW 6+70								OW 23+10											
				Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15
<b>Volatile Organic Compounds (mg/L)</b>																							
Benzene	0.005	(1)		---	---	---	---	---	---	---	---	---	---	---	---	< 0.001	---	---	< 0.001	< 0.001	< 0.001	< 0.001	<0.001
Toluene	1.000	(1)		---	---	---	---	---	---	---	---	---	---	---	---	< 0.001	---	---	< 0.001	< 0.001	< 0.001	< 0.001	<0.001
Ethylbenzene	0.700	(1)		---	---	---	---	---	---	---	---	---	---	---	---	< 0.001	---	---	< 0.001	< 0.001	< 0.001	< 0.001	<0.001
Xylene	0.620	(1)		---	---	---	---	---	---	---	---	---	---	---	---	< 0.0015	---	---	< 0.0015	< 0.0015	< 0.0015	< 0.0015	<0.0015
MTBE	0.100	(1)		---	---	---	---	---	---	---	---	---	---	---	---	<b>0.00045 J</b>	---	---	<b>0.0014</b>	< 0.001	<b>0.012</b>	< 0.001	<0.001
<b>Total Petroleum Hydrocarbons (mg/L)</b>																							
Diesel Range Organics	0.0167	(2)		---	---	---	---	---	---	---	---	---	---	---	---	<0.40	---	---	<b>1.8</b>	<b>0.27</b>	< 0.20	<b>0.52</b>	< 0.20
Gasoline Range Organics	0.0101	(2)		---	---	---	---	---	---	---	---	---	---	---	---	<b>0.12</b>	---	---	<b>0.084</b>	<0.05	< 0.05	< 0.05	< 0.050
Motor Oil Range Organics	0.0858	(2)		---	---	---	---	---	---	---	---	---	---	---	---	<2.5	---	---	<5	<2.5	<2.5	< 2.5	< 2.5

**TABLE 7**  
**Collection and Observation Wells Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Constituents			OW 8+10										OW 23+90									
			Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15
<b>Volatile Organic Compounds (mg/L)</b>																						
Benzene	0.005	(1)	< 0.001	< 0.001	---	---	< 0.001	< 0.001	< 0.001	---	---	---	< 0.001	< 0.001	---	---	---	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	1.000	(1)	< 0.001	< 0.001	---	---	< 0.001	< 0.001	< 0.001	---	---	---	< 0.001	< 0.001	---	---	---	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.700	(1)	< 0.001	< 0.001	---	---	< 0.001	< 0.001	< 0.001	---	---	---	< 0.001	< 0.001	---	---	---	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Xylene	0.620	(1)	< 0.0015	< 0.0015	---	---	< 0.0015	< 0.0015	< 0.0015	---	---	---	< 0.0015	< 0.0015	---	---	---	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0015
MTBE	0.100	(1)	0.0016	0.0054	---	---	0.0012	0.0018	0.0047	---	---	---	< 0.001	< 0.001	---	---	---	0.0004J	< 0.001	< 0.001	< 0.001	< 0.001
<b>Total Petroleum Hydrocarbons (mg/L)</b>																						
Diesel Range Organics	0.0167	(2)	< 0.40	0.44	---	---	0.22	5.7	< 0.20	---	---	---	---	---	---	---	---	1.4	< 0.20	< 0.20	< 0.20	< 0.20
Gasoline Range Organics	0.0101	(2)	< 0.050	< 0.05	---	---	< 0.05	< 0.05	< 0.05	---	---	---	0.027 J	---	---	---	---	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Motor Oil Range Organics	0.0858	(2)	< 2.5	< 2.5	---	---	< 5	< 5	< 2.5	---	---	---	---	---	---	---	---	< 5	< 2.5	< 2.5	< 2.5	< 2.5

Constituents			OW 11+15										OW 25+70									
			Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15
<b>Volatile Organic Compounds (mg/L)</b>																						
Benzene	0.005	(1)	---	---	---	---	---	4.4	3.9	3.8	2.5	1.7	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Toluene	1.000	(1)	---	---	---	---	---	0.0014J	< 0.020	< 0.020	< 0.020	< 0.050	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Ethylbenzene	0.700	(1)	---	---	---	---	---	0.0096J	< 0.020	< 0.020	< 0.020	< 0.050	< 0.001	0.0013	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001	< 0.001
Xylene	0.620	(1)	---	---	---	---	---	< 0.030	< 0.030	< 0.030	< 0.030	< 0.075	0.49 J	< 0.0015	< 0.0015	< 0.0015	< 0.0015	< 0.0015	0.0026	< 0.0015	< 0.0015	< 0.0015
MTBE	0.100	(1)	---	---	---	---	---	0.32	0.31	0.22	0.48	0.64	< 0.001	< 0.001	0.0004 J	< 0.001	0.0014	0.0027	< 0.001	< 0.001	< 0.001	< 0.001
<b>Total Petroleum Hydrocarbons (mg/L)</b>																						
Diesel Range Organics	0.0167	(2)	---	---	---	---	---	120	540	110	54	94	< 0.40	< 0.40	< 0.40	< 0.40	< 0.20	< 1.0	< 0.20	< 0.20	< 0.20	< 0.20
Gasoline Range Organics	0.0101	(2)	---	---	---	---	---	13	12	14	4.5	0.3	0.052	0.12	0.14	0.10	0.091	0.10	0.078	0.13	< 0.05	0.12
Motor Oil Range Organics	0.0858	(2)	---	---	---	---	---	< 50	< 25	< 25	< 25	< 25	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 5	< 2.5	< 2.5	< 2.5	< 2.5

**Notes:**

(1) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3103 Standards for Ground Water of 10,000 mg/l TDS Concentration or less (December 2018)

(2) NMED SSG (June 2019)

-	= No screening level available
*	= Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
---	= Analysis not required and/or well contains separate phase
	= Analytical result exceeds the respective screening level.
**	= Columns hidden when there are 4 or more consecutive years recorded that analysis was not required and/or the well contained separate phase

**TABLE 8**  
**Outfalls Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Constituents			East Outfall #2									East Outfall #3									
			Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	May-16	Aug-15	Apr-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	May-16	Aug-15	Apr-15
<b>Volatile Organic Compounds (mg/L)</b>																					
Benzene	0.005	(3)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	1.000	(3)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	0.700	(3)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Xylene	0.620	(3)	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015
MTBE	0.100	(3)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
<b>General Chemistry (mg/L)</b>																					
Fluoride	1.6	(3)	0.48 J	<0.50	0.43	--	0.42	0.46	0.18	0.17	0.52	0.35	<0.50	0.16	--	0.18	0.23	0.19	0.18	0.18	0.22
Chloride	250	(3)	12	15	4.4	--	9.5	8.4	3.4	2.7	8.6	14	14	3.1	--	4.1	18	3.4	3.8	3.6	4.4
Nitrite	1	(3)	1.5	<0.50	<1.0	--	1.6	1.4	< 0.10	< 0.10	0.13	1.6	<0.50	0.48 J	--	0.59 J	2.4	< 1.0	< 0.10	< 0.10	< 0.10
Bromide	-	-	<0.50	<0.50	0.074 J	--	0.13	< 0.10	< 0.10	< 0.10	< 0.10	0.12	<0.50	0.041 J	--	0.036 J	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Nitrate	10	(3)	1.5	3.5	<1.0	--	1.6	1.4	0.17	0.54	0.71	1.6	3.3	0.48 J	--	0.59 J	2.4	< 1.0	0.22	0.47	0.21
Phosphorus	-	-	<2.5 H	<2.5	0.64 H	--	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	<0.50 H	<2.5	0.33 JH	--	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Sulfate	600	(3)	220	250	58	--	190	89	45	42	88	190	250	44	--	51	120	48	44	47	54
Carbon Dioxide (CO <sub>2</sub> )	-	-	300 H	310	210	330	310	320	90	78	-	290	300	86	300	110	240	84	87	85	-
Alkalinity (CaCO <sub>3</sub> )	-	-	333.2	323	233.9	354.6	343.7	343.1	97.96	85.24	344.8	324.4	318.1	93.12	319.9	126.5	253.5	94	95.28	95.16	111
Bicarbonate (CaCO <sub>3</sub> )	-	-	333.2	323	233.9	354.6	343.7	343.1	97.96	85.24	344.8	324.4	318.1	93.12	319.9	126.5	253.5	94	95.28	95.16	111
<b>Total Metals (mg/L)</b>																					
Arsenic	0.01	(3)	< 0.020	< 0.020	< 0.020	< 0.020	0.02	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Barium	2.0	(3)	0.064	0.077	0.060	0.11	0.23	0.066	0.09	0.063	0.087	0.048	0.063	0.07	0.10	0.076	0.08	0.072	0.074	0.065	0.063
Cadmium	0.005	(3)	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Chromium	0.05	(3)	< 0.0060	< 0.0060	< 0.0060	< 0.0060	0.021	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060
Lead	0.015	(3)	< 0.0050	< 0.0050	< 0.0050	0.0054	< 0.0050	< 0.0050	0.0057	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0052	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Selenium	0.05	(3)	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Silver	0.05	(3)	0.0027 J	< 0.0050	< 0.0050	0.0056	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0023 J	< 0.0050	< 0.0050	0.0059	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Mercury	0.002	(3)	< 0.00020	< 0.00020	0.000085 J	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	0.000060 J	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020	< 0.00020
<b>Dissolved Metals (mg/L)</b>																					
Arsenic	0.01	(2)	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.0010	0.001	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.0010	0.001	< 0.020
Barium	1.0	(3)	0.063	0.082	0.055	0.065	0.095	0.066	0.068	0.06	0.089	0.049	0.064	0.065	0.09	0.067	0.08	0.069	0.072	0.062	0.062
Cadmium	0.005	(2)	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020	< 0.0020
Calcium	-	-	110	140	74	110	120	98	37	30	100	110	140	36	130	45	92	34	35	33	41
Chromium	0.05	(3)	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0050	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060
Copper	1	(3)	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.050	< 0.0060	< 0.0060	< 0.0060	< 0.0060	0.0030 J	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060	< 0.0060
Iron	1	(3)	0.0056 J	< 0.020	< 0.020	< 0.020	0.023	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	0.0066 J	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Lead	0.015	(2)	0.0075	< 0.0050	< 0.0050	< 0.0050	< 0.00020	< 0.0050	< 0.00050	< 0.00050	< 0.0050	0.0066	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.00050	< 0.00050	< 0.0050
Magnesium	-	-	25	27	14	22	26	21	6.2	5.2	21	25	26	6.2	25	8.2	16	6	5.8	5.9	7.1
Manganese	0.2	(3)	0.00074 J	<0.0020	0.0043	<0.0020	0.076	0.0054	0.009	0.0021	0.011	<0.0020	<0.0020	0.0013 J	<0.0020	0.0031	< 0.0020	0.0032	0.0028	0.0031	< 0.0020
Potassium	-	-	1.7	2.0	1.0	1.4	2.1	1.6	1.6	1.7	1.4	2.0	1.9	1.8	2.2	1.8	2.1	1.9	1.6	1.8	1.9
Selenium	0.05	(3)	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.0010	< 0.0010	< 0.050
Silver	0.05	(3)	0.0021 J	< 0.0050	0.0024 J	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	0.0023 J	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Sodium	-	-	81	83	36	61	67	58	16	14	57	80	84	18	80	22	53	18	17	17	22
Uranium	0.03	(3)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.0050	< 0.10	0.0008	< 0.00050	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	0.0008	0.0007	< 0.10
Zinc	10	(3)	0.020 J	< 0.020	0.065	< 0.020	0.030	< 0.020	0.02	0.019	< 0.020	0.016 J	< 0.020	0.056	< 0.020	0.031	< 0.020	0.025	< 0.010	0.018	< 0.020

**Notes:**

- (1) EPA - Regional Screening Levels (November 2019) -Tap Water
- (2) EPA - Regional Screening Levels (April 2019) - MCL
- (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3103 Standards for Ground Water of 10,000 mg/l TDS Concentration or less (December 2018)
- (4) NMED Tap Water Screening Level - Risk Assessment Guidance for Site Investigations and Remediation (February 2019)
- (5) EPA Screening Level - Tap Water x 10 for carcinogenic compounds

-	= No screening level available or result available
*	= Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
J	= Analytical result exceeds the respective screening level.
**	= Columns hidden when there are 4 or more consecutive years recorded that analysis was not required and/or the well contained separate phase



**TABLE 10**  
**San Juan River Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Constituents			Upstream										North of MW-45									
			Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15
<b>Volatile Organic Compounds (mg/L):</b>																						
Benzene	0.005	(1)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Toluene	1.000	(1)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Ethylbenzene	0.700	(1)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Xylenes	0.620	(1)	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	
MTBE	0.100	(1)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
<b>Total Petroleum Hydrocarbons (mg/L):</b>																						
Diesel Range Organics	0.0167	(2)	<0.40	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
Gasoline Range Organics	0.0101	(2)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Motor Oil Range Organics	0.0858	(2)	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	
<b>General Chemistry (mg/L):</b>																						
Fluoride	1.6	(1)	<b>0.21 J</b>	<b>&lt;1.0</b>	<b>0.13</b>	<b>0.15</b>	<b>0.13</b>	<b>0.17</b>	<b>0.16</b>	<b>0.2</b>	<b>0.17</b>	<b>0.21</b>	<b>0.19</b>	<1.0	<b>0.14</b>	<b>0.15</b>	<b>0.12</b>	<b>0.17</b>	<b>0.15</b>	<b>0.2</b>	<b>0.17</b>	<b>0.2</b>
Chloride	250	(1)	<b>3.6</b>	<b>5.4</b>	<b>2.5</b>	<b>2.8</b>	<b>3.4</b>	<b>3.5</b>	<b>2.7</b>	<b>3.3</b>	<b>3</b>	<b>4.3</b>	<b>3.6</b>	<b>5.5</b>	<b>2.7</b>	<b>2.8</b>	<b>2.8</b>	<b>3.5</b>	<b>2.7</b>	<b>3.3</b>	<b>2.9</b>	<b>3.8</b>
Nitrite	1.0	(1)	<b>0.13 J</b>	<1.0	<0.10	<1.0	<0.10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromide	-	-	<0.50	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrate	10	(1)	<b>0.13 J</b>	<1.0	<0.10	<1.0	<b>0.18</b>	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Phosphorus	-	-	<0.50 H	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50 H	<5 H	<0.50	<0.50 H	<0.50	<0.50	<0.50	<0.50	<0.50
Sulfate	600	(1)	<b>49</b>	<b>92</b>	<b>43</b>	<b>50</b>	<b>46</b>	<b>73</b>	<b>49</b>	<b>75</b>	<b>54</b>	<b>110</b>	<b>50</b>	<b>94</b>	<b>42</b>	<b>49</b>	<b>45</b>	<b>71</b>	<b>48</b>	<b>78</b>	<b>52</b>	<b>92</b>
Carbon Dioxide (CO <sub>2</sub> )	-	-	<b>79 H</b>	<b>87 H</b>	---	<b>76</b>	<b>77</b>	<b>71</b>	<b>77</b>	<b>86</b>	---	---	<b>80 H</b>	<b>86 H</b>	---	<b>75 H</b>	<b>75</b>	<b>71</b>	<b>76</b>	<b>86</b>	---	---
Alkalinity (CaCO <sub>3</sub> )	-	-	<b>87.56</b>	<b>95.56</b>	<b>82.16</b>	<b>84.2</b>	<b>85.68</b>	<b>91.24</b>	<b>86</b>	<b>95</b>	<b>91.56</b>	<b>99.56</b>	<b>88.72</b>	<b>95.48</b>	<b>82.08</b>	<b>84.32</b>	<b>84.16</b>	<b>91.12</b>	<b>84.8</b>	<b>95.44</b>	<b>91</b>	<b>99.68</b>
Total Dissolved Solids	1000	(1)	<b>245</b>	<b>278</b>	<b>294</b>	<b>235</b>	<b>181</b>	<b>167</b>	<b>178</b>	<b>240</b>	<b>204</b>	<b>232</b>	<b>187</b>	<b>271</b>	<b>205</b>	<b>210</b>	<b>176</b>	<b>166</b>	<b>180</b>	<b>246</b>	<b>200</b>	<b>267</b>
Electric Conductivity	-	-	<b>310</b>	<b>427</b>	<b>454</b>	<b>360</b>	<b>280</b>	<b>250</b>	<b>290</b>	<b>380</b>	<b>300</b>	<b>357</b>	<b>310</b>	<b>417</b>	<b>314</b>	<b>320</b>	<b>280</b>	<b>260</b>	<b>280</b>	<b>380</b>	<b>300</b>	<b>411</b>
<b>Total Metals (mg/L):</b>																						
Arsenic	0.01	(1)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Barium	2.0	(1)	<b>0.10</b>	<b>0.14</b>	<b>0.16</b>	<b>0.079</b>	<b>0.099</b>	<b>0.079</b>	<b>0.11</b>	<b>0.08</b>	<b>0.16</b>	<b>0.061</b>	<b>0.12</b>	<b>0.19</b>	<b>0.17</b>	<b>0.13</b>	<b>0.11</b>	<b>0.085</b>	<b>0.14</b>	<b>0.08</b>	<b>0.15</b>	<b>0.06</b>
Cadmium	0.005	(1)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Chromium	0.05	(1)	<b>0.0026 J</b>	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<b>0.0015 J</b>	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
Lead	0.015	(1)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<b>0.0043 J</b>	<0.0050	<b>0.0056</b>	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Selenium	0.05	(1)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Silver	0.05	(1)	<b>0.00084 J</b>	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<b>0.00077 J</b>	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Mercury	0.002	(1)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
<b>Dissolved Metals (mg/L):</b>																						
Arsenic	0.01	(1)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.0010	<b>0.001</b>	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.0010	<0.0010	<0.020	<0.020
Barium	2	(1)	<b>0.078</b>	<b>0.076</b>	<b>0.066</b>	<b>0.058</b>	<b>0.072</b>	<b>0.07</b>	<b>0.084</b>	<b>0.072</b>	<b>0.077</b>	<b>0.056</b>	<b>0.079</b>	<b>0.074</b>	<b>0.065</b>	<b>0.055</b>	<b>0.069</b>	<b>0.07</b>	<b>0.082</b>	<b>0.073</b>	<b>0.072</b>	<b>0.056</b>
Cadmium	0.005	(1)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Calcium	-	-	<b>32</b>	<b>39</b>	<b>30</b>	<b>32</b>	<b>33</b>	<b>37</b>	<b>34</b>	<b>39</b>	<b>33</b>	<b>45</b>	<b>33</b>	<b>40</b>	<b>30</b>	<b>32</b>	<b>32</b>	<b>36</b>	<b>34</b>	<b>39</b>	<b>35</b>	<b>44</b>
Chromium	0.05	(1)	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
Copper	1.0	(1)	<b>0.0033 J</b>	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<b>0.011</b>	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
Iron	1.0	(1)	<b>0.0089 J</b>	0.074	<0.020	<0.020	<b>0.015 J</b>	<0.020	<b>0.29</b>	<0.020	<b>0.062</b>	<0.020	<b>0.0096 J</b>	<b>0.057</b>	<0.020	<0.020	<b>0.011 J</b>	<b>0.07</b>	<b>0.32</b>	<0.020	<b>0.028</b>	<0.020
Lead	0.015	(1)	<b>0.0063</b>	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Magnesium	-	-	<b>6.5</b>	<b>7.3</b>	<b>5.3</b>	<b>5.7</b>	<b>5.9</b>	<b>6.4</b>	<b>5.5</b>	<b>5.9</b>	<b>5.4</b>	<b>7.1</b>	<b>6.5</b>	<b>7.3</b>	<b>5.2</b>	<b>5.7</b>	<b>5.7</b>	<b>6.4</b>	<b>5.6</b>	<b>6.1</b>	<b>5.5</b>	<b>6.8</b>
Manganese	0.2	(1)	<b>0.0057</b>	<b>0.017</b>	<b>0.0022</b>	<b>0.0074</b>	<b>0.0095</b>	<b>0.021</b>	<b>0.03</b>	<b>0.012</b>	<b>0.01</b>	<b>0.034</b>	<b>0.0064</b>	<b>0.013</b>	<b>0.0028</b>	<b>0.0065</b>	<b>0.008</b>	<b>0.019</b>	<b>0.033</b>	<b>0.011</b>	<b>0.0037</b>	<b>0.01</b>
Potassium	-	-	<b>2.1</b>	<b>2.2</b>	<b>1.6</b>	<b>1.7</b>	<b>1.9</b>	<b>1.9</b>	<b>2.1</b>	<b>1.7</b>	<b>1.9</b>	<b>2.1</b>	<b>2.2</b>	<b>2.1</b>	<b>1.7</b>	<b>1.8</b>	<b>1.8</b>	<b>2</b>	<b>2.3</b>	<b>1.8</b>	<b>2</b>	<b>2.2</b>
Selenium	0.05	(1)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.0010	<0.0010	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.0010	<0.0010	<0.050
Silver	0.05	(1)	<b>0.0013 J</b>	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Sodium	-	-	<b>17</b>	<b>29</b>	<b>15</b>	<b>20</b>	<b>17</b>	<b>26</b>	<b>19</b>	<b>26</b>	<b>19</b>	<b>39</b>	<b>17</b>	<b>30</b>	<b>15</b>	<b>20</b>	<b>16</b>	<b>25</b>	<b>20</b>	<b>27</b>	<b>18</b>	<b>34</b>
Uranium	0.03	(1)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<b>0.00076</b>	<b>0.00062</b>	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<b>0.00076</b>	<b>0.00066</b>	<0.10
Zinc	10	(1)	<b>0.021</b>	<0.020	<b>0.086</b>	<0.020	<b>0.033</b>	<0.020	<b>0.024</b>	<b>0.016</b>	<b>0.021</b>	<0.020	<b>0.018 J</b>	<0.020	<b>0.11</b>	<0.020	<b>0.031</b>	<0.020	<0.020	<b>0.014</b>	<b>0.018</b>	<b>0.05</b>

**Notes:**

**TABLE 10**  
**San Juan River Analytical Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Constituents	North of MW-46											Downstream										
	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15	Aug-19	Apr-19	Aug-18	Apr-18	Aug-17	Apr-17	Aug-16	Apr-16	Aug-15	Apr-15		
<b>Volatile Organic Compounds (mg/L):</b>																						
Benzene	0.005	(1)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Toluene	1.000	(1)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Ethylbenzene	0.700	(1)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
Xylenes	0.620	(1)	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	
MTBE	0.100	(1)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	
<b>Total Petroleum Hydrocarbons (mg/L):</b>																						
Diesel Range Organics	0.0167	(2)	<0.40	<0.40	<0.40	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	
Gasoline Range Organics	0.0101	(2)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	
Motor Oil Range Organics	0.0858	(2)	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	
<b>General Chemistry (mg/L):</b>																						
Fluoride	1.6	(1)	0.19	<1.0	0.14	0.15	0.13	0.19	0.15	0.19	0.17	0.21	0.19	0.20	0.14	0.15	0.12	0.17	0.16	0.19	0.17	0.21
Chloride	250	(1)	3.5	6.2	2.5	3	2.9	4.4	2.7	3.5	2.9	3.8	3.6	5.5	2.5	2.9	2.8	3.7	2.7	3.4	3	3.9
Nitrite	1.0	(1)	<1.0	<1.0	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<0.10	<0.10	0.13 J	<1.0	<1.0	<1.0	<0.10	<1.0	<1.0	<1.0	<0.10	<0.10
Bromide	-	-	<0.10	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrate	10	(1)	<1.0	<1.0	<1.0	<1.0	0.074 J	<1.0	<1.0	<1.0	<0.10	<0.10	0.13 J	<1.0	<1.0	0.082 J	<1.0	<1.0	<1.0	<1.0	<0.10	<0.10
Phosphorus	-	-	<0.50 H	<5.0 H	<0.50	<0.50 H	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50 H	<5.0 H	<0.50	<0.50 H	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Sulfate	600	(1)	50	130	43	59	45	120	49	80	53	93	52	110	44	58	45	80	49	84	54	100
Carbon Dioxide (CO <sub>2</sub> )	-	-	80	92	---	78	75	72	77	86	---	---	80 H	89 H	---	77 H	75	72	77	87	---	---
Alkalinity (CaCO <sub>3</sub> )	-	-	88.92	102.1	82.52	87.48	84.92	103.6	85	95	92	99.6	88.80	99.36	82.04	86.16	84.52	93	86	97	92.12	102.6
Total Dissolved Solids	1000	(1)	194	155	202	219	182	172	170	245	202	263	204	321	196	200	186	172	184	254	196	279
Electric Conductivity	-	-	310	239	309	340	280	260	280	380	310	405	310	494	302	319	280	260	290	400	300	429
<b>Total Metals (mg/L):</b>																						
Arsenic	0.01	(1)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Barium	2.0	(1)	0.15	0.14	0.13	0.074	0.086	0.082	0.11	0.078	0.17	0.057	0.15	0.19	0.11	0.078	0.091	0.078	0.12	0.082	0.130	0.058
Cadmium	0.005	(1)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Chromium	0.05	(1)	0.0046 J	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	0.0024 J	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
Lead	0.015	(1)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0058	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.0059	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Selenium	0.05	(1)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Silver	0.05	(1)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.00058 J	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Mercury	0.002	(1)	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020	<0.00020
<b>Dissolved Metals (mg/L):</b>																						
Arsenic	0.01	(1)	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.0010	<0.0010	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.0010	<0.001	<0.020
Barium	2	(1)	0.081	0.074	0.065	0.057	0.071	0.067	0.086	0.074	0.074	0.062	0.080	0.076	0.065	0.058	0.07	0.068	0.085	0.072	0.077	0.055
Cadmium	0.005	(1)	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020	<0.0020
Calcium	-	-	34	47	31	35	33	48	34	40	36	44	33	44	31	35	33	40	34	41	34	47
Chromium	0.05	(1)	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
Copper	1.0	(1)	0.0062	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060	<0.0060
Iron	1.0	(1)	0.010 J	0.037	0.021	0.033	0.014 J	<0.020	0.36	0.022	0.085	0.028	0.012 J	0.070	0.023	<0.020	0.010 J	<0.020	0.31	0.031	0.086	<0.020
Lead	0.015	(1)	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Magnesium	-	-	6.6	8	5.2	5.9	5.8	7.1	5.5	6.1	5.6	6.7	6.5	7.7	5.2	5.9	5.8	6.5	5.5	6.2	5.4	7.2
Manganese	0.2	(1)	0.0066	0.10	0.0079	0.044	0.0091	0.098	0.032	0.010	0.009	0.011	0.0053	0.026	0.0041	0.016	0.012	0.029	0.032	0.029	0.011	0.062
Potassium	-	-	2.3	2.2	1.7	1.7	1.9	2	2.2	1.9	2	2.2	2.2	2.2	1.6	1.7	1.8	1.9	2.3	1.9	1.9	2.1
Selenium	0.05	(1)	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.0010	<0.0010	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.0010	<0.001	<0.050
Silver	0.05	(1)	0.0013 J	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Sodium	-	-	18	36	15	22	16	34	19	27	18	33	17	35	15	22	16	27	19	29	18	37
Uranium	0.03	(1)	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.00078	0.00067	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.00084	0.0006	<0.10
Zinc	10	(1)	0.034	<0.020	0.081	<0.020	0.031	0.02	<0.020	0.024	0.028	0.023	0.026	<0.020	0.040	<0.020	0.033	<0.020	<0.020	0.013	0.03	<0.020

**Notes:**

(1) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3103 Standards for Ground Water of 10,000 mg/l TDS Concentration or less (December 2018)

(2) NMED SSG (June 2019)

- = No screening level available

\* = Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time

--- = Analysis not required and/or well contains separate phase

= Analytical result exceeds the respective screening level.

\*\* = Columns hidden when there are 4 or more consecutive years recorded that analysis was not required and/or the well contained separate phase

**TABLE 11**  
**Wastewater Volumes**  
**2019 Groundwater Remediation and Monitoring Annual Report**

<b>2019</b>	<b>API Monthly Total Gallons</b>	<b>API Monthly Total BBLs</b>	<b>Injection well Total (gallons)</b>	<b>Injection well Total BBLs</b>	<b>Discharge to Evaporation Ponds Total BBLs</b>
January	673,000	16,024	218,274	5,197	10,827
February	789,000	18,786	210,252	5,006	13,780
March	1,156,000	27,524	165,858	3,949	23,575
April	885,000	21,071	170,856	4,068	17,003
May	1,411,000	33,595	0	0	33,595
June	1,259,000	29,976	7,938	189	29,787
July	1,059,000	25,214	0	0	25,214
August	1,076,000	25,619	0	0	25,619
September	991,000	23,595	81,690	1,945	21,650
October	920,000	21,905	0	0	21,905
November	1,225,000	29,167	119,826	2,853	26,314
December	1,424,000	33,905	7,091	169	33,736

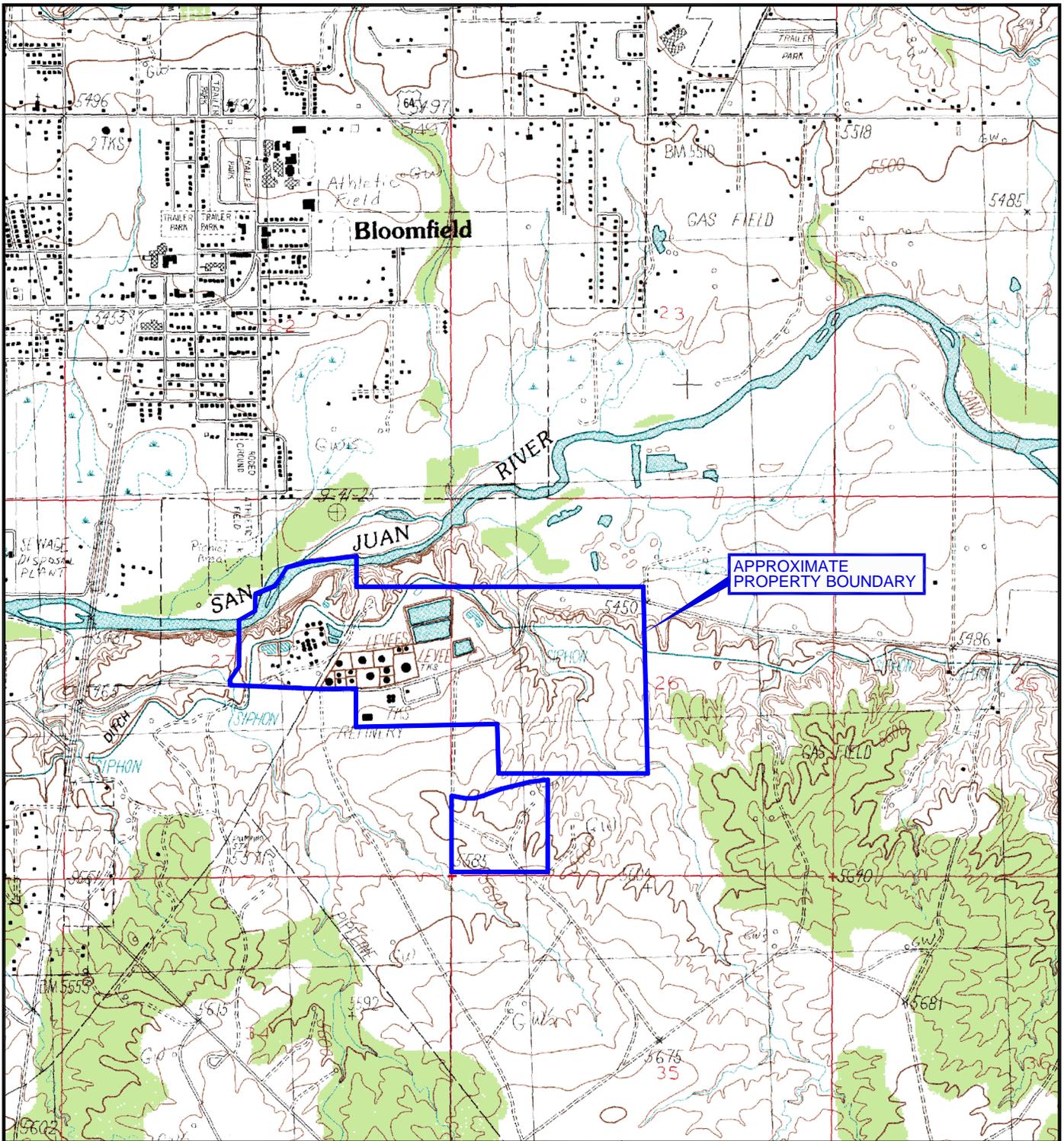
BBLs - barrels

283,005

**TABLE 12**  
**Hazardous Waste Summary**  
**2019 Groundwater Remediation and Monitoring Annual Report**

Pick-up Date	Manifest #	Description	Containers		Quantity	Destination	Treatment
			No.	Type			
10/15/2019	13217105	Petroleum Impacted Sludge	5	drums	3520 lbs	Clean Harbors Deer Park, LLC 2027 Independence Parkway South La Porte, TX, 77571	Incineration
10/15/2019	13217105	Old Paints	2	drums	660 lbs	Clean Harbors Deer Park, LLC 2027 Independence Parkway South La Porte, TX, 77571	Incineration
12/11/2019	12017680	Used Glycol from VRU	7	totes	16700 lbs	Heritage Environmental Services 284 E. Storey Rd Coolidge, AZ 85128	Transfer Storage

# FIGURES



Map Source: USGS 7.5 Min. Quad Sheet BLOOMFIELD, NM., 1985.



0 2000  
SCALE IN FEET



NEW MEXICO  
QUADRANGLE LOCATION

FACILITY SITE MAP  
BLOOMFIELD TERMINAL

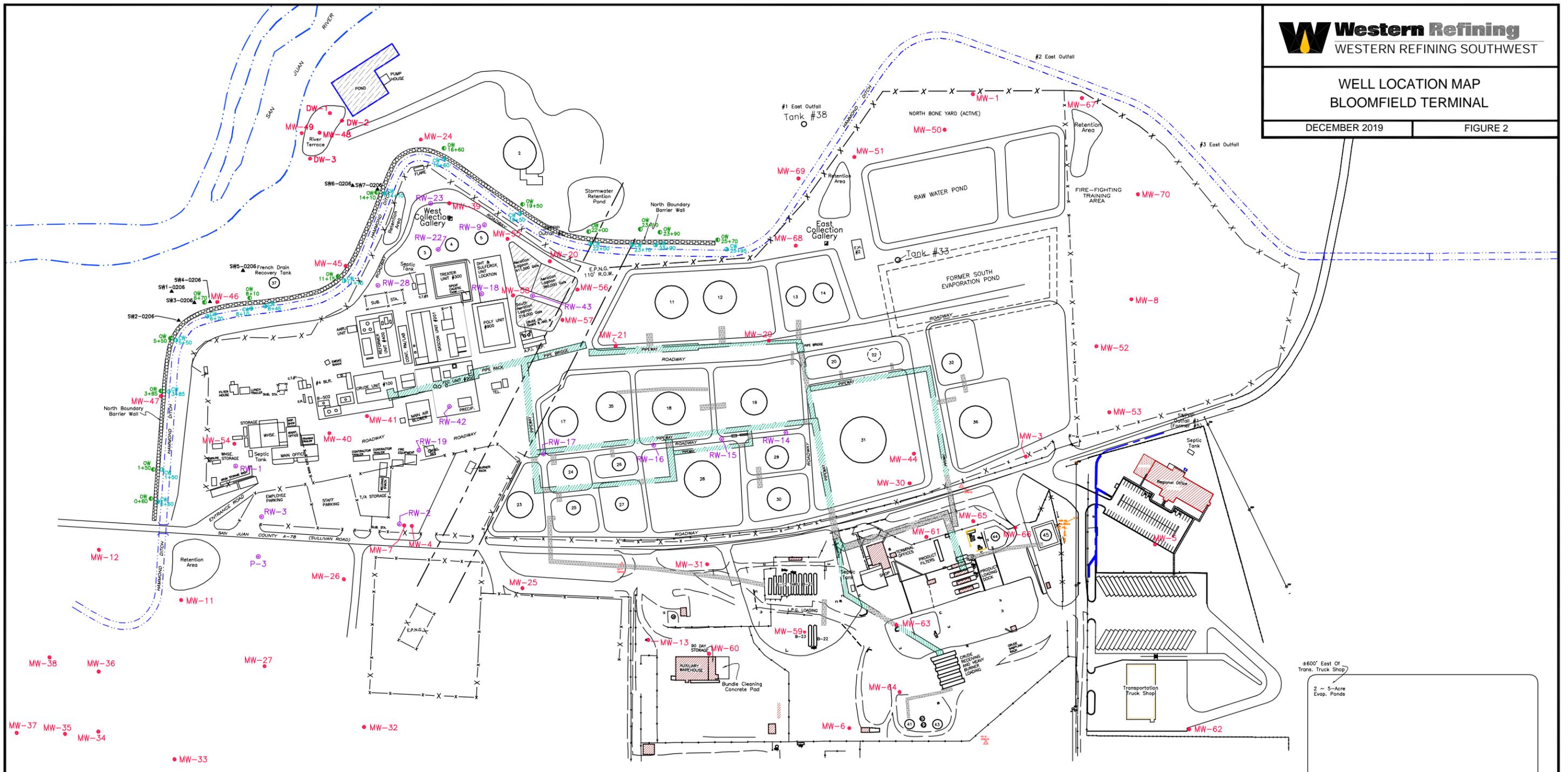
DECEMBER 2019

FIGURE 1

WELL LOCATION MAP  
BLOOMFIELD TERMINAL

DECEMBER 2019

FIGURE 2



**LEGEND**

- MW-1 ● MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- RW-1 ● RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- OW 1+50 ● OBSERVATION WELL LOCATION AND IDENTIFICATION NUMBER
- CW 1+50 ● COLLECTION WELL LOCATION AND IDENTIFICATION NUMBER
- SW1-0206 ▲ SUMP WELL LOCATION AND IDENTIFICATION NUMBER
- P-2 ● PIEZOMETER IDENTIFICATION SURFACE WATER DRAINAGE PATTERN

- UNDER GROUND PIPE-WAY
- ABOVE GROUND PIPE-WAY
- SLURRY BARRIER WALL
- FORMER TANK LOCATION



0 300  
SCALE IN FEET

±600' East Of  
Trans. Truck Shop  
2 ~ 5-Acre  
Evap. Ponds

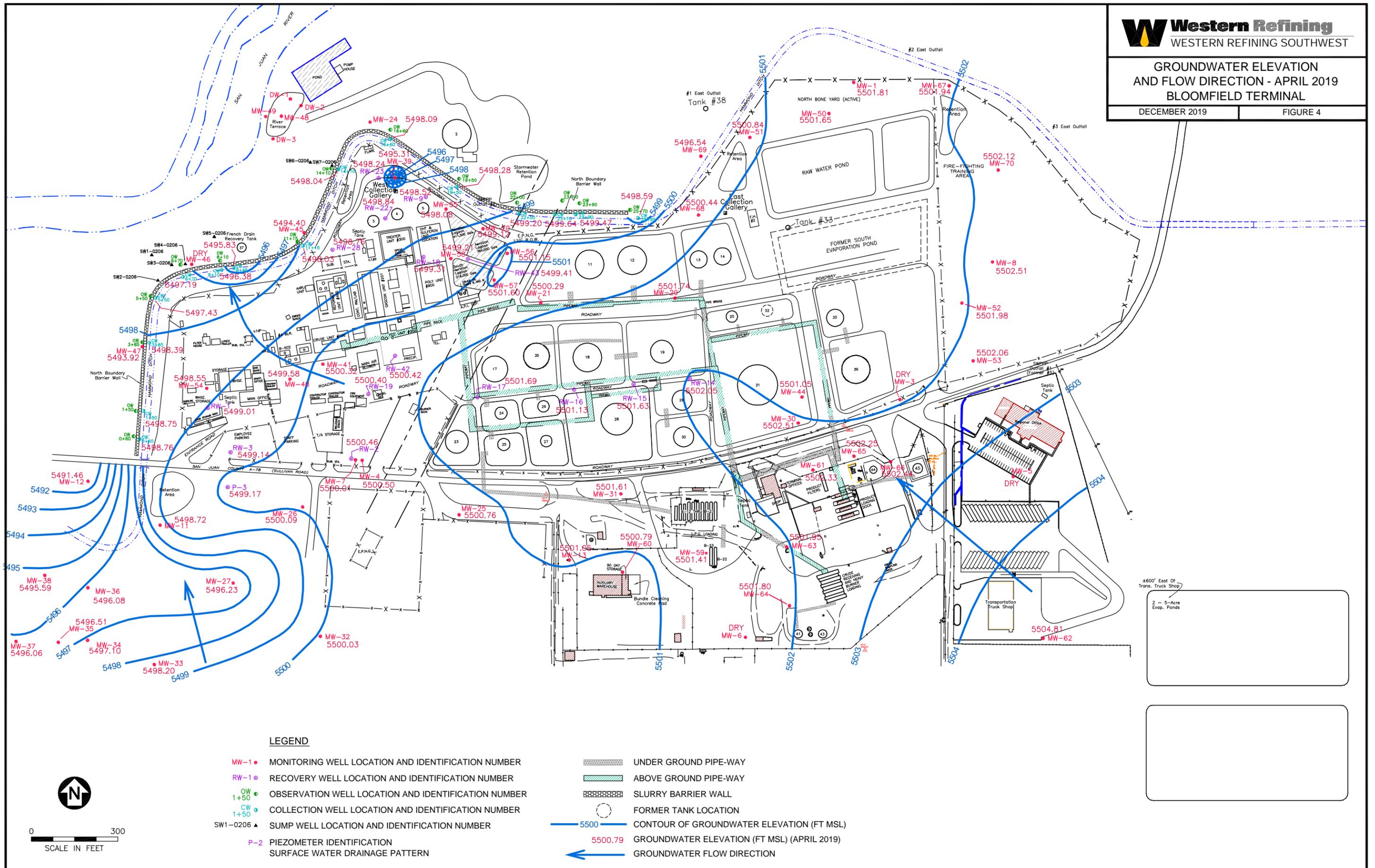




**GROUNDWATER ELEVATION  
AND FLOW DIRECTION - APRIL 2019  
BLOOMFIELD TERMINAL**

DECEMBER 2019

FIGURE 4



**LEGEND**

- |            |                                                     |  |                                                     |
|------------|-----------------------------------------------------|--|-----------------------------------------------------|
| MW-1 ●     | MONITORING WELL LOCATION AND IDENTIFICATION NUMBER  |  | UNDER GROUND PIPE-WAY                               |
| RW-1 ●     | RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER    |  | ABOVE GROUND PIPE-WAY                               |
| OW 1+50 ●  | OBSERVATION WELL LOCATION AND IDENTIFICATION NUMBER |  | SLURRY BARRIER WALL                                 |
| CW 1+50 ●  | COLLECTION WELL LOCATION AND IDENTIFICATION NUMBER  |  | FORMER TANK LOCATION                                |
| SW1-0206 ▲ | SUMP WELL LOCATION AND IDENTIFICATION NUMBER        |  | 5500 CONTOUR OF GROUNDWATER ELEVATION (FT MSL)      |
| P-2        | PIEZOMETER IDENTIFICATION                           |  | 5500.79 GROUNDWATER ELEVATION (FT MSL) (APRIL 2019) |
|            | SURFACE WATER DRAINAGE PATTERN                      |  | GROUNDWATER FLOW DIRECTION                          |

±600' East Of  
Trans. Truck Shop

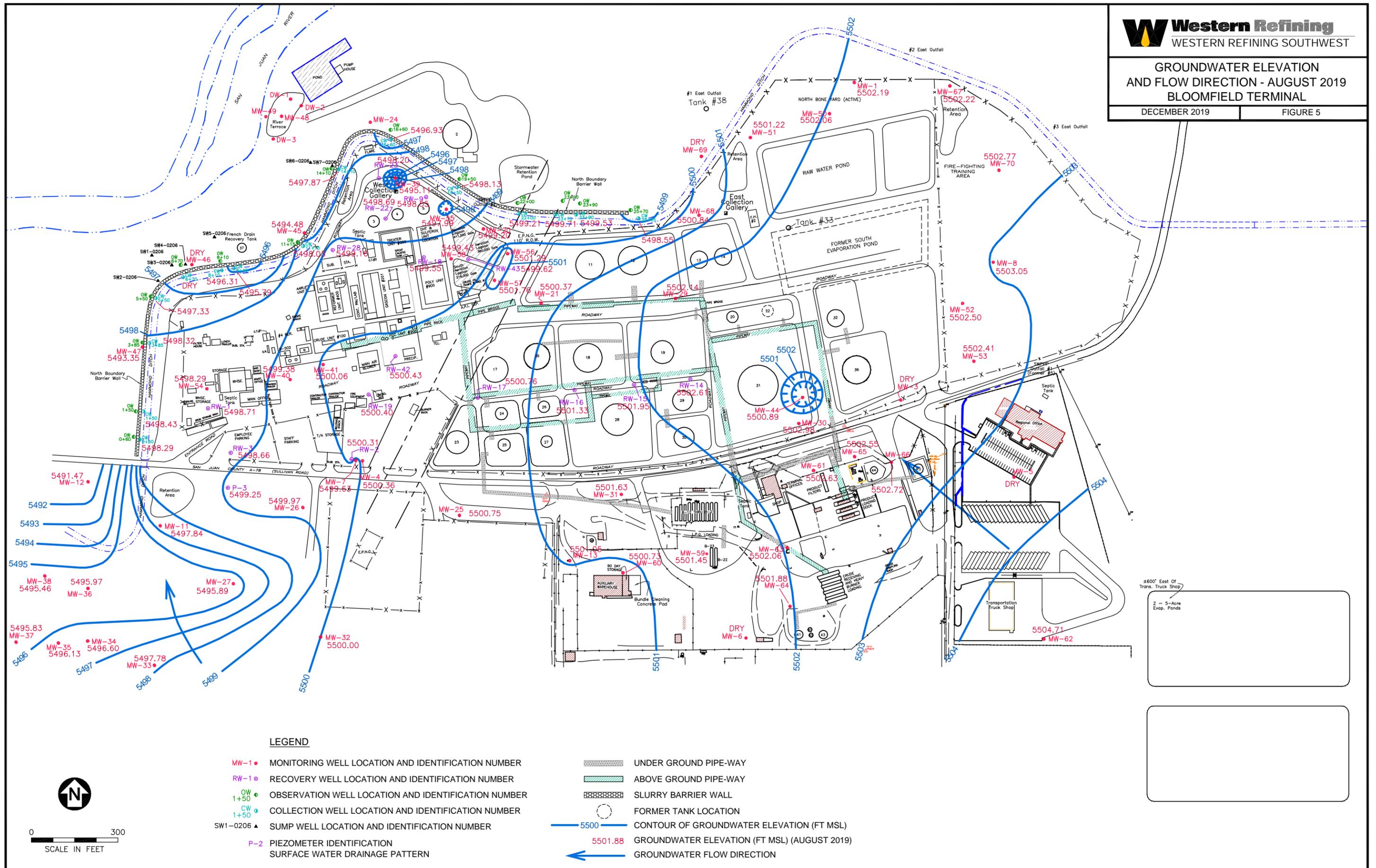
2 ~ 5-Acre  
Evap. Ponds



0 300  
SCALE IN FEET

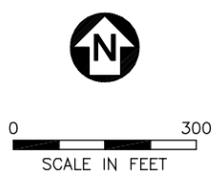
**GROUNDWATER ELEVATION  
AND FLOW DIRECTION - AUGUST 2019  
BLOOMFIELD TERMINAL**

DECEMBER 2019      FIGURE 5

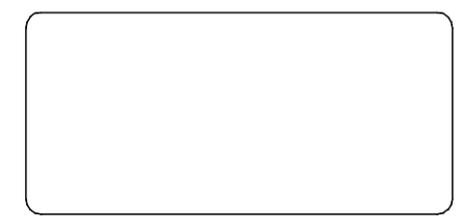


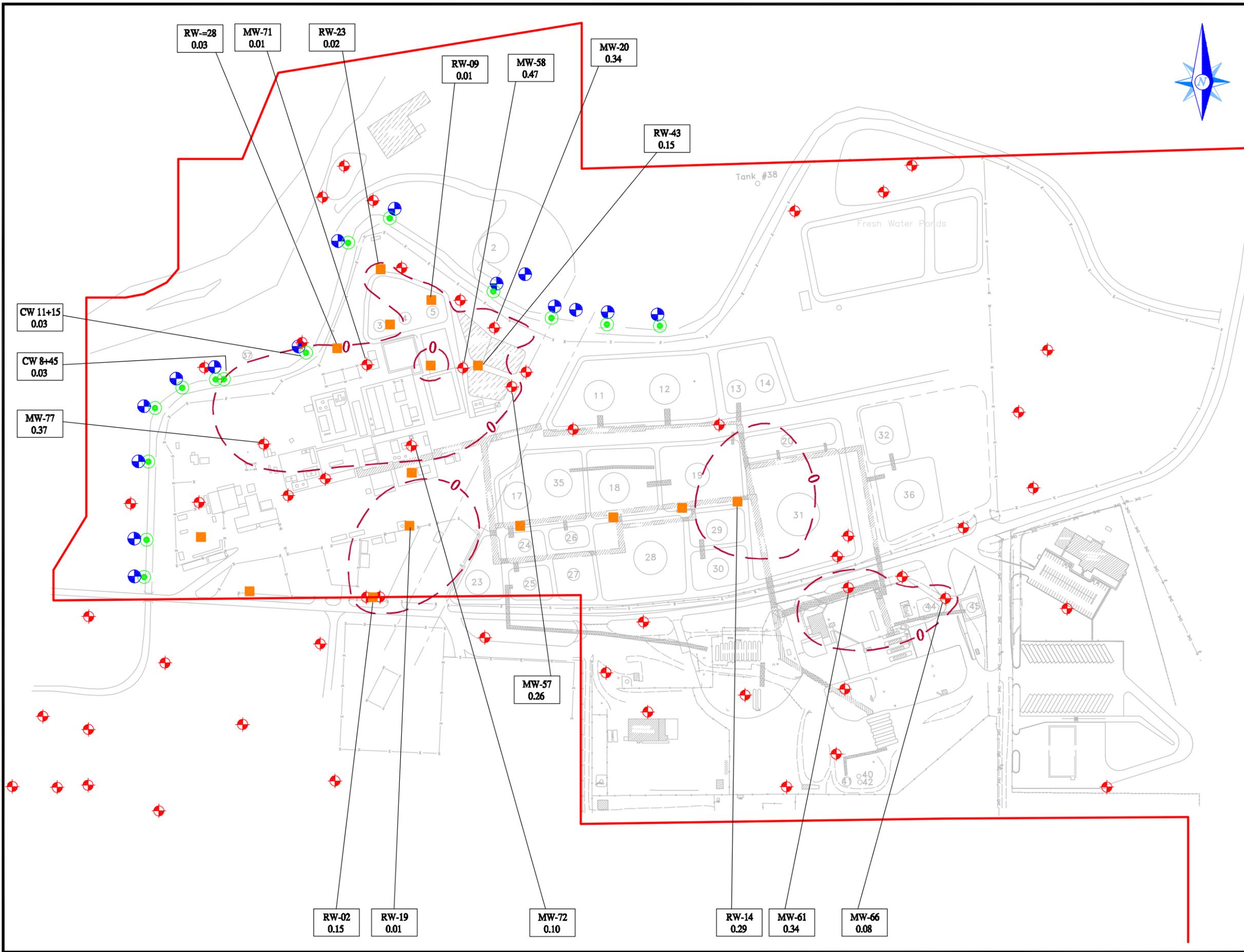
**LEGEND**

- MW-1 ● MONITORING WELL LOCATION AND IDENTIFICATION NUMBER
- RW-1 ● RECOVERY WELL LOCATION AND IDENTIFICATION NUMBER
- OW 1+50 ● OBSERVATION WELL LOCATION AND IDENTIFICATION NUMBER
- CW 1+50 ● COLLECTION WELL LOCATION AND IDENTIFICATION NUMBER
- SW1-0206 ▲ SUMP WELL LOCATION AND IDENTIFICATION NUMBER
- P-2 ▲ PIEZOMETER IDENTIFICATION
- 5500 — CONTOUR OF GROUNDWATER ELEVATION (FT MSL)
- 5501.88 GROUNDWATER ELEVATION (FT MSL) (AUGUST 2019)
- ← GROUNDWATER FLOW DIRECTION
- ▬ UNDER GROUND PIPE-WAY
- ▬ ABOVE GROUND PIPE-WAY
- ▬ SLURRY BARRIER WALL
- FORMER TANK LOCATION

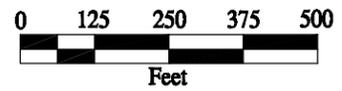


±600' East Of  
Trans. Truck Shop  
2 ~ 5-Acre  
Evap. Ponds

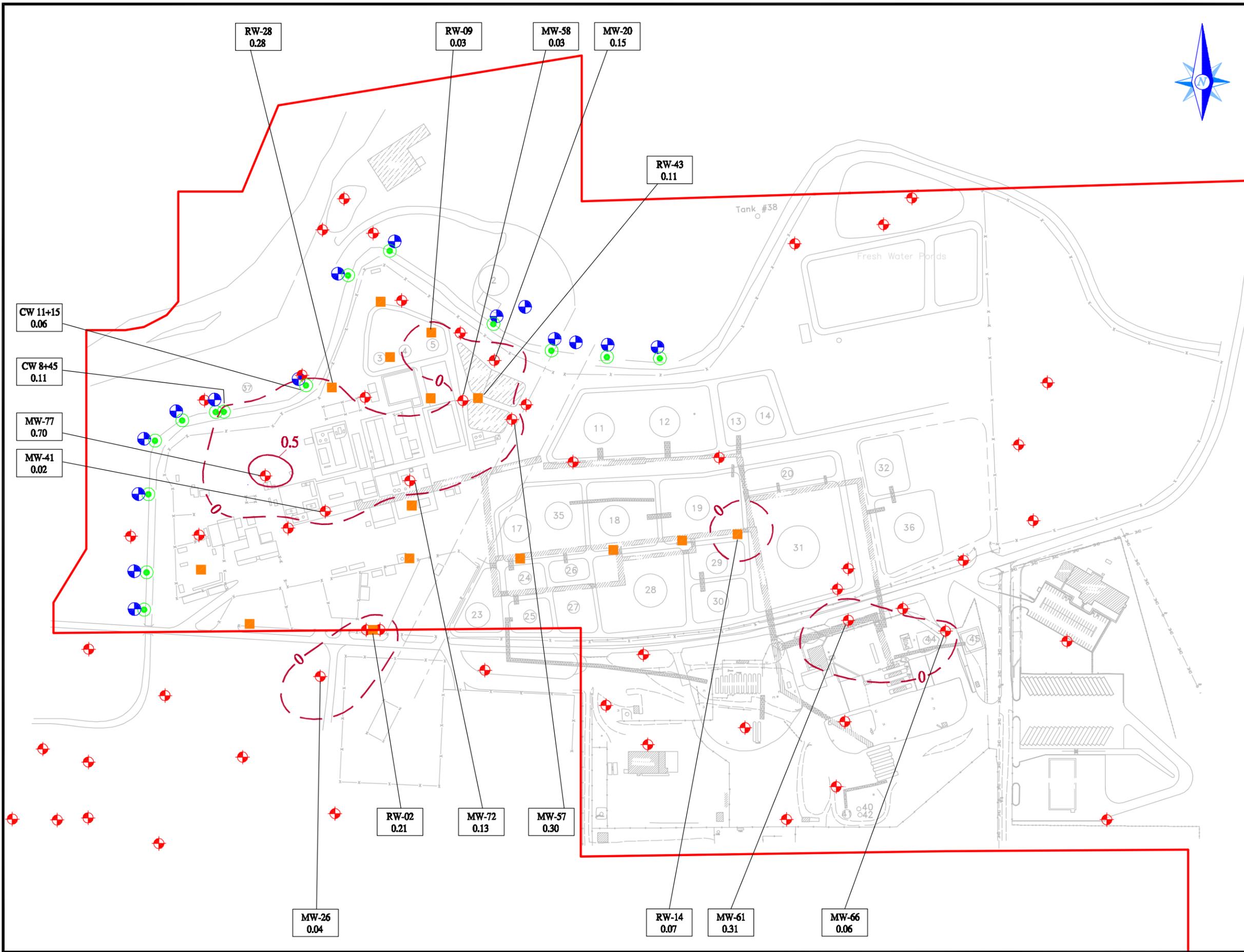




- ### Legend
- Monitoring Well
  - Observation Well
  - Recovery Well
  - Collection Well
  - Site
  - Approximate Property Line
  - Well ID  
-Product Thickness (feet)
  - Product Thickness Isopleth  
Contour Interval = 0.5'

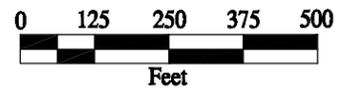


**Product Thickness Map**  
**April 2019**  
**Bloomfield Terminal**

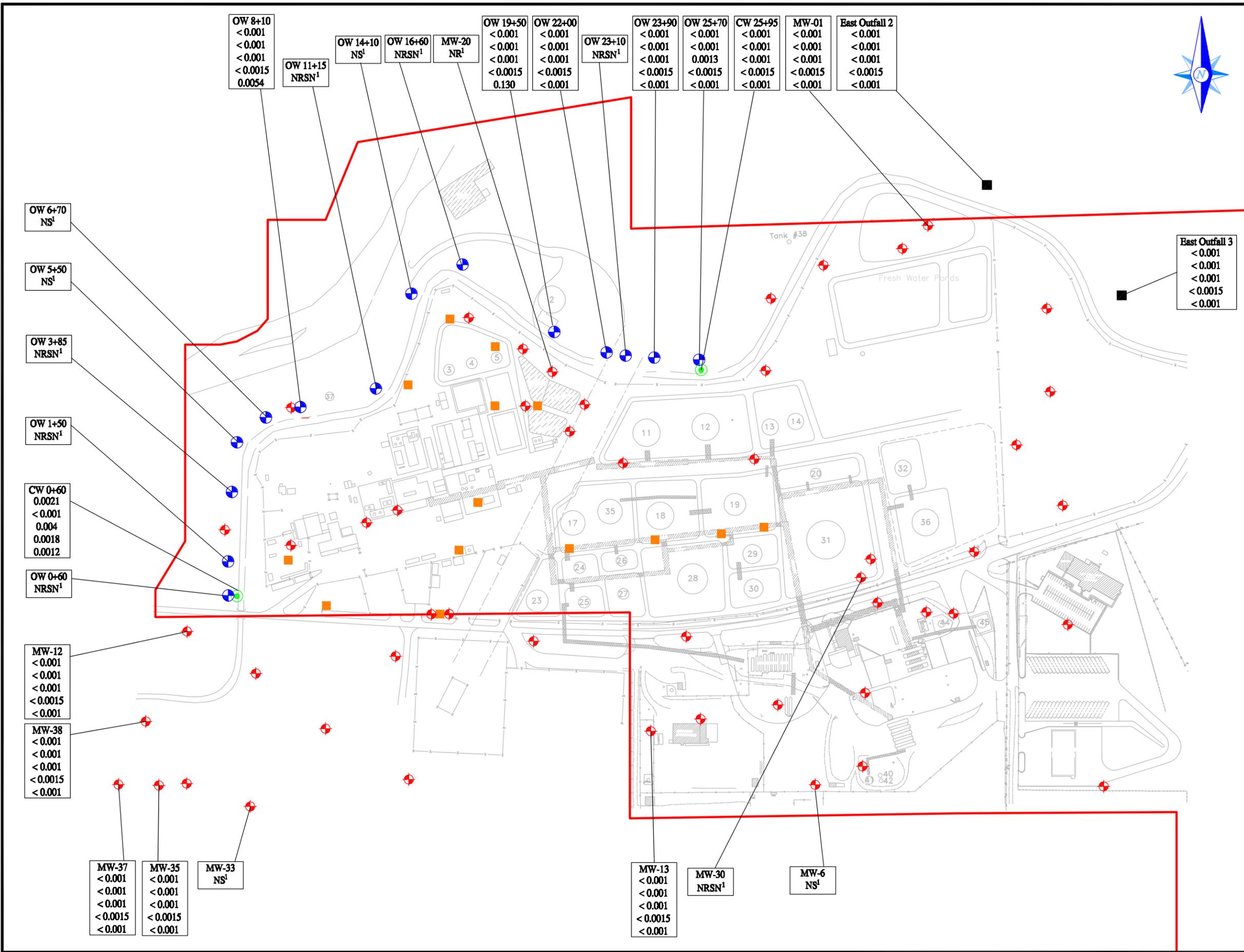


### Legend

- Monitoring Well
- Observation Well
- Recovery Well
- Collection Well
- Site
- Approximate Property Line
- Well ID  
-Product Thickness (feet)
- Product Thickness Isopleth  
Contour Interval = 0.5'



**Product Thickness Map**  
**August 2019**  
**Bloomfield Terminal**



**Legend**

- Monitoring Well
- Observation Well
- Recovery Well
- Collection Well
- Outfall
- Site
- Approximate Property Line

MW-52	-Well ID
<math>< 0.001</math>	-Benzene
<math>< 0.001</math>	-Toluene
<math>< 0.001</math>	-Ethylbenzene
<math>< 0.0015</math>	-Xylenes, Total
<math>< 0.001</math>	-MTBE

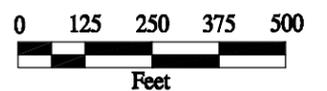
**Notes:**

All concentrations in milligrams per liter (mg/L)

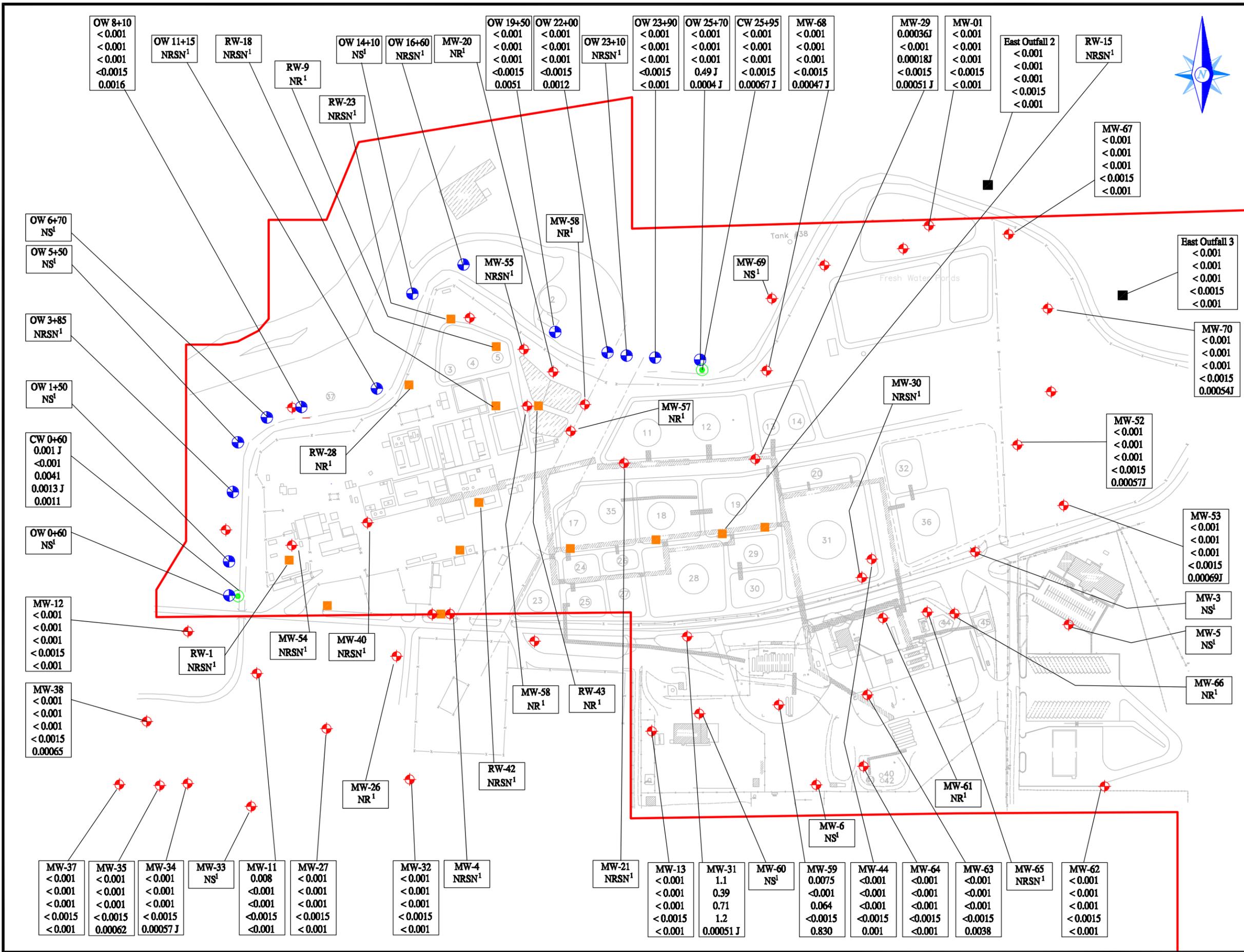
NS<sup>1</sup> = Well is Dry or Not Enough Water to Sample- No sample

NR<sup>1</sup> = No Sample Required - Well Contains Separate Phase Hydrocarbon

NRSN<sup>1</sup> = No Sample Required -Well Contains Sheen



**BTEX and MTBE  
Concentration Map - April 2019  
Bloomfield Terminal**



**Legend**

- ⊕ Monitoring Well
- ⊕ Observation Well
- Recovery Well
- ⊕ Collection Well
- Outfall
- Site
- ⌞ Approximate Property Line

MW-52	-Well ID
< 0.001	-Benzene
< 0.001	-Toluene
< 0.001	-Ethylbenzene
< 0.0015	-Xylenes, Total
< 0.001	-MTBE

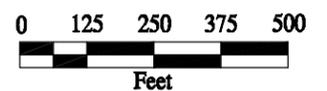
**Notes:**

All concentrations in milligrams per liter (mg/L)

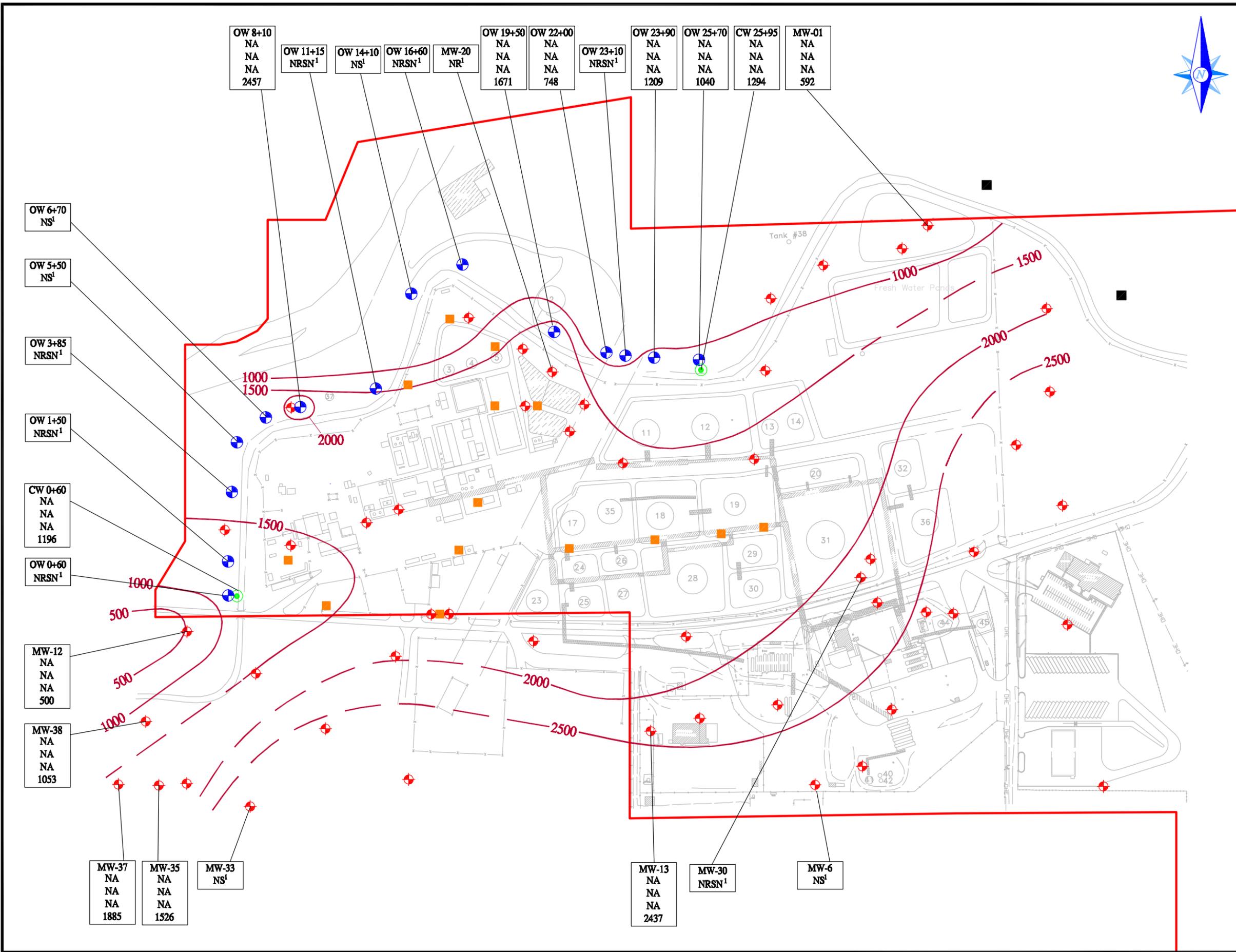
NS<sup>1</sup> = Well is Dry or Not Enough Water to Sample- No sample

NR<sup>1</sup> = No Sample Required - Well Contains Separate Phase Hydrocarbon

NRSN<sup>1</sup> = No Sample Required -Well Contains Sheen



**BTEX and MTBE  
Concentration Map - August 2019  
Bloomfield Terminal**



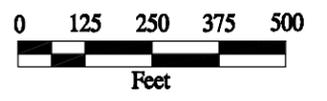
**Legend**

- ◆ Monitoring Well
- Observation Well
- Recovery Well
- Collection Well
- Outfall
- Site
- Approximate Property Line

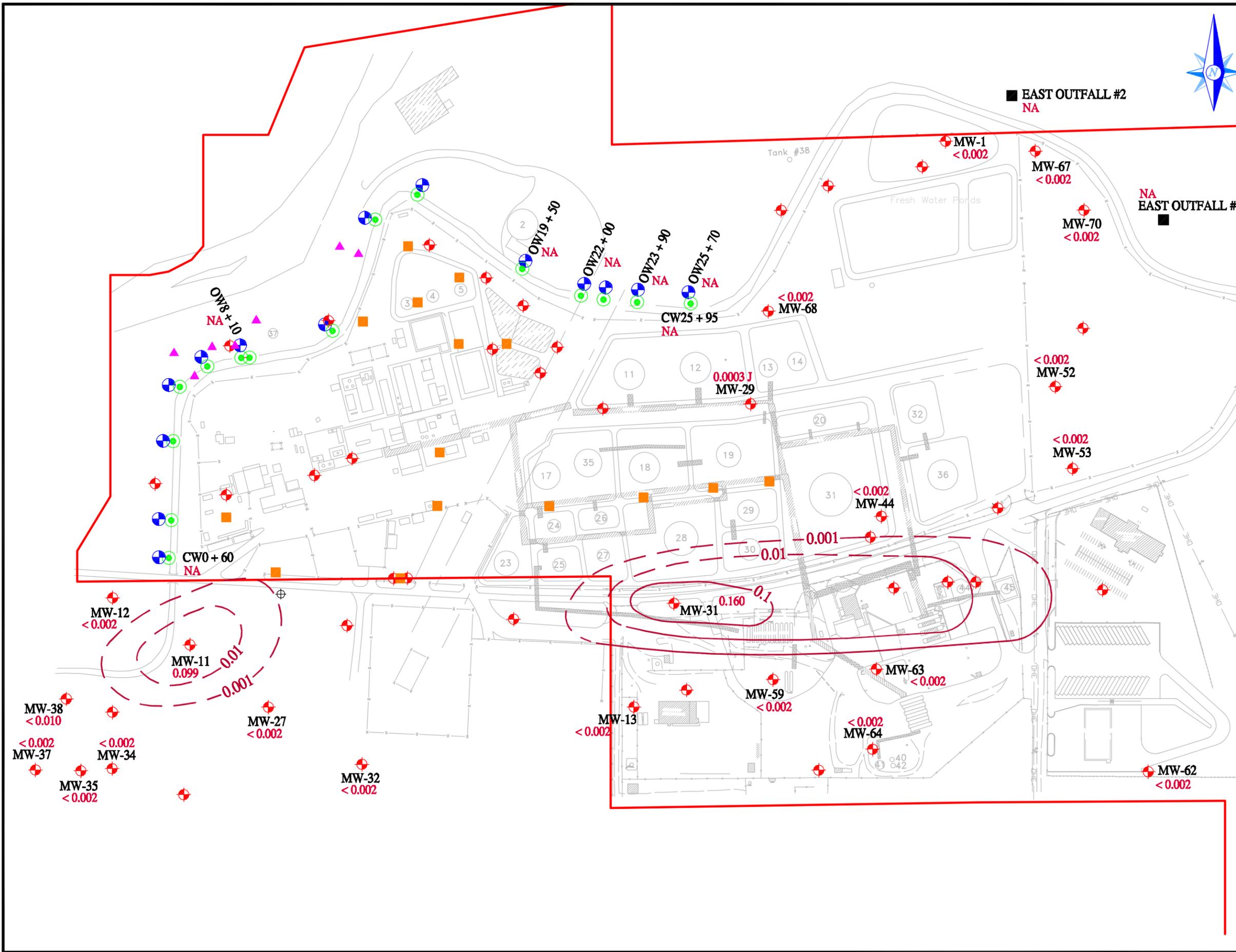
MW-52	-Well ID
<0.001	-Chloride
<0.001	-Sulfate
<0.0015	-Nitrate
<0.001	-TDS

- Notes:**
- All concentrations in milligrams per liter (mg/L)
  - Outfall values not used to contour
- NA = Not Analyzed
- NS<sup>1</sup> = Well is Dry or Not Enough Water to Sample- No sample
- NR<sup>1</sup> = No Sample Required - Well Contains Separate Phase Hydrocarbon
- NRSN<sup>1</sup> = No Sample Required -Well Contains Sheen

  TDS Isoconcentration Contour Interval = 500 mg/L



**Chloride, Sulfate, Nitrate and TDS  
Concentration Map - April 2019  
Bloomfield Terminal**



- Legend**
- ◆ Monitoring Well
  - ◆ Observation Well
  - Recovery Well
  - Collection Well
  - Outfall
  - ⊕ Piezometer
  - ▲ Sump Well
  - Site
  - Approximate Property Line

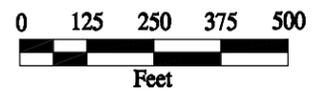
MW-70 - Well ID  
 <0.002 - Naphthalene

**Notes:**

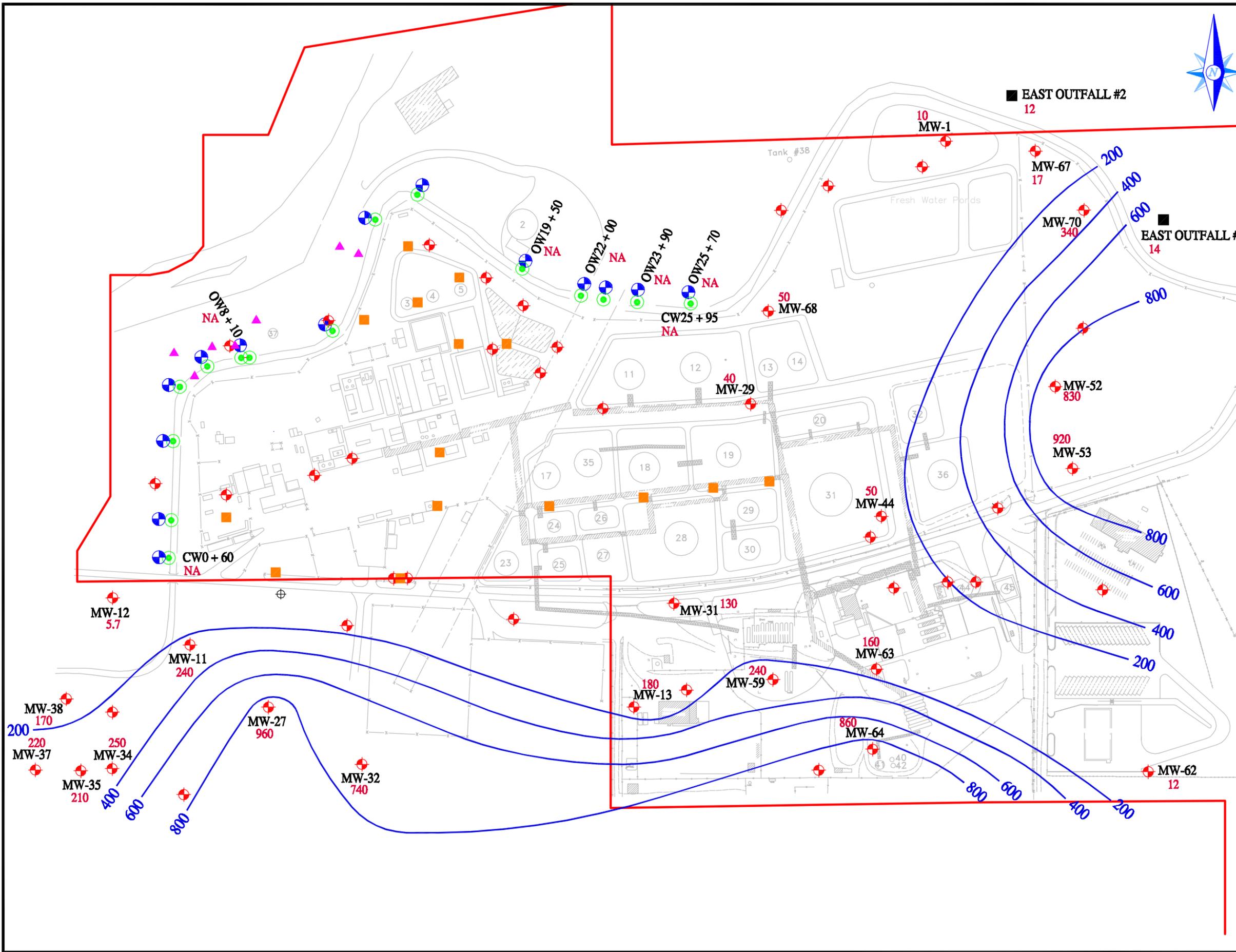
1. All concentrations in milligrams per liter (mg/L)
2. Outfall values not used to contour

NA = Not Analyzed

   Naphthalene Isoconcentration Contour



**Naphthalene  
 Concentration Map - August 2019  
 Bloomfield Terminal**



- Legend**
- ⊕ Monitoring Well
  - ⊕ Observation Well
  - Recovery Well
  - ⊕ Collection Well
  - Outfall
  - ⊕ Piezometer
  - ▲ Sump Well
  - Site
  - Approximate Property Line

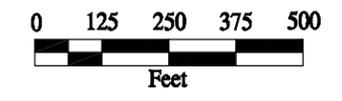
MW-70 - Well ID  
340 - Chloride

**Notes:**

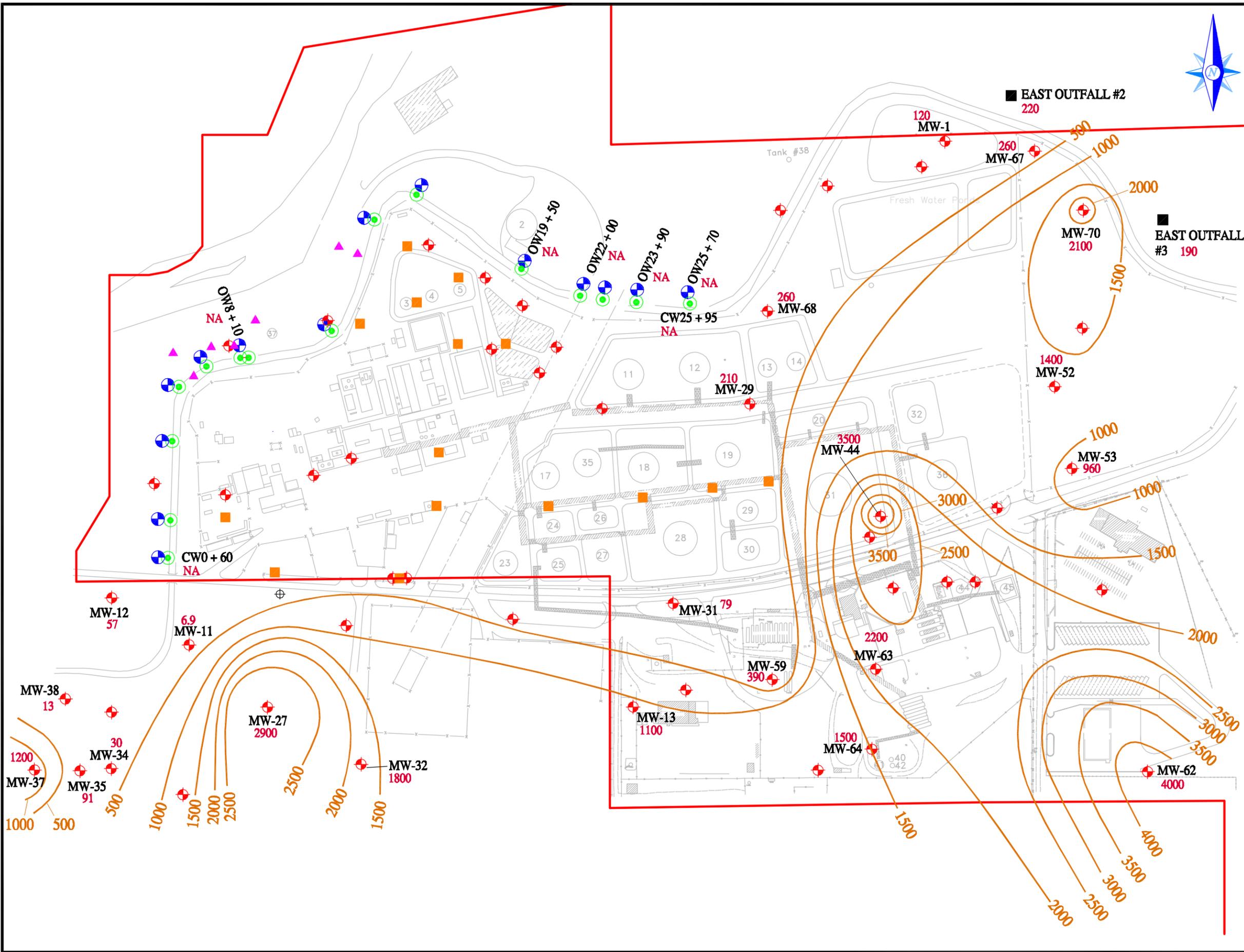
- All concentrations in milligrams per liter (mg/L)
- Outfall values not used to contour

NA = Not Analyzed

○ Chloride Isoconcentration Contour Interval = 200 mg/L



**Chloride  
Concentration Map - August 2019  
Bloomfield Terminal**

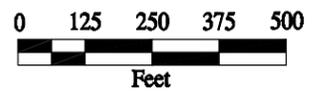


- Legend**
- Monitoring Well
  - Observation Well
  - Recovery Well
  - Collection Well
  - Outfall
  - Piezometer
  - Sump Well
  - Site
  - Approximate Property Line

MW-70 - Well ID  
2100 - Sulfate

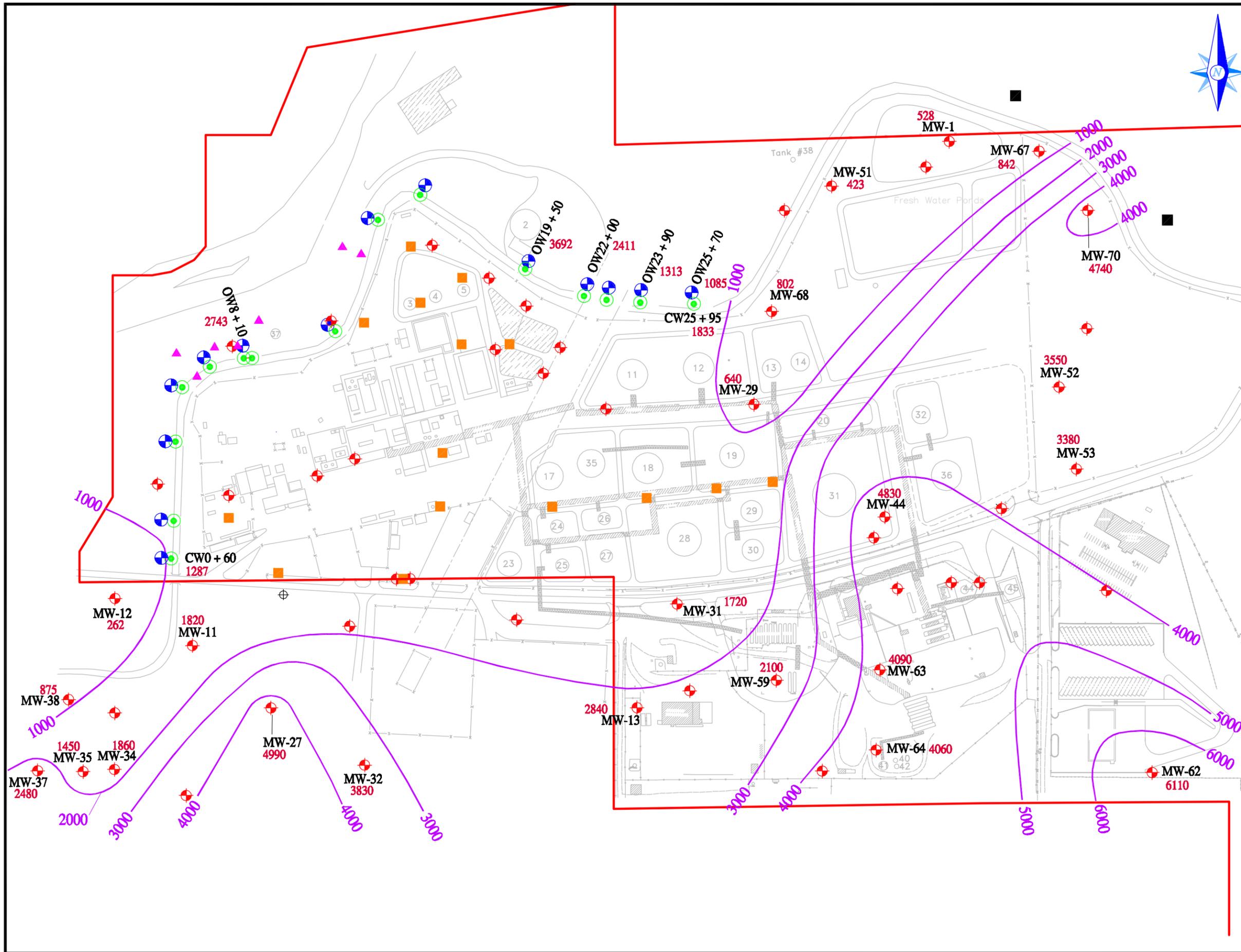
- Notes:**
1. All concentrations in milligrams per liter (mg/L)
  2. Outfall values not used to contour
- NA = Not Analyzed

Sulfate Isoconcentration Contour Interval = 500 mg/L



**Sulfate Concentration Map - August 2019  
Bloomfield Terminal**





Legend

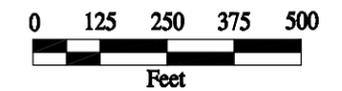
- Monitoring Well
- Observation Well
- Recovery Well
- Collection Well
- Outfall
- Piezometer
- Sump Well
- Site
- Approximate Property Line

MW-70 - Well ID  
4740 - TDS

Notes:

1. All concentrations in milligrams per liter (mg/L)
  2. Outfall values not used to contour
- NA = Not Analyzed

TDS Isoconcentration Contour  
Interval = 500 mg/L



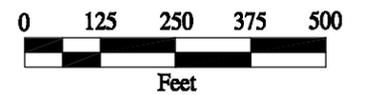
Total Dissolved Solids  
Concentration Map - August 2019  
Bloomfield Terminal



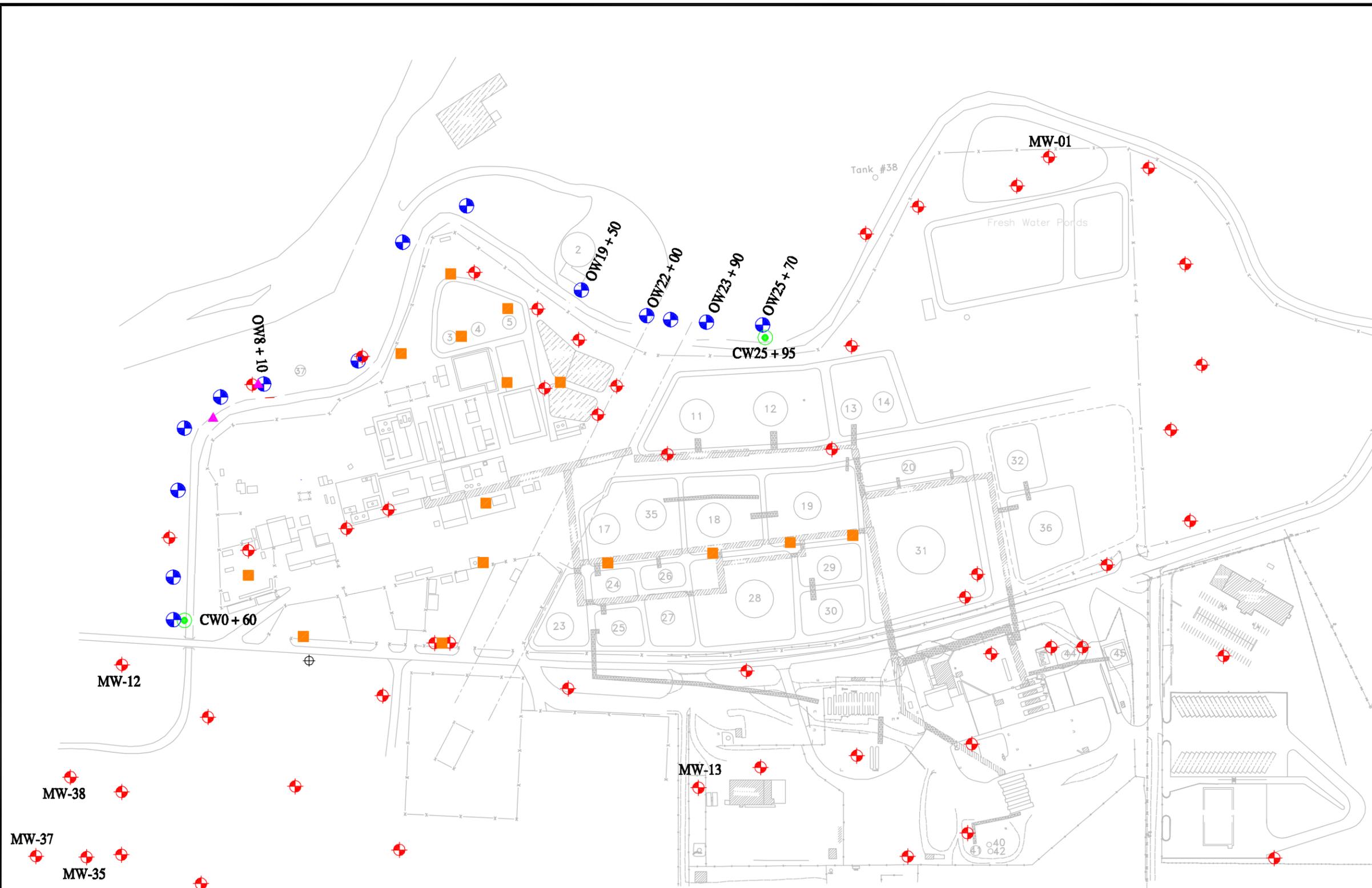
Legend

- Monitoring Well
- Observation Well
- Recovery Well
- Collection Well
- Piezometer
- Sump Well

Note:  
All identified wells were  
sampled in April 2018



Wells Sampled  
April 2019  
Bloomfield Terminal

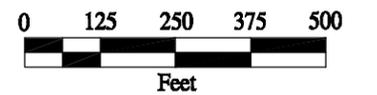




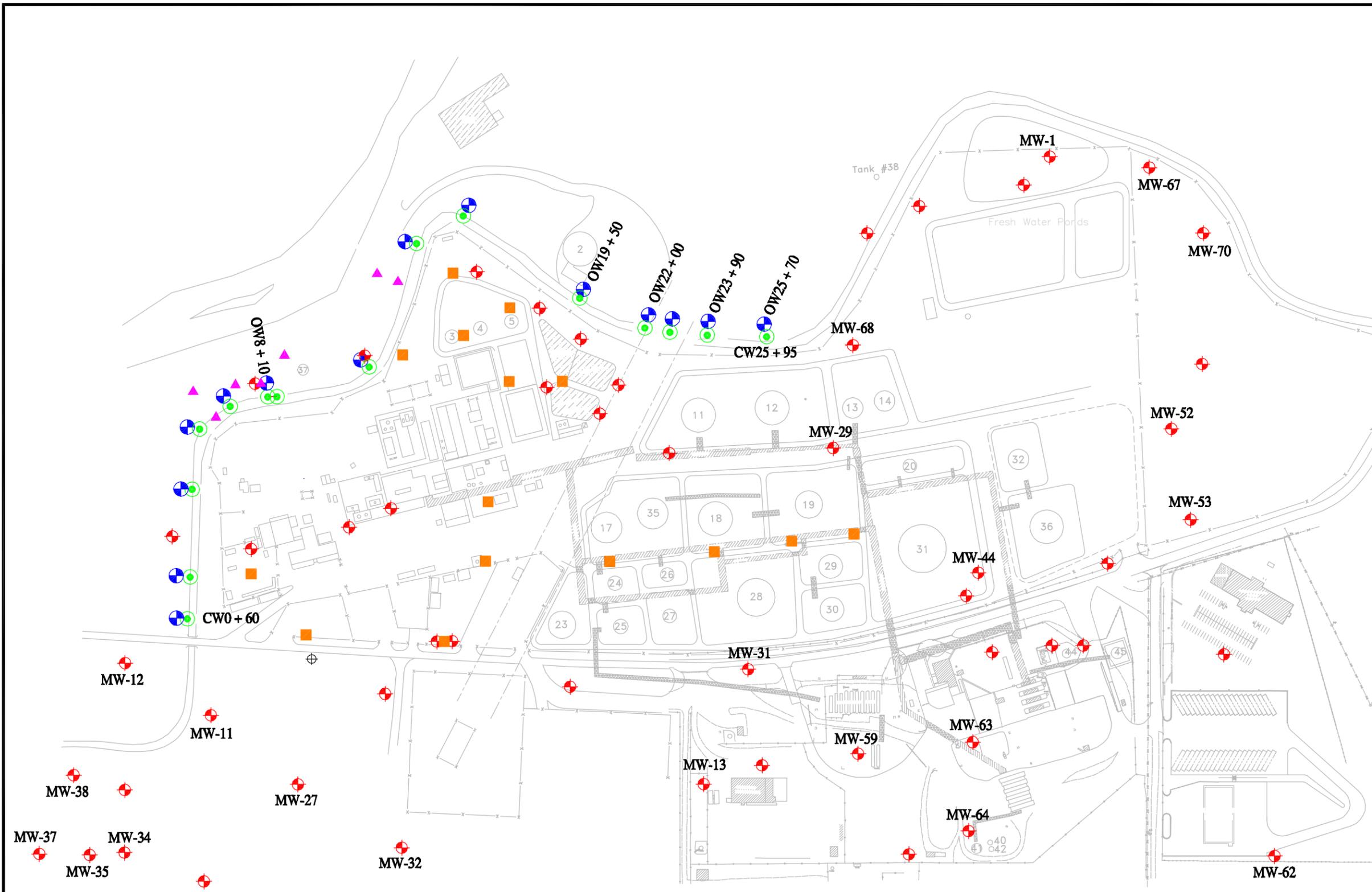
Legend

-  Monitoring Well
-  Observation Well
-  Recovery Well
-  Collection Well
-  Piezometer
-  Sump Well

Note:  
All identified wells were  
sampled in August 2018



Wells Sampled  
August 2019  
Bloomfield Terminal



**APPENDIX A**  
**ANALYTICAL REPORTS**  
**(included on attached CD)**



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 15, 2019

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

RE: Cross Gradient Wells 4 3 19

OrderNo.: 1904276

Dear Gregory J. McCartney:

Hall Environmental Analysis Laboratory received 6 sample(s) on 4/4/2019 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 #NM0901

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written in a cursive style.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1904276

Date Reported: 4/15/2019

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

**Client Sample ID:** MW-1

**Project:** Cross Gradient Wells 4 3 19

**Collection Date:** 4/3/2019 8:45:00 AM

**Lab ID:** 1904276-001

**Matrix:** AQUEOUS

**Received Date:** 4/4/2019 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	4/11/2019 12:05:03 PM	44215
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/11/2019 12:05:03 PM	44215
Surr: DNOP	121	52.7-168		%Rec	1	4/11/2019 12:05:03 PM	44215
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2019 9:43:34 AM	G58973
Surr: BFB	92.5	72.8-125		%Rec	1	4/8/2019 9:43:34 AM	G58973
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	4/9/2019 3:19:00 PM	AQ5900
Toluene	ND	1.0		µg/L	1	4/9/2019 3:19:00 PM	AQ5900
Ethylbenzene	ND	1.0		µg/L	1	4/9/2019 3:19:00 PM	AQ5900
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/9/2019 3:19:00 PM	AQ5900
Xylenes, Total	ND	1.5		µg/L	1	4/9/2019 3:19:00 PM	AQ5900
Surr: 1,2-Dichloroethane-d4	107	70-130		%Rec	1	4/9/2019 3:19:00 PM	AQ5900
Surr: 4-Bromofluorobenzene	96.0	70-130		%Rec	1	4/9/2019 3:19:00 PM	AQ5900
Surr: Dibromofluoromethane	104	70-130		%Rec	1	4/9/2019 3:19:00 PM	AQ5900
Surr: Toluene-d8	93.2	70-130		%Rec	1	4/9/2019 3:19:00 PM	AQ5900

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

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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 at testcode

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1904276**

Date Reported: **4/15/2019**

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

**Client Sample ID:** Field Blank #1

**Project:** Cross Gradient Wells 4 3 19

**Collection Date:** 4/3/2019 10:05:00 AM

**Lab ID:** 1904276-002

**Matrix:** AQUEOUS

**Received Date:** 4/4/2019 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	4/9/2019 3:43:00 PM	AQ59003
Toluene	ND	1.0		µg/L	1	4/9/2019 3:43:00 PM	AQ59003
Ethylbenzene	ND	1.0		µg/L	1	4/9/2019 3:43:00 PM	AQ59003
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/9/2019 3:43:00 PM	AQ59003
Xylenes, Total	ND	1.5		µg/L	1	4/9/2019 3:43:00 PM	AQ59003
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	4/9/2019 3:43:00 PM	AQ59003
Surr: 4-Bromofluorobenzene	96.8	70-130		%Rec	1	4/9/2019 3:43:00 PM	AQ59003
Surr: Dibromofluoromethane	105	70-130		%Rec	1	4/9/2019 3:43:00 PM	AQ59003
Surr: Toluene-d8	94.7	70-130		%Rec	1	4/9/2019 3:43:00 PM	AQ59003

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

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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 at testcode

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1904276

Date Reported: 4/15/2019

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

**Client Sample ID:** Equipment Blank #1

**Project:** Cross Gradient Wells 4 3 19

**Collection Date:** 4/3/2019 10:10:00 AM

**Lab ID:** 1904276-003

**Matrix:** AQUEOUS

**Received Date:** 4/4/2019 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: RAA
Benzene	ND	1.0		µg/L	1	4/9/2019 4:08:00 PM	AQ59003
Toluene	ND	1.0		µg/L	1	4/9/2019 4:08:00 PM	AQ59003
Ethylbenzene	ND	1.0		µg/L	1	4/9/2019 4:08:00 PM	AQ59003
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/9/2019 4:08:00 PM	AQ59003
Xylenes, Total	ND	1.5		µg/L	1	4/9/2019 4:08:00 PM	AQ59003
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	4/9/2019 4:08:00 PM	AQ59003
Surr: 4-Bromofluorobenzene	98.4	70-130		%Rec	1	4/9/2019 4:08:00 PM	AQ59003
Surr: Dibromofluoromethane	103	70-130		%Rec	1	4/9/2019 4:08:00 PM	AQ59003
Surr: Toluene-d8	96.4	70-130		%Rec	1	4/9/2019 4:08:00 PM	AQ59003

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

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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 at testcode

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1904276

Date Reported: 4/15/2019

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

**Client Sample ID:** MW-35

**Project:** Cross Gradient Wells 4 3 19

**Collection Date:** 4/3/2019 2:30:00 PM

**Lab ID:** 1904276-004

**Matrix:** AQUEOUS

**Received Date:** 4/4/2019 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: RAA
Benzene	ND	1.0		µg/L	1	4/9/2019 4:32:00 PM	AQ59003
Toluene	ND	1.0		µg/L	1	4/9/2019 4:32:00 PM	AQ59003
Ethylbenzene	ND	1.0		µg/L	1	4/9/2019 4:32:00 PM	AQ59003
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/9/2019 4:32:00 PM	AQ59003
Xylenes, Total	ND	1.5		µg/L	1	4/9/2019 4:32:00 PM	AQ59003
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	4/9/2019 4:32:00 PM	AQ59003
Surr: 4-Bromofluorobenzene	97.3	70-130		%Rec	1	4/9/2019 4:32:00 PM	AQ59003
Surr: Dibromofluoromethane	102	70-130		%Rec	1	4/9/2019 4:32:00 PM	AQ59003
Surr: Toluene-d8	96.4	70-130		%Rec	1	4/9/2019 4:32:00 PM	AQ59003

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

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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 at testcode

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1904276**

Date Reported: **4/15/2019**

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

**Client Sample ID:** MW-13

**Project:** Cross Gradient Wells 4 3 19

**Collection Date:** 4/3/2019 9:55:00 AM

**Lab ID:** 1904276-005

**Matrix:** AQUEOUS

**Received Date:** 4/4/2019 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	4/9/2019 4:56:00 PM	AQ5900
Toluene	ND	1.0		µg/L	1	4/9/2019 4:56:00 PM	AQ5900
Ethylbenzene	ND	1.0		µg/L	1	4/9/2019 4:56:00 PM	AQ5900
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/9/2019 4:56:00 PM	AQ5900
Xylenes, Total	ND	1.5		µg/L	1	4/9/2019 4:56:00 PM	AQ5900
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	1	4/9/2019 4:56:00 PM	AQ5900
Surr: 4-Bromofluorobenzene	98.5	70-130		%Rec	1	4/9/2019 4:56:00 PM	AQ5900
Surr: Dibromofluoromethane	99.1	70-130		%Rec	1	4/9/2019 4:56:00 PM	AQ5900
Surr: Toluene-d8	94.9	70-130		%Rec	1	4/9/2019 4:56:00 PM	AQ5900

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

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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 at testcode

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1904276

Date Reported: 4/15/2019

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

**Client Sample ID:** Trip Blank

**Project:** Cross Gradient Wells 4 3 19

**Collection Date:**

**Lab ID:** 1904276-006

**Matrix:** TRIP BLANK

**Received Date:** 4/4/2019 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: RAA
Benzene	ND	1.0		µg/L	1	4/9/2019 5:20:00 PM	AQ59003
Toluene	ND	1.0		µg/L	1	4/9/2019 5:20:00 PM	AQ59003
Ethylbenzene	ND	1.0		µg/L	1	4/9/2019 5:20:00 PM	AQ59003
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/9/2019 5:20:00 PM	AQ59003
Xylenes, Total	ND	1.5		µg/L	1	4/9/2019 5:20:00 PM	AQ59003
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	4/9/2019 5:20:00 PM	AQ59003
Surr: 4-Bromofluorobenzene	98.5	70-130		%Rec	1	4/9/2019 5:20:00 PM	AQ59003
Surr: Dibromofluoromethane	102	70-130		%Rec	1	4/9/2019 5:20:00 PM	AQ59003
Surr: Toluene-d8	95.1	70-130		%Rec	1	4/9/2019 5:20:00 PM	AQ59003

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

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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 at testcode

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904276

15-Apr-19

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

**Project:** Cross Gradient Wells 4 3 19

Sample ID: <b>LCS-44215</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>44215</b>		RunNo: <b>59076</b>							
Prep Date: <b>4/9/2019</b>	Analysis Date: <b>4/11/2019</b>		SeqNo: <b>1988558</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	0.40	2.500	0	125	66.7	148			
Surr: DNOP	0.29		0.2500		114	52.7	168			

Sample ID: <b>MB-44215</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>							
Client ID: <b>PBW</b>	Batch ID: <b>44215</b>		RunNo: <b>59076</b>							
Prep Date: <b>4/9/2019</b>	Analysis Date: <b>4/11/2019</b>		SeqNo: <b>1988559</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	0.40								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.58		0.5000		116	52.7	168			

Sample ID: <b>1904276-001BMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>							
Client ID: <b>MW-1</b>	Batch ID: <b>44215</b>		RunNo: <b>59076</b>							
Prep Date: <b>4/9/2019</b>	Analysis Date: <b>4/11/2019</b>		SeqNo: <b>1988656</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	0.40	2.500	0	132	68.3	147			
Surr: DNOP	0.32		0.2500		127	52.7	168			

Sample ID: <b>1904276-001BMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>							
Client ID: <b>MW-1</b>	Batch ID: <b>44215</b>		RunNo: <b>59076</b>							
Prep Date: <b>4/9/2019</b>	Analysis Date: <b>4/11/2019</b>		SeqNo: <b>1988657</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	0.40	2.500	0	134	68.3	147	1.07	20	
Surr: DNOP	0.31		0.2500		124	52.7	168	0	0	

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904276

15-Apr-19

**Client:** Western Refining Southwest, Inc.**Project:** Cross Gradient Wells 4 3 19

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>G58973</b>	RunNo: <b>58973</b>								
Prep Date:	Analysis Date: <b>4/8/2019</b>	SeqNo: <b>1984235</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	18		20.00		92.4	72.8	125			

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>G58973</b>	RunNo: <b>58973</b>								
Prep Date:	Analysis Date: <b>4/8/2019</b>	SeqNo: <b>1984237</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	91.0	77.7	130			
Surr: BFB	21		20.00		107	72.8	125			

**Qualifiers:**

H Holding times for preparation or analysis exceeded  
PQL Practical Quantitative Limit  
S % Recovery outside of range due to dilution or matrix

ND Not Detected at the Reporting Limit  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified at testcode

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904276

15-Apr-19

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

**Project:** Cross Gradient Wells 4 3 19

Sample ID: <b>100ng lcs</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8260B: VOLATILES</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>AQ59003</b>	RunNo: <b>59003</b>								
Prep Date:	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985935</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	111	70	130			
Toluene	21	1.0	20.00	0	103	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		108	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.2	70	130			
Surr: Dibromofluoromethane	11		10.00		105	70	130			
Surr: Toluene-d8	9.5		10.00		95.0	70	130			

Sample ID: <b>rb</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8260B: VOLATILES</b>								
Client ID: <b>PBW</b>	Batch ID: <b>AQ59003</b>	RunNo: <b>59003</b>								
Prep Date:	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985936</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		107	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.2	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.5		10.00		95.1	70	130			

Sample ID: <b>1904276-001ams</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8260B: VOLATILES</b>								
Client ID: <b>MW-1</b>	Batch ID: <b>AQ59003</b>	RunNo: <b>59003</b>								
Prep Date:	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985937</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	107	70	130			
Toluene	21	1.0	20.00	0	103	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		104	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.1	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	9.6		10.00		95.9	70	130			

Sample ID: <b>1904276-001amsd</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8260B: VOLATILES</b>								
Client ID: <b>MW-1</b>	Batch ID: <b>AQ59003</b>	RunNo: <b>59003</b>								
Prep Date:	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985938</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	2.44	20	

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904276

15-Apr-19

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

**Project:** Cross Gradient Wells 4 3 19

Sample ID: <b>1904276-001amsd</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8260B: VOLATILES</b>								
Client ID: <b>MW-1</b>	Batch ID: <b>AQ59003</b>	RunNo: <b>59003</b>								
Prep Date:	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985938</b> Units: <b>µg/L</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Toluene	21	1.0	20.00	0	103	70	130	0.0678	20	
Surr: 1,2-Dichloroethane-d4	11		10.00		107	70	130	0	0	
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130	0	0	
Surr: Dibromofluoromethane	10		10.00		105	70	130	0	0	
Surr: Toluene-d8	9.6		10.00		95.9	70	130	0	0	

**Qualifiers:**

H Holding times for preparation or analysis exceeded  
 PQL Practical Quantitative Limit  
 S % Recovery outside of range due to dilution or matrix

ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit  
 W Sample container temperature is out of limit as specified at testcode

**Sample Log-In Check List**

Client Name: **Western Refining Southw**

Work Order Number: **1904276**

RcptNo: **1**

Received By: **Yazmine Garduno** **4/4/2019 8:14:00 AM**

*Yazmine Garduno*

Completed By: **Erin Melendrez** **4/4/2019 11:34:15 AM**

*Erin Melendrez*

Reviewed By: **YG 4/4/19**  
**LB: JJC 4-4-19**

**Chain of Custody**

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

**Log In**

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

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

**Special Handling (if applicable)**

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

Person Notified: \_\_\_\_\_ Date: \_\_\_\_\_  
 By Whom: \_\_\_\_\_ Via:  eMail  Phone  Fax  In Person  
 Regarding: \_\_\_\_\_  
 Client Instructions: \_\_\_\_\_

16. Additional remarks:

**17. Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.3	Good	Yes			
2	3.1	Good	Yes			







**TABLE 2**  
**Analytical Methods and Target Analytes**  
**Facility-Wide Groundwater Monitoring Plan - June 2018**  
**Western Refining Southwest, Inc. - Bloomfield Refinery**

<b>VOCs (EPA Method 8260B) <sup>(1)</sup></b>
- Target List
<i>Benzene</i>
<i>Toluene</i>
<i>Ethylbenzene</i>
<i>Xylenes</i>
<i>Methyl tert butyl ether (MTBE)</i>
<b>SVOCs - (EPA Method 8270)</b>
- Method List
<b>TPH-GRO (EPA Method 8015B)</b>
- Gasoline Range Organics
<b>TPH-DRO (EPA Method 8015B)</b>
- Diesel Range Organics
- Motor Oil Range Organics
<b>Total Carbon Dioxide (Laboratory Calculated)</b>
- Dissolved CO <sub>2</sub>
<b>Specific Conductivity (EPA Method 120.1 or field measurement)</b>
- Specific conductance
<b>TDS (EPA Method 160.1 or field measurement)</b>
- Total dissolved solids
<b>General Chemistry - Anions (EPA Method 300.0)</b>
<i>Fluoride</i>
<i>Chloride</i>
<i>Bromide</i>
<i>Nitrogen, Nitrite (as N)</i>
<i>Nitrogen, Nitrate (as N)</i>
<i>Phosphorous, Orthophosphate (As P)</i>
<i>Sulfate</i>
<b>General Chemistry - Alkalinity (EPA Method 310.1)</b>
<i>Alkalinity, Total</i>
<i>Carbonate</i>
<i>Bicarbonate</i>

<b>Total Recoverable Metals (EPA Method 6010B/7470)</b>
- Target List (not applicable to River Terrace Sampling Events)
<i>Arsenic</i>
<i>Lead</i>
<i>Barium</i>
<i>Mercury</i>
<i>Cadmium</i>
<i>Selenium</i>
<i>Chromium</i>
<i>Silver</i>
- Target List (for River Terrace Sampling Events Only)
<i>Lead</i>
<i>Mercury (DW-1 ONLY)</i>
<b>Dissolved Metals (EPA Method 6010B / 7470)</b>
- Target List (for Refinery Complex, Outfalls, and River)
<i>Arsenic</i>
<i>Manganese</i>
<i>Barium</i>
<i>Mercury</i>
<i>Cadmium</i>
<i>Potassium</i>
<i>Calcium</i>
<i>Selenium</i>
<i>Chromium</i>
<i>Silver</i>
<i>Copper</i>
<i>Sodium</i>
<i>Iron</i>
<i>Uranium</i>
<i>Lead</i>
<i>Zinc</i>
<i>Magnesium</i>

TPH = total petroleum hydrocarbons  
GRO = gasoline range organics  
VOCs = volatile organic compounds  
DRO = diesel range organics  
TDS = total dissolved solids

**NOTES:**

- (1) VOCs Target List for River Terrace samples are analyzed by EPA Method 8021B per NMED's letter Approval with Direction dated June 16, 2009.
- (2) Target List for San Juan River Terrace Monitoring Wells and Piezometer Wells only, per the River Terrace Bioventing System Monitoring Plan.



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 02, 2019

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

RE: NBB Collection Wells

OrderNo.: 1904357

Dear Gregory J. McCartney:

Hall Environmental Analysis Laboratory received 8 sample(s) on 4/5/2019 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 #NM0901

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written in a cursive style.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1904357

Date Reported: 5/2/2019

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

**Client Sample ID:** CW 0+60

**Project:** NBB Collection Wells

**Collection Date:** 4/3/2019 3:55:00 PM

**Lab ID:** 1904357-001

**Matrix:** AQUEOUS

**Received Date:** 4/5/2019 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	1.7	0.40		mg/L	1	4/11/2019 1:11:21 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/11/2019 1:11:21 PM
Surr: DNOP	119	52.7-168		%Rec	1	4/11/2019 1:11:21 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	3.1	0.050		mg/L	1	4/8/2019 10:06:28 AM
Surr: BFB	1910	72.8-125	S	%Rec	1	4/8/2019 10:06:28 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	2.1	1.0		µg/L	1	4/9/2019 5:44:00 PM
Toluene	ND	1.0		µg/L	1	4/9/2019 5:44:00 PM
Ethylbenzene	4.0	1.0		µg/L	1	4/9/2019 5:44:00 PM
Methyl tert-butyl ether (MTBE)	1.2	1.0		µg/L	1	4/9/2019 5:44:00 PM
Xylenes, Total	1.8	1.5		µg/L	1	4/9/2019 5:44:00 PM
Surr: 1,2-Dichloroethane-d4	93.5	70-130		%Rec	1	4/9/2019 5:44:00 PM
Surr: 4-Bromofluorobenzene	96.3	70-130		%Rec	1	4/9/2019 5:44:00 PM
Surr: Dibromofluoromethane	96.7	70-130		%Rec	1	4/9/2019 5:44:00 PM
Surr: Toluene-d8	163	70-130	S	%Rec	1	4/9/2019 5:44:00 PM

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1904357**

Date Reported: 5/2/2019

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

**Client Sample ID:** MW-12

**Project:** NBB Collection Wells

**Collection Date:** 4/4/2019 8:30:00 AM

**Lab ID:** 1904357-002

**Matrix:** AQUEOUS

**Received Date:** 4/5/2019 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	4/11/2019 1:33:33 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/11/2019 1:33:33 PM
Surr: DNOP	114	52.7-168		%Rec	1	4/11/2019 1:33:33 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2019 10:29:21 AM
Surr: BFB	85.3	72.8-125		%Rec	1	4/8/2019 10:29:21 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	4/9/2019 6:08:00 PM
Toluene	ND	1.0		µg/L	1	4/9/2019 6:08:00 PM
Ethylbenzene	ND	1.0		µg/L	1	4/9/2019 6:08:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/9/2019 6:08:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/9/2019 6:08:00 PM
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	4/9/2019 6:08:00 PM
Surr: 4-Bromofluorobenzene	97.9	70-130		%Rec	1	4/9/2019 6:08:00 PM
Surr: Dibromofluoromethane	101	70-130		%Rec	1	4/9/2019 6:08:00 PM
Surr: Toluene-d8	94.7	70-130		%Rec	1	4/9/2019 6:08:00 PM

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1904357**

Date Reported: 5/2/2019

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

**Client Sample ID:** MW-38

**Project:** NBB Collection Wells

**Collection Date:** 4/4/2019 8:50:00 AM

**Lab ID:** 1904357-003

**Matrix:** AQUEOUS

**Received Date:** 4/5/2019 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	0.43	0.40		mg/L	1	4/11/2019 1:55:35 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/11/2019 1:55:35 PM
Surr: DNOP	116	52.7-168		%Rec	1	4/11/2019 1:55:35 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2019 10:52:11 AM
Surr: BFB	86.3	72.8-125		%Rec	1	4/8/2019 10:52:11 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	4/9/2019 6:32:00 PM
Toluene	ND	1.0		µg/L	1	4/9/2019 6:32:00 PM
Ethylbenzene	ND	1.0		µg/L	1	4/9/2019 6:32:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/9/2019 6:32:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/9/2019 6:32:00 PM
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	4/9/2019 6:32:00 PM
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	1	4/9/2019 6:32:00 PM
Surr: Dibromofluoromethane	97.3	70-130		%Rec	1	4/9/2019 6:32:00 PM
Surr: Toluene-d8	94.7	70-130		%Rec	1	4/9/2019 6:32:00 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
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix	

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1904357**

Date Reported: 5/2/2019

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

**Client Sample ID:** MW-37

**Project:** NBB Collection Wells

**Collection Date:** 4/4/2019 9:10:00 AM

**Lab ID:** 1904357-004

**Matrix:** AQUEOUS

**Received Date:** 4/5/2019 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	4/11/2019 2:17:49 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/11/2019 2:17:49 PM
Surr: DNOP	114	52.7-168		%Rec	1	4/11/2019 2:17:49 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2019 11:14:46 AM
Surr: BFB	89.2	72.8-125		%Rec	1	4/8/2019 11:14:46 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	4/9/2019 6:57:00 PM
Toluene	ND	1.0		µg/L	1	4/9/2019 6:57:00 PM
Ethylbenzene	ND	1.0		µg/L	1	4/9/2019 6:57:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/9/2019 6:57:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/9/2019 6:57:00 PM
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	4/9/2019 6:57:00 PM
Surr: 4-Bromofluorobenzene	99.1	70-130		%Rec	1	4/9/2019 6:57:00 PM
Surr: Dibromofluoromethane	99.7	70-130		%Rec	1	4/9/2019 6:57:00 PM
Surr: Toluene-d8	94.2	70-130		%Rec	1	4/9/2019 6:57:00 PM

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1904357**

Date Reported: 5/2/2019

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

**Client Sample ID:** OW 25+70

**Project:** NBB Collection Wells

**Collection Date:** 4/4/2019 12:15:00 PM

**Lab ID:** 1904357-005

**Matrix:** AQUEOUS

**Received Date:** 4/5/2019 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: DIESEL RANGE</b>						Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	4/11/2019 2:39:52 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/11/2019 2:39:52 PM
Surr: DNOP	116	52.7-168		%Rec	1	4/11/2019 2:39:52 PM
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	0.12	0.050		mg/L	1	4/8/2019 11:37:23 AM
Surr: BFB	91.8	72.8-125		%Rec	1	4/8/2019 11:37:23 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	4/9/2019 7:21:00 PM
Toluene	ND	1.0		µg/L	1	4/9/2019 7:21:00 PM
Ethylbenzene	1.3	1.0		µg/L	1	4/9/2019 7:21:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/9/2019 7:21:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/9/2019 7:21:00 PM
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	1	4/9/2019 7:21:00 PM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	4/9/2019 7:21:00 PM
Surr: Dibromofluoromethane	98.5	70-130		%Rec	1	4/9/2019 7:21:00 PM
Surr: Toluene-d8	95.8	70-130		%Rec	1	4/9/2019 7:21:00 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
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix	

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** Trip Blank**Project:** NBB Collection Wells**Collection Date:****Lab ID:** 1904357-006**Matrix:** AQUEOUS**Received Date:** 4/5/2019 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8015D: GASOLINE RANGE</b>						Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2019 11:59:57 AM
Surr: BFB	93.1	72.8-125		%Rec	1	4/8/2019 11:59:57 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	4/10/2019 1:51:00 PM
Toluene	ND	1.0		µg/L	1	4/10/2019 1:51:00 PM
Ethylbenzene	ND	1.0		µg/L	1	4/10/2019 1:51:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/10/2019 1:51:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/10/2019 1:51:00 PM
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	1	4/10/2019 1:51:00 PM
Surr: 4-Bromofluorobenzene	98.1	70-130		%Rec	1	4/10/2019 1:51:00 PM
Surr: Dibromofluoromethane	99.7	70-130		%Rec	1	4/10/2019 1:51:00 PM
Surr: Toluene-d8	93.8	70-130		%Rec	1	4/10/2019 1:51:00 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
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1904357**

Date Reported: 5/2/2019

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

**Client Sample ID:** East Outfall #2

**Project:** NBB Collection Wells

**Collection Date:** 4/4/2019 1:30:00 PM

**Lab ID:** 1904357-007

**Matrix:** AQUEOUS

**Received Date:** 4/5/2019 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>MRA</b>
Fluoride	ND	0.50		mg/L	5	4/5/2019 8:04:24 PM
Chloride	15	2.5		mg/L	5	4/5/2019 8:04:24 PM
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	4/5/2019 8:04:24 PM
Bromide	ND	0.50		mg/L	5	4/5/2019 8:04:24 PM
Nitrogen, Nitrate (As N)	3.5	0.50		mg/L	5	4/5/2019 8:04:24 PM
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	4/5/2019 8:04:24 PM
Sulfate	250	10		mg/L	20	4/5/2019 8:17:15 PM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: <b>pmf</b>
Mercury	ND	0.00020		mg/L	1	4/9/2019 12:03:13 PM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: <b>pmf</b>
Mercury	ND	0.00020		mg/L	1	4/9/2019 12:05:26 PM
<b>EPA METHOD 6010B: DISSOLVED METALS</b>						Analyst: <b>rde</b>
Arsenic	ND	0.020		mg/L	1	4/25/2019 3:32:16 PM
Barium	0.082	0.020		mg/L	1	4/11/2019 10:11:13 AM
Cadmium	ND	0.0020		mg/L	1	4/11/2019 10:11:13 AM
Calcium	140	5.0		mg/L	5	4/11/2019 10:13:07 AM
Chromium	ND	0.0060		mg/L	1	4/11/2019 10:11:13 AM
Copper	ND	0.0060		mg/L	1	4/11/2019 10:11:13 AM
Iron	ND	0.020		mg/L	1	4/11/2019 10:11:13 AM
Lead	ND	0.0050		mg/L	1	4/25/2019 3:32:16 PM
Magnesium	27	1.0		mg/L	1	4/11/2019 10:11:13 AM
Manganese	ND	0.0020		mg/L	1	4/11/2019 10:11:13 AM
Potassium	2.0	1.0		mg/L	1	4/11/2019 10:11:13 AM
Selenium	ND	0.050		mg/L	1	4/23/2019 12:04:23 PM
Silver	ND	0.0050		mg/L	1	4/11/2019 10:11:13 AM
Sodium	83	1.0		mg/L	1	4/11/2019 10:11:13 AM
Uranium	ND	0.10		mg/L	1	4/23/2019 12:04:23 PM
Zinc	ND	0.020		mg/L	1	4/25/2019 3:32:16 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: <b>rde</b>
Arsenic	ND	0.020		mg/L	1	4/25/2019 2:59:49 PM
Barium	0.077	0.020		mg/L	1	4/11/2019 9:15:39 AM
Cadmium	ND	0.0020		mg/L	1	4/11/2019 9:15:39 AM
Chromium	ND	0.0060		mg/L	1	4/11/2019 9:15:39 AM
Lead	ND	0.0050		mg/L	1	4/25/2019 2:59:49 PM
Selenium	ND	0.050		mg/L	1	4/11/2019 9:15:39 AM
Silver	ND	0.0050		mg/L	1	4/11/2019 9:15:39 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1904357

Date Reported: 5/2/2019

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

**Client Sample ID:** East Outfall #2

**Project:** NBB Collection Wells

**Collection Date:** 4/4/2019 1:30:00 PM

**Lab ID:** 1904357-007

**Matrix:** AQUEOUS

**Received Date:** 4/5/2019 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	4/10/2019 2:15:00 PM
Toluene	ND	1.0		µg/L	1	4/10/2019 2:15:00 PM
Ethylbenzene	ND	1.0		µg/L	1	4/10/2019 2:15:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/10/2019 2:15:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/10/2019 2:15:00 PM
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	4/10/2019 2:15:00 PM
Surr: 4-Bromofluorobenzene	97.4	70-130		%Rec	1	4/10/2019 2:15:00 PM
Surr: Dibromofluoromethane	99.3	70-130		%Rec	1	4/10/2019 2:15:00 PM
Surr: Toluene-d8	94.2	70-130		%Rec	1	4/10/2019 2:15:00 PM
<b>SM 2540 C: TOTAL DISSOLVED SOLIDS</b>						Analyst: <b>KS</b>
Total Dissolved Solids	748	20.0	*	mg/L	1	4/10/2019 4:54:00 PM
<b>CARBON DIOXIDE</b>						Analyst: <b>JRR</b>
Total Carbon Dioxide	310	1.0	H	mg CO2/	1	4/9/2019 11:50:05 AM
<b>SM2510B: SPECIFIC CONDUCTANCE</b>						Analyst: <b>JRR</b>
Conductivity	1100	5.0		µmhos/c	1	4/9/2019 11:50:05 AM
<b>SM2320B: ALKALINITY</b>						Analyst: <b>JRR</b>
Bicarbonate (As CaCO3)	323.0	20.00		mg/L Ca	1	4/9/2019 11:50:05 AM
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	4/9/2019 11:50:05 AM
Total Alkalinity (as CaCO3)	323.0	20.00		mg/L Ca	1	4/9/2019 11:50:05 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 Limit
	S	% Recovery outside of range due to dilution or matrix		

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1904357

Date Reported: 5/2/2019

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

**Client Sample ID:** East Outfall #3

**Project:** NBB Collection Wells

**Collection Date:** 4/4/2019 2:00:00 PM

**Lab ID:** 1904357-008

**Matrix:** AQUEOUS

**Received Date:** 4/5/2019 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 300.0: ANIONS</b>						Analyst: <b>MRA</b>
Fluoride	ND	0.50		mg/L	5	4/5/2019 8:30:07 PM
Chloride	14	2.5		mg/L	5	4/5/2019 8:30:07 PM
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	4/5/2019 8:30:07 PM
Bromide	ND	0.50		mg/L	5	4/5/2019 8:30:07 PM
Nitrogen, Nitrate (As N)	3.3	0.50		mg/L	5	4/5/2019 8:30:07 PM
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	4/5/2019 8:30:07 PM
Sulfate	250	10		mg/L	20	4/5/2019 8:42:58 PM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: <b>pmf</b>
Mercury	ND	0.00020		mg/L	1	4/9/2019 12:07:39 PM
<b>EPA METHOD 7470: MERCURY</b>						Analyst: <b>pmf</b>
Mercury	ND	0.00020		mg/L	1	4/9/2019 12:09:53 PM
<b>EPA METHOD 6010B: DISSOLVED METALS</b>						Analyst: <b>rde</b>
Arsenic	ND	0.020		mg/L	1	4/25/2019 3:34:12 PM
Barium	0.064	0.020		mg/L	1	4/11/2019 10:15:02 AM
Cadmium	ND	0.0020		mg/L	1	4/11/2019 10:15:02 AM
Calcium	140	5.0		mg/L	5	4/11/2019 10:16:54 AM
Chromium	ND	0.0060		mg/L	1	4/11/2019 10:15:02 AM
Copper	ND	0.0060		mg/L	1	4/11/2019 10:15:02 AM
Iron	ND	0.020		mg/L	1	4/11/2019 10:15:02 AM
Lead	ND	0.0050		mg/L	1	4/25/2019 3:34:12 PM
Magnesium	26	1.0		mg/L	1	4/11/2019 10:15:02 AM
Manganese	ND	0.0020		mg/L	1	4/11/2019 10:15:02 AM
Potassium	1.9	1.0		mg/L	1	4/11/2019 10:15:02 AM
Selenium	ND	0.050		mg/L	1	4/23/2019 12:06:15 PM
Silver	ND	0.0050		mg/L	1	4/11/2019 10:15:02 AM
Sodium	84	1.0		mg/L	1	4/11/2019 10:15:02 AM
Uranium	ND	0.10		mg/L	1	4/23/2019 12:06:15 PM
Zinc	ND	0.020		mg/L	1	4/25/2019 3:34:12 PM
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>						Analyst: <b>rde</b>
Arsenic	ND	0.020		mg/L	1	4/25/2019 3:01:40 PM
Barium	0.063	0.020		mg/L	1	4/11/2019 9:17:34 AM
Cadmium	ND	0.0020		mg/L	1	4/11/2019 9:17:34 AM
Chromium	ND	0.0060		mg/L	1	4/11/2019 9:17:34 AM
Lead	ND	0.0050		mg/L	1	4/25/2019 3:01:40 PM
Selenium	ND	0.050		mg/L	1	4/11/2019 9:17:34 AM
Silver	ND	0.0050		mg/L	1	4/11/2019 9:17:34 AM
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1904357

Date Reported: 5/2/2019

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

**Client Sample ID:** East Outfall #3

**Project:** NBB Collection Wells

**Collection Date:** 4/4/2019 2:00:00 PM

**Lab ID:** 1904357-008

**Matrix:** AQUEOUS

**Received Date:** 4/5/2019 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>						Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	4/10/2019 2:39:00 PM
Toluene	ND	1.0		µg/L	1	4/10/2019 2:39:00 PM
Ethylbenzene	ND	1.0		µg/L	1	4/10/2019 2:39:00 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/10/2019 2:39:00 PM
Xylenes, Total	ND	1.5		µg/L	1	4/10/2019 2:39:00 PM
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	1	4/10/2019 2:39:00 PM
Surr: 4-Bromofluorobenzene	98.1	70-130		%Rec	1	4/10/2019 2:39:00 PM
Surr: Dibromofluoromethane	100	70-130		%Rec	1	4/10/2019 2:39:00 PM
Surr: Toluene-d8	94.6	70-130		%Rec	1	4/10/2019 2:39:00 PM
<b>SM 2540 C: TOTAL DISSOLVED SOLIDS</b>						Analyst: <b>KS</b>
Total Dissolved Solids	738	20.0	*	mg/L	1	4/10/2019 4:54:00 PM
<b>CARBON DIOXIDE</b>						Analyst: <b>JRR</b>
Total Carbon Dioxide	300	1.0	H	mg CO2/	1	4/9/2019 12:05:39 PM
<b>SM2510B: SPECIFIC CONDUCTANCE</b>						Analyst: <b>JRR</b>
Conductivity	1100	5.0		µmhos/c	1	4/9/2019 12:05:39 PM
<b>SM2320B: ALKALINITY</b>						Analyst: <b>JRR</b>
Bicarbonate (As CaCO3)	318.1	20.00		mg/L Ca	1	4/9/2019 12:05:39 PM
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	4/9/2019 12:05:39 PM
Total Alkalinity (as CaCO3)	318.1	20.00		mg/L Ca	1	4/9/2019 12:05:39 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 Limit
	S	% Recovery outside of range due to dilution or matrix		

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904357

02-May-19

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

**Project:** NBB Collection Wells

Sample ID: <b>MB-44220</b>	SampType: <b>MBLK</b>	TestCode: <b>SM 2540 C: Total Dissolved Solids</b>								
Client ID: <b>PBW</b>	Batch ID: <b>44220</b>	RunNo: <b>59049</b>								
Prep Date: <b>4/9/2019</b>	Analysis Date: <b>4/10/2019</b>	SeqNo: <b>1987443</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: <b>LCS-44220</b>	SampType: <b>LCS</b>	TestCode: <b>SM 2540 C: Total Dissolved Solids</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>44220</b>	RunNo: <b>59049</b>								
Prep Date: <b>4/9/2019</b>	Analysis Date: <b>4/10/2019</b>	SeqNo: <b>1987444</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1040	20.0	1000	0	104	80	120			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904357

02-May-19

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

**Project:** NBB Collection Wells

Sample ID: <b>MB</b>	SampType: <b>mblk</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R58949</b>	RunNo: <b>58949</b>								
Prep Date:	Analysis Date: <b>4/5/2019</b>	SeqNo: <b>1982548</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								

Sample ID: <b>LCS</b>	SampType: <b>ics</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R58949</b>	RunNo: <b>58949</b>								
Prep Date:	Analysis Date: <b>4/5/2019</b>	SeqNo: <b>1982549</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Fluoride	0.54	0.10	0.5000	0	109	90	110			
Chloride	5.0	0.50	5.000	0	100	90	110			
Nitrogen, Nitrite (As N)	0.98	0.10	1.000	0	97.6	90	110			
Bromide	2.5	0.10	2.500	0	102	90	110			
Nitrogen, Nitrate (As N)	2.7	0.10	2.500	0	106	90	110			
Phosphorus, Orthophosphate (As P)	5.1	0.50	5.000	0	102	90	110			
Sulfate	10	0.50	10.00	0	102	90	110			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904357

02-May-19

Client: Western Refining Southwest, Inc.

Project: NBB Collection Wells

Sample ID: <b>LCS-44215</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>44215</b>	RunNo: <b>59076</b>								
Prep Date: <b>4/9/2019</b>	Analysis Date: <b>4/11/2019</b>	SeqNo: <b>1988558</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	0.40	2.500	0	125	66.7	148			
Surr: DNOP	0.29		0.2500		114	52.7	168			

Sample ID: <b>MB-44215</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>PBW</b>	Batch ID: <b>44215</b>	RunNo: <b>59076</b>								
Prep Date: <b>4/9/2019</b>	Analysis Date: <b>4/11/2019</b>	SeqNo: <b>1988559</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	0.40								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.58		0.5000		116	52.7	168			

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904357

02-May-19

Client: Western Refining Southwest, Inc.

Project: NBB Collection Wells

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>G58973</b>	RunNo: <b>58973</b>								
Prep Date:	Analysis Date: <b>4/8/2019</b>	SeqNo: <b>1984235</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	18		20.00		92.4	72.8	125			

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>G58973</b>	RunNo: <b>58973</b>								
Prep Date:	Analysis Date: <b>4/8/2019</b>	SeqNo: <b>1984237</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	91.0	77.7	130			
Surr: BFB	21		20.00		107	72.8	125			

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904357

02-May-19

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

**Project:** NBB Collection Wells

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>R59003</b>		RunNo: <b>59003</b>							
Prep Date:	Analysis Date: <b>4/9/2019</b>		SeqNo: <b>1985945</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	111	70	130			
Toluene	21	1.0	20.00	0	103	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		108	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.2	70	130			
Surr: Dibromofluoromethane	11		10.00		105	70	130			
Surr: Toluene-d8	9.5		10.00		95.0	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>R59003</b>		RunNo: <b>59003</b>							
Prep Date:	Analysis Date: <b>4/9/2019</b>		SeqNo: <b>1985946</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		107	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.2	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.5		10.00		95.1	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>SL59035</b>		RunNo: <b>59035</b>							
Prep Date:	Analysis Date: <b>4/10/2019</b>		SeqNo: <b>1987559</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		103	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.6	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	9.3		10.00		93.2	70	130			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904357

02-May-19

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

**Project:** NBB Collection Wells

Sample ID: <b>Ics-1 99.0uS eC</b>	SampType: <b>LCS</b>	TestCode: <b>SM2510B: Specific Conductance</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R59004</b>	RunNo: <b>59004</b>								
Prep Date:	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985996</b> Units: <b>µmhos/cm</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.00	0	101	85	115			

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904357

02-May-19

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

**Project:** NBB Collection Wells

Sample ID: <b>MB-44195</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>PBW</b>	Batch ID: <b>44195</b>	RunNo: <b>59010</b>								
Prep Date: <b>4/8/2019</b>	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985400</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: <b>LCS-44195</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>44195</b>	RunNo: <b>59010</b>								
Prep Date: <b>4/8/2019</b>	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985401</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.9	80	120			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904357

02-May-19

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

**Project:** NBB Collection Wells

Sample ID: <b>MB-A</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>A59145</b>	RunNo: <b>59145</b>								
Prep Date:	Analysis Date: <b>4/11/2019</b>	SeqNo: <b>1991022</b>	Units: <b>mg/L</b>							

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

Sample ID: <b>LCS-A</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>A59145</b>	RunNo: <b>59145</b>								
Prep Date:	Analysis Date: <b>4/11/2019</b>	SeqNo: <b>1991024</b>	Units: <b>mg/L</b>							

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.020	0.5000	0	95.5	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.3	80	120			
Calcium	51	1.0	50.00	0	101	80	120			
Chromium	0.49	0.0060	0.5000	0	97.7	80	120			
Copper	0.51	0.0060	0.5000	0	101	80	120			
Iron	0.49	0.020	0.5000	0	98.6	80	120			
Magnesium	49	1.0	50.00	0	98.9	80	120			
Manganese	0.49	0.0020	0.5000	0	98.3	80	120			
Potassium	49	1.0	50.00	0	97.3	80	120			
Silver	0.10	0.0050	0.1000	0	99.8	80	120			
Sodium	48	1.0	50.00	0	97.0	80	120			

Sample ID: <b>LCSD-A</b>	SampType: <b>LCSD</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>LCSS02</b>	Batch ID: <b>A59145</b>	RunNo: <b>59145</b>								
Prep Date:	Analysis Date: <b>4/11/2019</b>	SeqNo: <b>1991025</b>	Units: <b>mg/L</b>							

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.020	0.5000	0	95.7	80	120	0.193	20	
Cadmium	0.50	0.0020	0.5000	0	101	80	120	1.27	20	
Calcium	51	1.0	50.00	0	102	80	120	0.286	20	
Chromium	0.50	0.0060	0.5000	0	99.1	80	120	1.40	20	
Copper	0.51	0.0060	0.5000	0	102	80	120	0.919	20	
Iron	0.50	0.020	0.5000	0	100	80	120	1.43	20	

**Qualifiers:**

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904357

02-May-19

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

**Project:** NBB Collection Wells

Sample ID: <b>LCSD-A</b>	SampType: <b>LCSD</b>		TestCode: <b>EPA Method 6010B: Dissolved Metals</b>							
Client ID: <b>LCSS02</b>	Batch ID: <b>A59145</b>		RunNo: <b>59145</b>							
Prep Date:	Analysis Date: <b>4/11/2019</b>		SeqNo: <b>1991025</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	50	1.0	50.00	0	99.8	80	120	0.875	20	
Manganese	0.50	0.0020	0.5000	0	99.3	80	120	0.977	20	
Potassium	49	1.0	50.00	0	98.4	80	120	1.11	20	
Silver	0.10	0.0050	0.1000	0	99.9	80	120	0.113	20	
Sodium	49	1.0	50.00	0	97.4	80	120	0.465	20	

Sample ID: <b>MB-A</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 6010B: Dissolved Metals</b>							
Client ID: <b>PBW</b>	Batch ID: <b>A59359</b>		RunNo: <b>59359</b>							
Prep Date:	Analysis Date: <b>4/23/2019</b>		SeqNo: <b>1999259</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.050								
Uranium	ND	0.10								

Sample ID: <b>LCS-A</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 6010B: Dissolved Metals</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>A59359</b>		RunNo: <b>59359</b>							
Prep Date:	Analysis Date: <b>4/23/2019</b>		SeqNo: <b>1999261</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.54	0.050	0.5000	0	107	80	120			
Uranium	0.50	0.10	0.5000	0	99.7	80	120			

Sample ID: <b>MB-A</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 6010B: Dissolved Metals</b>							
Client ID: <b>PBW</b>	Batch ID: <b>A59436</b>		RunNo: <b>59436</b>							
Prep Date:	Analysis Date: <b>4/25/2019</b>		SeqNo: <b>2002144</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Lead	ND	0.0050								
Zinc	ND	0.020								

Sample ID: <b>LCS-A</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 6010B: Dissolved Metals</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>A59436</b>		RunNo: <b>59436</b>							
Prep Date:	Analysis Date: <b>4/25/2019</b>		SeqNo: <b>2002145</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.55	0.020	0.5000	0	110	80	120			
Lead	0.54	0.0050	0.5000	0	109	80	120			
Zinc	0.54	0.020	0.5000	0	109	80	120			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904357

02-May-19

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

**Project:** NBB Collection Wells

Sample ID: <b>MB-44198</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>44198</b>	RunNo: <b>59145</b>								
Prep Date: <b>4/8/2019</b>	Analysis Date: <b>4/11/2019</b>	SeqNo: <b>1991008</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: <b>LCS-44198</b>	SampType: <b>LCS</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>44198</b>	RunNo: <b>59145</b>								
Prep Date: <b>4/8/2019</b>	Analysis Date: <b>4/11/2019</b>	SeqNo: <b>1991009</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.020	0.5000	0	96.7	80	120			
Cadmium	0.50	0.0020	0.5000	0	100	80	120			
Chromium	0.49	0.0060	0.5000	0	98.7	80	120			
Selenium	0.53	0.050	0.5000	0	106	80	120			
Silver	0.10	0.0050	0.1000	0	102	80	120			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904357

02-May-19

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

**Project:** NBB Collection Wells

Sample ID: <b>mb-1 alk</b>	SampType: <b>MBLK</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R59004</b>	RunNo: <b>59004</b>								
Prep Date:	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985959</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: <b>ics-1 alk</b>	SampType: <b>LCS</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R59004</b>	RunNo: <b>59004</b>								
Prep Date:	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985960</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.12	20.00	80.00	0	95.2	90	110			

Sample ID: <b>mb-2 alk</b>	SampType: <b>MBLK</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R59004</b>	RunNo: <b>59004</b>								
Prep Date:	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985984</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: <b>ics-2 alk</b>	SampType: <b>LCS</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R59004</b>	RunNo: <b>59004</b>								
Prep Date:	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985985</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.80	20.00	80.00	0	96.0	90	110			

**Qualifiers:**

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

Client Name: **Western Refining Southw**

Work Order Number: **1904357**

RcptNo: **1**

Received By: **Anne Thorne** 4/5/2019 8:30:00 AM *Anne Thorne*

Completed By: **Anne Thorne** 4/5/2019 10:41:14 AM *Anne Thorne*

Reviewed By: *LB* 4/5/19

*Labeled by: YG 4/5/19*

**Chain of Custody**

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

**Log In**

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

# of preserved bottles checked for pH: 06  
 (<2 or >12 unless noted)  
 Adjusted? NO  
 Checked by: YG 4/5/19

**Special Handling (if applicable)**

15. 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"/>		

16. Additional remarks:  
 CUSTODY SEALS INTACT ON SAMPLE BOTTLES/at 4/5/19

**17. 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 Southwest, Inc.**

**Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

email or Fax#:

QA/QC Package:

Standard  Level 4 (Full Validation)

Other

EDD (Type) **EXCEL**

Project Name: **Downgradient Wells**

Date: **4-4-19**

Project #: **Semi-Annual Event**

**HEAL PO# 4500081399**

Project Manager:

**Gregory J. McCartney**

**gjmccartney@marathonpetroleum.com**

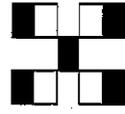
Sampler: **Tracy Payne 919-561-7055**

On Ice:  Yes  No

Sample Temperature: **10°**

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
4/4/19	0910	H <sub>2</sub> O	MW-37	40ml VOA-5	HCl	1904357
↓	↓	H <sub>2</sub> O	MW-37	250 ml amber-1	Neat	202

Date	Time	Relinquished by:	Received by:	Date	Time
4/4/19	1123	AT-7	Chad Waite	4/4/19	1623
4/4/19	1832	Chad Waite	Chad Waite	4/10/19	1830



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

### Analysis Request

BTEX+MTBE+TMB's (8021)	BTEX+MTBE+TPH (Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (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)
		X							X		
		X									

Remarks: See Analytical Methods and Target Analytes.



### Chain-of-Custody Record

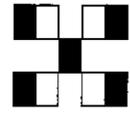
Client: **Western Refining Southwest, Inc.**  
**Bloomfield Terminal**  
 Mailing Address: **50 CR 4990**  
**Bloomfield, NM 87413**  
 Phone #: **419-421-2338**

Turn-Around Time: \_\_\_\_\_  
 Standard  Rush  
 Project Name: **San Juan River Bluff**  
 Date: **4-4-19**  
 Project #: **Semi-Annual Event**  
**HEAL PO# 4500081399**

Project Manager:  
**Gregory J. McCartney**  
**gjmccartney@marathonpetroleum.com**  
 Sampler: **Tracy Payne 919-561-7055**  
 On Ice:  Yes  No  
 Sample Temperature: **10°**

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
4/4/19	1330	H <sub>2</sub> O	East Outfall #2	40ml VOA-5	HCl	1904357
		H <sub>2</sub> O	East Outfall #2	250 ml plastic-1	HNO <sub>3</sub>	207
		H <sub>2</sub> O	East Outfall #2	125 ml plastic-1	HNO <sub>3</sub>	207
		H <sub>2</sub> O	East Outfall #2	125 ml plastic-1	H <sub>2</sub> SO <sub>4</sub>	207
		H <sub>2</sub> O	East Outfall #2	500 ml plastic-1	Neat	207

Relinquished by: **[Signature]** Date: **4/4/19 1023**  
 Relinquished by: **[Signature]** Date: **4/4/19 1832**



### 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)	Total Recoverable Metals	Dissolved Metals	8081 Pesticides / 8082 PCB's	8260B (VOA) BTEX, MTBE only	8270 (Semi-VOA)	Gen Chem - Alkalinity / CO <sub>2</sub>	General Chemistry - Anions	Air Bubbles (Y or N)
									X				
						X							
							X						
											X	X	
											X	X	

Remarks: See Analytical Methods and Target Analytes

# Chain-of-Custody Record

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

**Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

email or Fax#:

QA/QC Package:

Standard  Level 4 (Full Validation)

Other

EDD (Type) EXCEL

Project Manager:

**Gregory J. McCartney**

**gjmccartney@marathonpetroleum.com**

**Sampler: Tracy Payne 919-561-7055**

On Ice:  Yes  No

Sample Temperature: 10

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
4/4/19	1400	H <sub>2</sub> O	East Outfall #3	40ml VOA-5	HCl	1904357
		H <sub>2</sub> O	East Outfall #3	250 ml plastic-1	HNO <sub>3</sub>	708
		H <sub>2</sub> O	East Outfall #3	125 ml plastic-1	HNO <sub>3</sub>	708
		H <sub>2</sub> O	East Outfall #3	125 ml plastic-1	H <sub>2</sub> SO <sub>4</sub>	708
		H <sub>2</sub> O	East Outfall #3	500 ml plastic-1	Neat	708

Date: 4/4/19 Time: 1623

Date: 4/4/19 Time: 1832

Relinquished by: [Signature]

Relinquished by: [Signature]

Received by: [Signature]

Received by: [Signature]

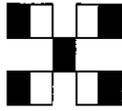
Date: 4/4/19 Time: 1623

Date: 04/05/19 Time: 0830

Remarks: See Analytical Methods and Target Analytes

## 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)	
Total Recoverable Metals	X
Dissolved Metals	
8081 Pesticides / 8082 PCB's	
8260B (VOA) BTEX, MTBE only	X
8270 (Semi-VOA)	
Gen Chem - Alkalinity / CO <sub>2</sub>	
General Chemistry - Anions	
Air Bubbles (Y or N)	



# HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

**TABLE 2**  
**Analytical Methods and Target Analytes**  
**Facility-Wide Groundwater Monitoring Plan - June 2018**  
**Western Refining Southwest, Inc. - Bloomfield Refinery**

<b>VOCs (EPA Method 8260B) <sup>(1)</sup></b> - Target List <i>Benzene</i> <i>Toluene</i> <i>Ethylbenzene</i> <i>Xylenes</i> <i>Methyl tert butyl ether (MTBE)</i>
<b>SVOCs - (EPA Method 8270)</b> - Method List
<b>TPH-GRO (EPA Method 8015B)</b> - Gasoline Range Organics
<b>TPH-DRO (EPA Method 8015B)</b> - Diesel Range Organics - Motor Oil Range Organics
<b>Total Carbon Dioxide (Laboratory Calculated)</b> - Dissolved CO <sub>2</sub>
<b>Specific Conductivity (EPA Method 120.1 or field measurement)</b> - Specific conductance
<b>TDS (EPA Method 160.1 or field measurement)</b> - Total dissolved solids
<b>General Chemistry - Anions (EPA Method 300.0)</b> <i>Fluoride</i> <i>Chloride</i> <i>Bromide</i> <i>Nitrogen, Nitrite (as N)</i> <i>Nitrogen, Nitrate (as N)</i> <i>Phosphorous, Orthophosphate (As P)</i> <i>Sulfate</i>
<b>General Chemistry - Alkalinity (EPA Method 310.1)</b> <i>Alkalinity, Total</i> <i>Carbonate</i> <i>Bicarbonate</i>

<b>Total Recoverable Metals (EPA Method 6010B/7470)</b> - Target List (not applicable to River Terrace Sampling Events) <i>Arsenic</i> <i>Barium</i> <i>Cadmium</i> <i>Chromium</i> <i>Lead</i> <i>Mercury</i> <i>Selenium</i> <i>Silver</i>
- Target List (for River Terrace Sampling Events Only) <i>Lead</i> <i>Mercury (DW-1 ONLY)</i>
<b>Dissolved Metals (EPA Method 6010B / 7470)</b> - Target List (for Refinery Complex, Outfalls, and River) <i>Arsenic</i> <i>Barium</i> <i>Cadmium</i> <i>Calcium</i> <i>Chromium</i> <i>Copper</i> <i>Iron</i> <i>Lead</i> <i>Magnesium</i> <i>Manganese</i> <i>Mercury</i> <i>Potassium</i> <i>Selenium</i> <i>Silver</i> <i>Sodium</i> <i>Uranium</i> <i>Zinc</i>

TPH = total petroleum hydrocarbons  
GRO = gasoline range organics  
VOCs = volatile organic compounds  
DRO = diesel range organics  
TDS = total dissolved solids

**NOTES:**

- (1) VOCs Target List for River Terrace samples are analyzed by EPA Method 8021B per NMED's letter Approval with Direction dated June 16, 2009.
- (2) Target List for San Juan River Terrace Monitoring Wells and Piezometer Wells only, per the River Terrace Bioventing System Monitoring Plan.



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 15, 2019

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

RE: NBB Observation Wells 4-5-19

OrderNo.: 1904419

Dear Gregory J. McCartney:

Hall Environmental Analysis Laboratory received 8 sample(s) on 4/6/2019 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 #NM0901

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written in a cursive style.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1904419**

Date Reported: **4/15/2019**

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

**Client Sample ID:** OW 8+10

**Project:** NBB Observation Wells 4-5-19

**Collection Date:** 4/5/2019 7:40:00 AM

**Lab ID:** 1904419-001

**Matrix:** AQUEOUS

**Received Date:** 4/6/2019 10:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	0.44	0.40		mg/L	1	4/11/2019 3:02:04 PM	44215
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/11/2019 3:02:04 PM	44215
Surr: DNOP	116	52.7-168		%Rec	1	4/11/2019 3:02:04 PM	44215
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2019 12:22:35 PM	G58973
Surr: BFB	92.9	72.8-125		%Rec	1	4/8/2019 12:22:35 PM	G58973
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	4/9/2019 7:45:00 PM	R59003
Toluene	ND	1.0		µg/L	1	4/9/2019 7:45:00 PM	R59003
Ethylbenzene	ND	1.0		µg/L	1	4/9/2019 7:45:00 PM	R59003
Methyl tert-butyl ether (MTBE)	5.4	1.0		µg/L	1	4/9/2019 7:45:00 PM	R59003
Xylenes, Total	ND	1.5		µg/L	1	4/9/2019 7:45:00 PM	R59003
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	4/9/2019 7:45:00 PM	R59003
Surr: 4-Bromofluorobenzene	97.9	70-130		%Rec	1	4/9/2019 7:45:00 PM	R59003
Surr: Dibromofluoromethane	99.9	70-130		%Rec	1	4/9/2019 7:45:00 PM	R59003
Surr: Toluene-d8	94.0	70-130		%Rec	1	4/9/2019 7:45:00 PM	R59003

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

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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 at testcode

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1904419**

Date Reported: **4/15/2019**

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

**Client Sample ID:** OW 19+50

**Project:** NBB Observation Wells 4-5-19

**Collection Date:** 4/5/2019 8:05:00 AM

**Lab ID:** 1904419-002

**Matrix:** AQUEOUS

**Received Date:** 4/6/2019 10:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	4/11/2019 3:24:08 PM	44215
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/11/2019 3:24:08 PM	44215
Surr: DNOP	118	52.7-168		%Rec	1	4/11/2019 3:24:08 PM	44215
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	0.077	0.050		mg/L	1	4/8/2019 12:45:29 PM	G58973
Surr: BFB	92.0	72.8-125		%Rec	1	4/8/2019 12:45:29 PM	G58973
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	4/9/2019 8:08:00 PM	R59003
Toluene	ND	1.0		µg/L	1	4/9/2019 8:08:00 PM	R59003
Ethylbenzene	ND	1.0		µg/L	1	4/9/2019 8:08:00 PM	R59003
Methyl tert-butyl ether (MTBE)	130	1.0		µg/L	1	4/9/2019 8:08:00 PM	R59003
Xylenes, Total	ND	1.5		µg/L	1	4/9/2019 8:08:00 PM	R59003
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	4/9/2019 8:08:00 PM	R59003
Surr: 4-Bromofluorobenzene	97.7	70-130		%Rec	1	4/9/2019 8:08:00 PM	R59003
Surr: Dibromofluoromethane	100	70-130		%Rec	1	4/9/2019 8:08:00 PM	R59003
Surr: Toluene-d8	94.6	70-130		%Rec	1	4/9/2019 8:08:00 PM	R59003

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

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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 at testcode

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1904419**

Date Reported: **4/15/2019**

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

**Client Sample ID:** OW 22+00

**Project:** NBB Observation Wells 4-5-19

**Collection Date:** 4/5/2019 8:25:00 AM

**Lab ID:** 1904419-003

**Matrix:** AQUEOUS

**Received Date:** 4/6/2019 10:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	4/11/2019 3:46:24 PM	44215
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/11/2019 3:46:24 PM	44215
Surr: DNOP	118	52.7-168		%Rec	1	4/11/2019 3:46:24 PM	44215
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2019 1:08:07 PM	G58973
Surr: BFB	95.2	72.8-125		%Rec	1	4/8/2019 1:08:07 PM	G58973
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	4/9/2019 8:32:00 PM	R59003
Toluene	ND	1.0		µg/L	1	4/9/2019 8:32:00 PM	R59003
Ethylbenzene	ND	1.0		µg/L	1	4/9/2019 8:32:00 PM	R59003
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/9/2019 8:32:00 PM	R59003
Xylenes, Total	ND	1.5		µg/L	1	4/9/2019 8:32:00 PM	R59003
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	4/9/2019 8:32:00 PM	R59003
Surr: 4-Bromofluorobenzene	96.9	70-130		%Rec	1	4/9/2019 8:32:00 PM	R59003
Surr: Dibromofluoromethane	100	70-130		%Rec	1	4/9/2019 8:32:00 PM	R59003
Surr: Toluene-d8	95.3	70-130		%Rec	1	4/9/2019 8:32:00 PM	R59003

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

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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 at testcode

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1904419**

Date Reported: **4/15/2019**

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

**Client Sample ID:** OW 23+90

**Project:** NBB Observation Wells 4-5-19

**Collection Date:** 4/5/2019

**Lab ID:** 1904419-004

**Matrix:** AQUEOUS

**Received Date:** 4/6/2019 10:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	4/9/2019 8:56:00 PM	R59003
Toluene	ND	1.0		µg/L	1	4/9/2019 8:56:00 PM	R59003
Ethylbenzene	ND	1.0		µg/L	1	4/9/2019 8:56:00 PM	R59003
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/9/2019 8:56:00 PM	R59003
Xylenes, Total	ND	1.5		µg/L	1	4/9/2019 8:56:00 PM	R59003
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	4/9/2019 8:56:00 PM	R59003
Surr: 4-Bromofluorobenzene	98.6	70-130		%Rec	1	4/9/2019 8:56:00 PM	R59003
Surr: Dibromofluoromethane	101	70-130		%Rec	1	4/9/2019 8:56:00 PM	R59003
Surr: Toluene-d8	95.9	70-130		%Rec	1	4/9/2019 8:56:00 PM	R59003

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

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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 at testcode

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1904419**

Date Reported: **4/15/2019**

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

**Client Sample ID:** CW 25+95

**Project:** NBB Observation Wells 4-5-19

**Collection Date:** 4/5/2019 9:10:00 AM

**Lab ID:** 1904419-005

**Matrix:** AQUEOUS

**Received Date:** 4/6/2019 10:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	4/11/2019 4:08:37 PM	44215
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/11/2019 4:08:37 PM	44215
Surr: DNOP	115	52.7-168		%Rec	1	4/11/2019 4:08:37 PM	44215
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	0.36	0.050		mg/L	1	4/8/2019 1:53:28 PM	G58973
Surr: BFB	108	72.8-125		%Rec	1	4/8/2019 1:53:28 PM	G58973
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	4/9/2019 9:20:00 PM	R59003
Toluene	ND	1.0		µg/L	1	4/9/2019 9:20:00 PM	R59003
Ethylbenzene	ND	1.0		µg/L	1	4/9/2019 9:20:00 PM	R59003
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/9/2019 9:20:00 PM	R59003
Xylenes, Total	ND	1.5		µg/L	1	4/9/2019 9:20:00 PM	R59003
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	1	4/9/2019 9:20:00 PM	R59003
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	4/9/2019 9:20:00 PM	R59003
Surr: Dibromofluoromethane	96.5	70-130		%Rec	1	4/9/2019 9:20:00 PM	R59003
Surr: Toluene-d8	95.2	70-130		%Rec	1	4/9/2019 9:20:00 PM	R59003

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

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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 at testcode

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1904419**

Date Reported: **4/15/2019**

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

**Client Sample ID:** Duplicate #1

**Project:** NBB Observation Wells 4-5-19

**Collection Date:** 4/5/2019

**Lab ID:** 1904419-006

**Matrix:** AQUEOUS

**Received Date:** 4/6/2019 10:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	4/11/2019 4:31:03 PM	44215
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/11/2019 4:31:03 PM	44215
Surr: DNOP	114	52.7-168		%Rec	1	4/11/2019 4:31:03 PM	44215
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2019 2:16:08 PM	G58973
Surr: BFB	101	72.8-125		%Rec	1	4/8/2019 2:16:08 PM	G58973
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	4/9/2019 9:44:00 PM	R59003
Toluene	ND	1.0		µg/L	1	4/9/2019 9:44:00 PM	R59003
Ethylbenzene	ND	1.0		µg/L	1	4/9/2019 9:44:00 PM	R59003
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/9/2019 9:44:00 PM	R59003
Xylenes, Total	ND	1.5		µg/L	1	4/9/2019 9:44:00 PM	R59003
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	4/9/2019 9:44:00 PM	R59003
Surr: 4-Bromofluorobenzene	97.2	70-130		%Rec	1	4/9/2019 9:44:00 PM	R59003
Surr: Dibromofluoromethane	99.3	70-130		%Rec	1	4/9/2019 9:44:00 PM	R59003
Surr: Toluene-d8	94.6	70-130		%Rec	1	4/9/2019 9:44:00 PM	R59003

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

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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 at testcode

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1904419**

Date Reported: **4/15/2019**

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

**Client Sample ID:** Field Blank #2

**Project:** NBB Observation Wells 4-5-19

**Collection Date:** 4/5/2019 9:25:00 AM

**Lab ID:** 1904419-007

**Matrix:** AQUEOUS

**Received Date:** 4/6/2019 10:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	4/11/2019 4:53:09 PM	44215
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/11/2019 4:53:09 PM	44215
Surr: DNOP	113	52.7-168		%Rec	1	4/11/2019 4:53:09 PM	44215
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2019 2:38:47 PM	G58973
Surr: BFB	100	72.8-125		%Rec	1	4/8/2019 2:38:47 PM	G58973
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	4/9/2019 10:08:00 PM	B59003
Toluene	ND	1.0		µg/L	1	4/9/2019 10:08:00 PM	B59003
Ethylbenzene	ND	1.0		µg/L	1	4/9/2019 10:08:00 PM	B59003
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/9/2019 10:08:00 PM	B59003
Xylenes, Total	ND	1.5		µg/L	1	4/9/2019 10:08:00 PM	B59003
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	4/9/2019 10:08:00 PM	B59003
Surr: 4-Bromofluorobenzene	99.3	70-130		%Rec	1	4/9/2019 10:08:00 PM	B59003
Surr: Dibromofluoromethane	100	70-130		%Rec	1	4/9/2019 10:08:00 PM	B59003
Surr: Toluene-d8	95.4	70-130		%Rec	1	4/9/2019 10:08:00 PM	B59003

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

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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 at testcode

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1904419**

Date Reported: 4/15/2019

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

**Client Sample ID:** Trip Blank

**Project:** NBB Observation Wells 4-5-19

**Collection Date:**

**Lab ID:** 1904419-008

**Matrix:** AQUEOUS

**Received Date:** 4/6/2019 10:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	4/9/2019 11:21:00 PM	B59003
Toluene	ND	1.0		µg/L	1	4/9/2019 11:21:00 PM	B59003
Ethylbenzene	ND	1.0		µg/L	1	4/9/2019 11:21:00 PM	B59003
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/9/2019 11:21:00 PM	B59003
Xylenes, Total	ND	1.5		µg/L	1	4/9/2019 11:21:00 PM	B59003
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	4/9/2019 11:21:00 PM	B59003
Surr: 4-Bromofluorobenzene	98.0	70-130		%Rec	1	4/9/2019 11:21:00 PM	B59003
Surr: Dibromofluoromethane	101	70-130		%Rec	1	4/9/2019 11:21:00 PM	B59003
Surr: Toluene-d8	93.4	70-130		%Rec	1	4/9/2019 11:21:00 PM	B59003

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

<b>Qualifiers:</b>	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	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 at testcode

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904419

15-Apr-19

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

**Project:** NBB Observation Wells 4-5-19

Sample ID: <b>LCS-44215</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>44215</b>		RunNo: <b>59076</b>							
Prep Date: <b>4/9/2019</b>	Analysis Date: <b>4/11/2019</b>		SeqNo: <b>1988558</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	0.40	2.500	0	125	66.7	148			
Surr: DNOP	0.29		0.2500		114	52.7	168			

Sample ID: <b>MB-44215</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>							
Client ID: <b>PBW</b>	Batch ID: <b>44215</b>		RunNo: <b>59076</b>							
Prep Date: <b>4/9/2019</b>	Analysis Date: <b>4/11/2019</b>		SeqNo: <b>1988559</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	0.40								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.58		0.5000		116	52.7	168			

**Qualifiers:**

H Holding times for preparation or analysis exceeded  
 PQL Practical Quantitative Limit  
 S % Recovery outside of range due to dilution or matrix

ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit  
 W Sample container temperature is out of limit as specified at testcode

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904419

15-Apr-19

Client: Western Refining Southwest, Inc.

Project: NBB Observation Wells 4-5-19

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>G58973</b>	RunNo: <b>58973</b>								
Prep Date:	Analysis Date: <b>4/8/2019</b>	SeqNo: <b>1984235</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	18		20.00		92.4	72.8	125			

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>G58973</b>	RunNo: <b>58973</b>								
Prep Date:	Analysis Date: <b>4/8/2019</b>	SeqNo: <b>1984237</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	91.0	77.7	130			
Surr: BFB	21		20.00		107	72.8	125			

### Qualifiers:

H Holding times for preparation or analysis exceeded  
PQL Practical Quantitative Limit  
S % Recovery outside of range due to dilution or matrix

ND Not Detected at the Reporting Limit  
RL Reporting Detection Limit  
W Sample container temperature is out of limit as specified at testcode

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904419

15-Apr-19

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

**Project:** NBB Observation Wells 4-5-19

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>R59003</b>	RunNo: <b>59003</b>								
Prep Date:	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985945</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	111	70	130			
Toluene	21	1.0	20.00	0	103	70	130			
Surr: 1,2-Dichloroethane-d4	11		10.00		108	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		99.2	70	130			
Surr: Dibromofluoromethane	11		10.00		105	70	130			
Surr: Toluene-d8	9.5		10.00		95.0	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>R59003</b>	RunNo: <b>59003</b>								
Prep Date:	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985946</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		107	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.2	70	130			
Surr: Dibromofluoromethane	11		10.00		106	70	130			
Surr: Toluene-d8	9.5		10.00		95.1	70	130			

Sample ID: <b>1904419-007ams</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8260: Volatiles Short List</b>								
Client ID: <b>Field Blank #2</b>	Batch ID: <b>B59003</b>	RunNo: <b>59003</b>								
Prep Date:	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985993</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	104	70	130			
Toluene	20	1.0	20.00	0	99.4	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		103	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		101	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.4		10.00		94.5	70	130			

Sample ID: <b>1904419-007amsd</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8260: Volatiles Short List</b>								
Client ID: <b>Field Blank #2</b>	Batch ID: <b>B59003</b>	RunNo: <b>59003</b>								
Prep Date:	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1986004</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	99.1	70	130	4.98	20	

**Qualifiers:**

- H Holding times for preparation or analysis exceeded
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified at testcode

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904419

15-Apr-19

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

**Project:** NBB Observation Wells 4-5-19

Sample ID: <b>1904419-007amsd</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8260: Volatiles Short List</b>								
Client ID: <b>Field Blank #2</b>	Batch ID: <b>B59003</b>	RunNo: <b>59003</b>								
Prep Date:	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1986004</b>	Units: <b>µg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Toluene	19	1.0	20.00	0	94.8	70	130	4.66	20	
Surr: 1,2-Dichloroethane-d4	9.9		10.00		98.8	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.9		10.00		98.7	70	130	0	0	
Surr: Dibromofluoromethane	10		10.00		100	70	130	0	0	
Surr: Toluene-d8	9.4		10.00		94.4	70	130	0	0	

Sample ID: <b>100ng lcs2</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8260: Volatiles Short List</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>B59003</b>	RunNo: <b>59003</b>								
Prep Date:	Analysis Date: <b>4/10/2019</b>	SeqNo: <b>1986087</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	112	70	130			
Toluene	22	1.0	20.00	0	108	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		99.8	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.2	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.1	70	130			
Surr: Toluene-d8	9.4		10.00		94.4	70	130			

Sample ID: <b>rb2</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8260: Volatiles Short List</b>								
Client ID: <b>PBW</b>	Batch ID: <b>B59003</b>	RunNo: <b>59003</b>								
Prep Date:	Analysis Date: <b>4/10/2019</b>	SeqNo: <b>1986088</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	9.8		10.00		98.2	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.4		10.00		94.2	70	130			

**Qualifiers:**

H Holding times for preparation or analysis exceeded  
 PQL Practical Quantitative Limit  
 S % Recovery outside of range due to dilution or matrix

ND Not Detected at the Reporting Limit  
 RL Reporting Detection Limit  
 W Sample container temperature is out of limit as specified at testcode

# Sample Log-In Check List

Client Name: **Western Refining Southw**

Work Order Number: **1904419**

RcptNo: **1**

Received By: **Isaiah Ortiz** 4/6/2019 10:45:00 AM

*I-OK*

Completed By: **Isaiah Ortiz** 4/6/2019 11:57:13 AM

*I-OK*

Reviewed By: *LB* 4/8/19

*LB: JJC 4-8-19*

**Chain of Custody**

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

**Log In**

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

# of preserved bottles checked for pH: _____
( <2 or >12 unless noted )
Adjusted? _____
Checked by: <i>JJC 4-8-19</i>

**Special Handling (if applicable)**

15. 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: _____	

16. Additional remarks:

**17. Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.9	Good	Yes			
2	3.2	Good	Yes			
3	2.8	Good	Yes			



# Chain-of-Custody Record

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

**Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

email or Fax#:

QA/QC Package:

Standard  Level 4 (Full Validation)

Other \_\_\_\_\_

EDD (Type) EXCEL

Turn-Around Time:

Standard  Rush

Project Name: **NBB - Observation Wells**

Date: **4-5-19**

Project #: **Semi-Annual Event**

**HEAL PO# 4500081399**

Project Manager:

**Gregory J. McCartney**

**gjmccartney@marathonpetroleum.com**

Sampler: **Tracy Payne 919-561-7055**

On Ice:  Yes  No

Sample Temperature: **5.9°C, 3.2°C, 2.8°C**

Container Type and #

**40ml VOA-5**

**HCI**

Preservative Type

**250 ml amber-1**

**Neat**

HEAL No.

**1904419**

**-002**

**I**

Date

**4/5/19 0805**

Time

**↓**

Matrix

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

**OW 19+50**

Sample Request ID

**OW 19+50**

Matrix

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

**OW 19+50**

## Analysis Request

BTEX+MTBE+TMBs(8021)	
BTEX+MTBE+TPH(Gas only)	<input checked="" type="checkbox"/>
TPH 8015B (GRO/DRO/MRO)	<input checked="" type="checkbox"/>
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	
<b>8260B (VOA) BTEX, MTBE only</b>	<input checked="" type="checkbox"/>
8270 (Semi-VOA)	
Air Bubbles (Y or N)	

Remarks: See Analytical Methods and Target Analytes.

Date:	Time:	Relinquished by:	Date:	Time:	Received by:
<b>4/5/19</b>	<b>1550</b>	<b>[Signature]</b>	<b>4/5/19</b>	<b>1550</b>	<b>[Signature]</b>
Date:	Time:	Relinquished by:	Date:	Time:	Received by:
<b>4/5/19</b>	<b>1819</b>	<b>[Signature]</b>	<b>4/6/19</b>	<b>1045</b>	<b>[Signature]</b>



# Chain-of-Custody Record

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

**Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

email or Fax#:

QA/QC Package:

Standard  Level 4 (Full Validation)

Other

EDD (Type) EXCEL

Turn-Around Time:

Standard  Rush

Project Name: **NBB - Observation Wells**

Date: **4-5-19**

Project #: **Semi-Annual Event**

**HEAL PO# 4500081399**

Project Manager:

**Gregory J. McCartney**

**gjmccartney@marathonpetroleum.com**

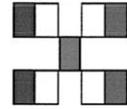
Sampler: **Tracy Payne 919-561-7055**

On Ice:  Yes  No

Sample Temperature: **5.9°C, 3.2°C, 2.8°C**

Date	Time	Matrix	Sample Request ID
4/5/19		H <sub>2</sub> O	OW 23+90
4/5/19		H <sub>2</sub> O	<del>OW 23+90</del> 1.5.19

Container Type and #	Preservative Type	HEAL No.
40ml VOA-5	HCl	1904419
250 ml amber-1	<del>None</del>	-004



# HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (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)
		<del>X</del>	<del>X</del>	<del>X</del>					X		

Remarks: See Analytical Methods and Target Analytes.

Received by:	Date	Time
<i>Christina White</i>	4/5/19	1550
Received by:	Date	Time
<i>T-O courier</i>	4/6/19	1045

Date:	Time:	Relinquished by:
4/5/19	1550	<i>[Signature]</i>
Date:	Time:	Relinquished by:
4/5/19	1819	<i>Christina White</i>





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 14, 2019

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

RE: San Juan River 4-5-19

OrderNo.: 1904422

Dear Gregory J. McCartney:

Hall Environmental Analysis Laboratory received 5 sample(s) on 4/6/2019 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 #NM0901

Sincerely,

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

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1904422

Date Reported: 5/14/2019

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

**Client Sample ID:** Upstream

**Project:** San Juan River 4-5-19

**Collection Date:** 4/5/2019 10:40:00 AM

**Lab ID:** 1904422-001

**Matrix:** AQUEOUS

**Received Date:** 4/6/2019 10:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	4/11/2019 5:15:25 PM	44215
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/11/2019 5:15:25 PM	44215
Surr: DNOP	119	52.7-168		%Rec	1	4/11/2019 5:15:25 PM	44215
<b>CARBON DIOXIDE</b>							Analyst: <b>JRR</b>
Total Carbon Dioxide	87	1.0	H	mg CO2/	1	4/9/2019 12:20:38 PM	R59004
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Fluoride	ND	1.0		mg/L	10	4/8/2019 4:53:19 PM	R58998
Chloride	5.4	5.0		mg/L	10	4/8/2019 4:53:19 PM	R58998
Bromide	ND	1.0		mg/L	10	4/8/2019 4:53:19 PM	R58998
Phosphorus, Orthophosphate (As P)	ND	5.0	H	mg/L	10	4/8/2019 4:53:19 PM	R58998
Sulfate	92	5.0		mg/L	10	4/8/2019 4:53:19 PM	R58998
Nitrate+Nitrite as N	ND	1.0		mg/L	5	4/8/2019 6:36:12 PM	R58998
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>
Bicarbonate (As CaCO3)	95.56	20.00		mg/L Ca	1	4/9/2019 12:20:38 PM	R59004
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	4/9/2019 12:20:38 PM	R59004
Total Alkalinity (as CaCO3)	95.56	20.00		mg/L Ca	1	4/9/2019 12:20:38 PM	R59004
<b>EPA METHOD 7470: MERCURY</b>							Analyst: <b>pmf</b>
Mercury	ND	0.00020		mg/L	1	4/9/2019 12:12:07 PM	44195
<b>EPA METHOD 7470: MERCURY</b>							Analyst: <b>pmf</b>
Mercury	ND	0.00020		mg/L	1	4/11/2019 3:46:58 PM	44282
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: <b>rde</b>
Arsenic	ND	0.020		mg/L	1	4/25/2019 3:42:02 PM	A59436
Barium	0.076	0.020		mg/L	1	4/11/2019 10:27:37 AM	A59145
Cadmium	ND	0.0020		mg/L	1	4/11/2019 10:27:37 AM	A59145
Calcium	39	1.0		mg/L	1	4/26/2019 2:41:20 PM	A59501
Chromium	ND	0.0060		mg/L	1	4/11/2019 10:27:37 AM	A59145
Copper	ND	0.0060		mg/L	1	4/11/2019 10:27:37 AM	A59145
Iron	0.074	0.020		mg/L	1	4/23/2019 12:08:08 PM	A59359
Lead	ND	0.0050		mg/L	1	4/25/2019 3:42:02 PM	A59436
Magnesium	7.3	1.0		mg/L	1	4/11/2019 10:27:37 AM	A59145
Manganese	0.017	0.0020		mg/L	1	4/23/2019 12:08:08 PM	A59359
Potassium	2.2	1.0		mg/L	1	4/11/2019 10:27:37 AM	A59145
Selenium	ND	0.050		mg/L	1	4/23/2019 12:08:08 PM	A59359
Silver	ND	0.0050		mg/L	1	4/11/2019 10:27:37 AM	A59145
Sodium	29	1.0		mg/L	1	4/11/2019 10:27:37 AM	A59145
Uranium	ND	0.10		mg/L	1	4/23/2019 12:08:08 PM	A59359

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1904422

Date Reported: 5/14/2019

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

**Client Sample ID:** Upstream

**Project:** San Juan River 4-5-19

**Collection Date:** 4/5/2019 10:40:00 AM

**Lab ID:** 1904422-001

**Matrix:** AQUEOUS

**Received Date:** 4/6/2019 10:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: rde
Zinc	ND	0.020		mg/L	1	4/25/2019 3:42:02 PM	A59436
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>							Analyst: rde
Arsenic	ND	0.020		mg/L	1	4/25/2019 3:03:34 PM	44198
Barium	0.14	0.020		mg/L	1	4/11/2019 9:19:28 AM	44198
Cadmium	ND	0.0020		mg/L	1	4/11/2019 9:19:28 AM	44198
Chromium	ND	0.0060		mg/L	1	4/11/2019 9:19:28 AM	44198
Lead	ND	0.0050		mg/L	1	4/25/2019 3:03:34 PM	44198
Selenium	ND	0.050		mg/L	1	4/11/2019 9:19:28 AM	44198
Silver	ND	0.0050		mg/L	1	4/11/2019 9:19:28 AM	44198
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2019 3:24:11 PM	G58973
Surr: BFB	109	72.8-125		%Rec	1	4/8/2019 3:24:11 PM	G58973
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: RAA
Benzene	ND	1.0		µg/L	1	4/10/2019 1:27:00 PM	SL59035
Toluene	ND	1.0		µg/L	1	4/10/2019 1:27:00 PM	SL59035
Ethylbenzene	ND	1.0		µg/L	1	4/10/2019 1:27:00 PM	SL59035
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/10/2019 1:27:00 PM	SL59035
Xylenes, Total	ND	1.5		µg/L	1	4/10/2019 1:27:00 PM	SL59035
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	4/10/2019 1:27:00 PM	SL59035
Surr: 4-Bromofluorobenzene	97.9	70-130		%Rec	1	4/10/2019 1:27:00 PM	SL59035
Surr: Dibromofluoromethane	99.3	70-130		%Rec	1	4/10/2019 1:27:00 PM	SL59035
Surr: Toluene-d8	94.4	70-130		%Rec	1	4/10/2019 1:27:00 PM	SL59035

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1904422

Date Reported: 5/14/2019

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

**Client Sample ID:** North of 45

**Project:** San Juan River 4-5-19

**Collection Date:** 4/5/2019 11:45:00 AM

**Lab ID:** 1904422-002

**Matrix:** AQUEOUS

**Received Date:** 4/6/2019 10:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	4/11/2019 5:37:34 PM	44215
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/11/2019 5:37:34 PM	44215
Surr: DNOP	114	52.7-168		%Rec	1	4/11/2019 5:37:34 PM	44215
<b>CARBON DIOXIDE</b>							Analyst: <b>JRR</b>
Total Carbon Dioxide	86	1.0	H	mg CO2/	1	4/9/2019 12:29:23 PM	R59004
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Fluoride	ND	1.0		mg/L	10	4/8/2019 5:44:46 PM	R58998
Chloride	5.5	5.0		mg/L	10	4/8/2019 5:44:46 PM	R58998
Bromide	ND	1.0		mg/L	10	4/8/2019 5:44:46 PM	R58998
Phosphorus, Orthophosphate (As P)	ND	5.0	H	mg/L	10	4/8/2019 5:44:46 PM	R58998
Sulfate	94	5.0		mg/L	10	4/8/2019 5:44:46 PM	R58998
Nitrate+Nitrite as N	ND	1.0		mg/L	5	4/8/2019 6:49:04 PM	R58998
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>
Bicarbonate (As CaCO3)	95.48	20.00		mg/L Ca	1	4/9/2019 12:29:23 PM	R59004
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	4/9/2019 12:29:23 PM	R59004
Total Alkalinity (as CaCO3)	95.48	20.00		mg/L Ca	1	4/9/2019 12:29:23 PM	R59004
<b>EPA METHOD 7470: MERCURY</b>							Analyst: <b>pmf</b>
Mercury	ND	0.00020		mg/L	1	4/9/2019 12:18:53 PM	44195
<b>EPA METHOD 7470: MERCURY</b>							Analyst: <b>pmf</b>
Mercury	ND	0.00020		mg/L	1	4/11/2019 3:49:12 PM	44282
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: <b>rde</b>
Arsenic	ND	0.020		mg/L	1	4/25/2019 3:44:01 PM	A59436
Barium	0.074	0.020		mg/L	1	4/11/2019 10:31:28 AM	A59145
Cadmium	ND	0.0020		mg/L	1	4/11/2019 10:31:28 AM	A59145
Calcium	40	1.0		mg/L	1	4/26/2019 2:43:00 PM	A59501
Chromium	ND	0.0060		mg/L	1	4/11/2019 10:31:28 AM	A59145
Copper	ND	0.0060		mg/L	1	4/11/2019 10:31:28 AM	A59145
Iron	0.057	0.020		mg/L	1	4/23/2019 12:22:14 PM	A59359
Lead	ND	0.0050		mg/L	1	4/25/2019 3:44:01 PM	A59436
Magnesium	7.3	1.0		mg/L	1	4/11/2019 10:31:28 AM	A59145
Manganese	0.013	0.0020		mg/L	1	4/23/2019 12:22:14 PM	A59359
Potassium	2.1	1.0		mg/L	1	4/11/2019 10:31:28 AM	A59145
Selenium	ND	0.050		mg/L	1	4/23/2019 12:22:14 PM	A59359
Silver	ND	0.0050		mg/L	1	4/11/2019 10:31:28 AM	A59145
Sodium	30	1.0		mg/L	1	4/11/2019 10:31:28 AM	A59145
Uranium	ND	0.10		mg/L	1	4/23/2019 12:22:14 PM	A59359

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1904422

Date Reported: 5/14/2019

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

**Client Sample ID:** North of 45

**Project:** San Juan River 4-5-19

**Collection Date:** 4/5/2019 11:45:00 AM

**Lab ID:** 1904422-002

**Matrix:** AQUEOUS

**Received Date:** 4/6/2019 10:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: rde
Zinc	ND	0.020		mg/L	1	4/25/2019 3:44:01 PM	A59436
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>							Analyst: rde
Arsenic	ND	0.020		mg/L	1	4/25/2019 3:08:51 PM	44198
Barium	0.19	0.020		mg/L	1	4/11/2019 9:24:36 AM	44198
Cadmium	ND	0.0020		mg/L	1	4/11/2019 9:24:36 AM	44198
Chromium	ND	0.0060		mg/L	1	4/11/2019 9:24:36 AM	44198
Lead	ND	0.0050		mg/L	1	4/25/2019 3:08:51 PM	44198
Selenium	ND	0.050		mg/L	1	4/11/2019 9:24:36 AM	44198
Silver	ND	0.0050		mg/L	1	4/11/2019 9:24:36 AM	44198
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2019 3:46:54 PM	G58973
Surr: BFB	110	72.8-125		%Rec	1	4/8/2019 3:46:54 PM	G58973
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: RAA
Benzene	ND	1.0		µg/L	1	4/10/2019 1:46:00 AM	B59003
Toluene	ND	1.0		µg/L	1	4/10/2019 1:46:00 AM	B59003
Ethylbenzene	ND	1.0		µg/L	1	4/10/2019 1:46:00 AM	B59003
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/10/2019 1:46:00 AM	B59003
Xylenes, Total	ND	1.5		µg/L	1	4/10/2019 1:46:00 AM	B59003
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	4/10/2019 1:46:00 AM	B59003
Surr: 4-Bromofluorobenzene	98.0	70-130		%Rec	1	4/10/2019 1:46:00 AM	B59003
Surr: Dibromofluoromethane	100	70-130		%Rec	1	4/10/2019 1:46:00 AM	B59003
Surr: Toluene-d8	95.2	70-130		%Rec	1	4/10/2019 1:46:00 AM	B59003

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1904422

Date Reported: 5/14/2019

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

**Client Sample ID:** North of 46

**Project:** San Juan River 4-5-19

**Collection Date:** 4/5/2019 12:15:00 PM

**Lab ID:** 1904422-003

**Matrix:** AQUEOUS

**Received Date:** 4/6/2019 10:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	4/11/2019 5:59:50 PM	44215
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/11/2019 5:59:50 PM	44215
Surr: DNOP	115	52.7-168		%Rec	1	4/11/2019 5:59:50 PM	44215
<b>CARBON DIOXIDE</b>							Analyst: <b>JRR</b>
Total Carbon Dioxide	92	1.0	H	mg CO2/	1	4/9/2019 12:37:28 PM	R59004
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Fluoride	ND	1.0		mg/L	10	4/8/2019 6:10:29 PM	R58998
Chloride	6.2	5.0		mg/L	10	4/8/2019 6:10:29 PM	R58998
Bromide	ND	1.0		mg/L	10	4/8/2019 6:10:29 PM	R58998
Phosphorus, Orthophosphate (As P)	ND	5.0	H	mg/L	10	4/8/2019 6:10:29 PM	R58998
Sulfate	130	5.0		mg/L	10	4/8/2019 6:10:29 PM	R58998
Nitrate+Nitrite as N	ND	1.0		mg/L	5	4/8/2019 7:01:55 PM	R58998
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>
Bicarbonate (As CaCO3)	102.1	20.00		mg/L Ca	1	4/9/2019 12:37:28 PM	R59004
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	4/9/2019 12:37:28 PM	R59004
Total Alkalinity (as CaCO3)	102.1	20.00		mg/L Ca	1	4/9/2019 12:37:28 PM	R59004
<b>EPA METHOD 7470: MERCURY</b>							Analyst: <b>pmf</b>
Mercury	ND	0.00020		mg/L	1	4/9/2019 12:25:47 PM	44195
<b>EPA METHOD 7470: MERCURY</b>							Analyst: <b>pmf</b>
Mercury	ND	0.00020		mg/L	1	4/11/2019 3:51:26 PM	44282
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: <b>rde</b>
Arsenic	ND	0.020		mg/L	1	4/25/2019 3:45:52 PM	A59436
Barium	0.074	0.020		mg/L	1	4/11/2019 10:35:11 AM	A59145
Cadmium	ND	0.0020		mg/L	1	4/11/2019 10:35:11 AM	A59145
Calcium	47	1.0		mg/L	1	4/26/2019 2:44:40 PM	A59501
Chromium	ND	0.0060		mg/L	1	4/11/2019 10:35:11 AM	A59145
Copper	ND	0.0060		mg/L	1	4/11/2019 10:35:11 AM	A59145
Iron	0.037	0.020		mg/L	1	4/23/2019 12:24:08 PM	A59359
Lead	ND	0.0050		mg/L	1	4/25/2019 3:45:52 PM	A59436
Magnesium	8.0	1.0		mg/L	1	4/11/2019 10:35:11 AM	A59145
Manganese	0.10	0.0020		mg/L	1	4/23/2019 12:24:08 PM	A59359
Potassium	2.2	1.0		mg/L	1	4/11/2019 10:35:11 AM	A59145
Selenium	ND	0.050		mg/L	1	4/23/2019 12:24:08 PM	A59359
Silver	ND	0.0050		mg/L	1	4/11/2019 10:35:11 AM	A59145
Sodium	36	1.0		mg/L	1	4/11/2019 10:35:11 AM	A59145
Uranium	ND	0.10		mg/L	1	4/23/2019 12:24:08 PM	A59359

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1904422

Date Reported: 5/14/2019

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

**Client Sample ID:** North of 46

**Project:** San Juan River 4-5-19

**Collection Date:** 4/5/2019 12:15:00 PM

**Lab ID:** 1904422-003

**Matrix:** AQUEOUS

**Received Date:** 4/6/2019 10:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: rde
Zinc	ND	0.020		mg/L	1	4/25/2019 3:45:52 PM	A59436
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>							Analyst: rde
Arsenic	ND	0.020		mg/L	1	4/25/2019 3:18:07 PM	44198
Barium	0.14	0.020		mg/L	1	4/11/2019 9:26:15 AM	44198
Cadmium	ND	0.0020		mg/L	1	4/11/2019 9:26:15 AM	44198
Chromium	ND	0.0060		mg/L	1	4/11/2019 9:26:15 AM	44198
Lead	ND	0.0050		mg/L	1	4/25/2019 3:18:07 PM	44198
Selenium	ND	0.050		mg/L	1	4/11/2019 9:26:15 AM	44198
Silver	ND	0.0050		mg/L	1	4/11/2019 9:26:15 AM	44198
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2019 4:09:32 PM	G58973
Surr: BFB	108	72.8-125		%Rec	1	4/8/2019 4:09:32 PM	G58973
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: RAA
Benzene	ND	1.0		µg/L	1	4/10/2019 2:11:00 AM	B59003
Toluene	ND	1.0		µg/L	1	4/10/2019 2:11:00 AM	B59003
Ethylbenzene	ND	1.0		µg/L	1	4/10/2019 2:11:00 AM	B59003
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/10/2019 2:11:00 AM	B59003
Xylenes, Total	ND	1.5		µg/L	1	4/10/2019 2:11:00 AM	B59003
Surr: 1,2-Dichloroethane-d4	97.5	70-130		%Rec	1	4/10/2019 2:11:00 AM	B59003
Surr: 4-Bromofluorobenzene	99.0	70-130		%Rec	1	4/10/2019 2:11:00 AM	B59003
Surr: Dibromofluoromethane	98.0	70-130		%Rec	1	4/10/2019 2:11:00 AM	B59003
Surr: Toluene-d8	93.5	70-130		%Rec	1	4/10/2019 2:11:00 AM	B59003

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1904422

Date Reported: 5/14/2019

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Downstream

Project: San Juan River 4-5-19

Collection Date: 4/5/2019 12:50:00 PM

Lab ID: 1904422-004

Matrix: AQUEOUS

Received Date: 4/6/2019 10:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>Irm</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	4/11/2019 6:21:56 PM	44215
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/11/2019 6:21:56 PM	44215
Surr: DNOP	118	52.7-168		%Rec	1	4/11/2019 6:21:56 PM	44215
<b>CARBON DIOXIDE</b>							Analyst: <b>JRR</b>
Total Carbon Dioxide	89	1.0	H	mg CO2/	1	4/9/2019 12:45:40 PM	R59004
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>smb</b>
Fluoride	0.20	0.10		mg/L	1	4/11/2019 5:51:40 PM	R59098
Chloride	5.5	5.0		mg/L	10	4/8/2019 6:55:33 PM	R58999
Bromide	ND	1.0		mg/L	10	4/8/2019 6:55:33 PM	R58999
Phosphorus, Orthophosphate (As P)	ND	5.0	H	mg/L	10	4/8/2019 6:55:33 PM	R58999
Sulfate	110	5.0		mg/L	10	4/8/2019 6:55:33 PM	R58999
Nitrate+Nitrite as N	ND	1.0		mg/L	5	4/8/2019 7:21:17 PM	R58999
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>
Bicarbonate (As CaCO3)	99.36	20.00		mg/L Ca	1	4/9/2019 12:45:40 PM	R59004
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	4/9/2019 12:45:40 PM	R59004
Total Alkalinity (as CaCO3)	99.36	20.00		mg/L Ca	1	4/9/2019 12:45:40 PM	R59004
<b>EPA METHOD 7470: MERCURY</b>							Analyst: <b>pmf</b>
Mercury	ND	0.00020		mg/L	1	4/9/2019 12:28:03 PM	44195
<b>EPA METHOD 7470: MERCURY</b>							Analyst: <b>pmf</b>
Mercury	ND	0.00020		mg/L	1	4/11/2019 3:53:40 PM	44282
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: <b>rde</b>
Arsenic	ND	0.020		mg/L	1	4/25/2019 3:52:56 PM	A59436
Barium	0.076	0.020		mg/L	1	4/11/2019 10:38:58 AM	A59145
Cadmium	ND	0.0020		mg/L	1	4/11/2019 10:38:58 AM	A59145
Calcium	44	1.0		mg/L	1	4/26/2019 2:46:20 PM	A59501
Chromium	ND	0.0060		mg/L	1	4/11/2019 10:38:58 AM	A59145
Copper	ND	0.0060		mg/L	1	4/11/2019 10:38:58 AM	A59145
Iron	0.070	0.020		mg/L	1	4/23/2019 12:26:01 PM	A59359
Lead	ND	0.0050		mg/L	1	4/25/2019 3:52:56 PM	A59436
Magnesium	7.7	1.0		mg/L	1	4/11/2019 10:38:58 AM	A59145
Manganese	0.026	0.0020		mg/L	1	4/23/2019 12:26:01 PM	A59359
Potassium	2.2	1.0		mg/L	1	4/11/2019 10:38:58 AM	A59145
Selenium	ND	0.050		mg/L	1	4/23/2019 12:26:01 PM	A59359
Silver	ND	0.0050		mg/L	1	4/11/2019 10:38:58 AM	A59145
Sodium	35	1.0		mg/L	1	4/11/2019 10:38:58 AM	A59145
Uranium	ND	0.10		mg/L	1	4/23/2019 12:26:01 PM	A59359

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1904422

Date Reported: 5/14/2019

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

**Client Sample ID:** Downstream

**Project:** San Juan River 4-5-19

**Collection Date:** 4/5/2019 12:50:00 PM

**Lab ID:** 1904422-004

**Matrix:** AQUEOUS

**Received Date:** 4/6/2019 10:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: rde
Zinc	ND	0.020		mg/L	1	4/25/2019 3:52:56 PM	A59436
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>							Analyst: rde
Arsenic	ND	0.020		mg/L	1	4/25/2019 3:19:51 PM	44198
Barium	0.19	0.020		mg/L	1	4/11/2019 9:34:13 AM	44198
Cadmium	ND	0.0020		mg/L	1	4/11/2019 9:34:13 AM	44198
Chromium	ND	0.0060		mg/L	1	4/11/2019 9:34:13 AM	44198
Lead	ND	0.0050		mg/L	1	4/25/2019 3:19:51 PM	44198
Selenium	ND	0.050		mg/L	1	4/11/2019 9:34:13 AM	44198
Silver	ND	0.0050		mg/L	1	4/11/2019 9:34:13 AM	44198
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/8/2019 4:32:11 PM	G58973
Surr: BFB	109	72.8-125		%Rec	1	4/8/2019 4:32:11 PM	G58973
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: RAA
Benzene	ND	1.0		µg/L	1	4/10/2019 2:35:00 AM	B59003
Toluene	ND	1.0		µg/L	1	4/10/2019 2:35:00 AM	B59003
Ethylbenzene	ND	1.0		µg/L	1	4/10/2019 2:35:00 AM	B59003
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/10/2019 2:35:00 AM	B59003
Xylenes, Total	ND	1.5		µg/L	1	4/10/2019 2:35:00 AM	B59003
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	4/10/2019 2:35:00 AM	B59003
Surr: 4-Bromofluorobenzene	96.2	70-130		%Rec	1	4/10/2019 2:35:00 AM	B59003
Surr: Dibromofluoromethane	98.9	70-130		%Rec	1	4/10/2019 2:35:00 AM	B59003
Surr: Toluene-d8	94.0	70-130		%Rec	1	4/10/2019 2:35:00 AM	B59003

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1904422

Date Reported: 5/14/2019

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

**Client Sample ID:** Trip Blank

**Project:** San Juan River 4-5-19

**Collection Date:**

**Lab ID:** 1904422-005

**Matrix:** TRIP BLANK

**Received Date:** 4/6/2019 10:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: RAA
Benzene	ND	1.0		µg/L	1	4/10/2019 2:59:00 AM	B59003
Toluene	ND	1.0		µg/L	1	4/10/2019 2:59:00 AM	B59003
Ethylbenzene	ND	1.0		µg/L	1	4/10/2019 2:59:00 AM	B59003
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/10/2019 2:59:00 AM	B59003
Xylenes, Total	ND	1.5		µg/L	1	4/10/2019 2:59:00 AM	B59003
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	4/10/2019 2:59:00 AM	B59003
Surr: 4-Bromofluorobenzene	97.0	70-130		%Rec	1	4/10/2019 2:59:00 AM	B59003
Surr: Dibromofluoromethane	100	70-130		%Rec	1	4/10/2019 2:59:00 AM	B59003
Surr: Toluene-d8	94.5	70-130		%Rec	1	4/10/2019 2:59:00 AM	B59003

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904422

14-May-19

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

**Project:** San Juan River 4-5-19

Sample ID: <b>MB</b>	SampType: <b>mblk</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R58998</b>	RunNo: <b>58998</b>								
Prep Date:	Analysis Date: <b>4/8/2019</b>	SeqNo: <b>1985185</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: <b>LCS</b>	SampType: <b>ics</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R58998</b>	RunNo: <b>58998</b>								
Prep Date:	Analysis Date: <b>4/8/2019</b>	SeqNo: <b>1985187</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.53	0.10	0.5000	0	106	90	110			
Chloride	4.9	0.50	5.000	0	98.9	90	110			
Bromide	2.5	0.10	2.500	0	99.5	90	110			
Phosphorus, Orthophosphate (As P)	5.0	0.50	5.000	0	99.0	90	110			
Sulfate	10	0.50	10.00	0	100	90	110			
Nitrate+Nitrite as N	3.6	0.20	3.500	0	102	90	110			

Sample ID: <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R58999</b>	RunNo: <b>58999</b>								
Prep Date:	Analysis Date: <b>4/8/2019</b>	SeqNo: <b>1985270</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R58999</b>	RunNo: <b>58999</b>								
Prep Date:	Analysis Date: <b>4/8/2019</b>	SeqNo: <b>1985271</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	96.0	90	110			
Bromide	2.4	0.10	2.500	0	95.8	90	110			
Phosphorus, Orthophosphate (As P)	4.8	0.50	5.000	0	96.3	90	110			
Sulfate	9.9	0.50	10.00	0	99.4	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	99.5	90	110			

**Qualifiers:**

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904422

14-May-19

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-5-19

Sample ID: <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R59098</b>	RunNo: <b>59098</b>								
Prep Date:	Analysis Date: <b>4/11/2019</b>	SeqNo: <b>1989286</b>							Units: <b>mg/L</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R59098</b>	RunNo: <b>59098</b>								
Prep Date:	Analysis Date: <b>4/11/2019</b>	SeqNo: <b>1989287</b>							Units: <b>mg/L</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	103	90	110			

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904422

14-May-19

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

**Project:** San Juan River 4-5-19

Sample ID: <b>LCS-44215</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>44215</b>		RunNo: <b>59076</b>							
Prep Date: <b>4/9/2019</b>	Analysis Date: <b>4/11/2019</b>		SeqNo: <b>1988558</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	0.40	2.500	0	125	66.7	148			
Surr: DNOP	0.29		0.2500		114	52.7	168			

Sample ID: <b>MB-44215</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8015D: Diesel Range</b>							
Client ID: <b>PBW</b>	Batch ID: <b>44215</b>		RunNo: <b>59076</b>							
Prep Date: <b>4/9/2019</b>	Analysis Date: <b>4/11/2019</b>		SeqNo: <b>1988559</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	0.40								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.58		0.5000		116	52.7	168			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904422

14-May-19

**Client:** Western Refining Southwest, Inc.  
**Project:** San Juan River 4-5-19

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>G58973</b>		RunNo: <b>58973</b>							
Prep Date:	Analysis Date: <b>4/8/2019</b>		SeqNo: <b>1984235</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	18		20.00		92.4	72.8	125			

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>G58973</b>		RunNo: <b>58973</b>							
Prep Date:	Analysis Date: <b>4/8/2019</b>		SeqNo: <b>1984237</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.46	0.050	0.5000	0	91.0	77.7	130			
Surr: BFB	21		20.00		107	72.8	125			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904422

14-May-19

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

**Project:** San Juan River 4-5-19

Sample ID: <b>100ng lcs2</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8260: Volatiles Short List</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>B59003</b>	RunNo: <b>59003</b>								
Prep Date:	Analysis Date: <b>4/10/2019</b>	SeqNo: <b>1986087</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	112	70	130			
Toluene	22	1.0	20.00	0	108	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		99.8	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.2	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.1	70	130			
Surr: Toluene-d8	9.4		10.00		94.4	70	130			

Sample ID: <b>rb2</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8260: Volatiles Short List</b>								
Client ID: <b>PBW</b>	Batch ID: <b>B59003</b>	RunNo: <b>59003</b>								
Prep Date:	Analysis Date: <b>4/10/2019</b>	SeqNo: <b>1986088</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	9.8		10.00		98.2	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.4		10.00		94.2	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>SL59035</b>	RunNo: <b>59035</b>								
Prep Date:	Analysis Date: <b>4/10/2019</b>	SeqNo: <b>1987559</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		103	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		99.6	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	9.3		10.00		93.2	70	130			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904422

14-May-19

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

**Project:** San Juan River 4-5-19

Sample ID: <b>MB-44195</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>PBW</b>	Batch ID: <b>44195</b>	RunNo: <b>59010</b>								
Prep Date: <b>4/8/2019</b>	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985400</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: <b>LCS-44195</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>44195</b>	RunNo: <b>59010</b>								
Prep Date: <b>4/8/2019</b>	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985401</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.9	80	120			

Sample ID: <b>1904422-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>Upstream</b>	Batch ID: <b>44195</b>	RunNo: <b>59010</b>								
Prep Date: <b>4/8/2019</b>	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985407</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	.00009702	102	75	125			

Sample ID: <b>1904422-001DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>Upstream</b>	Batch ID: <b>44195</b>	RunNo: <b>59010</b>								
Prep Date: <b>4/8/2019</b>	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985408</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0054	0.00020	0.005000	.00009702	105	75	125	2.90	20	

Sample ID: <b>MB-44282</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>PBW</b>	Batch ID: <b>44282</b>	RunNo: <b>59086</b>								
Prep Date: <b>4/10/2019</b>	Analysis Date: <b>4/11/2019</b>	SeqNo: <b>1988693</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: <b>LCS-44282</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>44282</b>	RunNo: <b>59086</b>								
Prep Date: <b>4/10/2019</b>	Analysis Date: <b>4/11/2019</b>	SeqNo: <b>1988694</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	100	80	120			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904422

14-May-19

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-5-19

Sample ID: <b>LCSD-44282</b>	SampType: <b>LCSD</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>LCSS02</b>	Batch ID: <b>44282</b>	RunNo: <b>59086</b>								
Prep Date: <b>4/10/2019</b>	Analysis Date: <b>4/11/2019</b>	SeqNo: <b>1988695</b> Units: <b>mg/L</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	96.0	80	120	4.17	20	

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904422

14-May-19

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

**Project:** San Juan River 4-5-19

Sample ID: <b>MB-A</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>A59145</b>	RunNo: <b>59145</b>								
Prep Date:	Analysis Date: <b>4/11/2019</b>	SeqNo: <b>1991022</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Silver	ND	0.0050								
Sodium	ND	1.0								

Sample ID: <b>LCS-A</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>A59145</b>	RunNo: <b>59145</b>								
Prep Date:	Analysis Date: <b>4/11/2019</b>	SeqNo: <b>1991024</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Barium	0.48	0.020	0.5000	0	95.5	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.3	80	120			
Chromium	0.49	0.0060	0.5000	0	97.7	80	120			
Copper	0.51	0.0060	0.5000	0	101	80	120			
Magnesium	49	1.0	50.00	0	98.9	80	120			
Potassium	49	1.0	50.00	0	97.3	80	120			
Silver	0.10	0.0050	0.1000	0	99.8	80	120			
Sodium	48	1.0	50.00	0	97.0	80	120			

Sample ID: <b>LCSD-A</b>	SampType: <b>LCSD</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>LCSS02</b>	Batch ID: <b>A59145</b>	RunNo: <b>59145</b>								
Prep Date:	Analysis Date: <b>4/11/2019</b>	SeqNo: <b>1991025</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Barium	0.48	0.020	0.5000	0	95.7	80	120	0.193	20	
Cadmium	0.50	0.0020	0.5000	0	101	80	120	1.27	20	
Chromium	0.50	0.0060	0.5000	0	99.1	80	120	1.40	20	
Copper	0.51	0.0060	0.5000	0	102	80	120	0.919	20	
Magnesium	50	1.0	50.00	0	99.8	80	120	0.875	20	
Potassium	49	1.0	50.00	0	98.4	80	120	1.11	20	
Silver	0.10	0.0050	0.1000	0	99.9	80	120	0.113	20	
Sodium	49	1.0	50.00	0	97.4	80	120	0.465	20	

**Qualifiers:**

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904422

14-May-19

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

**Project:** San Juan River 4-5-19

Sample ID: <b>MB-A</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>A59359</b>	RunNo: <b>59359</b>								
Prep Date:	Analysis Date: <b>4/23/2019</b>	SeqNo: <b>1999259</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Iron	ND	0.020								
Manganese	ND	0.0020								
Selenium	ND	0.050								
Uranium	ND	0.10								

Sample ID: <b>LCS-A</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>A59359</b>	RunNo: <b>59359</b>								
Prep Date:	Analysis Date: <b>4/23/2019</b>	SeqNo: <b>1999261</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Iron	0.54	0.020	0.5000	0	108	80	120			
Manganese	0.53	0.0020	0.5000	0	106	80	120			
Selenium	0.54	0.050	0.5000	0	107	80	120			
Uranium	0.50	0.10	0.5000	0	99.7	80	120			

Sample ID: <b>MB-A</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>A59436</b>	RunNo: <b>59436</b>								
Prep Date:	Analysis Date: <b>4/25/2019</b>	SeqNo: <b>2002144</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	ND	0.020								
Lead	ND	0.0050								
Zinc	ND	0.020								

Sample ID: <b>LCS-A</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>A59436</b>	RunNo: <b>59436</b>								
Prep Date:	Analysis Date: <b>4/25/2019</b>	SeqNo: <b>2002145</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.55	0.020	0.5000	0	110	80	120			
Lead	0.54	0.0050	0.5000	0	109	80	120			
Zinc	0.54	0.020	0.5000	0	109	80	120			

Sample ID: <b>MB-A</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>A59501</b>	RunNo: <b>59501</b>								
Prep Date:	Analysis Date: <b>4/26/2019</b>	SeqNo: <b>2004645</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Calcium	ND	1.0								
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**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904422

14-May-19

**Client:** Western Refining Southwest, Inc.**Project:** San Juan River 4-5-19

Sample ID: <b>LCSD-A</b>	SampType: <b>LCSD</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>LCSS02</b>	Batch ID: <b>A59501</b>	RunNo: <b>59501</b>								
Prep Date:	Analysis Date: <b>4/26/2019</b>	SeqNo: <b>2004652</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	99.6	80	120	0.837	20	

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904422

14-May-19

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

**Project:** San Juan River 4-5-19

Sample ID: <b>MB-44198</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>44198</b>	RunNo: <b>59145</b>								
Prep Date: <b>4/8/2019</b>	Analysis Date: <b>4/11/2019</b>	SeqNo: <b>1991008</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: <b>LCS-44198</b>	SampType: <b>LCS</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>44198</b>	RunNo: <b>59145</b>								
Prep Date: <b>4/8/2019</b>	Analysis Date: <b>4/11/2019</b>	SeqNo: <b>1991009</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.020	0.5000	0	96.7	80	120			
Cadmium	0.50	0.0020	0.5000	0	100	80	120			
Chromium	0.49	0.0060	0.5000	0	98.7	80	120			
Selenium	0.53	0.050	0.5000	0	106	80	120			
Silver	0.10	0.0050	0.1000	0	102	80	120			

Sample ID: <b>1904422-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>Upstream</b>	Batch ID: <b>44198</b>	RunNo: <b>59145</b>								
Prep Date: <b>4/8/2019</b>	Analysis Date: <b>4/11/2019</b>	SeqNo: <b>1991014</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.62	0.020	0.5000	0.1394	95.4	75	125			
Cadmium	0.50	0.0020	0.5000	0	101	75	125			
Chromium	0.50	0.0060	0.5000	0.002916	99.7	75	125			
Selenium	0.52	0.050	0.5000	0	104	75	125			
Silver	0.10	0.0050	0.1000	0	102	75	125			

Sample ID: <b>1904422-001DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>Upstream</b>	Batch ID: <b>44198</b>	RunNo: <b>59145</b>								
Prep Date: <b>4/8/2019</b>	Analysis Date: <b>4/11/2019</b>	SeqNo: <b>1991015</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.63	0.020	0.5000	0.1394	98.5	75	125	2.46	20	
Cadmium	0.51	0.0020	0.5000	0	101	75	125	0.665	20	
Chromium	0.50	0.0060	0.5000	0.002916	99.7	75	125	0.0516	20	
Selenium	0.54	0.050	0.5000	0	107	75	125	3.38	20	
Silver	0.10	0.0050	0.1000	0	104	75	125	2.04	20	

**Qualifiers:**

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904422

14-May-19

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

**Project:** San Juan River 4-5-19

Sample ID: <b>1904422-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>									
Client ID: <b>Upstream</b>	Batch ID: <b>44198</b>	RunNo: <b>59436</b>									
Prep Date: <b>4/8/2019</b>	Analysis Date: <b>4/25/2019</b>	SeqNo: <b>2002164</b>	Units: <b>mg/L</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic	0.53	0.020	0.5000	0	105	75	125			B	
Lead	0.48	0.0050	0.5000	0	95.5	75	125				

Sample ID: <b>1904422-001DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>									
Client ID: <b>Upstream</b>	Batch ID: <b>44198</b>	RunNo: <b>59436</b>									
Prep Date: <b>4/8/2019</b>	Analysis Date: <b>4/25/2019</b>	SeqNo: <b>2002165</b>	Units: <b>mg/L</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic	0.53	0.020	0.5000	0	105	75	125	0.127	20	B	
Lead	0.48	0.0050	0.5000	0	95.9	75	125	0.413	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 Limit                                |
| S % Recovery outside of range due to dilution or matrix |                                                   |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1904422

14-May-19

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

**Project:** San Juan River 4-5-19

Sample ID: <b>mb-1 alk</b>	SampType: <b>MBLK</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R59004</b>	RunNo: <b>59004</b>								
Prep Date:	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985959</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: <b>ics-1 alk</b>	SampType: <b>LCS</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R59004</b>	RunNo: <b>59004</b>								
Prep Date:	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985960</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.12	20.00	80.00	0	95.2	90	110			

Sample ID: <b>mb-2 alk</b>	SampType: <b>MBLK</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R59004</b>	RunNo: <b>59004</b>								
Prep Date:	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985984</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: <b>ics-2 alk</b>	SampType: <b>LCS</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R59004</b>	RunNo: <b>59004</b>								
Prep Date:	Analysis Date: <b>4/9/2019</b>	SeqNo: <b>1985985</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.80	20.00	80.00	0	96.0	90	110			

**Qualifiers:**

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

**Sample Log-In Check List**

Client Name: **Western Refining Southw**

Work Order Number: **1904422**

RcptNo: 1

Received By: **Isaiah Ortiz** 4/6/2019 10:45:00 AM

Completed By: **Erin Melendrez** 4/8/2019 8:26:46 AM

Reviewed By: **LB** 4/8/19

**LB: JJC 4-8-19**

*I-OK*  
*u.ug*

**Chain of Custody**

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

**Log In**

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

# of preserved bottles checked for pH: 12  
 (<2 or >12 unless noted)  
 Adjusted? \_\_\_\_\_  
 Checked by: JJC 4-8-19

**Special Handling (if applicable)**

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

Person Notified: \_\_\_\_\_ Date: \_\_\_\_\_  
 By Whom: \_\_\_\_\_ Via:  eMail  Phone  Fax  In Person  
 Regarding: \_\_\_\_\_  
 Client Instructions: \_\_\_\_\_

16. Additional remarks:

**17. Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	5.9	Good	Yes			
2	3.2	Good	Yes			
3	2.8	Good	Yes			







# Chain-of-Custody Record

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

**Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

email or Fax#:

QA/QC Package:

Standard  X Level 4 (Full Validation)

Other

X EDD (Type) **EXCEL**

Turn-Around Time:

Standard  Rush

Project Name: **San Juan River**

Date: **4-5-19**

Project #: **Semi-Annual Event**

HEAL PO# **4500081399**

Project Manager:

**Gregory J. McCartney**

**gjmccartney@marathonpetroleum.com**

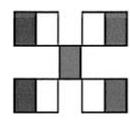
Sampler: **Tracy Payne 919-561-7055**

On Ice:  Yes  No

Sample Temperature: **59.5, 32.5, 2.8**

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
4/5/19	1250	H <sub>2</sub> O	Downstream	40ml VOA-5	HCl	1904422
		H <sub>2</sub> O	Downstream	250 ml amber-1	Neat	-004
		H <sub>2</sub> O	Downstream	250 ml plastic-1	HNO <sub>3</sub>	
		H <sub>2</sub> O	Downstream	125 ml plastic-1	HNO <sub>3</sub>	
		H <sub>2</sub> O	Downstream	125 ml plastic-1	H <sub>2</sub> SO <sub>4</sub>	
		H <sub>2</sub> O	Downstream	500 ml plastic-1	Neat	
4/5/19		H <sub>2</sub> O	TRIP BLANK	40 ML VOA-3	HCl	-005

Date	Time	Relinquished by:	Received by:	Date	Time
4/5/19	1550	<i>[Signature]</i>	<i>Christie Walker</i>	4/5/19	1550
4/5/19	1819	<i>Christie Walker</i>	<i>ITC courier</i>	4/6/19	1045



# 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+TFH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals Total	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)	Dissolved Metals	General Chem.-Anions&CO <sub>2</sub>	General Chem. - Alkalinity	Air Bubbles (Y or N)
		X							X					
		X				X						X		
											X	X		
												X		
													X	
														X

Remarks: See Analytical Methods and Target Analytes.

**TABLE 2**  
**Analytical Methods and Target Analytes**  
**Facility-Wide Groundwater Monitoring Plan - June 2018**  
**Western Refining Southwest, Inc. - Bloomfield Refinery**

<b>VOCs (EPA Method 8260B) <sup>(1)</sup></b>
- Target List
<i>Benzene</i>
<i>Toluene</i>
<i>Ethylbenzene</i>
<i>Xylenes</i>
<i>Methyl tert butyl ether (MTBE)</i>
<b>SVOCs - (EPA Method 8270)</b>
- Method List
<b>TPH-GRO (EPA Method 8015B)</b>
- Gasoline Range Organics
<b>TPH-DRO (EPA Method 8015B)</b>
- Diesel Range Organics
- Motor Oil Range Organics
<b>Total Carbon Dioxide (Laboratory Calculated)</b>
- Dissolved CO <sub>2</sub>
<b>Specific Conductivity (EPA Method 120.1 or field measurement)</b>
- Specific conductance
<b>TDS (EPA Method 160.1 or field measurement)</b>
- Total dissolved solids
<b>General Chemistry - Anions (EPA Method 300.0)</b>
<i>Fluoride</i>
<i>Chloride</i>
<i>Bromide</i>
<i>Nitrogen, Nitrite (as N)</i>
<i>Nitrogen, Nitrate (as N)</i>
<i>Phosphorous, Orthophosphate (As P)</i>
<i>Sulfate</i>
<b>General Chemistry - Alkalinity (EPA Method 310.1)</b>
<i>Alkalinity, Total</i>
<i>Carbonate</i>
<i>Bicarbonate</i>

<b>Total Recoverable Metals (EPA Method 6010B/7470)</b>	
- Target List (not applicable to River Terrace Sampling Events)	
<i>Arsenic</i>	<i>Lead</i>
<i>Barium</i>	<i>Mercury</i>
<i>Cadmium</i>	<i>Selenium</i>
<i>Chromium</i>	<i>Silver</i>
- Target List (for River Terrace Sampling Events Only)	
<i>Lead</i>	
<i>Mercury (DW-1 ONLY)</i>	
<b>Dissolved Metals (EPA Method 6010B / 7470)</b>	
- Target List (for Refinery Complex, Outfalls, and River)	
<i>Arsenic</i>	<i>Manganese</i>
<i>Barium</i>	<i>Mercury</i>
<i>Cadmium</i>	<i>Potassium</i>
<i>Calcium</i>	<i>Selenium</i>
<i>Chromium</i>	<i>Silver</i>
<i>Copper</i>	<i>Sodium</i>
<i>Iron</i>	<i>Uranium</i>
<i>Lead</i>	<i>Zinc</i>
<i>Magnesium</i>	

TPH = total petroleum hydrocarbons  
GRO = gasoline range organics  
VOCs = volatile organic compounds  
DRO = diesel range organics  
TDS = total dissolved solids

**NOTES:**

- (1) VOCs Target List for River Terrace samples are analyzed by EPA Method 8021B per NMED's letter Approval with Direction dated June 16, 2009.
- (2) Target List for San Juan River Terrace Monitoring Wells and Piezometer Wells only, per the River Terrace Bioventing System Monitoring Plan.



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 10, 2019

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

RE: San Juan River Bluff

OrderNo.: 1908972

Dear Gregory J. McCartney:

Hall Environmental Analysis Laboratory received 7 sample(s) on 8/17/2019 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 #NM0901

Sincerely,

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

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908972

Date Reported: 9/10/2019

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

**Client Sample ID:** East Outfall #2

**Project:** San Juan River Bluff

**Collection Date:** 8/15/2019 3:15:00 PM

**Lab ID:** 1908972-001

**Matrix:** AQUEOUS

**Received Date:** 8/17/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>CARBON DIOXIDE</b>							Analyst: <b>JRR</b>
Total Carbon Dioxide	300	1.0	H	mg CO2/	1	8/19/2019 8:55:02 PM	R62234
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Fluoride	0.48	0.50	J	mg/L	5	9/4/2019 4:55:34 PM	R62635
Chloride	12	2.5		mg/L	5	9/4/2019 4:55:34 PM	R62635
Bromide	ND	0.50		mg/L	5	9/4/2019 4:55:34 PM	R62635
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	9/4/2019 4:55:34 PM	R62635
Sulfate	220	2.5		mg/L	5	9/4/2019 4:55:34 PM	R62635
Nitrate+Nitrite as N	1.5	1.0		mg/L	5	9/5/2019 1:01:46 PM	R62704
<b>SM2510B: SPECIFIC CONDUCTANCE</b>							Analyst: <b>JRR</b>
Conductivity	1000	5.0		µmhos/c	1	8/19/2019 8:55:02 PM	R62234
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>
Bicarbonate (As CaCO3)	333.2	20.00		mg/L Ca	1	8/19/2019 8:55:02 PM	R62234
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	8/19/2019 8:55:02 PM	R62234
Total Alkalinity (as CaCO3)	333.2	20.00		mg/L Ca	1	8/19/2019 8:55:02 PM	R62234
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>JMT</b>
Total Dissolved Solids	685	20.0	*	mg/L	1	8/21/2019 1:51:00 PM	46914
<b>EPA METHOD 7470: MERCURY</b>							Analyst: <b>pmf</b>
Mercury	ND	0.00020		mg/L	1	8/20/2019 10:31:06 AM	46896
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: <b>bcv</b>
Arsenic	ND	0.020		mg/L	1	8/22/2019 12:00:58 PM	A62357
Barium	0.063	0.020		mg/L	1	8/20/2019 10:32:07 AM	A62272
Cadmium	ND	0.0020		mg/L	1	8/20/2019 10:32:07 AM	A62272
Calcium	110	5.0		mg/L	5	8/22/2019 12:07:07 PM	A62357
Chromium	ND	0.0060		mg/L	1	8/20/2019 10:32:07 AM	A62272
Copper	ND	0.0060		mg/L	1	8/20/2019 10:32:07 AM	A62272
Iron	0.0056	0.020	J	mg/L	1	8/20/2019 10:32:07 AM	A62272
Lead	0.0075	0.0050		mg/L	1	8/20/2019 10:32:07 AM	A62272
Magnesium	25	1.0		mg/L	1	8/20/2019 10:32:07 AM	A62272
Manganese	0.00074	0.0020	J	mg/L	1	8/20/2019 10:32:07 AM	A62272
Potassium	1.7	1.0		mg/L	1	8/20/2019 10:32:07 AM	A62272
Selenium	ND	0.050		mg/L	1	8/20/2019 10:32:07 AM	A62272
Silver	0.0021	0.0050	J	mg/L	1	8/20/2019 10:32:07 AM	A62272
Sodium	81	1.0		mg/L	1	8/20/2019 10:32:07 AM	A62272
Uranium	ND	0.10		mg/L	1	8/20/2019 10:32:07 AM	A62272
Zinc	0.020	0.020	J	mg/L	1	8/20/2019 10:32:07 AM	A62272
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>							Analyst: <b>bcv</b>

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908972

Date Reported: 9/10/2019

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

**Client Sample ID:** East Outfall #2

**Project:** San Juan River Bluff

**Collection Date:** 8/15/2019 3:15:00 PM

**Lab ID:** 1908972-001

**Matrix:** AQUEOUS

**Received Date:** 8/17/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>							Analyst: <b>bcv</b>
Arsenic	ND	0.020		mg/L	1	8/22/2019 2:02:02 PM	46876
Barium	0.064	0.020		mg/L	1	8/22/2019 2:02:02 PM	46876
Cadmium	ND	0.0020		mg/L	1	8/22/2019 2:02:02 PM	46876
Chromium	ND	0.0060		mg/L	1	8/22/2019 2:02:02 PM	46876
Lead	ND	0.0050		mg/L	1	8/23/2019 9:37:17 AM	46876
Selenium	ND	0.050		mg/L	1	8/22/2019 2:02:02 PM	46876
Silver	0.0027	0.0050	J	mg/L	1	8/22/2019 2:02:02 PM	46876
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>CCM</b>
Benzene	ND	1.0		µg/L	1	8/22/2019 11:52:00 AM	SL_W62
Toluene	ND	1.0		µg/L	1	8/22/2019 11:52:00 AM	SL_W62
Ethylbenzene	ND	1.0		µg/L	1	8/22/2019 11:52:00 AM	SL_W62
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/22/2019 11:52:00 AM	SL_W62
Xylenes, Total	ND	1.5		µg/L	1	8/22/2019 11:52:00 AM	SL_W62
Surr: 1,2-Dichloroethane-d4	97.0	70-130		%Rec	1	8/22/2019 11:52:00 AM	SL_W62
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	1	8/22/2019 11:52:00 AM	SL_W62
Surr: Dibromofluoromethane	95.9	70-130		%Rec	1	8/22/2019 11:52:00 AM	SL_W62
Surr: Toluene-d8	98.7	70-130		%Rec	1	8/22/2019 11:52:00 AM	SL_W62

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908972

Date Reported: 9/10/2019

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: East Outfall #3

Project: San Juan River Bluff

Collection Date: 8/15/2019 2:20:00 PM

Lab ID: 1908972-002

Matrix: AQUEOUS

Received Date: 8/17/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>CARBON DIOXIDE</b>							Analyst: JRR
Total Carbon Dioxide	290	1.0	H	mg CO2/	1	8/19/2019 9:09:52 PM	R62234
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: MRA
Fluoride	0.35	0.10		mg/L	1	9/4/2019 5:21:19 PM	R62635
Chloride	14	0.50		mg/L	1	9/4/2019 5:21:19 PM	R62635
Bromide	0.12	0.10		mg/L	1	9/4/2019 5:21:19 PM	R62635
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	9/4/2019 5:21:19 PM	R62635
Sulfate	190	10		mg/L	20	9/4/2019 5:34:10 PM	R62635
Nitrate+Nitrite as N	1.6	1.0		mg/L	5	9/5/2019 1:14:38 PM	R62704
<b>SM2510B: SPECIFIC CONDUCTANCE</b>							Analyst: JRR
Conductivity	1000	5.0		µmhos/c	1	8/19/2019 9:09:52 PM	R62234
<b>SM2320B: ALKALINITY</b>							Analyst: JRR
Bicarbonate (As CaCO3)	324.4	20.00		mg/L Ca	1	8/19/2019 9:09:52 PM	R62234
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	8/19/2019 9:09:52 PM	R62234
Total Alkalinity (as CaCO3)	324.4	20.00		mg/L Ca	1	8/19/2019 9:09:52 PM	R62234
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: JMT
Total Dissolved Solids	673	20.0	*	mg/L	1	8/21/2019 1:51:00 PM	46914
<b>EPA METHOD 7470: MERCURY</b>							Analyst: pmf
Mercury	ND	0.00020		mg/L	1	8/20/2019 10:37:52 AM	46896
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: bcv
Arsenic	ND	0.020		mg/L	1	8/22/2019 12:09:23 PM	A62357
Barium	0.049	0.020		mg/L	1	8/20/2019 10:44:37 AM	A62272
Cadmium	ND	0.0020		mg/L	1	8/20/2019 10:44:37 AM	A62272
Calcium	110	5.0		mg/L	5	8/22/2019 12:18:25 PM	A62357
Chromium	ND	0.0060		mg/L	1	8/20/2019 10:44:37 AM	A62272
Copper	0.0030	0.0060	J	mg/L	1	8/20/2019 10:44:37 AM	A62272
Iron	ND	0.020		mg/L	1	8/20/2019 10:44:37 AM	A62272
Lead	0.0066	0.0050		mg/L	1	8/20/2019 10:44:37 AM	A62272
Magnesium	25	1.0		mg/L	1	8/20/2019 10:44:37 AM	A62272
Manganese	ND	0.0020		mg/L	1	8/20/2019 10:44:37 AM	A62272
Potassium	2.0	1.0		mg/L	1	8/20/2019 10:44:37 AM	A62272
Selenium	ND	0.050		mg/L	1	8/20/2019 10:44:37 AM	A62272
Silver	0.0023	0.0050	J	mg/L	1	8/20/2019 10:44:37 AM	A62272
Sodium	80	1.0		mg/L	1	8/20/2019 10:44:37 AM	A62272
Uranium	ND	0.10		mg/L	1	8/20/2019 10:44:37 AM	A62272
Zinc	0.016	0.020	J	mg/L	1	8/20/2019 10:44:37 AM	A62272
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>							Analyst: bcv

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908972

Date Reported: 9/10/2019

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

**Client Sample ID:** East Outfall #3

**Project:** San Juan River Bluff

**Collection Date:** 8/15/2019 2:20:00 PM

**Lab ID:** 1908972-002

**Matrix:** AQUEOUS

**Received Date:** 8/17/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>							Analyst: <b>bcv</b>
Arsenic	ND	0.020		mg/L	1	8/22/2019 2:10:05 PM	46876
Barium	0.048	0.020		mg/L	1	8/22/2019 2:10:05 PM	46876
Cadmium	ND	0.0020		mg/L	1	8/22/2019 2:10:05 PM	46876
Chromium	ND	0.0060		mg/L	1	8/22/2019 2:10:05 PM	46876
Lead	ND	0.0050		mg/L	1	8/23/2019 9:46:37 AM	46876
Selenium	ND	0.050		mg/L	1	8/22/2019 2:10:05 PM	46876
Silver	0.0023	0.0050	J	mg/L	1	8/22/2019 2:10:05 PM	46876
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>CCM</b>
Benzene	ND	1.0		µg/L	1	8/22/2019 1:04:00 PM	SL_W62
Toluene	ND	1.0		µg/L	1	8/22/2019 1:04:00 PM	SL_W62
Ethylbenzene	ND	1.0		µg/L	1	8/22/2019 1:04:00 PM	SL_W62
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/22/2019 1:04:00 PM	SL_W62
Xylenes, Total	ND	1.5		µg/L	1	8/22/2019 1:04:00 PM	SL_W62
Surr: 1,2-Dichloroethane-d4	99.9	70-130		%Rec	1	8/22/2019 1:04:00 PM	SL_W62
Surr: 4-Bromofluorobenzene	96.1	70-130		%Rec	1	8/22/2019 1:04:00 PM	SL_W62
Surr: Dibromofluoromethane	97.2	70-130		%Rec	1	8/22/2019 1:04:00 PM	SL_W62
Surr: Toluene-d8	97.7	70-130		%Rec	1	8/22/2019 1:04:00 PM	SL_W62

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908972

Date Reported: 9/10/2019

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

**Client Sample ID:** Upstream

**Project:** San Juan River Bluff

**Collection Date:** 8/16/2019 8:25:00 AM

**Lab ID:** 1908972-003

**Matrix:** AQUEOUS

**Received Date:** 8/17/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							
							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	8/21/2019 3:51:29 PM	46918
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/21/2019 3:51:29 PM	46918
Surr: DNOP	86.3	52.7-168		%Rec	1	8/21/2019 3:51:29 PM	46918
<b>CARBON DIOXIDE</b>							
							Analyst: <b>JRR</b>
Total Carbon Dioxide	79	1.0	H	mg CO2/	1	8/19/2019 9:24:28 PM	R62234
<b>EPA METHOD 300.0: ANIONS</b>							
							Analyst: <b>MRA</b>
Fluoride	0.21	0.50	J	mg/L	5	9/4/2019 5:47:02 PM	R62635
Chloride	3.6	2.5		mg/L	5	9/4/2019 5:47:02 PM	R62635
Bromide	ND	0.50		mg/L	5	9/4/2019 5:47:02 PM	R62635
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	9/4/2019 5:47:02 PM	R62635
Sulfate	49	2.5		mg/L	5	9/4/2019 5:47:02 PM	R62635
Nitrate+Nitrite as N	0.13	1.0	J	mg/L	5	9/5/2019 1:27:30 PM	R62704
<b>SM2510B: SPECIFIC CONDUCTANCE</b>							
							Analyst: <b>JRR</b>
Conductivity	310	5.0		µmhos/c	1	8/19/2019 9:24:28 PM	R62234
<b>SM2320B: ALKALINITY</b>							
							Analyst: <b>JRR</b>
Bicarbonate (As CaCO3)	87.56	20.00		mg/L Ca	1	8/19/2019 9:24:28 PM	R62234
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	8/19/2019 9:24:28 PM	R62234
Total Alkalinity (as CaCO3)	87.56	20.00		mg/L Ca	1	8/19/2019 9:24:28 PM	R62234
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							
							Analyst: <b>JMT</b>
Total Dissolved Solids	245	100	D	mg/L	1	8/21/2019 1:51:00 PM	46914
<b>EPA METHOD 7470: MERCURY</b>							
							Analyst: <b>pmf</b>
Mercury	ND	0.00020		mg/L	1	8/20/2019 10:40:04 AM	46896
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							
							Analyst: <b>bcv</b>
Arsenic	ND	0.020		mg/L	1	8/22/2019 12:20:35 PM	A62357
Barium	0.078	0.020		mg/L	1	8/20/2019 10:46:47 AM	A62272
Cadmium	ND	0.0020		mg/L	1	8/20/2019 10:46:47 AM	A62272
Calcium	32	1.0		mg/L	1	8/22/2019 12:20:35 PM	A62357
Chromium	ND	0.0060		mg/L	1	8/20/2019 10:46:47 AM	A62272
Copper	0.0033	0.0060	J	mg/L	1	8/20/2019 10:46:47 AM	A62272
Iron	0.0089	0.020	J	mg/L	1	8/20/2019 10:46:47 AM	A62272
Lead	0.0063	0.0050		mg/L	1	8/20/2019 10:46:47 AM	A62272
Magnesium	6.5	1.0		mg/L	1	8/20/2019 10:46:47 AM	A62272
Manganese	0.0057	0.0020		mg/L	1	8/20/2019 10:46:47 AM	A62272
Potassium	2.1	1.0		mg/L	1	8/20/2019 10:46:47 AM	A62272
Selenium	ND	0.050		mg/L	1	8/20/2019 10:46:47 AM	A62272
Silver	0.0013	0.0050	J	mg/L	1	8/20/2019 10:46:47 AM	A62272

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908972

Date Reported: 9/10/2019

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

**Client Sample ID:** Upstream

**Project:** San Juan River Bluff

**Collection Date:** 8/16/2019 8:25:00 AM

**Lab ID:** 1908972-003

**Matrix:** AQUEOUS

**Received Date:** 8/17/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: <b>bcv</b>
Sodium	17	1.0		mg/L	1	8/20/2019 10:46:47 AM	A62272
Uranium	ND	0.10		mg/L	1	8/20/2019 10:46:47 AM	A62272
Zinc	0.021	0.020		mg/L	1	8/20/2019 10:46:47 AM	A62272
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>							Analyst: <b>bcv</b>
Arsenic	ND	0.020		mg/L	1	8/22/2019 2:12:15 PM	46876
Barium	0.10	0.020		mg/L	1	8/22/2019 2:12:15 PM	46876
Cadmium	ND	0.0020		mg/L	1	8/22/2019 2:12:15 PM	46876
Chromium	0.0026	0.0060	J	mg/L	1	8/22/2019 2:12:15 PM	46876
Lead	ND	0.0050		mg/L	1	8/23/2019 9:48:09 AM	46876
Selenium	ND	0.050		mg/L	1	8/22/2019 2:12:15 PM	46876
Silver	0.00084	0.0050	J	mg/L	1	8/22/2019 2:12:15 PM	46876
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/26/2019 12:47:59 PM	A62420
Surr: BFB	90.1	65.8-143		%Rec	1	8/26/2019 12:47:59 PM	A62420
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>CCM</b>
Benzene	ND	1.0		µg/L	1	8/22/2019 1:29:00 PM	SL_W62
Toluene	ND	1.0		µg/L	1	8/22/2019 1:29:00 PM	SL_W62
Ethylbenzene	ND	1.0		µg/L	1	8/22/2019 1:29:00 PM	SL_W62
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/22/2019 1:29:00 PM	SL_W62
Xylenes, Total	ND	1.5		µg/L	1	8/22/2019 1:29:00 PM	SL_W62
Surr: 1,2-Dichloroethane-d4	97.3	70-130		%Rec	1	8/22/2019 1:29:00 PM	SL_W62
Surr: 4-Bromofluorobenzene	98.6	70-130		%Rec	1	8/22/2019 1:29:00 PM	SL_W62
Surr: Dibromofluoromethane	96.8	70-130		%Rec	1	8/22/2019 1:29:00 PM	SL_W62
Surr: Toluene-d8	97.8	70-130		%Rec	1	8/22/2019 1:29:00 PM	SL_W62

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908972

Date Reported: 9/10/2019

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

**Client Sample ID:** North of 45

**Project:** San Juan River Bluff

**Collection Date:** 8/16/2019 9:30:00 AM

**Lab ID:** 1908972-004

**Matrix:** AQUEOUS

**Received Date:** 8/17/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							
							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	8/21/2019 5:04:34 PM	46918
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/21/2019 5:04:34 PM	46918
Surr: DNOP	96.0	52.7-168		%Rec	1	8/21/2019 5:04:34 PM	46918
<b>CARBON DIOXIDE</b>							
							Analyst: <b>JRR</b>
Total Carbon Dioxide	80	1.0	H	mg CO2/	1	8/19/2019 9:33:09 PM	R62234
<b>EPA METHOD 300.0: ANIONS</b>							
							Analyst: <b>MRA</b>
Fluoride	0.19	0.10		mg/L	1	9/4/2019 6:12:46 PM	R62635
Chloride	3.6	0.50		mg/L	1	9/4/2019 6:12:46 PM	R62635
Bromide	ND	0.10		mg/L	1	9/4/2019 6:12:46 PM	R62635
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	9/4/2019 6:12:46 PM	R62635
Sulfate	50	10		mg/L	20	9/4/2019 6:25:38 PM	R62635
Nitrate+Nitrite as N	ND	1.0		mg/L	5	9/5/2019 1:40:22 PM	R62704
<b>SM2510B: SPECIFIC CONDUCTANCE</b>							
							Analyst: <b>JRR</b>
Conductivity	310	5.0		µmhos/c	1	8/19/2019 9:33:09 PM	R62234
<b>SM2320B: ALKALINITY</b>							
							Analyst: <b>JRR</b>
Bicarbonate (As CaCO3)	88.72	20.00		mg/L Ca	1	8/19/2019 9:33:09 PM	R62234
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	8/19/2019 9:33:09 PM	R62234
Total Alkalinity (as CaCO3)	88.72	20.00		mg/L Ca	1	8/19/2019 9:33:09 PM	R62234
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							
							Analyst: <b>JMT</b>
Total Dissolved Solids	187	20.0		mg/L	1	8/21/2019 1:51:00 PM	46914
<b>EPA METHOD 7470: MERCURY</b>							
							Analyst: <b>pmf</b>
Mercury	ND	0.00020		mg/L	1	8/20/2019 10:42:16 AM	46896
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							
							Analyst: <b>bcv</b>
Arsenic	ND	0.020		mg/L	1	8/22/2019 12:22:43 PM	A62357
Barium	0.079	0.020		mg/L	1	8/20/2019 10:48:57 AM	A62272
Cadmium	ND	0.0020		mg/L	1	8/20/2019 10:48:57 AM	A62272
Calcium	33	1.0		mg/L	1	8/22/2019 12:22:43 PM	A62357
Chromium	ND	0.0060		mg/L	1	8/20/2019 10:48:57 AM	A62272
Copper	0.011	0.0060		mg/L	1	8/20/2019 10:48:57 AM	A62272
Iron	0.0096	0.020	J	mg/L	1	8/20/2019 10:48:57 AM	A62272
Lead	ND	0.0050		mg/L	1	8/20/2019 10:48:57 AM	A62272
Magnesium	6.5	1.0		mg/L	1	8/20/2019 10:48:57 AM	A62272
Manganese	0.0064	0.0020		mg/L	1	8/20/2019 10:48:57 AM	A62272
Potassium	2.2	1.0		mg/L	1	8/20/2019 10:48:57 AM	A62272
Selenium	ND	0.050		mg/L	1	8/20/2019 10:48:57 AM	A62272
Silver	ND	0.0050		mg/L	1	8/20/2019 10:48:57 AM	A62272

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908972

Date Reported: 9/10/2019

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

**Client Sample ID:** North of 45

**Project:** San Juan River Bluff

**Collection Date:** 8/16/2019 9:30:00 AM

**Lab ID:** 1908972-004

**Matrix:** AQUEOUS

**Received Date:** 8/17/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: <b>bcv</b>
Sodium	17	1.0		mg/L	1	8/20/2019 10:48:57 AM	A62272
Uranium	ND	0.10		mg/L	1	8/20/2019 10:48:57 AM	A62272
Zinc	0.018	0.020	J	mg/L	1	8/20/2019 10:48:57 AM	A62272
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>							Analyst: <b>bcv</b>
Arsenic	ND	0.020		mg/L	1	8/22/2019 2:14:15 PM	46876
Barium	0.12	0.020		mg/L	1	8/22/2019 2:14:15 PM	46876
Cadmium	ND	0.0020		mg/L	1	8/22/2019 2:14:15 PM	46876
Chromium	0.0015	0.0060	J	mg/L	1	8/22/2019 2:14:15 PM	46876
Lead	0.0043	0.0050	J	mg/L	1	8/23/2019 9:49:41 AM	46876
Selenium	ND	0.050		mg/L	1	8/22/2019 2:14:15 PM	46876
Silver	0.00077	0.0050	J	mg/L	1	8/22/2019 2:14:15 PM	46876
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/26/2019 1:10:59 PM	A62420
Surr: BFB	95.0	65.8-143		%Rec	1	8/26/2019 1:10:59 PM	A62420
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>CCM</b>
Benzene	ND	1.0		µg/L	1	8/22/2019 1:53:00 PM	SL_W62
Toluene	ND	1.0		µg/L	1	8/22/2019 1:53:00 PM	SL_W62
Ethylbenzene	ND	1.0		µg/L	1	8/22/2019 1:53:00 PM	SL_W62
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/22/2019 1:53:00 PM	SL_W62
Xylenes, Total	ND	1.5		µg/L	1	8/22/2019 1:53:00 PM	SL_W62
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	8/22/2019 1:53:00 PM	SL_W62
Surr: 4-Bromofluorobenzene	95.8	70-130		%Rec	1	8/22/2019 1:53:00 PM	SL_W62
Surr: Dibromofluoromethane	99.8	70-130		%Rec	1	8/22/2019 1:53:00 PM	SL_W62
Surr: Toluene-d8	97.4	70-130		%Rec	1	8/22/2019 1:53:00 PM	SL_W62

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908972

Date Reported: 9/10/2019

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

**Client Sample ID:** North Of 46

**Project:** San Juan River Bluff

**Collection Date:** 8/16/2019 10:30:00 AM

**Lab ID:** 1908972-005

**Matrix:** AQUEOUS

**Received Date:** 8/17/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	8/21/2019 5:29:00 PM	46918
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/21/2019 5:29:00 PM	46918
Surr: DNOP	99.1	52.7-168		%Rec	1	8/21/2019 5:29:00 PM	46918
<b>CARBON DIOXIDE</b>							Analyst: <b>JRR</b>
Total Carbon Dioxide	80	1.0	H	mg CO2/	1	8/19/2019 9:41:19 PM	R62234
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Fluoride	0.19	0.10		mg/L	1	9/4/2019 7:04:53 PM	R62635
Chloride	3.5	0.50		mg/L	1	9/4/2019 7:04:53 PM	R62635
Bromide	ND	0.10		mg/L	1	9/4/2019 7:04:53 PM	R62635
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	9/4/2019 7:04:53 PM	R62635
Sulfate	50	10		mg/L	20	9/4/2019 7:17:14 PM	R62635
Nitrate+Nitrite as N	ND	1.0		mg/L	5	9/5/2019 1:53:15 PM	R62704
<b>SM2510B: SPECIFIC CONDUCTANCE</b>							Analyst: <b>JRR</b>
Conductivity	310	5.0		µmhos/c	1	8/19/2019 9:41:19 PM	R62234
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>
Bicarbonate (As CaCO3)	88.92	20.00		mg/L Ca	1	8/19/2019 9:41:19 PM	R62234
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	8/19/2019 9:41:19 PM	R62234
Total Alkalinity (as CaCO3)	88.92	20.00		mg/L Ca	1	8/19/2019 9:41:19 PM	R62234
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>JMT</b>
Total Dissolved Solids	194	20.0		mg/L	1	8/21/2019 1:51:00 PM	46914
<b>EPA METHOD 7470: MERCURY</b>							Analyst: <b>pmf</b>
Mercury	ND	0.00020		mg/L	1	8/20/2019 10:44:28 AM	46896
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: <b>bcv</b>
Arsenic	ND	0.020		mg/L	1	8/22/2019 12:24:51 PM	A62357
Barium	0.081	0.020		mg/L	1	8/20/2019 10:51:05 AM	A62272
Cadmium	ND	0.0020		mg/L	1	8/20/2019 10:51:05 AM	A62272
Calcium	34	1.0		mg/L	1	8/22/2019 12:24:51 PM	A62357
Chromium	ND	0.0060		mg/L	1	8/20/2019 10:51:05 AM	A62272
Copper	0.0062	0.0060		mg/L	1	8/20/2019 10:51:05 AM	A62272
Iron	0.010	0.020	J	mg/L	1	8/20/2019 10:51:05 AM	A62272
Lead	ND	0.0050		mg/L	1	8/20/2019 10:51:05 AM	A62272
Magnesium	6.6	1.0		mg/L	1	8/20/2019 10:51:05 AM	A62272
Manganese	0.0066	0.0020		mg/L	1	8/20/2019 10:51:05 AM	A62272
Potassium	2.3	1.0		mg/L	1	8/20/2019 10:51:05 AM	A62272
Selenium	ND	0.050		mg/L	1	8/20/2019 10:51:05 AM	A62272
Silver	0.0013	0.0050	J	mg/L	1	8/20/2019 10:51:05 AM	A62272

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908972

Date Reported: 9/10/2019

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

**Client Sample ID:** North Of 46

**Project:** San Juan River Bluff

**Collection Date:** 8/16/2019 10:30:00 AM

**Lab ID:** 1908972-005

**Matrix:** AQUEOUS

**Received Date:** 8/17/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: <b>bcv</b>
Sodium	18	1.0		mg/L	1	8/20/2019 10:51:05 AM	A62272
Uranium	ND	0.10		mg/L	1	8/20/2019 10:51:05 AM	A62272
Zinc	0.034	0.020		mg/L	1	8/20/2019 10:51:05 AM	A62272
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>							Analyst: <b>bcv</b>
Arsenic	ND	0.020		mg/L	1	8/22/2019 2:16:15 PM	46876
Barium	0.15	0.020		mg/L	1	8/22/2019 2:16:15 PM	46876
Cadmium	ND	0.0020		mg/L	1	8/22/2019 2:16:15 PM	46876
Chromium	0.0046	0.0060	J	mg/L	1	8/22/2019 2:16:15 PM	46876
Lead	ND	0.0050		mg/L	1	8/23/2019 9:51:16 AM	46876
Selenium	ND	0.050		mg/L	1	8/22/2019 2:16:15 PM	46876
Silver	ND	0.0050		mg/L	1	8/22/2019 2:16:15 PM	46876
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/26/2019 1:33:58 PM	A62420
Surr: BFB	96.9	65.8-143		%Rec	1	8/26/2019 1:33:58 PM	A62420
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>CCM</b>
Benzene	ND	1.0		µg/L	1	8/22/2019 2:17:00 PM	SL_W62
Toluene	ND	1.0		µg/L	1	8/22/2019 2:17:00 PM	SL_W62
Ethylbenzene	ND	1.0		µg/L	1	8/22/2019 2:17:00 PM	SL_W62
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/22/2019 2:17:00 PM	SL_W62
Xylenes, Total	ND	1.5		µg/L	1	8/22/2019 2:17:00 PM	SL_W62
Surr: 1,2-Dichloroethane-d4	98.5	70-130		%Rec	1	8/22/2019 2:17:00 PM	SL_W62
Surr: 4-Bromofluorobenzene	97.4	70-130		%Rec	1	8/22/2019 2:17:00 PM	SL_W62
Surr: Dibromofluoromethane	96.0	70-130		%Rec	1	8/22/2019 2:17:00 PM	SL_W62
Surr: Toluene-d8	97.5	70-130		%Rec	1	8/22/2019 2:17:00 PM	SL_W62

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908972

Date Reported: 9/10/2019

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

**Client Sample ID:** Down Stream

**Project:** San Juan River Bluff

**Collection Date:** 8/16/2019 11:15:00 AM

**Lab ID:** 1908972-006

**Matrix:** AQUEOUS

**Received Date:** 8/17/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	8/21/2019 5:53:22 PM	46918
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/21/2019 5:53:22 PM	46918
Surr: DNOP	91.9	52.7-168		%Rec	1	8/21/2019 5:53:22 PM	46918
<b>CARBON DIOXIDE</b>							Analyst: <b>JRR</b>
Total Carbon Dioxide	80	1.0	H	mg CO2/	1	8/19/2019 10:05:14 PM	R62234
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Fluoride	0.19	0.10		mg/L	1	9/4/2019 7:30:07 PM	R62635
Chloride	3.6	0.50		mg/L	1	9/4/2019 7:30:07 PM	R62635
Bromide	ND	0.10		mg/L	1	9/4/2019 7:30:07 PM	R62635
Phosphorus, Orthophosphate (As P)	ND	0.50	H	mg/L	1	9/4/2019 7:30:07 PM	R62635
Sulfate	52	10		mg/L	20	9/4/2019 7:43:00 PM	R62635
Nitrate+Nitrite as N	0.13	1.0	J	mg/L	5	9/5/2019 2:06:08 PM	R62704
<b>SM2510B: SPECIFIC CONDUCTANCE</b>							Analyst: <b>JRR</b>
Conductivity	310	5.0		µmhos/c	1	8/19/2019 10:05:14 PM	R62234
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>
Bicarbonate (As CaCO3)	88.80	20.00		mg/L Ca	1	8/19/2019 10:05:14 PM	R62234
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	8/19/2019 10:05:14 PM	R62234
Total Alkalinity (as CaCO3)	88.80	20.00		mg/L Ca	1	8/19/2019 10:05:14 PM	R62234
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>JMT</b>
Total Dissolved Solids	204	40.0	D	mg/L	1	8/21/2019 1:51:00 PM	46914
<b>EPA METHOD 7470: MERCURY</b>							Analyst: <b>pmf</b>
Mercury	ND	0.00020		mg/L	1	8/20/2019 10:51:18 AM	46896
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: <b>bcv</b>
Arsenic	ND	0.020		mg/L	1	8/22/2019 12:26:59 PM	A62357
Barium	0.080	0.020		mg/L	1	8/20/2019 10:53:15 AM	A62272
Cadmium	ND	0.0020		mg/L	1	8/20/2019 10:53:15 AM	A62272
Calcium	33	1.0		mg/L	1	8/22/2019 12:26:59 PM	A62357
Chromium	ND	0.0060		mg/L	1	8/20/2019 10:53:15 AM	A62272
Copper	0.0060	0.0060		mg/L	1	8/20/2019 10:53:15 AM	A62272
Iron	0.012	0.020	J	mg/L	1	8/20/2019 10:53:15 AM	A62272
Lead	ND	0.0050		mg/L	1	8/20/2019 10:53:15 AM	A62272
Magnesium	6.5	1.0		mg/L	1	8/20/2019 10:53:15 AM	A62272
Manganese	0.0053	0.0020		mg/L	1	8/20/2019 10:53:15 AM	A62272
Potassium	2.2	1.0		mg/L	1	8/20/2019 10:53:15 AM	A62272
Selenium	ND	0.050		mg/L	1	8/20/2019 10:53:15 AM	A62272
Silver	ND	0.0050		mg/L	1	8/20/2019 10:53:15 AM	A62272

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908972

Date Reported: 9/10/2019

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

**Client Sample ID:** Down Stream

**Project:** San Juan River Bluff

**Collection Date:** 8/16/2019 11:15:00 AM

**Lab ID:** 1908972-006

**Matrix:** AQUEOUS

**Received Date:** 8/17/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: <b>bcv</b>
Sodium	17	1.0		mg/L	1	8/20/2019 10:53:15 AM	A62272
Uranium	ND	0.10		mg/L	1	8/20/2019 10:53:15 AM	A62272
Zinc	0.026	0.020		mg/L	1	8/20/2019 10:53:15 AM	A62272
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>							Analyst: <b>bcv</b>
Arsenic	ND	0.020		mg/L	1	8/22/2019 2:18:08 PM	46876
Barium	0.15	0.020		mg/L	1	8/22/2019 2:18:08 PM	46876
Cadmium	ND	0.0020		mg/L	1	8/22/2019 2:18:08 PM	46876
Chromium	0.0024	0.0060	J	mg/L	1	8/22/2019 2:18:08 PM	46876
Lead	ND	0.0050		mg/L	1	8/23/2019 9:52:47 AM	46876
Selenium	ND	0.050		mg/L	1	8/22/2019 2:18:08 PM	46876
Silver	0.00058	0.0050	J	mg/L	1	8/22/2019 2:18:08 PM	46876
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/26/2019 1:56:57 PM	A62420
Surr: BFB	96.0	65.8-143		%Rec	1	8/26/2019 1:56:57 PM	A62420
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>CCM</b>
Benzene	ND	1.0		µg/L	1	8/22/2019 2:41:00 PM	SL_W62
Toluene	ND	1.0		µg/L	1	8/22/2019 2:41:00 PM	SL_W62
Ethylbenzene	ND	1.0		µg/L	1	8/22/2019 2:41:00 PM	SL_W62
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/22/2019 2:41:00 PM	SL_W62
Xylenes, Total	ND	1.5		µg/L	1	8/22/2019 2:41:00 PM	SL_W62
Surr: 1,2-Dichloroethane-d4	99.7	70-130		%Rec	1	8/22/2019 2:41:00 PM	SL_W62
Surr: 4-Bromofluorobenzene	96.8	70-130		%Rec	1	8/22/2019 2:41:00 PM	SL_W62
Surr: Dibromofluoromethane	97.0	70-130		%Rec	1	8/22/2019 2:41:00 PM	SL_W62
Surr: Toluene-d8	97.5	70-130		%Rec	1	8/22/2019 2:41:00 PM	SL_W62

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908972

Date Reported: 9/10/2019

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

**Client Sample ID:** Trip Blank

**Project:** San Juan River Bluff

**Collection Date:**

**Lab ID:** 1908972-007

**Matrix:** AQUEOUS

**Received Date:** 8/17/2019 8:40:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>CCM</b>
Benzene	ND	1.0		µg/L	1	8/22/2019 3:06:00 PM	SL_W62
Toluene	ND	1.0		µg/L	1	8/22/2019 3:06:00 PM	SL_W62
Ethylbenzene	ND	1.0		µg/L	1	8/22/2019 3:06:00 PM	SL_W62
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/22/2019 3:06:00 PM	SL_W62
Xylenes, Total	ND	1.5		µg/L	1	8/22/2019 3:06:00 PM	SL_W62
Surr: 1,2-Dichloroethane-d4	98.3	70-130		%Rec	1	8/22/2019 3:06:00 PM	SL_W62
Surr: 4-Bromofluorobenzene	96.5	70-130		%Rec	1	8/22/2019 3:06:00 PM	SL_W62
Surr: Dibromofluoromethane	96.6	70-130		%Rec	1	8/22/2019 3:06:00 PM	SL_W62
Surr: Toluene-d8	97.8	70-130		%Rec	1	8/22/2019 3:06:00 PM	SL_W62

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908972

10-Sep-19

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff

Sample ID: <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62635</b>	RunNo: <b>62635</b>								
Prep Date:	Analysis Date: <b>9/4/2019</b>	SeqNo: <b>2133704</b> Units: <b>mg/L</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62635</b>	RunNo: <b>62635</b>								
Prep Date:	Analysis Date: <b>9/4/2019</b>	SeqNo: <b>2133705</b> Units: <b>mg/L</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.53	0.10	0.5000	0	106	90	110			
Chloride	4.9	0.50	5.000	0	98.0	90	110			
Bromide	2.5	0.10	2.500	0	100	90	110			
Phosphorus, Orthophosphate (As P)	4.9	0.50	5.000	0	97.2	90	110			
Sulfate	9.9	0.50	10.00	0	98.9	90	110			

Sample ID: <b>MB</b>	SampType: <b>mblk</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62704</b>	RunNo: <b>62704</b>								
Prep Date:	Analysis Date: <b>9/5/2019</b>	SeqNo: <b>2135350</b> Units: <b>mg/L</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID: <b>LCS</b>	SampType: <b>lcs</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62704</b>	RunNo: <b>62704</b>								
Prep Date:	Analysis Date: <b>9/5/2019</b>	SeqNo: <b>2135351</b> Units: <b>mg/L</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.5	0.20	3.500	0	99.5	90	110			

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908972

10-Sep-19

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

**Project:** San Juan River Bluff

Sample ID: <b>1908972-003EMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>Upstream</b>	Batch ID: <b>46918</b>	RunNo: <b>62286</b>								
Prep Date: <b>8/20/2019</b>	Analysis Date: <b>8/21/2019</b>	SeqNo: <b>2117568</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.4	0.40	2.500	0	94.3	68.3	147			
Surr: DNOP	0.19		0.2500		76.9	52.7	168			

Sample ID: <b>1908972-003EMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>Upstream</b>	Batch ID: <b>46918</b>	RunNo: <b>62286</b>								
Prep Date: <b>8/20/2019</b>	Analysis Date: <b>8/21/2019</b>	SeqNo: <b>2117569</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.5	0.40	2.500	0	98.3	68.3	147	4.21	20	
Surr: DNOP	0.20		0.2500		81.1	52.7	168	0	0	

Sample ID: <b>LCS-46918</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>46918</b>	RunNo: <b>62286</b>								
Prep Date: <b>8/20/2019</b>	Analysis Date: <b>8/21/2019</b>	SeqNo: <b>2117575</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.40	2.500	0	110	66.7	148			
Surr: DNOP	0.21		0.2500		85.9	52.7	168			

Sample ID: <b>MB-46918</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>PBW</b>	Batch ID: <b>46918</b>	RunNo: <b>62286</b>								
Prep Date: <b>8/20/2019</b>	Analysis Date: <b>8/21/2019</b>	SeqNo: <b>2117576</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	0.40								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.47		0.5000		94.6	52.7	168			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908972

10-Sep-19

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff

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>A62420</b>	RunNo: <b>62420</b>								
Prep Date:	Analysis Date: <b>8/26/2019</b>	SeqNo: <b>2122301</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		98.3	65.8	143			

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>A62420</b>	RunNo: <b>62420</b>								
Prep Date:	Analysis Date: <b>8/26/2019</b>	SeqNo: <b>2122302</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	93.7	73.6	119			
Surr: BFB	23		20.00		116	65.8	143			

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908972

10-Sep-19

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

**Project:** San Juan River Bluff

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>SL_W62329</b>	RunNo: <b>62329</b>								
Prep Date:	Analysis Date: <b>8/22/2019</b>	SeqNo: <b>2120528</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	94.6	70	130			
Toluene	21	1.0	20.00	0	103	70	130			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		94.2	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.2	70	130			
Surr: Dibromofluoromethane	9.3		10.00		92.9	70	130			
Surr: Toluene-d8	10		10.00		100	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>SL_W62329</b>	RunNo: <b>62329</b>								
Prep Date:	Analysis Date: <b>8/22/2019</b>	SeqNo: <b>2120529</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	9.7		10.00		96.8	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		97.1	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	9.7		10.00		97.0	70	130			

Sample ID: <b>1908972-001ams</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8260: Volatiles Short List</b>								
Client ID: <b>East Outfall #2</b>	Batch ID: <b>SL_W62329</b>	RunNo: <b>62329</b>								
Prep Date:	Analysis Date: <b>8/22/2019</b>	SeqNo: <b>2120531</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	95.5	70	130			
Toluene	21	1.0	20.00	0	103	70	130			
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.1	70	130			
Surr: 4-Bromofluorobenzene	9.8		10.00		98.1	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.0	70	130			
Surr: Toluene-d8	9.9		10.00		98.6	70	130			

Sample ID: <b>1908972-001amsd</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8260: Volatiles Short List</b>								
Client ID: <b>East Outfall #2</b>	Batch ID: <b>SL_W62329</b>	RunNo: <b>62329</b>								
Prep Date:	Analysis Date: <b>8/22/2019</b>	SeqNo: <b>2120532</b>	Units: <b>µg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	91.9	70	130	3.83	20	

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908972

10-Sep-19

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

**Project:** San Juan River Bluff

Sample ID: <b>1908972-001amsd</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8260: Volatiles Short List</b>								
Client ID: <b>East Outfall #2</b>	Batch ID: <b>SL_W62329</b>	RunNo: <b>62329</b>								
Prep Date:	Analysis Date: <b>8/22/2019</b>	SeqNo: <b>2120532</b>			Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Toluene	20	1.0	20.00	0	99.0	70	130	3.78	20	
Surr: 1,2-Dichloroethane-d4	9.8		10.00		98.2	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.9		10.00		99.1	70	130	0	0	
Surr: Dibromofluoromethane	9.6		10.00		95.9	70	130	0	0	
Surr: Toluene-d8	9.8		10.00		97.9	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 Limit                                |
| S % Recovery outside of range due to dilution or matrix |                                                   |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908972

10-Sep-19

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff

Sample ID: <b>Ics-1 99.8uS eC</b>	SampType: <b>Ics</b>	TestCode: <b>SM2510B: Specific Conductance</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62234</b>	RunNo: <b>62234</b>								
Prep Date:	Analysis Date: <b>8/19/2019</b>	SeqNo: <b>2114534</b>			Units: <b>µmhos/cm</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.80	0	100	85	115			

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908972

10-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** San Juan River Bluff

Sample ID: <b>MB-46896</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>PBW</b>	Batch ID: <b>46896</b>	RunNo: <b>62263</b>								
Prep Date: <b>8/19/2019</b>	Analysis Date: <b>8/20/2019</b>	SeqNo: <b>2115305</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: <b>LCS-46896</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>46896</b>	RunNo: <b>62263</b>								
Prep Date: <b>8/19/2019</b>	Analysis Date: <b>8/20/2019</b>	SeqNo: <b>2115306</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0047	0.00020	0.005000	0	95.0	80	120			

Sample ID: <b>1908972-001CMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>East Outfall #2</b>	Batch ID: <b>46896</b>	RunNo: <b>62263</b>								
Prep Date: <b>8/19/2019</b>	Analysis Date: <b>8/20/2019</b>	SeqNo: <b>2115308</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	100	75	125			

Sample ID: <b>1908972-001CMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>East Outfall #2</b>	Batch ID: <b>46896</b>	RunNo: <b>62263</b>								
Prep Date: <b>8/19/2019</b>	Analysis Date: <b>8/20/2019</b>	SeqNo: <b>2115309</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	100	75	125	0	20	

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908972

10-Sep-19

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

**Project:** San Juan River Bluff

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Uranium	ND	0.10								
Zinc	ND	0.020								

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.020	0.5000	0	101	80	120			
Cadmium	0.52	0.0020	0.5000	0	104	80	120			
Chromium	0.51	0.0060	0.5000	0	102	80	120			
Copper	0.52	0.0060	0.5000	0	104	80	120			
Iron	0.52	0.020	0.5000	0	104	80	120			
Lead	0.51	0.0050	0.5000	0	101	80	120			
Magnesium	52	1.0	50.00	0	104	80	120			
Manganese	0.50	0.0020	0.5000	0	101	80	120			
Potassium	52	1.0	50.00	0	103	80	120			
Selenium	0.48	0.050	0.5000	0	96.6	80	120			
Silver	0.096	0.0050	0.1000	0	95.8	80	120			
Sodium	52	1.0	50.00	0	105	80	120			
Uranium	0.47	0.10	0.5000	0	94.5	80	120			
Zinc	0.51	0.020	0.5000	0	102	80	120			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.020	0.5000	0	101	80	120			
Cadmium	0.52	0.0020	0.5000	0	104	80	120			
Chromium	0.51	0.0060	0.5000	0	102	80	120			
Copper	0.52	0.0060	0.5000	0	104	80	120			
Iron	0.52	0.020	0.5000	0	104	80	120			
Lead	0.51	0.0050	0.5000	0	101	80	120			
Magnesium	52	1.0	50.00	0	104	80	120			
Manganese	0.50	0.0020	0.5000	0	101	80	120			
Potassium	52	1.0	50.00	0	103	80	120			
Selenium	0.48	0.050	0.5000	0	96.6	80	120			
Silver	0.096	0.0050	0.1000	0	95.8	80	120			
Sodium	52	1.0	50.00	0	105	80	120			
Uranium	0.47	0.10	0.5000	0	94.5	80	120			
Zinc	0.51	0.020	0.5000	0	102	80	120			

**Qualifiers:**

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908972

10-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** San Juan River Bluff

Sample ID: 1908972-001DMS		SampType: MS		TestCode: EPA Method 6010B: Dissolved Metals						
Client ID: East Outfall #2		Batch ID: A62272		RunNo: 62272						
Prep Date:		Analysis Date: 8/20/2019		SeqNo: 2115467		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.57	0.020	0.5000	0.06311	102	75	125			
Cadmium	0.53	0.0020	0.5000	0	107	75	125			
Chromium	0.52	0.0060	0.5000	0	104	75	125			
Copper	0.55	0.0060	0.5000	0	110	75	125			
Iron	0.52	0.020	0.5000	0.005602	103	75	125			
Lead	0.50	0.0050	0.5000	0.007466	99.0	75	125			
Magnesium	78	1.0	50.00	25.28	106	75	125			
Manganese	0.52	0.0020	0.5000	0.0007391	103	75	125			
Potassium	55	1.0	50.00	1.683	106	75	125			
Selenium	0.60	0.050	0.5000	0	121	75	125			
Silver	0.096	0.0050	0.1000	0.002143	94.2	75	125			
Uranium	0.44	0.10	0.5000	0	88.6	75	125			
Zinc	0.54	0.020	0.5000	0.01978	105	75	125			

Sample ID: 1908972-001DMSD		SampType: MSD		TestCode: EPA Method 6010B: Dissolved Metals						
Client ID: East Outfall #2		Batch ID: A62272		RunNo: 62272						
Prep Date:		Analysis Date: 8/20/2019		SeqNo: 2115468		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.57	0.020	0.5000	0.06311	101	75	125	1.00	20	
Cadmium	0.52	0.0020	0.5000	0	105	75	125	2.20	20	
Chromium	0.51	0.0060	0.5000	0	102	75	125	1.85	20	
Copper	0.54	0.0060	0.5000	0	108	75	125	1.08	20	
Iron	0.52	0.020	0.5000	0.005602	102	75	125	0.878	20	
Lead	0.50	0.0050	0.5000	0.007466	98.7	75	125	0.295	20	
Magnesium	78	1.0	50.00	25.28	105	75	125	0.589	20	
Manganese	0.51	0.0020	0.5000	0.0007391	102	75	125	0.837	20	
Potassium	54	1.0	50.00	1.683	105	75	125	0.449	20	
Selenium	0.59	0.050	0.5000	0	118	75	125	1.92	20	
Silver	0.095	0.0050	0.1000	0.002143	92.8	75	125	1.45	20	
Uranium	0.43	0.10	0.5000	0	85.4	75	125	3.68	20	
Zinc	0.54	0.020	0.5000	0.01978	103	75	125	1.48	20	

Sample ID: MB-A		SampType: MBLK		TestCode: EPA Method 6010B: Dissolved Metals						
Client ID: PBW		Batch ID: A62357		RunNo: 62357						
Prep Date:		Analysis Date: 8/22/2019		SeqNo: 2118867		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Calcium	ND	1.0								

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908972

10-Sep-19

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

**Project:** San Juan River Bluff

Sample ID: <b>LCS-A</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 6010B: Dissolved Metals</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>A62357</b>		RunNo: <b>62357</b>							
Prep Date:	Analysis Date: <b>8/22/2019</b>		SeqNo: <b>2118869</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.50	0.020	0.5000	0	101	80	120			
Calcium	50	1.0	50.00	0	100	80	120			

Sample ID: <b>1908972-001DMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 6010B: Dissolved Metals</b>							
Client ID: <b>East Outfall #2</b>	Batch ID: <b>A62357</b>		RunNo: <b>62357</b>							
Prep Date:	Analysis Date: <b>8/22/2019</b>		SeqNo: <b>2118884</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.52	0.020	0.5000	0	105	75	125			

Sample ID: <b>1908972-001DMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 6010B: Dissolved Metals</b>							
Client ID: <b>East Outfall #2</b>	Batch ID: <b>A62357</b>		RunNo: <b>62357</b>							
Prep Date:	Analysis Date: <b>8/22/2019</b>		SeqNo: <b>2118885</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.51	0.020	0.5000	0	102	75	125	2.25	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 Limit                                |
| S % Recovery outside of range due to dilution or matrix |                                                   |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908972

10-Sep-19

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

**Project:** San Juan River Bluff

Sample ID: <b>MB-46876</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>46876</b>	RunNo: <b>62357</b>								
Prep Date: <b>8/19/2019</b>	Analysis Date: <b>8/22/2019</b>	SeqNo: <b>2118876</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: <b>LCS-46876</b>	SampType: <b>LCS</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>46876</b>	RunNo: <b>62357</b>								
Prep Date: <b>8/19/2019</b>	Analysis Date: <b>8/22/2019</b>	SeqNo: <b>2118881</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.50	0.020	0.5000	0	99.4	80	120			
Barium	0.48	0.020	0.5000	0	95.9	80	120			
Cadmium	0.49	0.0020	0.5000	0	98.2	80	120			
Chromium	0.49	0.0060	0.5000	0	97.0	80	120			
Selenium	0.48	0.050	0.5000	0	95.4	80	120			
Silver	0.096	0.0050	0.1000	0	95.6	80	120			

Sample ID: <b>1908972-001CMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>East Outfall #2</b>	Batch ID: <b>46876</b>	RunNo: <b>62357</b>								
Prep Date: <b>8/19/2019</b>	Analysis Date: <b>8/22/2019</b>	SeqNo: <b>2118944</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.020	0.5000	0	98.4	75	125			
Barium	0.54	0.020	0.5000	0.06406	95.1	75	125			
Cadmium	0.51	0.0020	0.5000	0	101	75	125			
Chromium	0.48	0.0060	0.5000	0	96.8	75	125			
Selenium	0.48	0.050	0.5000	0	96.4	75	125			
Silver	0.097	0.0050	0.1000	0.002689	94.3	75	125			

Sample ID: <b>1908972-001CMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>East Outfall #2</b>	Batch ID: <b>46876</b>	RunNo: <b>62357</b>								
Prep Date: <b>8/19/2019</b>	Analysis Date: <b>8/22/2019</b>	SeqNo: <b>2118945</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.48	0.020	0.5000	0	96.2	75	125	2.21	20	
Barium	0.54	0.020	0.5000	0.06406	94.5	75	125	0.615	20	
Cadmium	0.50	0.0020	0.5000	0	100	75	125	0.714	20	
Chromium	0.48	0.0060	0.5000	0	95.4	75	125	1.38	20	

**Qualifiers:**

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908972

10-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** San Juan River Bluff

Sample ID: <b>1908972-001CMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>East Outfall #2</b>	Batch ID: <b>46876</b>	RunNo: <b>62357</b>								
Prep Date: <b>8/19/2019</b>	Analysis Date: <b>8/22/2019</b>	SeqNo: <b>2118945</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.45	0.050	0.5000	0	90.0	75	125	6.90	20	
Silver	0.097	0.0050	0.1000	0.002689	93.8	75	125	0.509	20	

Sample ID: <b>MB-46876</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>46876</b>	RunNo: <b>62376</b>								
Prep Date: <b>8/19/2019</b>	Analysis Date: <b>8/23/2019</b>	SeqNo: <b>2120004</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0050								

Sample ID: <b>LCS-46876</b>	SampType: <b>LCS</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>46876</b>	RunNo: <b>62376</b>								
Prep Date: <b>8/19/2019</b>	Analysis Date: <b>8/23/2019</b>	SeqNo: <b>2120006</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.48	0.0050	0.5000	0	96.0	80	120			

Sample ID: <b>1908972-001CMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>East Outfall #2</b>	Batch ID: <b>46876</b>	RunNo: <b>62376</b>								
Prep Date: <b>8/19/2019</b>	Analysis Date: <b>8/23/2019</b>	SeqNo: <b>2120014</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.48	0.0050	0.5000	0.01108	94.0	75	125			

Sample ID: <b>1908972-001CMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>East Outfall #2</b>	Batch ID: <b>46876</b>	RunNo: <b>62376</b>								
Prep Date: <b>8/19/2019</b>	Analysis Date: <b>8/23/2019</b>	SeqNo: <b>2120015</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.48	0.0050	0.5000	0.01108	93.8	75	125	0.0234	20	

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908972

10-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** San Juan River Bluff

Sample ID: <b>mb-1 alk</b>	SampType: <b>mblk</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62234</b>	RunNo: <b>62234</b>								
Prep Date:	Analysis Date: <b>8/19/2019</b>	SeqNo: <b>2114558</b>			Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: <b>ics-1 alk</b>	SampType: <b>ics</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62234</b>	RunNo: <b>62234</b>								
Prep Date:	Analysis Date: <b>8/19/2019</b>	SeqNo: <b>2114559</b>			Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	76.64	20.00	80.00	0	95.8	90	110			

Sample ID: <b>mb-2 alk</b>	SampType: <b>mblk</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62234</b>	RunNo: <b>62234</b>								
Prep Date:	Analysis Date: <b>8/19/2019</b>	SeqNo: <b>2114581</b>			Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: <b>ics-2 alk</b>	SampType: <b>ics</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62234</b>	RunNo: <b>62234</b>								
Prep Date:	Analysis Date: <b>8/19/2019</b>	SeqNo: <b>2114582</b>			Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	73.08	20.00	80.00	0	91.4	90	110			

Sample ID: <b>mb-3 alk</b>	SampType: <b>mblk</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62234</b>	RunNo: <b>62234</b>								
Prep Date:	Analysis Date: <b>8/19/2019</b>	SeqNo: <b>2114604</b>			Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: <b>ics-3 alk</b>	SampType: <b>ics</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62234</b>	RunNo: <b>62234</b>								
Prep Date:	Analysis Date: <b>8/19/2019</b>	SeqNo: <b>2114605</b>			Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	73.68	20.00	80.00	0	92.1	90	110			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908972

10-Sep-19

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

**Project:** San Juan River Bluff

Sample ID: <b>MB-46914</b>	SampType: <b>MBLK</b>	TestCode: <b>SM2540C MOD: Total Dissolved Solids</b>								
Client ID: <b>PBW</b>	Batch ID: <b>46914</b>	RunNo: <b>62301</b>								
Prep Date: <b>8/20/2019</b>	Analysis Date: <b>8/21/2019</b>	SeqNo: <b>2117045</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: <b>LCS-46914</b>	SampType: <b>LCS</b>	TestCode: <b>SM2540C MOD: Total Dissolved Solids</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>46914</b>	RunNo: <b>62301</b>								
Prep Date: <b>8/20/2019</b>	Analysis Date: <b>8/21/2019</b>	SeqNo: <b>2117046</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Sample ID: <b>1908972-002BDUP</b>	SampType: <b>DUP</b>	TestCode: <b>SM2540C MOD: Total Dissolved Solids</b>								
Client ID: <b>East Outfall #3</b>	Batch ID: <b>46914</b>	RunNo: <b>62301</b>								
Prep Date: <b>8/20/2019</b>	Analysis Date: <b>8/21/2019</b>	SeqNo: <b>2117063</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	671	20.0						0.298	10	*

**Qualifiers:**

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

**Sample Log-In Check List**

Client Name: Western Refining Southw Work Order Number: 1908972 RcptNo: 1

Received By: **Isaiah Ortiz** 8/17/2019 8:40:00 AM *I-Ox*

Completed By: **Anne Thorne** 8/19/2019 10:02:10 AM *Anne Thorne*

Reviewed By: **DAD 8/19/19**

**Chain of Custody**

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

**Log In**

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

# of preserved bottles checked for pH:	<u>18</u>
Adjusted? (<2 or >12 unless noted)	<u>NO</u>
Checked by:	<u>[Signature]</u>

**Special Handling (if applicable)**

15. 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"/>		

16. Additional remarks:

**17. Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.3	Good	Yes			

# Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

Email: [gimccartney@marathonpetroleum.com](mailto:gimccartney@marathonpetroleum.com)

QA/QC Package:

Standard  X Level 4 (Full Validation)

Other

X EDD (Type) EXCEL

Turn-Around Time:  Standard  Rush

Project Name: **San Juan River Bluff**

**2019 Annual Sampling Event**

Project #:

Project Manager: **Gregory McCartney**

Sampler: **Tracy Payne - 919-561-7055**

On Ice:  Yes  No

Sample Temperature: 4.4-0.1 (CF) 43.2

Container Type and #	Preservative Type	HEAL No.
40ml VOA-5	HCl	1908972
250 ml plastic-1	HNO <sub>3</sub>	201
125 ml plastic-1	HNO <sub>3</sub>	201
125 ml plastic-1	H <sub>2</sub> SO <sub>4</sub>	201
500 ml plastic-1	Neat	201

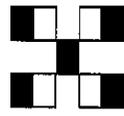
Date	Time	Matrix	Sample Request ID
8/15/19	1515	H <sub>2</sub> O	East Outfall #2
		H <sub>2</sub> O	East Outfall #2
		H <sub>2</sub> O	East Outfall #2
		H <sub>2</sub> O	East Outfall #2
		H <sub>2</sub> O	East Outfall #2

Relinquished by: *[Signature]* Date: 8/16/19 1339

Relinquished by: *[Signature]* Date: 8/16/19 1706

Received by: *[Signature]* Date: 8/16/19 1539

Received by: *[Signature]* Date: 8/17/19 0840



# HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

## Analysis Request

BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	Total Recoverable Metals	Dissolved Metals	8081 Pesticides / 8082 PCB's	8260B (VOA) BTEX, MTBE only	8270 (Semi-VOA)	Gen Chem - Alkalinity / CO <sub>2</sub>	General Chemistry - Anions	Air Bubbles (Y or N)
						X			X				
												X	
											X	X	

Remarks: See Analytical Methods and Target Analytes





# Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

Email: [gjmccartney@marathonpetroleum.com](mailto:gjmccartney@marathonpetroleum.com)

QA/QC Package:  Standard  X Level 4 (Full Validation)

Other

X EDD (Type) EXCEL

Turn-Around Time:  
 Standard  Rush

Project Name: **San Juan River**

**2019 Annual Sampling Event**

Project #:

Project Manager: **Gregory McCartney**

Sampler: **Tracy Payne - 919-561-7055**

On Ice:  Yes  No

Sample Temperature: 44.0 (CF) 43.5

Container Type and #

Preservative Type

HEAL No. 1908972

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
8/16/19	0930	H <sub>2</sub> O	North of 45	40ml VOA-5	HCl	202
		H <sub>2</sub> O	North of 45	250 ml amber-1	Neat	202
		H <sub>2</sub> O	North of 45	250 ml plastic-1	HNO <sub>3</sub>	204
		H <sub>2</sub> O	North of 45	125 ml plastic-1	HNO <sub>3</sub>	204
		H <sub>2</sub> O	North of 45	125 ml plastic-1	H <sub>2</sub> SO <sub>4</sub>	204
		H <sub>2</sub> O	North of 45	500 ml plastic-1	Neat	204



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 Total	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)	Dissolved Metals	General Chem.-Anions&CO <sub>2</sub>	General Chem. - Alkalinity	Air Bubbles (Y or N)
	X	X				X			X			X		

Remarks: See Analytical Methods and Target Analytes.

Date	Time	Relinquished by:	Received by:	Date	Time
8/16/19	1539	<i>[Signature]</i>	<i>[Signature]</i>	8/17/19	0840
8/16/19	1756	<i>[Signature]</i>	<i>[Signature]</i>	8/17/19	0840

# Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

Email: **gjmccartney@marathonpetroleum.com**

QA/QC Package:  Standard  X Level 4 (Full Validation)

Other  X EDD (Type) **EXCEL**

Turn-Around Time:  Standard  Rush

Project Name: **San Juan River**

Project #: **2019 Annual Sampling Event**

Project Manager: **Gregory McCartney**

Sampler: **Tracy Payne - 919-561-7055**

On Ice:  Yes  No

Sample Temperature: **44-0.1(CF) 43<sup>o</sup>**

Container Type and #

Preservative Type

HEAL No. **1908972**

TPH 8015B (GRO/DRO/MRO)

BTEX+MTBE+TPH(Gas only)

BTEX+MTBE+TMB's(8021)

TPH (Method 418.1)

EDB (Method 504.1)

PAH (8310 or 8270SIMS)

RCRA 8 Metals Total

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)

Dissolved Metals

General Chem. - Anions & CO<sub>2</sub>

General Chem. - Alkalinity

Air Bubbles (Y or N)

Analysis Request

Remarks: See Analytical Methods and Target Analytes.

Received by: *Cheryl Webb* Date: *8/14/19* Time: *1535*

Relinquished by: *[Signature]* Date: *8/14/19* Time: *1756*

Received by: *[Signature]* Date: *8/17/19* Time: *0840*

Relinquished by: *[Signature]* Date: *8/17/19* Time: *0840*



**TABLE 2**  
**Analytical Methods and Target Analytes**  
**Facility-Wide Groundwater Monitoring Plan - June 2014**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

<b>VOCs (EPA Method 8260B) <sup>(1)</sup></b>
- Target List
<i>Benzene</i>
<i>Toluene</i>
<i>Ethylbenzene</i>
<i>Xylenes</i>
<i>Methyl tert butyl ether (MTBE)</i>
<b>SVOCs - (EPA Method 8270)</b>
- Method List
<b>TPH-GRO (EPA Method 8015B)</b>
- Gasoline Range Organics
<b>TPH-DRO (EPA Method 8015B)</b>
- Diesel Range Organics
- Motor Oil Range Organics
<b>Total Carbon Dioxide (Laboratory Calculated)</b>
- Dissolved CO <sub>2</sub>
<b>Specific Conductivity (EPA Method 120.1 or field measurement)</b>
- Specific conductance
<b>TDS (EPA Method 160.1 or field measurement)</b>
- Total dissolved solids
<b>General Chemistry - Anions (EPA Method 300.0)</b>
<i>Fluoride</i>
<i>Chloride</i>
<i>Bromide</i>
<i>Nitrogen, Nitrite (as N)</i>
<i>Nitrogen, Nitrate (as N)</i>
<i>Phosphorous, Orthophosphate (As P)</i>
<i>Sulfate</i>
<b>General Chemistry - Alkalinity (EPA Method 310.1)</b>
<i>Alkalinity, Total</i>
<i>Carbonate</i>
<i>Bicarbonate</i>

<b>Total Recoverable Metals (EPA Method 6010B/7470)</b>	
- Target List (not applicable to River Terrace Sampling Events)	
<i>Arsenic</i>	<i>Lead</i>
<i>Barium</i>	<i>Mercury</i>
<i>Cadmium</i>	<i>Selenium</i>
<i>Chromium</i>	<i>Silver</i>
- Target List (for River Terrace Sampling Events Only)	
<i>Lead</i>	
<i>Mercury (DW-1 ONLY)</i>	
<b>Dissolved Metals (EPA Method 6010B / 7470)</b>	
- Target List (for Refinery Complex, Outfalls, and River)	
<i>Arsenic</i>	<i>Manganese</i>
<i>Barium</i>	<i>Mercury</i>
<i>Cadmium</i>	<i>Potassium</i>
<i>Calcium</i>	<i>Selenium</i>
<i>Chromium</i>	<i>Silver</i>
<i>Copper</i>	<i>Sodium</i>
<i>Iron</i>	<i>Uranium</i>
<i>Lead</i>	<i>Zinc</i>
<i>Magnesium</i>	

TPH = total petroleum hydrocarbons  
GRO = gasoline range organics  
VOCs = volatile organic compounds  
DRO = diesel range organics  
TDS = total dissolved solids

**NOTES:**

- (1) VOCs Target List for River Terrace samples are analyzed by EPA Method 8021B per NMED's letter Approval with Direction dated June 16, 2009.
- (2) Target List for San Juan River Terrace Monitoring Wells and Piezometer Wells only, per the River Terrace Bioventing System Monitoring Plan.



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 16, 2019

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

RE: 2019 Annual GW Sampling Event

OrderNo.: 1908D80

Dear Gregory McCartney:

Hall Environmental Analysis Laboratory received 9 sample(s) on 8/22/2019 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 #NM0901

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", written in a cursive style.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-001A

**Client Sample ID:** MW-1  
**Collection Date:** 8/21/2019 7:50:00 AM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/27/2019 10:12:21 AM	GW6245
Surr: BFB	98.6	70-130		%Rec	1	8/27/2019 10:12:21 AM	GW6245
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Toluene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Ethylbenzene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Naphthalene	ND	2.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
1-Methylnaphthalene	ND	4.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
2-Methylnaphthalene	ND	4.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Acetone	ND	10		µg/L	1	8/27/2019 10:12:21 AM	R62453
Bromobenzene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Bromodichloromethane	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Bromoform	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Bromomethane	ND	3.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
2-Butanone	ND	10		µg/L	1	8/27/2019 10:12:21 AM	R62453
Carbon disulfide	ND	10		µg/L	1	8/27/2019 10:12:21 AM	R62453
Carbon Tetrachloride	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Chlorobenzene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Chloroethane	ND	2.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Chloroform	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Chloromethane	ND	3.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
2-Chlorotoluene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
4-Chlorotoluene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
cis-1,2-DCE	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Dibromochloromethane	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Dibromomethane	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
1,1-Dichloroethane	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
1,1-Dichloroethene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
1,2-Dichloropropane	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453

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

**Qualifiers:**

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

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

Analytical Report

Lab Order: 1908D80

Date Reported: 9/16/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.  
 Project: 2019 Annual GW Sampling Event  
 Lab ID: 1908D80-001A

Client Sample ID: MW-1  
 Collection Date: 8/21/2019 7:50:00 AM  
 Matrix: Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: RAA
1,3-Dichloropropane	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
2,2-Dichloropropane	ND	2.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
1,1-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Hexachlorobutadiene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
2-Hexanone	ND	10		µg/L	1	8/27/2019 10:12:21 AM	R62453
Isopropylbenzene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
4-Isopropyltoluene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
4-Methyl-2-pentanone	ND	10		µg/L	1	8/27/2019 10:12:21 AM	R62453
Methylene Chloride	ND	3.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
n-Butylbenzene	ND	3.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
n-Propylbenzene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
sec-Butylbenzene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Styrene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
tert-Butylbenzene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
trans-1,2-DCE	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Trichlorofluoromethane	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Vinyl chloride	ND	1.0		µg/L	1	8/27/2019 10:12:21 AM	R62453
Xylenes, Total	ND	1.5		µg/L	1	8/27/2019 10:12:21 AM	R62453
Surr: 1,2-Dichloroethane-d4	93.7	70-130		%Rec	1	8/27/2019 10:12:21 AM	R62453
Surr: 4-Bromofluorobenzene	96.0	70-130		%Rec	1	8/27/2019 10:12:21 AM	R62453
Surr: Dibromofluoromethane	96.5	70-130		%Rec	1	8/27/2019 10:12:21 AM	R62453
Surr: Toluene-d8	98.7	70-130		%Rec	1	8/27/2019 10:12:21 AM	R62453

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

Analytical Report

Lab Order: 1908D80

Date Reported: 9/16/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: 2019 Annual GW Sampling Event
Lab ID: 1908D80-001B

Client Sample ID: MW-1
Collection Date: 8/21/2019 7:50:00 AM
Matrix: Aqueous

Table with columns: Analyses, Result, RL, Qual, Units, DF, Date Analyzed, Batch ID. Rows include EPA METHOD 8015D: DIESEL RANGE and Diesel Range Organics (DRO), Motor Oil Range Organics (MRO), Surr: DNOP.

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

Table with 2 columns: Qualifiers and their descriptions. Includes codes like \*, D, H, ND, PQL, S, B, E, J, P, RL.

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-001C

**Client Sample ID:** MW-1  
**Collection Date:** 8/21/2019 7:50:00 AM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>CARBON DIOXIDE</b>							Analyst: <b>JRR</b>
Total Carbon Dioxide	280	1.0	H	mg CO2/	1	8/26/2019 3:40:37 PM	R62429
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Fluoride	ND	0.50		mg/L	5	9/7/2019 11:06:24 AM	R62756
Chloride	10	2.5		mg/L	5	9/7/2019 11:06:24 AM	R62756
Bromide	ND	0.50		mg/L	5	9/7/2019 11:06:24 AM	R62756
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	9/7/2019 11:06:24 AM	R62756
Sulfate	120	2.5		mg/L	5	9/7/2019 11:06:24 AM	R62756
Nitrate+Nitrite as N	ND	1.0		mg/L	5	9/7/2019 1:27:56 PM	R62756
<b>SM2510B: SPECIFIC CONDUCTANCE</b>							Analyst: <b>JRR</b>
Conductivity	810	5.0		µmhos/c	1	8/26/2019 3:40:37 PM	R62429
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>
Bicarbonate (As CaCO3)	297.3	20.00		mg/L Ca	1	8/26/2019 3:40:37 PM	R62429
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	8/26/2019 3:40:37 PM	R62429
Total Alkalinity (as CaCO3)	297.3	20.00		mg/L Ca	1	8/26/2019 3:40:37 PM	R62429
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>JMT</b>
Total Dissolved Solids	528	20.0	*	mg/L	1	8/29/2019 8:45:00 AM	47078

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

**Qualifiers:**

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

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

Analytical Report

Lab Order: 1908D80

Date Reported: 9/16/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: 2019 Annual GW Sampling Event
Lab ID: 1908D80-001D

Client Sample ID: MW-1
Collection Date: 8/21/2019 7:50:00 AM
Matrix: Aqueous

Table with columns: Analyses, Result, RL, Qual, Units, DF, Date Analyzed, Batch ID. Rows include EPA METHOD 7470: MERCURY (Mercury) and EPA 6010B: TOTAL RECOVERABLE METALS (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver).

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

Qualifiers table with two columns: Qualifier (e.g., \*, D, H, ND, PQL, S) and Description (e.g., Value exceeds Maximum Contaminant Level, Sample Diluted Due to Matrix, Holding times for preparation or analysis exceeded).

**Analytical Report**

Lab Order: 1908D80

Date Reported: 9/16/2019

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-001E

**Client Sample ID:** MW-1  
**Collection Date:** 8/21/2019 7:50:00 AM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 7470: MERCURY</b>							Analyst: rde
Mercury	ND	0.00020		mg/L	1	9/10/2019 5:52:50 PM	47378
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: bcv
Arsenic	ND	0.020		mg/L	1	9/9/2019 8:54:37 AM	A62764
Barium	0.036	0.020		mg/L	1	9/9/2019 8:54:37 AM	A62764
Cadmium	ND	0.0020		mg/L	1	9/9/2019 8:54:37 AM	A62764
Calcium	86	1.0		mg/L	1	9/9/2019 8:54:37 AM	A62764
Chromium	ND	0.0060		mg/L	1	9/9/2019 8:54:37 AM	A62764
Copper	ND	0.0060		mg/L	1	9/9/2019 8:54:37 AM	A62764
Iron	ND	0.020		mg/L	1	9/9/2019 8:54:37 AM	A62764
Lead	0.0051	0.0050		mg/L	1	9/9/2019 8:54:37 AM	A62764
Magnesium	18	1.0		mg/L	1	9/9/2019 8:54:37 AM	A62764
Manganese	0.012	0.0020		mg/L	1	9/9/2019 8:54:37 AM	A62764
Potassium	2.1	1.0		mg/L	1	9/9/2019 8:54:37 AM	A62764
Selenium	ND	0.050		mg/L	1	9/9/2019 8:54:37 AM	A62764
Silver	ND	0.0050		mg/L	1	9/9/2019 8:54:37 AM	A62764
Sodium	60	1.0		mg/L	1	9/9/2019 8:54:37 AM	A62764
Uranium	ND	0.10		mg/L	1	9/9/2019 8:54:37 AM	A62764
Zinc	ND	0.020		mg/L	1	9/9/2019 8:54:37 AM	A62764

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

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-002A

**Client Sample ID:** MW-13  
**Collection Date:** 8/21/2019 9:10:00 AM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: RAA
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/27/2019 11:38:39 AM	GW6245
Surr: BFB	97.9	70-130		%Rec	1	8/27/2019 11:38:39 AM	GW6245
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: RAA
Benzene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Toluene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Ethylbenzene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Naphthalene	ND	2.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
1-Methylnaphthalene	ND	4.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
2-Methylnaphthalene	ND	4.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Acetone	ND	10		µg/L	1	8/27/2019 11:38:39 AM	R62453
Bromobenzene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Bromodichloromethane	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Bromoform	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Bromomethane	ND	3.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
2-Butanone	ND	10		µg/L	1	8/27/2019 11:38:39 AM	R62453
Carbon disulfide	ND	10		µg/L	1	8/27/2019 11:38:39 AM	R62453
Carbon Tetrachloride	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Chlorobenzene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Chloroethane	ND	2.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Chloroform	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Chloromethane	ND	3.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
2-Chlorotoluene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
4-Chlorotoluene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
cis-1,2-DCE	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Dibromochloromethane	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Dibromomethane	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
1,1-Dichloroethane	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
1,1-Dichloroethene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
1,2-Dichloropropane	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453

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

**Qualifiers:**

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

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

Analytical Report

Lab Order: 1908D80

Date Reported: 9/16/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.  
 Project: 2019 Annual GW Sampling Event  
 Lab ID: 1908D80-002A

Client Sample ID: MW-13  
 Collection Date: 8/21/2019 9:10:00 AM  
 Matrix: Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: RAA
1,3-Dichloropropane	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
2,2-Dichloropropane	ND	2.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
1,1-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Hexachlorobutadiene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
2-Hexanone	ND	10		µg/L	1	8/27/2019 11:38:39 AM	R62453
Isopropylbenzene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
4-Isopropyltoluene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
4-Methyl-2-pentanone	ND	10		µg/L	1	8/27/2019 11:38:39 AM	R62453
Methylene Chloride	ND	3.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
n-Butylbenzene	ND	3.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
n-Propylbenzene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
sec-Butylbenzene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Styrene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
tert-Butylbenzene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
1,1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
trans-1,2-DCE	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Trichlorofluoromethane	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Vinyl chloride	ND	1.0		µg/L	1	8/27/2019 11:38:39 AM	R62453
Xylenes, Total	ND	1.5		µg/L	1	8/27/2019 11:38:39 AM	R62453
Surr: 1,2-Dichloroethane-d4	95.2	70-130		%Rec	1	8/27/2019 11:38:39 AM	R62453
Surr: 4-Bromofluorobenzene	97.5	70-130		%Rec	1	8/27/2019 11:38:39 AM	R62453
Surr: Dibromofluoromethane	97.9	70-130		%Rec	1	8/27/2019 11:38:39 AM	R62453
Surr: Toluene-d8	97.7	70-130		%Rec	1	8/27/2019 11:38:39 AM	R62453

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

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-002B

**Client Sample ID:** MW-13  
**Collection Date:** 8/21/2019 9:10:00 AM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: JME
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	8/28/2019 8:37:58 PM	47076
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/28/2019 8:37:58 PM	47076
Surr: DNOP	112	52.7-168		%Rec	1	8/28/2019 8:37:58 PM	47076

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

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-002C

**Client Sample ID:** MW-13  
**Collection Date:** 8/21/2019 9:10:00 AM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>CARBON DIOXIDE</b>							Analyst: <b>JRR</b>
Total Carbon Dioxide	860	1.0	H	mg CO2/	1	8/26/2019 3:54:55 PM	R62429
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Fluoride	ND	0.50		mg/L	5	9/7/2019 11:32:07 AM	R62756
Chloride	180	10		mg/L	20	9/7/2019 11:45:00 AM	R62756
Bromide	2.3	0.50		mg/L	5	9/7/2019 11:32:07 AM	R62756
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	9/7/2019 11:32:07 AM	R62756
Sulfate	1100	25	*	mg/L	50	9/9/2019 5:45:29 PM	R62780
Nitrate+Nitrite as N	1.8	1.0		mg/L	5	9/7/2019 1:40:49 PM	R62756
<b>SM2510B: SPECIFIC CONDUCTANCE</b>							Analyst: <b>JRR</b>
Conductivity	3800	5.0		µmhos/c	1	8/26/2019 3:54:55 PM	R62429
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>
Bicarbonate (As CaCO3)	875.1	20.00		mg/L Ca	1	8/26/2019 3:54:55 PM	R62429
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	8/26/2019 3:54:55 PM	R62429
Total Alkalinity (as CaCO3)	875.1	20.00		mg/L Ca	1	8/26/2019 3:54:55 PM	R62429
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>JMT</b>
Total Dissolved Solids	2840	40.0	*D	mg/L	1	8/29/2019 8:45:00 AM	47078

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

**Qualifiers:**

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

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

Analytical Report

Lab Order: 1908D80

Date Reported: 9/16/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: 2019 Annual GW Sampling Event
Lab ID: 1908D80-002D

Client Sample ID: MW-13
Collection Date: 8/21/2019 9:10:00 AM
Matrix: Aqueous

Table with columns: Analyses, Result, RL, Qual, Units, DF, Date Analyzed, Batch ID. Rows include EPA METHOD 7470: MERCURY (Mercury) and EPA 6010B: TOTAL RECOVERABLE METALS (Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver).

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

Qualifiers table with two columns: Qualifier (e.g., \*, D, H, ND, PQL, S) and Description (e.g., Value exceeds Maximum Contaminant Level, Sample Diluted Due to Matrix, etc.).

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-002E

**Client Sample ID:** MW-13  
**Collection Date:** 8/21/2019 9:10:00 AM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 7470: MERCURY</b>							Analyst: rde
Mercury	ND	0.00020		mg/L	1	9/10/2019 5:59:37 PM	47378
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: bcv
Arsenic	ND	0.020		mg/L	1	9/9/2019 8:58:18 AM	A62764
Barium	0.022	0.020		mg/L	1	9/9/2019 8:58:18 AM	A62764
Cadmium	ND	0.0020		mg/L	1	9/9/2019 8:58:18 AM	A62764
Calcium	270	5.0		mg/L	5	9/9/2019 9:00:15 AM	A62764
Chromium	ND	0.0060		mg/L	1	9/9/2019 8:58:18 AM	A62764
Copper	ND	0.0060		mg/L	1	9/9/2019 8:58:18 AM	A62764
Iron	ND	0.020		mg/L	1	9/9/2019 8:58:18 AM	A62764
Lead	ND	0.0050		mg/L	1	9/9/2019 8:58:18 AM	A62764
Magnesium	96	1.0		mg/L	1	9/9/2019 8:58:18 AM	A62764
Manganese	1.5	0.010		mg/L	5	9/9/2019 9:00:15 AM	A62764
Potassium	3.8	1.0		mg/L	1	9/9/2019 8:58:18 AM	A62764
Selenium	ND	0.050		mg/L	1	9/9/2019 8:58:18 AM	A62764
Silver	ND	0.0050		mg/L	1	9/9/2019 8:58:18 AM	A62764
Sodium	530	10		mg/L	10	9/9/2019 12:01:25 PM	A62764
Uranium	ND	0.10		mg/L	1	9/9/2019 8:58:18 AM	A62764
Zinc	ND	0.020		mg/L	1	9/9/2019 8:58:18 AM	A62764

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

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-003A

**Client Sample ID:** Trip Blank  
**Collection Date:**  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: RAA
Benzene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Toluene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Ethylbenzene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Naphthalene	ND	2.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1-Methylnaphthalene	ND	4.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
2-Methylnaphthalene	ND	4.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Acetone	ND	10		µg/L	1	8/27/2019 1:05:11 PM	R62453
Bromobenzene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Bromodichloromethane	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Bromoform	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Bromomethane	ND	3.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
2-Butanone	ND	10		µg/L	1	8/27/2019 1:05:11 PM	R62453
Carbon disulfide	ND	10		µg/L	1	8/27/2019 1:05:11 PM	R62453
Carbon Tetrachloride	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Chlorobenzene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Chloroethane	ND	2.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Chloroform	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Chloromethane	ND	3.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
2-Chlorotoluene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
4-Chlorotoluene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
cis-1,2-DCE	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Dibromochloromethane	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Dibromomethane	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1,1-Dichloroethane	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1,1-Dichloroethene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1,2-Dichloropropane	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1,3-Dichloropropane	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
2,2-Dichloropropane	ND	2.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1,1-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Hexachlorobutadiene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453

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

**Qualifiers:**

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

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

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-003A

**Client Sample ID:** Trip Blank  
**Collection Date:**  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: RAA
2-Hexanone	ND	10		µg/L	1	8/27/2019 1:05:11 PM	R62453
Isopropylbenzene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
4-Isopropyltoluene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
4-Methyl-2-pentanone	ND	10		µg/L	1	8/27/2019 1:05:11 PM	R62453
Methylene Chloride	ND	3.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
n-Butylbenzene	ND	3.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
n-Propylbenzene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
sec-Butylbenzene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Styrene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
tert-Butylbenzene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
trans-1,2-DCE	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Trichlorofluoromethane	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Vinyl chloride	ND	1.0		µg/L	1	8/27/2019 1:05:11 PM	R62453
Xylenes, Total	ND	1.5		µg/L	1	8/27/2019 1:05:11 PM	R62453
Surr: 1,2-Dichloroethane-d4	97.1	70-130		%Rec	1	8/27/2019 1:05:11 PM	R62453
Surr: 4-Bromofluorobenzene	97.3	70-130		%Rec	1	8/27/2019 1:05:11 PM	R62453
Surr: Dibromofluoromethane	100	70-130		%Rec	1	8/27/2019 1:05:11 PM	R62453
Surr: Toluene-d8	103	70-130		%Rec	1	8/27/2019 1:05:11 PM	R62453

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

**Qualifiers:**

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

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

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-004A

**Client Sample ID:** MW-34  
**Collection Date:** 8/21/2019 1:15:00 PM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	1.3	0.050		mg/L	1	8/27/2019 1:34:10 PM	GW6245
Surr: BFB	95.4	70-130		%Rec	1	8/27/2019 1:34:10 PM	GW6245
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Toluene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Ethylbenzene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Naphthalene	ND	2.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
1-Methylnaphthalene	ND	4.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
2-Methylnaphthalene	ND	4.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Acetone	ND	10		µg/L	1	8/27/2019 1:34:10 PM	R62453
Bromobenzene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Bromodichloromethane	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Bromoform	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Bromomethane	ND	3.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
2-Butanone	ND	10		µg/L	1	8/27/2019 1:34:10 PM	R62453
Carbon disulfide	ND	10		µg/L	1	8/27/2019 1:34:10 PM	R62453
Carbon Tetrachloride	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Chlorobenzene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Chloroethane	ND	2.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Chloroform	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Chloromethane	ND	3.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
2-Chlorotoluene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
4-Chlorotoluene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
cis-1,2-DCE	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Dibromochloromethane	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Dibromomethane	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
1,1-Dichloroethane	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
1,1-Dichloroethene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
1,2-Dichloropropane	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453

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

**Qualifiers:**

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

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

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-004A

**Client Sample ID:** MW-34  
**Collection Date:** 8/21/2019 1:15:00 PM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: RAA
1,3-Dichloropropane	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
2,2-Dichloropropane	ND	2.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
1,1-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Hexachlorobutadiene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
2-Hexanone	ND	10		µg/L	1	8/27/2019 1:34:10 PM	R62453
Isopropylbenzene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
4-Isopropyltoluene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
4-Methyl-2-pentanone	ND	10		µg/L	1	8/27/2019 1:34:10 PM	R62453
Methylene Chloride	ND	3.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
n-Butylbenzene	ND	3.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
n-Propylbenzene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
sec-Butylbenzene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Styrene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
tert-Butylbenzene	1.4	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
trans-1,2-DCE	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Trichlorofluoromethane	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Vinyl chloride	ND	1.0		µg/L	1	8/27/2019 1:34:10 PM	R62453
Xylenes, Total	ND	1.5		µg/L	1	8/27/2019 1:34:10 PM	R62453
Surr: 1,2-Dichloroethane-d4	95.1	70-130		%Rec	1	8/27/2019 1:34:10 PM	R62453
Surr: 4-Bromofluorobenzene	89.5	70-130		%Rec	1	8/27/2019 1:34:10 PM	R62453
Surr: Dibromofluoromethane	97.1	70-130		%Rec	1	8/27/2019 1:34:10 PM	R62453
Surr: Toluene-d8	101	70-130		%Rec	1	8/27/2019 1:34:10 PM	R62453

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

**Qualifiers:**

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

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

Analytical Report

Lab Order: 1908D80

Date Reported: 9/16/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: 2019 Annual GW Sampling Event
Lab ID: 1908D80-004B

Client Sample ID: MW-34
Collection Date: 8/21/2019 1:15:00 PM
Matrix: Aqueous

Table with columns: Analyses, Result, RL, Qual, Units, DF, Date Analyzed, Batch ID. Rows include EPA METHOD 8015D: DIESEL RANGE and Diesel Range Organics (DRO), Motor Oil Range Organics (MRO), Surr: DNOP.

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

Table with 2 columns: Qualifiers and their descriptions. Includes codes like \*, D, H, ND, PQL, S, B, E, J, P, RL.

Analytical Report

Lab Order: 1908D80

Date Reported: 9/16/2019

Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-004C

**Client Sample ID:** MW-34  
**Collection Date:** 8/21/2019 1:15:00 PM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>CARBON DIOXIDE</b>							Analyst: JRR
Total Carbon Dioxide	1100	1.0	H	mg CO2/	1	8/26/2019 4:27:01 PM	R62429
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: MRA
Fluoride	0.64	0.50		mg/L	5	8/23/2019 11:28:49 AM	R62406
Chloride	250	10	*	mg/L	20	8/23/2019 11:41:40 AM	R62406
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	8/23/2019 11:28:49 AM	R62406
Bromide	3.4	0.50		mg/L	5	8/23/2019 11:28:49 AM	R62406
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	8/23/2019 11:28:49 AM	R62406
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	8/23/2019 11:28:49 AM	R62406
Sulfate	77	2.5		mg/L	5	8/23/2019 11:28:49 AM	R62406
<b>SM2510B: SPECIFIC CONDUCTANCE</b>							Analyst: JRR
Conductivity	2800	5.0		µmhos/c	1	8/26/2019 4:27:01 PM	R62429
<b>SM2320B: ALKALINITY</b>							Analyst: JRR
Bicarbonate (As CaCO3)	1152	20.00		mg/L Ca	1	8/26/2019 4:27:01 PM	R62429
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	8/26/2019 4:27:01 PM	R62429
Total Alkalinity (as CaCO3)	1152	20.00		mg/L Ca	1	8/26/2019 4:27:01 PM	R62429
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: JMT
Total Dissolved Solids	1860	100	*D	mg/L	1	8/29/2019 8:45:00 AM	47078

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

Analytical Report

Lab Order: 1908D80

Date Reported: 9/16/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: 2019 Annual GW Sampling Event
Lab ID: 1908D80-004D

Client Sample ID: MW-34
Collection Date: 8/21/2019 1:15:00 PM
Matrix: Aqueous

Table with columns: Analyses, Result, RL, Qual, Units, DF, Date Analyzed, Batch ID. Rows include EPA METHOD 7470: MERCURY and EPA 6010B: TOTAL RECOVERABLE METALS with various analytes like Mercury, Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver.

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

Qualifiers table with two columns: Qualifier (e.g., \*, D, H, ND, PQL, S) and Description (e.g., Value exceeds Maximum Contaminant Level, Sample Diluted Due to Matrix, Holding times for preparation or analysis exceeded).

**Analytical Report**

Lab Order: **1908D80**

Date Reported: **9/16/2019**

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-004E

**Client Sample ID:** MW-34  
**Collection Date:** 8/21/2019 1:15:00 PM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 7470: MERCURY</b>							Analyst: <b>rde</b>
Mercury	ND	0.00020		mg/L	1	9/10/2019 6:01:54 PM	47378
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: <b>bcv</b>
Arsenic	0.027	0.020		mg/L	1	9/9/2019 9:02:06 AM	A62764
Barium	0.14	0.020		mg/L	1	9/9/2019 9:02:06 AM	A62764
Cadmium	ND	0.0020		mg/L	1	9/9/2019 9:02:06 AM	A62764
Calcium	140	5.0		mg/L	5	9/9/2019 9:03:48 AM	A62764
Chromium	ND	0.0060		mg/L	1	9/9/2019 9:02:06 AM	A62764
Copper	ND	0.0060		mg/L	1	9/9/2019 9:02:06 AM	A62764
Iron	2.5	0.10		mg/L	5	9/9/2019 9:03:48 AM	A62764
Lead	ND	0.0050		mg/L	1	9/9/2019 9:02:06 AM	A62764
Magnesium	23	1.0		mg/L	1	9/9/2019 9:02:06 AM	A62764
Manganese	3.6	0.010		mg/L	5	9/9/2019 9:03:48 AM	A62764
Potassium	1.3	1.0		mg/L	1	9/9/2019 9:02:06 AM	A62764
Selenium	ND	0.050		mg/L	1	9/9/2019 9:02:06 AM	A62764
Silver	ND	0.0050		mg/L	1	9/9/2019 9:02:06 AM	A62764
Sodium	490	10		mg/L	10	9/9/2019 12:03:17 PM	A62764
Uranium	ND	0.10		mg/L	1	9/9/2019 9:02:06 AM	A62764
Zinc	ND	0.020		mg/L	1	9/9/2019 9:02:06 AM	A62764

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

**Analytical Report**

Lab Order: 1908D80

**Hall Environmental Analysis Laboratory, Inc.**

Date Reported: 9/16/2019

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-005A

**Client Sample ID:** Field Blank #1  
**Collection Date:** 8/21/2019 2:10:00 PM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/27/2019 2:03:09 PM	GW6245
Surr: BFB	98.9	70-130		%Rec	1	8/27/2019 2:03:09 PM	GW6245
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Toluene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Ethylbenzene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Naphthalene	ND	2.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
1-Methylnaphthalene	ND	4.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
2-Methylnaphthalene	ND	4.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Acetone	ND	10		µg/L	1	8/27/2019 2:03:09 PM	R62453
Bromobenzene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Bromodichloromethane	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Bromoform	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Bromomethane	ND	3.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
2-Butanone	ND	10		µg/L	1	8/27/2019 2:03:09 PM	R62453
Carbon disulfide	ND	10		µg/L	1	8/27/2019 2:03:09 PM	R62453
Carbon Tetrachloride	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Chlorobenzene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Chloroethane	ND	2.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Chloroform	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Chloromethane	ND	3.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
2-Chlorotoluene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
4-Chlorotoluene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
cis-1,2-DCE	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Dibromochloromethane	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Dibromomethane	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
1,1-Dichloroethane	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
1,1-Dichloroethene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
1,2-Dichloropropane	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453

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

**Qualifiers:**

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

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

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-005A

**Client Sample ID:** Field Blank #1  
**Collection Date:** 8/21/2019 2:10:00 PM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: RAA
1,3-Dichloropropane	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
2,2-Dichloropropane	ND	2.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
1,1-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Hexachlorobutadiene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
2-Hexanone	ND	10		µg/L	1	8/27/2019 2:03:09 PM	R62453
Isopropylbenzene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
4-Isopropyltoluene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
4-Methyl-2-pentanone	ND	10		µg/L	1	8/27/2019 2:03:09 PM	R62453
Methylene Chloride	ND	3.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
n-Butylbenzene	ND	3.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
n-Propylbenzene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
sec-Butylbenzene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Styrene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
tert-Butylbenzene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
1,1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
trans-1,2-DCE	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Trichlorofluoromethane	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Vinyl chloride	ND	1.0		µg/L	1	8/27/2019 2:03:09 PM	R62453
Xylenes, Total	ND	1.5		µg/L	1	8/27/2019 2:03:09 PM	R62453
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	8/27/2019 2:03:09 PM	R62453
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	8/27/2019 2:03:09 PM	R62453
Surr: Dibromofluoromethane	102	70-130		%Rec	1	8/27/2019 2:03:09 PM	R62453
Surr: Toluene-d8	101	70-130		%Rec	1	8/27/2019 2:03:09 PM	R62453

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

**Qualifiers:**

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

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

Analytical Report

Lab Order: 1908D80

Date Reported: 9/16/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: 2019 Annual GW Sampling Event
Lab ID: 1908D80-005B

Client Sample ID: Field Blank #1
Collection Date: 8/21/2019 2:10:00 PM
Matrix: Aqueous

Table with columns: Analyses, Result, RL, Qual, Units, DF, Date Analyzed, Batch ID. Rows include EPA METHOD 8015D: DIESEL RANGE and Diesel Range Organics (DRO), Motor Oil Range Organics (MRO), Surr: DNOP.

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

Table with 2 columns: Qualifiers and their descriptions. Includes codes like \*, D, H, ND, PQL, S, B, E, J, P, RL.

**Analytical Report**

Lab Order: **1908D80**

Date Reported: **9/16/2019**

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-005C

**Client Sample ID:** Field Blank #1  
**Collection Date:** 8/21/2019 2:10:00 PM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>CARBON DIOXIDE</b>							Analyst: <b>JRR</b>
Total Carbon Dioxide	10	1.0	H	mg CO2/	1	8/26/2019 5:06:04 PM	R62429
<b>EPA METHOD 300.0: ANIONS</b>							Analyst: <b>MRA</b>
Fluoride	ND	0.10		mg/L	1	8/23/2019 11:54:32 AM	R62406
Chloride	ND	0.50		mg/L	1	8/23/2019 11:54:32 AM	R62406
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/23/2019 11:54:32 AM	R62406
Bromide	ND	0.10		mg/L	1	8/23/2019 11:54:32 AM	R62406
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/23/2019 11:54:32 AM	R62406
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/23/2019 11:54:32 AM	R62406
Sulfate	ND	0.50		mg/L	1	8/23/2019 11:54:32 AM	R62406
<b>SM2510B: SPECIFIC CONDUCTANCE</b>							Analyst: <b>JRR</b>
Conductivity	ND	5.0		µmhos/c	1	8/26/2019 5:06:04 PM	R62429
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>
Bicarbonate (As CaCO3)	ND	20.00		mg/L Ca	1	8/26/2019 5:06:04 PM	R62429
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	8/26/2019 5:06:04 PM	R62429
Total Alkalinity (as CaCO3)	ND	20.00		mg/L Ca	1	8/26/2019 5:06:04 PM	R62429
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>JMT</b>
Total Dissolved Solids	ND	20.0		mg/L	1	8/29/2019 8:45:00 AM	47078

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

Analytical Report

Lab Order: 1908D80

Date Reported: 9/16/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: 2019 Annual GW Sampling Event
Lab ID: 1908D80-005D

Client Sample ID: Field Blank #1
Collection Date: 8/21/2019 2:10:00 PM
Matrix: Aqueous

Table with columns: Analyses, Result, RL, Qual, Units, DF, Date Analyzed, Batch ID. Rows include EPA METHOD 7470: MERCURY and EPA 6010B: TOTAL RECOVERABLE METALS with various analytes like Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver.

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

Qualifiers table with two columns: Qualifier (e.g., \*, D, H, ND, PQL, S) and Description (e.g., Value exceeds Maximum Contaminant Level, Sample Diluted Due to Matrix, Holding times for preparation or analysis exceeded).

**Analytical Report**

Lab Order: 1908D80

Date Reported: 9/16/2019

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-005E

**Client Sample ID:** Field Blank #1  
**Collection Date:** 8/21/2019 2:10:00 PM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 7470: MERCURY</b>							Analyst: rde
Mercury	ND	0.00020		mg/L	1	9/10/2019 6:04:12 PM	47378
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: bcv
Arsenic	ND	0.020		mg/L	1	9/9/2019 12:05:11 PM	A62764
Barium	ND	0.020		mg/L	1	9/9/2019 9:11:16 AM	A62764
Cadmium	ND	0.0020		mg/L	1	9/9/2019 9:11:16 AM	A62764
Calcium	ND	1.0		mg/L	1	9/9/2019 9:11:16 AM	A62764
Chromium	ND	0.0060		mg/L	1	9/9/2019 9:11:16 AM	A62764
Copper	ND	0.0060		mg/L	1	9/9/2019 9:11:16 AM	A62764
Iron	ND	0.020		mg/L	1	9/9/2019 9:11:16 AM	A62764
Lead	ND	0.0050		mg/L	1	9/9/2019 9:11:16 AM	A62764
Magnesium	ND	1.0		mg/L	1	9/9/2019 9:11:16 AM	A62764
Manganese	ND	0.0020		mg/L	1	9/9/2019 9:11:16 AM	A62764
Potassium	ND	1.0		mg/L	1	9/9/2019 9:11:16 AM	A62764
Selenium	ND	0.050		mg/L	1	9/9/2019 9:11:16 AM	A62764
Silver	ND	0.0050		mg/L	1	9/9/2019 9:11:16 AM	A62764
Sodium	ND	1.0		mg/L	1	9/9/2019 9:11:16 AM	A62764
Uranium	ND	0.10		mg/L	1	9/9/2019 9:11:16 AM	A62764
Zinc	0.025	0.020		mg/L	1	9/9/2019 9:11:16 AM	A62764

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

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-005F

**Client Sample ID:** Field Blank #1  
**Collection Date:** 8/21/2019 2:10:00 PM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8270C: SEMIVOLATILES</b>							Analyst: <b>DAM</b>
Acenaphthene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Acenaphthylene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Aniline	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Anthracene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Azobenzene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Benz(a)anthracene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Benzo(a)pyrene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Benzo(b)fluoranthene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Benzo(k)fluoranthene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Benzoic acid	ND	20		µg/L	1	8/29/2019 6:53:46 PM	47026
Benzyl alcohol	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Butyl benzyl phthalate	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Carbazole	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
4-Chloroaniline	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
2-Chloronaphthalene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
2-Chlorophenol	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Chrysene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Di-n-butyl phthalate	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Di-n-octyl phthalate	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Dibenzofuran	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
1,2-Dichlorobenzene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
1,3-Dichlorobenzene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
1,4-Dichlorobenzene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Diethyl phthalate	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Dimethyl phthalate	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
2,4-Dichlorophenol	ND	20		µg/L	1	8/29/2019 6:53:46 PM	47026
2,4-Dimethylphenol	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/29/2019 6:53:46 PM	47026
2,4-Dinitrophenol	ND	20		µg/L	1	8/29/2019 6:53:46 PM	47026
2,4-Dinitrotoluene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
2,6-Dinitrotoluene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026

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

**Qualifiers:**

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

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

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-005F

**Client Sample ID:** Field Blank #1  
**Collection Date:** 8/21/2019 2:10:00 PM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8270C: SEMIVOLATILES</b>							Analyst: <b>DAM</b>
Fluoranthene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Fluorene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Hexachlorobenzene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Hexachlorobutadiene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Hexachloroethane	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Isophorone	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
1-Methylnaphthalene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
2-Methylnaphthalene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
2-Methylphenol	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
3+4-Methylphenol	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
N-Nitrosodimethylamine	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Naphthalene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
2-Nitroaniline	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
3-Nitroaniline	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
4-Nitroaniline	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Nitrobenzene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
2-Nitrophenol	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
4-Nitrophenol	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Pentachlorophenol	ND	20		µg/L	1	8/29/2019 6:53:46 PM	47026
Phenanthrene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Phenol	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Pyrene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Pyridine	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/29/2019 6:53:46 PM	47026
Surr: 2-Fluorophenol	56.7	15-101		%Rec	1	8/29/2019 6:53:46 PM	47026
Surr: Phenol-d5	41.4	15-84.6		%Rec	1	8/29/2019 6:53:46 PM	47026
Surr: 2,4,6-Tribromophenol	60.3	27.8-112		%Rec	1	8/29/2019 6:53:46 PM	47026
Surr: Nitrobenzene-d5	79.1	33-113		%Rec	1	8/29/2019 6:53:46 PM	47026
Surr: 2-Fluorobiphenyl	65.1	26.6-107		%Rec	1	8/29/2019 6:53:46 PM	47026
Surr: 4-Terphenyl-d14	64.6	18.7-148		%Rec	1	8/29/2019 6:53:46 PM	47026

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

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

Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-006A

**Client Sample ID:** MW-11  
**Collection Date:** 8/21/2019 2:40:00 PM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: RAA
Gasoline Range Organics (GRO)	2.4	0.050		mg/L	1	8/27/2019 2:32:10 PM	GW6245
Surr: BFB	101	70-130		%Rec	1	8/27/2019 2:32:10 PM	GW6245
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: RAA
Benzene	8.0	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Toluene	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Ethylbenzene	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
1,2,4-Trimethylbenzene	110	10		µg/L	10	8/28/2019 3:34:21 PM	R62453
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Naphthalene	99	20		µg/L	10	8/28/2019 3:34:21 PM	R62453
1-Methylnaphthalene	18	4.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
2-Methylnaphthalene	28	4.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Acetone	ND	10		µg/L	1	8/27/2019 2:32:10 PM	R62453
Bromobenzene	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Bromodichloromethane	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Bromoform	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Bromomethane	ND	3.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
2-Butanone	ND	10		µg/L	1	8/27/2019 2:32:10 PM	R62453
Carbon disulfide	ND	10		µg/L	1	8/27/2019 2:32:10 PM	R62453
Carbon Tetrachloride	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Chlorobenzene	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Chloroethane	ND	2.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Chloroform	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Chloromethane	ND	3.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
2-Chlorotoluene	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
4-Chlorotoluene	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
cis-1,2-DCE	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Dibromochloromethane	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Dibromomethane	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
1,1-Dichloroethane	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
1,1-Dichloroethene	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
1,2-Dichloropropane	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453

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

Analytical Report

Lab Order: 1908D80

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/16/2019

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-006A

**Client Sample ID:** MW-11  
**Collection Date:** 8/21/2019 2:40:00 PM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: RAA
1,3-Dichloropropane	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
2,2-Dichloropropane	ND	2.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
1,1-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Hexachlorobutadiene	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
2-Hexanone	ND	10		µg/L	1	8/27/2019 2:32:10 PM	R62453
Isopropylbenzene	81	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
4-Isopropyltoluene	3.0	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
4-Methyl-2-pentanone	ND	10		µg/L	1	8/27/2019 2:32:10 PM	R62453
Methylene Chloride	ND	3.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
n-Butylbenzene	3.3	3.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
n-Propylbenzene	86	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
sec-Butylbenzene	13	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Styrene	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
tert-Butylbenzene	2.5	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
trans-1,2-DCE	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Trichlorofluoromethane	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Vinyl chloride	ND	1.0		µg/L	1	8/27/2019 2:32:10 PM	R62453
Xylenes, Total	ND	1.5		µg/L	1	8/27/2019 2:32:10 PM	R62453
Surr: 1,2-Dichloroethane-d4	110	70-130		%Rec	1	8/27/2019 2:32:10 PM	R62453
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	8/27/2019 2:32:10 PM	R62453
Surr: Dibromofluoromethane	100	70-130		%Rec	1	8/27/2019 2:32:10 PM	R62453
Surr: Toluene-d8	105	70-130		%Rec	1	8/27/2019 2:32:10 PM	R62453

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

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-006B

**Client Sample ID:** MW-11  
**Collection Date:** 8/21/2019 2:40:00 PM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>JME</b>
Diesel Range Organics (DRO)	0.52	0.40		mg/L	1	8/28/2019 9:52:13 PM	47076
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/28/2019 9:52:13 PM	47076
Surr: DNOP	111	52.7-168		%Rec	1	8/28/2019 9:52:13 PM	47076

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

Analytical Report

Lab Order: 1908D80

Date Reported: 9/16/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.  
 Project: 2019 Annual GW Sampling Event  
 Lab ID: 1908D80-006C

Client Sample ID: MW-11  
 Collection Date: 8/21/2019 2:40:00 PM  
 Matrix: Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>CARBON DIOXIDE</b> Analyst: JRR							
Total Carbon Dioxide	970	2.5	H	mg CO2/	2.5	8/28/2019 11:58:41 PM	R62496
<b>EPA METHOD 300.0: ANIONS</b> Analyst: MRA							
Fluoride	ND	0.50		mg/L	5	8/23/2019 12:20:15 PM	R62406
Chloride	240	10		mg/L	20	8/23/2019 12:33:08 PM	R62406
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	8/23/2019 12:20:15 PM	R62406
Bromide	3.8	0.50		mg/L	5	8/23/2019 12:20:15 PM	R62406
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	8/23/2019 12:20:15 PM	R62406
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	8/23/2019 12:20:15 PM	R62406
Sulfate	6.9	2.5		mg/L	5	8/23/2019 12:20:15 PM	R62406
<b>SM2510B: SPECIFIC CONDUCTANCE</b> Analyst: JRR							
Conductivity	2800	5.0		µmhos/c	1	8/26/2019 5:12:04 PM	R62429
<b>SM2320B: ALKALINITY</b> Analyst: JRR							
Bicarbonate (As CaCO3)	1084	50.00		mg/L Ca	2.5	8/28/2019 11:58:41 PM	R62496
Carbonate (As CaCO3)	ND	5.000		mg/L Ca	2.5	8/28/2019 11:58:41 PM	R62496
Total Alkalinity (as CaCO3)	1084	50.00		mg/L Ca	2.5	8/28/2019 11:58:41 PM	R62496
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b> Analyst: JMT							
Total Dissolved Solids	1820	100	*D	mg/L	1	8/29/2019 8:45:00 AM	47078

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

Analytical Report

Lab Order: 1908D80

Date Reported: 9/16/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: 2019 Annual GW Sampling Event
Lab ID: 1908D80-006D

Client Sample ID: MW-11
Collection Date: 8/21/2019 2:40:00 PM
Matrix: Aqueous

Table with columns: Analyses, Result, RL, Qual, Units, DF, Date Analyzed, Batch ID. Rows include EPA METHOD 7470: MERCURY and EPA 6010B: TOTAL RECOVERABLE METALS with various analytes like Mercury, Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, and Silver.

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

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

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-006E

**Client Sample ID:** MW-11  
**Collection Date:** 8/21/2019 2:40:00 PM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 7470: MERCURY</b>							Analyst: rde
Mercury	ND	0.00020		mg/L	1	9/11/2019 11:01:57 AM	47378
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: bcv
Arsenic	ND	0.020		mg/L	1	9/9/2019 12:07:00 PM	A62764
Barium	0.97	0.020		mg/L	1	9/9/2019 9:14:58 AM	A62764
Cadmium	ND	0.0020		mg/L	1	9/9/2019 9:14:58 AM	A62764
Calcium	130	5.0		mg/L	5	9/9/2019 9:16:40 AM	A62764
Chromium	ND	0.0060		mg/L	1	9/9/2019 9:14:58 AM	A62764
Copper	ND	0.0060		mg/L	1	9/9/2019 9:14:58 AM	A62764
Iron	6.5	0.20		mg/L	10	9/11/2019 12:45:38 PM	A62841
Lead	0.0068	0.0050		mg/L	1	9/9/2019 9:14:58 AM	A62764
Magnesium	31	1.0		mg/L	1	9/9/2019 9:14:58 AM	A62764
Manganese	2.2	0.010		mg/L	5	9/9/2019 9:16:40 AM	A62764
Potassium	1.9	1.0		mg/L	1	9/9/2019 9:14:58 AM	A62764
Selenium	ND	0.050		mg/L	1	9/9/2019 9:14:58 AM	A62764
Silver	ND	0.0050		mg/L	1	9/9/2019 9:14:58 AM	A62764
Sodium	490	10		mg/L	10	9/9/2019 12:08:41 PM	A62764
Uranium	ND	0.10		mg/L	1	9/9/2019 9:14:58 AM	A62764
Zinc	ND	0.020		mg/L	1	9/9/2019 9:14:58 AM	A62764

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

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-006F

**Client Sample ID:** MW-11  
**Collection Date:** 8/21/2019 2:40:00 PM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8270C: SEMIVOLATILES</b>							Analyst: <b>DAM</b>
Acenaphthene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Acenaphthylene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Aniline	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Anthracene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Azobenzene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Benz(a)anthracene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Benzo(a)pyrene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Benzo(b)fluoranthene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Benzo(k)fluoranthene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Benzoic acid	ND	20		µg/L	1	8/29/2019 7:24:15 PM	47026
Benzyl alcohol	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Butyl benzyl phthalate	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Carbazole	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
4-Chloroaniline	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
2-Chloronaphthalene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
2-Chlorophenol	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Chrysene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Di-n-butyl phthalate	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Di-n-octyl phthalate	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Dibenzofuran	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
1,2-Dichlorobenzene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
1,3-Dichlorobenzene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
1,4-Dichlorobenzene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Diethyl phthalate	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Dimethyl phthalate	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
2,4-Dichlorophenol	ND	20		µg/L	1	8/29/2019 7:24:15 PM	47026
2,4-Dimethylphenol	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/29/2019 7:24:15 PM	47026
2,4-Dinitrophenol	ND	20		µg/L	1	8/29/2019 7:24:15 PM	47026
2,4-Dinitrotoluene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
2,6-Dinitrotoluene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026

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

**Qualifiers:**

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

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

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-006F

**Client Sample ID:** MW-11  
**Collection Date:** 8/21/2019 2:40:00 PM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8270C: SEMIVOLATILES</b>							Analyst: <b>DAM</b>
Fluoranthene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Fluorene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Hexachlorobenzene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Hexachlorobutadiene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Hexachloroethane	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Isophorone	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
1-Methylnaphthalene	34	10		µg/L	1	8/29/2019 7:24:15 PM	47026
2-Methylnaphthalene	24	10		µg/L	1	8/29/2019 7:24:15 PM	47026
2-Methylphenol	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
3+4-Methylphenol	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
N-Nitrosodimethylamine	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Naphthalene	85	10		µg/L	1	8/29/2019 7:24:15 PM	47026
2-Nitroaniline	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
3-Nitroaniline	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
4-Nitroaniline	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Nitrobenzene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
2-Nitrophenol	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
4-Nitrophenol	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Pentachlorophenol	ND	20		µg/L	1	8/29/2019 7:24:15 PM	47026
Phenanthrene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Phenol	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Pyrene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Pyridine	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/29/2019 7:24:15 PM	47026
Surr: 2-Fluorophenol	52.6	15-101		%Rec	1	8/29/2019 7:24:15 PM	47026
Surr: Phenol-d5	44.3	15-84.6		%Rec	1	8/29/2019 7:24:15 PM	47026
Surr: 2,4,6-Tribromophenol	65.6	27.8-112		%Rec	1	8/29/2019 7:24:15 PM	47026
Surr: Nitrobenzene-d5	82.0	33-113		%Rec	1	8/29/2019 7:24:15 PM	47026
Surr: 2-Fluorobiphenyl	73.9	26.6-107		%Rec	1	8/29/2019 7:24:15 PM	47026
Surr: 4-Terphenyl-d14	69.6	18.7-148		%Rec	1	8/29/2019 7:24:15 PM	47026

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

**Qualifiers:**

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

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

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-007A

**Client Sample ID:** DUPLICATE #1  
**Collection Date:** 8/21/2019  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: RAA
Gasoline Range Organics (GRO)	1.8	0.050		mg/L	1	8/27/2019 3:01:13 PM	GW6245
Surr: BFB	102	70-130		%Rec	1	8/27/2019 3:01:13 PM	GW6245
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: RAA
Benzene	7.0	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Toluene	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Ethylbenzene	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
1,2,4-Trimethylbenzene	93	10		µg/L	10	8/28/2019 4:03:20 PM	R62453
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Naphthalene	92	2.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
1-Methylnaphthalene	16	4.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
2-Methylnaphthalene	24	4.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Acetone	ND	10		µg/L	1	8/27/2019 3:01:13 PM	R62453
Bromobenzene	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Bromodichloromethane	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Bromoform	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Bromomethane	ND	3.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
2-Butanone	ND	10		µg/L	1	8/27/2019 3:01:13 PM	R62453
Carbon disulfide	ND	10		µg/L	1	8/27/2019 3:01:13 PM	R62453
Carbon Tetrachloride	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Chlorobenzene	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Chloroethane	ND	2.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Chloroform	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Chloromethane	ND	3.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
2-Chlorotoluene	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
4-Chlorotoluene	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
cis-1,2-DCE	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Dibromochloromethane	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Dibromomethane	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
1,1-Dichloroethane	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
1,1-Dichloroethene	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
1,2-Dichloropropane	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453

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

**Qualifiers:**

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

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

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-007A

**Client Sample ID:** DUPLICATE #1  
**Collection Date:** 8/21/2019  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: RAA
1,3-Dichloropropane	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
2,2-Dichloropropane	ND	2.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
1,1-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Hexachlorobutadiene	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
2-Hexanone	ND	10		µg/L	1	8/27/2019 3:01:13 PM	R62453
Isopropylbenzene	71	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
4-Isopropyltoluene	2.3	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
4-Methyl-2-pentanone	ND	10		µg/L	1	8/27/2019 3:01:13 PM	R62453
Methylene Chloride	ND	3.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
n-Butylbenzene	ND	3.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
n-Propylbenzene	70	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
sec-Butylbenzene	10	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Styrene	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
tert-Butylbenzene	2.1	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
trans-1,2-DCE	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Trichlorofluoromethane	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Vinyl chloride	ND	1.0		µg/L	1	8/27/2019 3:01:13 PM	R62453
Xylenes, Total	ND	1.5		µg/L	1	8/27/2019 3:01:13 PM	R62453
Surr: 1,2-Dichloroethane-d4	109	70-130		%Rec	1	8/27/2019 3:01:13 PM	R62453
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	8/27/2019 3:01:13 PM	R62453
Surr: Dibromofluoromethane	112	70-130		%Rec	1	8/27/2019 3:01:13 PM	R62453
Surr: Toluene-d8	105	70-130		%Rec	1	8/27/2019 3:01:13 PM	R62453

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

**Qualifiers:**

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

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

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-007B

**Client Sample ID:** DUPLICATE #1  
**Collection Date:** 8/21/2019  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>JME</b>
Diesel Range Organics (DRO)	0.53	0.40		mg/L	1	8/28/2019 10:16:49 PM	47076
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/28/2019 10:16:49 PM	47076
Surr: DNOP	114	52.7-168		%Rec	1	8/28/2019 10:16:49 PM	47076

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

Analytical Report

Lab Order: 1908D80

Date Reported: 9/16/2019

Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-007C

**Client Sample ID:** DUPLICATE #1  
**Collection Date:** 8/21/2019  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>CARBON DIOXIDE</b> Analyst: JRR							
Total Carbon Dioxide	960	2.5	H	mg CO2/	2.5	8/29/2019 12:16:17 AM	R62496
<b>EPA METHOD 300.0: ANIONS</b> Analyst: MRA							
Fluoride	ND	0.50		mg/L	5	8/23/2019 12:45:59 PM	R62406
Chloride	250	10	*	mg/L	20	8/23/2019 12:58:51 PM	R62406
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	8/23/2019 12:45:59 PM	R62406
Bromide	3.9	0.50		mg/L	5	8/23/2019 12:45:59 PM	R62406
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	8/23/2019 12:45:59 PM	R62406
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	8/23/2019 12:45:59 PM	R62406
Sulfate	9.6	2.5		mg/L	5	8/23/2019 12:45:59 PM	R62406
<b>SM2510B: SPECIFIC CONDUCTANCE</b> Analyst: JRR							
Conductivity	2900	5.0		µmhos/c	1	8/26/2019 5:50:01 PM	R62429
<b>SM2320B: ALKALINITY</b> Analyst: JRR							
Bicarbonate (As CaCO3)	1073	50.00		mg/L Ca	2.5	8/29/2019 12:16:17 AM	R62496
Carbonate (As CaCO3)	ND	5.000		mg/L Ca	2.5	8/29/2019 12:16:17 AM	R62496
Total Alkalinity (as CaCO3)	1073	50.00		mg/L Ca	2.5	8/29/2019 12:16:17 AM	R62496
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b> Analyst: JMT							
Total Dissolved Solids	1800	100	*D	mg/L	1	8/29/2019 8:45:00 AM	47078

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

Analytical Report

Lab Order: 1908D80

Date Reported: 9/16/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: 2019 Annual GW Sampling Event
Lab ID: 1908D80-007D

Client Sample ID: DUPLICATE #1
Collection Date: 8/21/2019
Matrix: Aqueous

Table with columns: Analyses, Result, RL, Qual, Units, DF, Date Analyzed, Batch ID. Rows include EPA METHOD 7470: MERCURY and EPA 6010B: TOTAL RECOVERABLE METALS with various chemical results.

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

Table with 2 columns: Qualifiers and their corresponding definitions (e.g., \* Value exceeds Maximum Contaminant Level, B Analyte detected in the associated Method Blank).

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-007E

**Client Sample ID:** DUPLICATE #1  
**Collection Date:** 8/21/2019  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 7470: MERCURY</b>							Analyst: rde
Mercury	ND	0.00020		mg/L	1	9/11/2019 11:04:15 AM	47378
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: bcv
Arsenic	ND	0.020		mg/L	1	9/9/2019 12:10:22 PM	A62764
Barium	0.97	0.020		mg/L	1	9/9/2019 9:18:21 AM	A62764
Cadmium	ND	0.0020		mg/L	1	9/9/2019 9:18:21 AM	A62764
Calcium	140	5.0		mg/L	5	9/9/2019 9:20:02 AM	A62764
Chromium	ND	0.0060		mg/L	1	9/9/2019 9:18:21 AM	A62764
Copper	ND	0.0060		mg/L	1	9/9/2019 9:18:21 AM	A62764
Iron	6.5	0.20		mg/L	10	9/11/2019 12:47:34 PM	A62841
Lead	0.0080	0.0050		mg/L	1	9/9/2019 9:18:21 AM	A62764
Magnesium	31	1.0		mg/L	1	9/9/2019 9:18:21 AM	A62764
Manganese	2.2	0.010		mg/L	5	9/9/2019 9:20:02 AM	A62764
Potassium	1.9	1.0		mg/L	1	9/9/2019 9:18:21 AM	A62764
Selenium	ND	0.050		mg/L	1	9/9/2019 9:18:21 AM	A62764
Silver	ND	0.0050		mg/L	1	9/9/2019 9:18:21 AM	A62764
Sodium	500	10		mg/L	10	9/9/2019 12:12:03 PM	A62764
Uranium	ND	0.10		mg/L	1	9/9/2019 9:18:21 AM	A62764
Zinc	ND	0.020		mg/L	1	9/9/2019 9:18:21 AM	A62764

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

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-007F

**Client Sample ID:** DUPLICATE #1  
**Collection Date:** 8/21/2019  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8270C: SEMIVOLATILES</b>							Analyst: DAM
Acenaphthene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Acenaphthylene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Aniline	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Anthracene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Azobenzene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Benz(a)anthracene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Benzo(a)pyrene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Benzo(b)fluoranthene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Benzo(k)fluoranthene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Benzoic acid	ND	20		µg/L	1	8/29/2019 7:54:42 PM	47026
Benzyl alcohol	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Butyl benzyl phthalate	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Carbazole	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
4-Chloroaniline	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
2-Chloronaphthalene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
2-Chlorophenol	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Chrysene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Di-n-butyl phthalate	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Di-n-octyl phthalate	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Dibenzofuran	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
1,2-Dichlorobenzene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
1,3-Dichlorobenzene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
1,4-Dichlorobenzene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Diethyl phthalate	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Dimethyl phthalate	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
2,4-Dichlorophenol	ND	20		µg/L	1	8/29/2019 7:54:42 PM	47026
2,4-Dimethylphenol	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/29/2019 7:54:42 PM	47026
2,4-Dinitrophenol	ND	20		µg/L	1	8/29/2019 7:54:42 PM	47026
2,4-Dinitrotoluene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
2,6-Dinitrotoluene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026

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

**Qualifiers:**

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

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

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-007F

**Client Sample ID:** DUPLICATE #1  
**Collection Date:** 8/21/2019  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8270C: SEMIVOLATILES</b>							Analyst: <b>DAM</b>
Fluoranthene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Fluorene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Hexachlorobenzene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Hexachlorobutadiene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Hexachloroethane	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Isophorone	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
1-Methylnaphthalene	32	10		µg/L	1	8/29/2019 7:54:42 PM	47026
2-Methylnaphthalene	20	10		µg/L	1	8/29/2019 7:54:42 PM	47026
2-Methylphenol	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
3+4-Methylphenol	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
N-Nitrosodimethylamine	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Naphthalene	72	10		µg/L	1	8/29/2019 7:54:42 PM	47026
2-Nitroaniline	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
3-Nitroaniline	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
4-Nitroaniline	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Nitrobenzene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
2-Nitrophenol	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
4-Nitrophenol	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Pentachlorophenol	ND	20		µg/L	1	8/29/2019 7:54:42 PM	47026
Phenanthrene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Phenol	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Pyrene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Pyridine	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/29/2019 7:54:42 PM	47026
Surr: 2-Fluorophenol	50.8	15-101		%Rec	1	8/29/2019 7:54:42 PM	47026
Surr: Phenol-d5	39.9	15-84.6		%Rec	1	8/29/2019 7:54:42 PM	47026
Surr: 2,4,6-Tribromophenol	60.2	27.8-112		%Rec	1	8/29/2019 7:54:42 PM	47026
Surr: Nitrobenzene-d5	79.3	33-113		%Rec	1	8/29/2019 7:54:42 PM	47026
Surr: 2-Fluorobiphenyl	70.7	26.6-107		%Rec	1	8/29/2019 7:54:42 PM	47026
Surr: 4-Terphenyl-d14	65.3	18.7-148		%Rec	1	8/29/2019 7:54:42 PM	47026

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

**Qualifiers:**

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

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

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-008A

**Client Sample ID:** TRIP BLANK  
**Collection Date:**  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>RAA</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/27/2019 3:30:17 PM	GW6245
Surr: BFB	104	70-130		%Rec	1	8/27/2019 3:30:17 PM	GW6245
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: <b>RAA</b>
Benzene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Toluene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Ethylbenzene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Naphthalene	ND	2.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
1-Methylnaphthalene	ND	4.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
2-Methylnaphthalene	ND	4.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Acetone	ND	10		µg/L	1	8/27/2019 3:30:17 PM	R62453
Bromobenzene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Bromodichloromethane	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Bromoform	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Bromomethane	ND	3.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
2-Butanone	ND	10		µg/L	1	8/27/2019 3:30:17 PM	R62453
Carbon disulfide	ND	10		µg/L	1	8/27/2019 3:30:17 PM	R62453
Carbon Tetrachloride	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Chlorobenzene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Chloroethane	ND	2.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Chloroform	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Chloromethane	ND	3.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
2-Chlorotoluene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
4-Chlorotoluene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
cis-1,2-DCE	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Dibromochloromethane	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Dibromomethane	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
1,1-Dichloroethane	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
1,1-Dichloroethene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
1,2-Dichloropropane	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453

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

**Qualifiers:**

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

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

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-008A

**Client Sample ID:** TRIP BLANK  
**Collection Date:**  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: RAA
1,3-Dichloropropane	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
2,2-Dichloropropane	ND	2.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
1,1-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Hexachlorobutadiene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
2-Hexanone	ND	10		µg/L	1	8/27/2019 3:30:17 PM	R62453
Isopropylbenzene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
4-Isopropyltoluene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
4-Methyl-2-pentanone	ND	10		µg/L	1	8/27/2019 3:30:17 PM	R62453
Methylene Chloride	ND	3.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
n-Butylbenzene	ND	3.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
n-Propylbenzene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
sec-Butylbenzene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Styrene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
tert-Butylbenzene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
1,1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
trans-1,2-DCE	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Trichlorofluoromethane	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Vinyl chloride	ND	1.0		µg/L	1	8/27/2019 3:30:17 PM	R62453
Xylenes, Total	ND	1.5		µg/L	1	8/27/2019 3:30:17 PM	R62453
Surr: 1,2-Dichloroethane-d4	94.0	70-130		%Rec	1	8/27/2019 3:30:17 PM	R62453
Surr: 4-Bromofluorobenzene	96.5	70-130		%Rec	1	8/27/2019 3:30:17 PM	R62453
Surr: Dibromofluoromethane	97.0	70-130		%Rec	1	8/27/2019 3:30:17 PM	R62453
Surr: Toluene-d8	106	70-130		%Rec	1	8/27/2019 3:30:17 PM	R62453

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

**Qualifiers:**

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

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

Analytical Report

Lab Order: 1908D80

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 9/16/2019

CLIENT: Western Refining Southwest, Inc.  
 Project: 2019 Annual GW Sampling Event  
 Lab ID: 1908D80-009A

Client Sample ID: EQUIPMENT BLANK #1  
 Collection Date: 8/21/2019 4:00:00 PM  
 Matrix: Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: RAA
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/27/2019 3:59:20 PM	GW6245
Surr: BFB	96.2	70-130		%Rec	1	8/27/2019 3:59:20 PM	GW6245
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: RAA
Benzene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Toluene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Ethylbenzene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Naphthalene	ND	2.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
1-Methylnaphthalene	ND	4.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
2-Methylnaphthalene	ND	4.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Acetone	ND	10		µg/L	1	8/27/2019 3:59:20 PM	R62453
Bromobenzene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Bromodichloromethane	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Bromoform	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Bromomethane	ND	3.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
2-Butanone	ND	10		µg/L	1	8/27/2019 3:59:20 PM	R62453
Carbon disulfide	ND	10		µg/L	1	8/27/2019 3:59:20 PM	R62453
Carbon Tetrachloride	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Chlorobenzene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Chloroethane	ND	2.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Chloroform	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Chloromethane	ND	3.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
2-Chlorotoluene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
4-Chlorotoluene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
cis-1,2-DCE	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Dibromochloromethane	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Dibromomethane	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
1,1-Dichloroethane	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
1,1-Dichloroethene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
1,2-Dichloropropane	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453

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

Analytical Report

Lab Order: 1908D80

Date Reported: 9/16/2019

Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-009A

**Client Sample ID:** EQUIPMENT BLANK #1  
**Collection Date:** 8/21/2019 4:00:00 PM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: <b>RAA</b>
1,3-Dichloropropane	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
2,2-Dichloropropane	ND	2.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
1,1-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Hexachlorobutadiene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
2-Hexanone	ND	10		µg/L	1	8/27/2019 3:59:20 PM	R62453
Isopropylbenzene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
4-Isopropyltoluene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
4-Methyl-2-pentanone	ND	10		µg/L	1	8/27/2019 3:59:20 PM	R62453
Methylene Chloride	ND	3.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
n-Butylbenzene	ND	3.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
n-Propylbenzene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
sec-Butylbenzene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Styrene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
tert-Butylbenzene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
1,1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
trans-1,2-DCE	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Trichlorofluoromethane	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Vinyl chloride	ND	1.0		µg/L	1	8/27/2019 3:59:20 PM	R62453
Xylenes, Total	ND	1.5		µg/L	1	8/27/2019 3:59:20 PM	R62453
Surr: 1,2-Dichloroethane-d4	96.7	70-130		%Rec	1	8/27/2019 3:59:20 PM	R62453
Surr: 4-Bromofluorobenzene	92.5	70-130		%Rec	1	8/27/2019 3:59:20 PM	R62453
Surr: Dibromofluoromethane	98.7	70-130		%Rec	1	8/27/2019 3:59:20 PM	R62453
Surr: Toluene-d8	101	70-130		%Rec	1	8/27/2019 3:59:20 PM	R62453

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

Analytical Report

Lab Order: 1908D80

Date Reported: 9/16/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: 2019 Annual GW Sampling Event
Lab ID: 1908D80-009B

Client Sample ID: EQUIPMENT BLANK #1
Collection Date: 8/21/2019 4:00:00 PM
Matrix: Aqueous

Table with columns: Analyses, Result, RL, Qual, Units, DF, Date Analyzed, Batch ID. Includes EPA METHOD 8015D: DIESEL RANGE and Analyst: JME.

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

Table with 2 columns: Qualifiers and their corresponding definitions (e.g., \*, D, H, ND, PQL, S, B, E, J, P, RL).

Analytical Report

Lab Order: 1908D80

Date Reported: 9/16/2019

Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-009C

**Client Sample ID:** EQUIPMENT BLANK #1  
**Collection Date:** 8/21/2019 4:00:00 PM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>CARBON DIOXIDE</b> <span style="float: right;">Analyst: JRR</span>							
Total Carbon Dioxide	9.6	1.0	H	mg CO2/	1	8/26/2019 6:26:41 PM	R62429
<b>EPA METHOD 300.0: ANIONS</b> <span style="float: right;">Analyst: MRA</span>							
Fluoride	ND	0.10		mg/L	1	8/23/2019 1:11:42 PM	R62406
Chloride	ND	0.50		mg/L	1	8/23/2019 1:11:42 PM	R62406
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/23/2019 1:11:42 PM	R62406
Bromide	ND	0.10		mg/L	1	8/23/2019 1:11:42 PM	R62406
Nitrogen, Nitrate (As N)	0.10	0.10		mg/L	1	8/23/2019 1:11:42 PM	R62406
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/23/2019 1:11:42 PM	R62406
Sulfate	ND	0.50		mg/L	1	8/23/2019 1:11:42 PM	R62406
<b>SM2510B: SPECIFIC CONDUCTANCE</b> <span style="float: right;">Analyst: JRR</span>							
Conductivity	ND	5.0		µmhos/c	1	8/26/2019 6:26:41 PM	R62429
<b>SM2320B: ALKALINITY</b> <span style="float: right;">Analyst: JRR</span>							
Bicarbonate (As CaCO3)	ND	20.00		mg/L Ca	1	8/26/2019 6:26:41 PM	R62429
Carbonate (As CaCO3)	ND	2.000		mg/L Ca	1	8/26/2019 6:26:41 PM	R62429
Total Alkalinity (as CaCO3)	ND	20.00		mg/L Ca	1	8/26/2019 6:26:41 PM	R62429
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b> <span style="float: right;">Analyst: JMT</span>							
Total Dissolved Solids	ND	20.0		mg/L	1	8/29/2019 8:45:00 AM	47078

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

Analytical Report

Lab Order: 1908D80

Date Reported: 9/16/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: 2019 Annual GW Sampling Event
Lab ID: 1908D80-009D

Client Sample ID: EQUIPMENT BLANK #1
Collection Date: 8/21/2019 4:00:00 PM
Matrix: Aqueous

Table with columns: Analyses, Result, RL, Qual, Units, DF, Date Analyzed, Batch ID. Rows include EPA METHOD 7470: MERCURY and EPA 6010B: TOTAL RECOVERABLE METALS with various analytes like Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, Silver.

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

Table with 2 columns: Qualifiers and their descriptions. Qualifiers include \*, D, H, ND, PQL, S, B, E, J, P, RL.

Analytical Report

Lab Order: 1908D80

Date Reported: 9/16/2019

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: 2019 Annual GW Sampling Event
Lab ID: 1908D80-009E

Client Sample ID: EQUIPMENT BLANK #1
Collection Date: 8/21/2019 4:00:00 PM
Matrix: Aqueous

Table with columns: Analyses, Result, RL, Qual, Units, DF, Date Analyzed, Batch ID. Rows include EPA METHOD 7470: MERCURY and EPA METHOD 6010B: DISSOLVED METALS with various analytes like Arsenic, Barium, Cadmium, etc.

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

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

## Hall Environmental Analysis Laboratory, Inc.

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-009F

**Client Sample ID:** EQUIPMENT BLANK #1  
**Collection Date:** 8/21/2019 4:00:00 PM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8270C: SEMIVOLATILES</b>							Analyst: DAM
Acenaphthene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Acenaphthylene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Aniline	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Anthracene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Azobenzene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Benz(a)anthracene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Benzo(a)pyrene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Benzo(b)fluoranthene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Benzo(k)fluoranthene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Benzoic acid	ND	20		µg/L	1	8/29/2019 8:25:06 PM	47026
Benzyl alcohol	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Butyl benzyl phthalate	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Carbazole	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
4-Chloroaniline	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
2-Chloronaphthalene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
2-Chlorophenol	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Chrysene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Di-n-butyl phthalate	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Di-n-octyl phthalate	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Dibenzofuran	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
1,2-Dichlorobenzene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
1,3-Dichlorobenzene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
1,4-Dichlorobenzene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Diethyl phthalate	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Dimethyl phthalate	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
2,4-Dichlorophenol	ND	20		µg/L	1	8/29/2019 8:25:06 PM	47026
2,4-Dimethylphenol	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/29/2019 8:25:06 PM	47026
2,4-Dinitrophenol	ND	20		µg/L	1	8/29/2019 8:25:06 PM	47026
2,4-Dinitrotoluene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
2,6-Dinitrotoluene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026

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

**Qualifiers:**

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

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

**Hall Environmental Analysis Laboratory, Inc.**

**CLIENT:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908D80-009F

**Client Sample ID:** EQUIPMENT BLANK #1  
**Collection Date:** 8/21/2019 4:00:00 PM  
**Matrix:** Aqueous

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8270C: SEMIVOLATILES</b>							Analyst: <b>DAM</b>
Fluoranthene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Fluorene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Hexachlorobenzene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Hexachlorobutadiene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Hexachloroethane	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Isophorone	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
1-Methylnaphthalene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
2-Methylnaphthalene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
2-Methylphenol	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
3+4-Methylphenol	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
N-Nitrosodimethylamine	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Naphthalene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
2-Nitroaniline	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
3-Nitroaniline	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
4-Nitroaniline	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Nitrobenzene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
2-Nitrophenol	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
4-Nitrophenol	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Pentachlorophenol	ND	20		µg/L	1	8/29/2019 8:25:06 PM	47026
Phenanthrene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Phenol	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Pyrene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Pyridine	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/29/2019 8:25:06 PM	47026
Surr: 2-Fluorophenol	45.0	15-101		%Rec	1	8/29/2019 8:25:06 PM	47026
Surr: Phenol-d5	33.6	15-84.6		%Rec	1	8/29/2019 8:25:06 PM	47026
Surr: 2,4,6-Tribromophenol	56.4	27.8-112		%Rec	1	8/29/2019 8:25:06 PM	47026
Surr: Nitrobenzene-d5	64.2	33-113		%Rec	1	8/29/2019 8:25:06 PM	47026
Surr: 2-Fluorobiphenyl	55.3	26.6-107		%Rec	1	8/29/2019 8:25:06 PM	47026
Surr: 4-Terphenyl-d14	59.8	18.7-148		%Rec	1	8/29/2019 8:25:06 PM	47026

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

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

**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>MB</b>	SampType: <b>mblk</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62406</b>	RunNo: <b>62406</b>								
Prep Date:	Analysis Date: <b>8/23/2019</b>	SeqNo: <b>2121353</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								

Sample ID: <b>LCS</b>	SampType: <b>ics</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62406</b>	RunNo: <b>62406</b>								
Prep Date:	Analysis Date: <b>8/23/2019</b>	SeqNo: <b>2121354</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	104	90	110			
Chloride	4.9	0.50	5.000	0	97.1	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	94.3	90	110			
Bromide	2.4	0.10	2.500	0	97.6	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	101	90	110			
Phosphorus, Orthophosphate (As P)	4.8	0.50	5.000	0	96.0	90	110			
Sulfate	9.8	0.50	10.00	0	98.0	90	110			

Sample ID: <b>MB</b>	SampType: <b>mblk</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62756</b>	RunNo: <b>62756</b>								
Prep Date:	Analysis Date: <b>9/7/2019</b>	SeqNo: <b>2137528</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: <b>LCS</b>	SampType: <b>ics</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62756</b>	RunNo: <b>62756</b>								
Prep Date:	Analysis Date: <b>9/7/2019</b>	SeqNo: <b>2137529</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	105	90	110			
Chloride	4.8	0.50	5.000	0	96.6	90	110			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>LCS</b>	SampType: <b>lcs</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R62756</b>		RunNo: <b>62756</b>							
Prep Date:	Analysis Date: <b>9/7/2019</b>		SeqNo: <b>2137529</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromide	2.5	0.10	2.500	0	98.7	90	110			
Phosphorus, Orthophosphate (As P)	4.8	0.50	5.000	0	95.3	90	110			
Sulfate	9.7	0.50	10.00	0	97.0	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	98.9	90	110			

Sample ID: <b>MB</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>PBW</b>	Batch ID: <b>R62780</b>		RunNo: <b>62780</b>							
Prep Date:	Analysis Date: <b>9/9/2019</b>		SeqNo: <b>2138812</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 300.0: Anions</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R62780</b>		RunNo: <b>62780</b>							
Prep Date:	Analysis Date: <b>9/9/2019</b>		SeqNo: <b>2138813</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	10	0.50	10.00	0	102	90	110			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>1908D80-001BMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>MW-1</b>	Batch ID: <b>47076</b>	RunNo: <b>62454</b>								
Prep Date: <b>8/27/2019</b>	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126290</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.7	0.40	2.500	0	109	68.3	147			
Surr: DNOP	0.27		0.2500		108	52.7	168			

Sample ID: <b>1908D80-001BMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>MW-1</b>	Batch ID: <b>47076</b>	RunNo: <b>62454</b>								
Prep Date: <b>8/27/2019</b>	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126291</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.40	2.500	0	110	68.3	147	1.07	20	
Surr: DNOP	0.27		0.2500		108	52.7	168	0	0	

Sample ID: <b>LCS-47076</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>47076</b>	RunNo: <b>62454</b>								
Prep Date: <b>8/27/2019</b>	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126320</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.5	0.40	2.500	0	100	66.7	148			
Surr: DNOP	0.24		0.2500		97.4	52.7	168			

Sample ID: <b>MB-47076</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47076</b>	RunNo: <b>62454</b>								
Prep Date: <b>8/27/2019</b>	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126322</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	0.40								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.50		0.5000		99.8	52.7	168			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

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

**Project:** 2019 Annual GW Sampling Event

Sample ID: 100ng lcs		SampType: LCS		TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW		Batch ID: R62453		RunNo: 62453						
Prep Date:		Analysis Date: 8/27/2019		SeqNo: 2124995			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	89.9	70	130			
Toluene	19	1.0	20.00	0	92.9	70	130			
Chlorobenzene	19	1.0	20.00	0	92.7	70	130			
1,1-Dichloroethene	17	1.0	20.00	0	84.1	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	85.5	70	130			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		93.5	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.4	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.0	70	130			
Surr: Toluene-d8	9.6		10.00		95.9	70	130			

Sample ID: 1908d80-001a ms		SampType: MS		TestCode: EPA Method 8260B: VOLATILES						
Client ID: MW-1		Batch ID: R62453		RunNo: 62453						
Prep Date:		Analysis Date: 8/27/2019		SeqNo: 2124997			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	89.3	70	130			
Toluene	17	1.0	20.00	0	87.3	70	130			
Chlorobenzene	17	1.0	20.00	0	86.5	70	130			
1,1-Dichloroethene	17	1.0	20.00	0	83.4	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	86.4	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		95.1	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.8	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.3	70	130			
Surr: Toluene-d8	9.5		10.00		94.8	70	130			

Sample ID: 1908d80-001a msd		SampType: MSD		TestCode: EPA Method 8260B: VOLATILES						
Client ID: MW-1		Batch ID: R62453		RunNo: 62453						
Prep Date:		Analysis Date: 8/27/2019		SeqNo: 2124998			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	89.0	70	130	0.355	20	
Toluene	18	1.0	20.00	0	88.9	70	130	1.78	20	
Chlorobenzene	18	1.0	20.00	0	89.1	70	130	3.03	20	
1,1-Dichloroethene	16	1.0	20.00	0	82.5	70	130	1.06	20	
Trichloroethene (TCE)	17	1.0	20.00	0	82.7	70	130	4.35	20	
Surr: 1,2-Dichloroethane-d4	9.8		10.00		97.6	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.9		10.00		99.1	70	130	0	0	
Surr: Dibromofluoromethane	10		10.00		102	70	130	0	0	
Surr: Toluene-d8	9.8		10.00		98.4	70	130	0	0	

**Qualifiers:**

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

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

**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>rb</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8260B: VOLATILES</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62453</b>	RunNo: <b>62453</b>								
Prep Date:	Analysis Date: <b>8/27/2019</b>	SeqNo: <b>2125016</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								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260B: VOLATILES</b>							
Client ID: <b>PBW</b>	Batch ID: <b>R62453</b>		RunNo: <b>62453</b>							
Prep Date:	Analysis Date: <b>8/27/2019</b>		SeqNo: <b>2125016</b>		Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.4	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		97.2	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	9.8		10.00		98.4	70	130			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>Ics-47026</b>		SampType: <b>LCS</b>			TestCode: <b>EPA Method 8270C: Semivolatiles</b>					
Client ID: <b>LCSW</b>		Batch ID: <b>47026</b>			RunNo: <b>62538</b>					
Prep Date: <b>8/26/2019</b>		Analysis Date: <b>8/29/2019</b>			SeqNo: <b>2127567</b>		Units: <b>µg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	66	10	100.0	0	66.0	32.2	94			
4-Chloro-3-methylphenol	140	10	200.0	0	68.6	37.7	101			
2-Chlorophenol	130	10	200.0	0	66.4	32.6	90.1			
1,4-Dichlorobenzene	57	10	100.0	0	56.9	30	87.2			
2,4-Dinitrotoluene	62	10	100.0	0	61.7	35.9	85.8			
N-Nitrosodi-n-propylamine	68	10	100.0	0	67.7	37.1	108			
4-Nitrophenol	110	10	200.0	0	54.5	22.4	86.6			
Pentachlorophenol	110	20	200.0	0	53.9	31.6	91			
Phenol	110	10	200.0	0	55.6	21.7	84.9			
Pyrene	61	10	100.0	0	61.1	46.3	103			
1,2,4-Trichlorobenzene	58	10	100.0	0	57.6	30.2	88.3			
Surr: 2-Fluorophenol	120		200.0		59.2	15	101			
Surr: Phenol-d5	120		200.0		58.0	15	84.6			
Surr: 2,4,6-Tribromophenol	120		200.0		58.0	27.8	112			
Surr: Nitrobenzene-d5	76		100.0		76.4	33	113			
Surr: 2-Fluorobiphenyl	64		100.0		63.7	26.6	107			
Surr: 4-Terphenyl-d14	61		100.0		60.6	18.7	148			

Sample ID: <b>Icsd-47026</b>		SampType: <b>LCSD</b>			TestCode: <b>EPA Method 8270C: Semivolatiles</b>					
Client ID: <b>LCSS02</b>		Batch ID: <b>47026</b>			RunNo: <b>62538</b>					
Prep Date: <b>8/26/2019</b>		Analysis Date: <b>8/29/2019</b>			SeqNo: <b>2127570</b>		Units: <b>µg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	84	10	100.0	0	84.5	32.2	94	24.6	32.9	
4-Chloro-3-methylphenol	170	10	200.0	0	85.5	37.7	101	21.9	29.9	
2-Chlorophenol	170	10	200.0	0	84.1	32.6	90.1	23.5	28.5	
1,4-Dichlorobenzene	72	10	100.0	0	71.8	15	87.2	23.2	44.9	
2,4-Dinitrotoluene	80	10	100.0	0	80.2	35.9	85.8	26.0	28.5	
N-Nitrosodi-n-propylamine	91	10	100.0	0	90.9	37.1	108	29.3	29.9	
4-Nitrophenol	120	10	200.0	0	58.5	15	86.6	7.19	68	
Pentachlorophenol	130	20	200.0	0	66.7	31.6	91	21.3	39.5	
Phenol	130	10	200.0	0	66.4	15	84.9	17.8	44.2	
Pyrene	75	10	100.0	0	75.3	46.3	103	20.9	23.8	
1,2,4-Trichlorobenzene	71	10	100.0	0	70.6	15.7	88.3	20.2	38	
Surr: 2-Fluorophenol	150		200.0		73.6	15	101	0	0	
Surr: Phenol-d5	140		200.0		68.1	15	84.6	0	0	
Surr: 2,4,6-Tribromophenol	140		200.0		72.2	27.8	112	0	0	
Surr: Nitrobenzene-d5	91		100.0		90.6	33	113	0	0	
Surr: 2-Fluorobiphenyl	77		100.0		77.4	26.6	107	0	0	

**Qualifiers:**

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

Client: Western Refining Southwest, Inc.

Project: 2019 Annual GW Sampling Event

Sample ID: <b>lcsd-47026</b>	SampType: <b>LCSD</b>	TestCode: <b>EPA Method 8270C: Semivolatiles</b>								
Client ID: <b>LCSS02</b>	Batch ID: <b>47026</b>	RunNo: <b>62538</b>								
Prep Date: <b>8/26/2019</b>	Analysis Date: <b>8/29/2019</b>	SeqNo: <b>2127570</b>	Units: <b>µg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	76		100.0		76.3	18.7	148	0	0	

Sample ID: <b>mb-47026</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8270C: Semivolatiles</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47026</b>	RunNo: <b>62538</b>								
Prep Date: <b>8/26/2019</b>	Analysis Date: <b>8/29/2019</b>	SeqNo: <b>2127573</b>	Units: <b>µg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	ND	20								
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	10								
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

Client: Western Refining Southwest, Inc.

Project: 2019 Annual GW Sampling Event

Sample ID: <b>mb-47026</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8270C: Semivolatiles</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47026</b>	RunNo: <b>62538</b>								
Prep Date: <b>8/26/2019</b>	Analysis Date: <b>8/29/2019</b>	SeqNo: <b>2127573</b>	Units: <b>µg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
3,3'-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	ND	20								
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>mb-47026</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8270C: Semivolatiles</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47026</b>	RunNo: <b>62538</b>								
Prep Date: <b>8/26/2019</b>	Analysis Date: <b>8/29/2019</b>	SeqNo: <b>2127573</b>			Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	120		200.0		58.6	15	101			
Surr: Phenol-d5	110		200.0		52.8	15	84.6			
Surr: 2,4,6-Tribromophenol	150		200.0		73.6	27.8	112			
Surr: Nitrobenzene-d5	82		100.0		82.3	33	113			
Surr: 2-Fluorobiphenyl	72		100.0		71.8	26.6	107			
Surr: 4-Terphenyl-d14	77		100.0		76.7	18.7	148			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

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

**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>ics-1 99.8uS eC</b>	SampType: <b>ics</b>		TestCode: <b>SM2510B: Specific Conductance</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R62429</b>		RunNo: <b>62429</b>							
Prep Date:	Analysis Date: <b>8/26/2019</b>		SeqNo: <b>2122562</b>		Units: <b>µmhos/cm</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.80	0	101	85	115			

Sample ID: <b>ics-2 99.8uS eC</b>	SampType: <b>ics</b>		TestCode: <b>SM2510B: Specific Conductance</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R62429</b>		RunNo: <b>62429</b>							
Prep Date:	Analysis Date: <b>8/26/2019</b>		SeqNo: <b>2122588</b>		Units: <b>µmhos/cm</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.80	0	105	85	115			

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>MB-47323</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47323</b>	RunNo: <b>62727</b>								
Prep Date: <b>9/6/2019</b>	Analysis Date: <b>9/6/2019</b>	SeqNo: <b>2136161</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: <b>LCS-47323</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>47323</b>	RunNo: <b>62727</b>								
Prep Date: <b>9/6/2019</b>	Analysis Date: <b>9/6/2019</b>	SeqNo: <b>2136162</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0050	0.00020	0.005000	0	99.2	80	120			

Sample ID: <b>1908D80-002DMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>MW-13</b>	Batch ID: <b>47323</b>	RunNo: <b>62727</b>								
Prep Date: <b>9/6/2019</b>	Analysis Date: <b>9/6/2019</b>	SeqNo: <b>2136175</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0037	0.0010	0.005000	0	74.5	75	125			S

Sample ID: <b>1908D80-002DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>MW-13</b>	Batch ID: <b>47323</b>	RunNo: <b>62727</b>								
Prep Date: <b>9/6/2019</b>	Analysis Date: <b>9/6/2019</b>	SeqNo: <b>2136176</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0036	0.0010	0.005000	0	72.1	75	125	3.24	20	S

Sample ID: <b>MB-47378</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47378</b>	RunNo: <b>62816</b>								
Prep Date: <b>9/10/2019</b>	Analysis Date: <b>9/10/2019</b>	SeqNo: <b>2140407</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: <b>LCS-47378</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>47378</b>	RunNo: <b>62816</b>								
Prep Date: <b>9/10/2019</b>	Analysis Date: <b>9/10/2019</b>	SeqNo: <b>2140408</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	102	80	120			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

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

**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>1908D80-001EMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>MW-1</b>	Batch ID: <b>47378</b>	RunNo: <b>62816</b>								
Prep Date: <b>9/10/2019</b>	Analysis Date: <b>9/10/2019</b>	SeqNo: <b>2140410</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0054	0.00020	0.005000	0	108	75	125			

Sample ID: <b>1908D80-001EMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>MW-1</b>	Batch ID: <b>47378</b>	RunNo: <b>62816</b>								
Prep Date: <b>9/10/2019</b>	Analysis Date: <b>9/10/2019</b>	SeqNo: <b>2140411</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0055	0.00020	0.005000	0	110	75	125	1.31	20	

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

Client: Western Refining Southwest, Inc.

Project: 2019 Annual GW Sampling Event

Sample ID: <b>MB-A</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>A62764</b>	RunNo: <b>62764</b>								
Prep Date:	Analysis Date: <b>9/9/2019</b>	SeqNo: <b>2137952</b> Units: <b>mg/L</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Uranium	ND	0.10								
Zinc	ND	0.020								

Sample ID: <b>LCS-A</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>A62764</b>	RunNo: <b>62764</b>								
Prep Date:	Analysis Date: <b>9/9/2019</b>	SeqNo: <b>2137953</b> Units: <b>mg/L</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.48	0.020	0.5000	0	95.6	80	120			
Barium	0.48	0.020	0.5000	0	95.1	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.4	80	120			
Calcium	50	1.0	50.00	0	100	80	120			
Chromium	0.49	0.0060	0.5000	0	97.1	80	120			
Copper	0.50	0.0060	0.5000	0	100	80	120			
Iron	0.49	0.020	0.5000	0	98.6	80	120			
Lead	0.49	0.0050	0.5000	0	98.6	80	120			
Magnesium	50	1.0	50.00	0	100	80	120			
Manganese	0.48	0.0020	0.5000	0	97.0	80	120			
Potassium	50	1.0	50.00	0	99.3	80	120			
Selenium	0.48	0.050	0.5000	0	96.3	80	120			
Silver	0.10	0.0050	0.1000	0	99.8	80	120			
Sodium	50	1.0	50.00	0	99.6	80	120			
Uranium	0.46	0.10	0.5000	0	91.3	80	120			
Zinc	0.48	0.020	0.5000	0	96.5	80	120			

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>MB-A</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>A62841</b>	RunNo: <b>62841</b>								
Prep Date:	Analysis Date: <b>9/11/2019</b>	SeqNo: <b>2141041</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								

Sample ID: <b>LCS-A</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>A62841</b>	RunNo: <b>62841</b>								
Prep Date:	Analysis Date: <b>9/11/2019</b>	SeqNo: <b>2141042</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.48	0.020	0.5000	0	95.5	80	120			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>1908D80-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>MW-1</b>	Batch ID: <b>47018</b>	RunNo: <b>62461</b>								
Prep Date: <b>8/23/2019</b>	Analysis Date: <b>8/27/2019</b>	SeqNo: <b>2124151</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.54	0.020	0.5000	0.06969	94.2	75	125			
Cadmium	0.50	0.0020	0.5000	0	100	75	125			
Chromium	0.49	0.0060	0.5000	0	97.1	75	125			
Lead	0.48	0.0050	0.5000	0	95.8	75	125			
Selenium	0.45	0.050	0.5000	0	89.8	75	125			
Silver	0.099	0.0050	0.1000	0.001404	97.6	75	125			

Sample ID: <b>1908D80-001DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>MW-1</b>	Batch ID: <b>47018</b>	RunNo: <b>62461</b>								
Prep Date: <b>8/23/2019</b>	Analysis Date: <b>8/27/2019</b>	SeqNo: <b>2124152</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.54	0.020	0.5000	0.06969	94.5	75	125	0.240	20	
Cadmium	0.50	0.0020	0.5000	0	101	75	125	0.808	20	
Chromium	0.49	0.0060	0.5000	0	97.7	75	125	0.553	20	
Lead	0.49	0.0050	0.5000	0	97.8	75	125	2.13	20	
Selenium	0.47	0.050	0.5000	0	93.1	75	125	3.65	20	
Silver	0.099	0.0050	0.1000	0.001404	97.7	75	125	0.0564	20	

Sample ID: <b>MB-47018</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47018</b>	RunNo: <b>62461</b>								
Prep Date: <b>8/23/2019</b>	Analysis Date: <b>8/27/2019</b>	SeqNo: <b>2124174</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: <b>LCS-47018</b>	SampType: <b>LCS</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>47018</b>	RunNo: <b>62461</b>								
Prep Date: <b>8/23/2019</b>	Analysis Date: <b>8/27/2019</b>	SeqNo: <b>2124176</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.48	0.020	0.5000	0	96.5	80	120			
Barium	0.48	0.020	0.5000	0	95.7	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.3	80	120			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

**Client:** Western Refining Southwest, Inc.**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>LCS-47018</b>	SampType: <b>LCS</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>47018</b>	RunNo: <b>62461</b>								
Prep Date: <b>8/23/2019</b>	Analysis Date: <b>8/27/2019</b>	SeqNo: <b>2124176</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chromium	0.49	0.0060	0.5000	0	99.0	80	120			
Lead	0.48	0.0050	0.5000	0	96.4	80	120			
Selenium	0.49	0.050	0.5000	0	97.1	80	120			
Silver	0.097	0.0050	0.1000	0	97.4	80	120			

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>1908d80-002a ms</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>MW-13</b>	Batch ID: <b>GW62453</b>	RunNo: <b>62453</b>								
Prep Date:	Analysis Date: <b>8/27/2019</b>	SeqNo: <b>2126256</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.44	0.050	0.5000	0	87.5	70	130			
Surr: BFB	10		10.00		100	70	130			

Sample ID: <b>1908d80-002a msd</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8015D: Gasoline Range</b>								
Client ID: <b>MW-13</b>	Batch ID: <b>GW62453</b>	RunNo: <b>62453</b>								
Prep Date:	Analysis Date: <b>8/27/2019</b>	SeqNo: <b>2126257</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.42	0.050	0.5000	0	84.4	70	130	3.58	20	
Surr: BFB	10		10.00		100	70	130	0	0	

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>GW62453</b>	RunNo: <b>62453</b>								
Prep Date:	Analysis Date: <b>8/27/2019</b>	SeqNo: <b>2126272</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.3	70	130			
Surr: BFB	9.9		10.00		99.0	70	130			

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>GW62453</b>	RunNo: <b>62453</b>								
Prep Date:	Analysis Date: <b>8/27/2019</b>	SeqNo: <b>2126273</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	9.9		10.00		98.5	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
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>mb-1 alk</b>	SampType: <b>mblk</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62429</b>	RunNo: <b>62429</b>								
Prep Date:	Analysis Date: <b>8/26/2019</b>	SeqNo: <b>2122487</b>			Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: <b>ics-1 alk</b>	SampType: <b>ics</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62429</b>	RunNo: <b>62429</b>								
Prep Date:	Analysis Date: <b>8/26/2019</b>	SeqNo: <b>2122488</b>			Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.32	20.00	80.00	0	99.2	90	110			

Sample ID: <b>mb-2 alk</b>	SampType: <b>mblk</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62429</b>	RunNo: <b>62429</b>								
Prep Date:	Analysis Date: <b>8/26/2019</b>	SeqNo: <b>2122510</b>			Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: <b>ics-2 alk</b>	SampType: <b>ics</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62429</b>	RunNo: <b>62429</b>								
Prep Date:	Analysis Date: <b>8/26/2019</b>	SeqNo: <b>2122511</b>			Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.64	20.00	80.00	0	99.6	90	110			

Sample ID: <b>mb-3 alk</b>	SampType: <b>mblk</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62429</b>	RunNo: <b>62429</b>								
Prep Date:	Analysis Date: <b>8/26/2019</b>	SeqNo: <b>2122533</b>			Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: <b>ics-3 alk</b>	SampType: <b>ics</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62429</b>	RunNo: <b>62429</b>								
Prep Date:	Analysis Date: <b>8/26/2019</b>	SeqNo: <b>2122534</b>			Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80.12	20.00	80.00	0	100	90	110			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>mb-1 alk</b>	SampType: <b>mblk</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62496</b>	RunNo: <b>62496</b>								
Prep Date:	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126078</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: <b>ics-1 alk</b>	SampType: <b>ics</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62496</b>	RunNo: <b>62496</b>								
Prep Date:	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126079</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.96	20.00	80.00	0	98.7	90	110			

Sample ID: <b>mb-2 alk</b>	SampType: <b>mblk</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62496</b>	RunNo: <b>62496</b>								
Prep Date:	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126101</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: <b>ics-2 alk</b>	SampType: <b>ics</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62496</b>	RunNo: <b>62496</b>								
Prep Date:	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126102</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80.56	20.00	80.00	0	101	90	110			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908D80

16-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>MB-47078</b>	SampType: <b>MBLK</b>	TestCode: <b>SM2540C MOD: Total Dissolved Solids</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47078</b>	RunNo: <b>62492</b>								
Prep Date: <b>8/27/2019</b>	Analysis Date: <b>8/29/2019</b>	SeqNo: <b>2125816</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: <b>LCS-47078</b>	SampType: <b>LCS</b>	TestCode: <b>SM2540C MOD: Total Dissolved Solids</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>47078</b>	RunNo: <b>62492</b>								
Prep Date: <b>8/27/2019</b>	Analysis Date: <b>8/29/2019</b>	SeqNo: <b>2125817</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

**Qualifiers:**

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

**Sample Log-In Check List**

Client Name: Western Refining Southw      Work Order Number: 1908D80      RcptNo: 1

Received By: Leah Baca      8/22/2019 8:25:00 AM

*Leah Baca*

Completed By: Anne Thorne      8/23/2019 8:14:27 AM

*Anne Thorne*

Reviewed By: *Y6 8/23/19*

**Chain of Custody**

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

**Log In**

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

# of preserved bottles checked for pH: 21  
 (<2 or >12 unless noted)  
 Adjusted? \_\_\_\_\_  
 Checked by: *[Signature]* 08/23/19

**Special Handling (if applicable)**

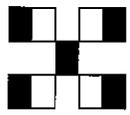
15. Was client notified of all discrepancies with this order?      Yes       No       NA

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:	_____		

16. Additional remarks:  
 CUSTODY SEALS INTACT ON SAMPLE BOTTLES/at 8/23/19

**17. Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.3	Good	Yes			
2	2.8	Good	Yes			
3	0.8	Good	Yes			



# HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

## Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

Email: **gjmccartney@marathonpetroleum.com**

QAV/QC Package:  
 Standard  Level 4 (Full Validation)  
 Other

X EDD (Type) EXCEL

Turn-Around Time:

Standard  Rush

Project Name: **2019 Annual GW**

**Sampling Event**

Project #:

Project Manager: **Gregory McCartney**

Sampler: **Tracy Payne - 919-561-7055**

On Ice:  Yes  No

Sample Temperature: **4.3 - 6.4 = 4.3C**

Preservative Type  
 HCl  
 Neat  
 HNO<sub>3</sub>  
 HNO<sub>3</sub>  
 H<sub>2</sub>SO<sub>4</sub>  
 Neat

Container Type and #  
 40ml VOA-5  
 250 ml amber-1  
 250 ml plastic-1  
 125 ml plastic-1  
 125 ml plastic-1  
 500 ml plastic-1

HEAL No.  
 108 D80  
 102  
 102  
 102  
 102  
 102  
 102

Date	Time	Matrix	Sample Request ID
8-21-19	0750	H <sub>2</sub> O	MW-1
		H <sub>2</sub> O	MW-1
		H <sub>2</sub> O	MW-1
		H <sub>2</sub> O	MW-1
		H <sub>2</sub> O	MW-1
		H <sub>2</sub> O	MW-1

Date: **8/21/19** Time: **1630**  
 Relinquished by: *[Signature]*

Date: **8/21/19** Time: **1830**  
 Relinquished by: *[Signature]*

Received by: *[Signature]* Date: **8/21/19** Time: **1630**

Received by: *[Signature]* Date: **8/21/19** Time: **0825**

### Analysis Request

BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH(Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals Total	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)	8270 (Semi-VOA)	Dissolved Metals	General Chem.-Anions&CO <sub>2</sub>	General Chem. - Alkalinity	Air Bubbles (Y or N)
		X							X					
		X												
						X					X	X		
											X	X		
													X	

Remarks: See Analytical Methods and Target Analytes.











### Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

Email: **gjmccartney@marathonpetroleum.com**

QA/QC Package:

Standard  Level 4 (Full Validation)

Other

EDD (Type) **EXCEL**

Turn-Around Time:

Standard  Rush

Project Name: **2019 Annual GW**

**Sampling Event**

Project #:

Project Manager: **Gregory McCartney**

Sampler: **Tracy Payne - 919-561-7055**

On Ice:  Yes  No

Sample Temperature: **4.3 - 6.0 = 4.3C**

Preservative Type

HEAL No.

1908 D80

Date

Time

Matrix

Sample Request ID

H<sub>2</sub>O EQUIPMENT BLANK #1

40 ML VIALS

250 ML AMBER-1

1 L AMBER-1

250 ML PLASTIC-1

125 ML PLASTIC-1

125 ML PLASTIC-1

500 ML PLASTIC-1

NEAT

NEAT

NEAT

NEAT

NEAT

NEAT

NEAT

NEAT

NEAT

Date: **8/21/19**

Time: **1630**

Date: **8/21/19**

Time: **1830**

Relinquished by: **[Signature]**

Relinquished by: **[Signature]**

Received by: **[Signature]**

Date: **8/21/19**

Received by: **[Signature]**

Date: **8/21/19**

Date

Time

**TABLE 2**  
**Analytical Methods and Target Analytes**  
**Facility-Wide Groundwater Monitoring Plan - June 2014**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

<b>VOCs (EPA Method 8260B) <sup>(1)</sup></b>
- Target List
<i>Benzene</i>
<i>Toluene</i>
<i>Ethylbenzene</i>
<i>Xylenes</i>
<i>Methyl tert butyl ether (MTBE)</i>
<b>SVOCs - (EPA Method 8270)</b>
- Method List
<b>TPH-GRO (EPA Method 8015B)</b>
- Gasoline Range Organics
<b>TPH-DRO (EPA Method 8015B)</b>
- Diesel Range Organics
- Motor Oil Range Organics
<b>Total Carbon Dioxide (Laboratory Calculated)</b>
- Dissolved CO <sub>2</sub>
<b>Specific Conductivity (EPA Method 120.1 or field measurement)</b>
- Specific conductance
<b>TDS (EPA Method 160.1 or field measurement)</b>
- Total dissolved solids
<b>General Chemistry - Anions (EPA Method 300.0)</b>
<i>Fluoride</i>
<i>Chloride</i>
<i>Bromide</i>
<i>Nitrogen, Nitrite (as N)</i>
<i>Nitrogen, Nitrate (as N)</i>
<i>Phosphorous, Orthophosphate (As P)</i>
<i>Sulfate</i>
<b>General Chemistry - Alkalinity (EPA Method 310.1)</b>
<i>Alkalinity, Total</i>
<i>Carbonate</i>
<i>Bicarbonate</i>

<b>Total Recoverable Metals (EPA Method 6010B/7470)</b>
- Target List (not applicable to River Terrace Sampling Events)
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Chromium</i>
<i>Lead</i>
<i>Mercury</i>
<i>Selenium</i>
<i>Silver</i>
- Target List (for River Terrace Sampling Events Only)
<i>Lead</i>
<i>Mercury (DW-1 ONLY)</i>
<b>Dissolved Metals (EPA Method 6010B / 7470)</b>
- Target List (for Refinery Complex, Outfalls, and River)
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Calcium</i>
<i>Chromium</i>
<i>Copper</i>
<i>Iron</i>
<i>Lead</i>
<i>Magnesium</i>
<i>Manganese</i>
<i>Mercury</i>
<i>Potassium</i>
<i>Selenium</i>
<i>Silver</i>
<i>Sodium</i>
<i>Uranium</i>
<i>Zinc</i>

TPH = total petroleum hydrocarbons  
 GRO = gasoline range organics  
 VOCs = volatile organic compounds  
 DRO = diesel range organics  
 TDS = total dissolved solids

**NOTES:**

- (1) VOCs Target List for River Terrace samples are analyzed by EPA Method 8021B per NMED's letter Approval with Direction dated June 16, 2009.
- (2) Target List for San Juan River Terrace Monitoring Wells and Piezometer Wells only, per the River Terrace Bioventing System Monitoring Plan.



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 30, 2019

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

RE: 2019 Annual GW Sampling Event

OrderNo.: 1908E25

Dear Gregory J. McCartney:

Hall Environmental Analysis Laboratory received 7 sample(s) on 8/23/2019 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 #NM0901

Sincerely,

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

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#: 1908E25  
Date: 9/30/2019

---

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

**Project:** 2019 Annual GW Sampling Event

---

Analytical Notes Regarding EPA Method 8270:  
The method blank had poor surrogate recoveries.

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E25

Date Reported: 9/30/2019

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

**Client Sample ID:** MW-32

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019 7:20:00 AM

**Lab ID:** 1908E25-001

**Matrix:** AQUEOUS

**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>								
Analyst: <b>JME</b>								
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	8/28/2019 11:06:18 PM	47076
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	8/28/2019 11:06:18 PM	47076
Surr: DNOP	120	0	52.7-168		%Rec	1	8/28/2019 11:06:18 PM	47076
<b>EPA METHOD 300.0: ANIONS</b>								
Analyst: <b>CAS</b>								
Fluoride	ND	0.073	0.50		mg/L	5	9/9/2019 10:15:09 AM	R6278C
Chloride	740	25	25	*	mg/L	50	9/10/2019 5:29:20 PM	R6280C
Bromide	4.4	0.089	0.50		mg/L	5	9/9/2019 10:15:09 AM	R6278C
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	9/9/2019 10:15:09 AM	R6278C
Sulfate	1800	3.3	25	*	mg/L	50	9/10/2019 5:29:20 PM	R6280C
Nitrate+Nitrite as N	37	0.097	2.0	*	mg/L	10	9/13/2019 1:04:29 PM	R6294C
<b>EPA METHOD 7470: MERCURY</b>								
Analyst: <b>rde</b>								
Mercury	0.000054	0.000038	0.00020	J	mg/L	1	9/12/2019 2:01:18 PM	47428
<b>EPA METHOD 6010B: DISSOLVED METALS</b>								
Analyst: <b>bcv</b>								
Arsenic	ND	0.019	0.020		mg/L	1	9/9/2019 12:25:00 PM	A62764
Barium	0.018	0.00056	0.020	J	mg/L	1	9/9/2019 9:34:34 AM	A62764
Cadmium	ND	0.00058	0.0020		mg/L	1	9/9/2019 9:34:34 AM	A62764
Calcium	320	0.60	10		mg/L	10	9/11/2019 1:00:05 PM	A62841
Chromium	ND	0.0012	0.0060		mg/L	1	9/9/2019 9:34:34 AM	A62764
Copper	ND	0.0023	0.0060		mg/L	1	9/9/2019 9:34:34 AM	A62764
Iron	ND	0.0054	0.020		mg/L	1	9/9/2019 9:34:34 AM	A62764
Lead	ND	0.0048	0.0050		mg/L	1	9/9/2019 9:34:34 AM	A62764
Magnesium	50	0.061	1.0		mg/L	1	9/9/2019 9:34:34 AM	A62764
Manganese	ND	0.00026	0.0020		mg/L	1	9/9/2019 9:34:34 AM	A62764
Potassium	3.7	0.11	1.0		mg/L	1	9/9/2019 9:34:34 AM	A62764
Selenium	ND	0.041	0.050		mg/L	1	9/9/2019 9:34:34 AM	A62764
Silver	0.0049	0.0013	0.0050	J	mg/L	1	9/9/2019 9:34:34 AM	A62764
Sodium	800	2.4	10		mg/L	10	9/9/2019 12:30:44 PM	A62764
Uranium	ND	0.062	0.10		mg/L	1	9/9/2019 12:25:00 PM	A62764
Zinc	0.020	0.0026	0.020		mg/L	1	9/9/2019 9:34:34 AM	A62764
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>								
Analyst: <b>bcv</b>								
Arsenic	ND	0.015	0.020		mg/L	1	9/5/2019 2:12:07 PM	47071
Barium	0.024	0.0012	0.020		mg/L	1	9/5/2019 2:12:07 PM	47071
Cadmium	ND	0.00055	0.0020		mg/L	1	9/5/2019 2:12:07 PM	47071
Chromium	ND	0.00086	0.0060		mg/L	1	9/5/2019 2:12:07 PM	47071
Lead	ND	0.0035	0.0050		mg/L	1	9/5/2019 2:12:07 PM	47071
Selenium	ND	0.035	0.050		mg/L	1	9/5/2019 2:12:07 PM	47071
Silver	0.0045	0.00055	0.0050	J	mg/L	1	9/5/2019 2:12:07 PM	47071

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E25

Date Reported: 9/30/2019

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

**Client Sample ID:** MW-32

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019 7:20:00 AM

**Lab ID:** 1908E25-001

**Matrix:** AQUEOUS

**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: RAA
Benzene	ND	0.17	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Toluene	ND	0.35	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Naphthalene	ND	0.28	2.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Acetone	ND	1.2	10		µg/L	1	8/27/2019 4:28:23 PM	R62453
Bromobenzene	ND	0.24	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Bromoform	ND	0.29	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Bromomethane	ND	0.27	3.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
2-Butanone	ND	2.1	10		µg/L	1	8/27/2019 4:28:23 PM	R62453
Carbon disulfide	ND	0.45	10		µg/L	1	8/27/2019 4:28:23 PM	R62453
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Chloroethane	ND	0.18	2.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Chloroform	ND	0.12	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Chloromethane	ND	0.32	3.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Dibromomethane	ND	0.21	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/27/2019 4:28:23 PM	R62453

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E25

Date Reported: 9/30/2019

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-32

Project: 2019 Annual GW Sampling Event

Collection Date: 8/22/2019 7:20:00 AM

Lab ID: 1908E25-001

Matrix: AQUEOUS

Received Date: 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: RAA
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
2-Hexanone	ND	1.5	10		µg/L	1	8/27/2019 4:28:23 PM	R62453
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/27/2019 4:28:23 PM	R62453
Methylene Chloride	ND	0.15	3.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Styrene	ND	0.19	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/27/2019 4:28:23 PM	R62453
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/27/2019 4:28:23 PM	R62453
Surr: 1,2-Dichloroethane-d4	94.8	0	70-130		%Rec	1	8/27/2019 4:28:23 PM	R62453
Surr: 4-Bromofluorobenzene	95.0	0	70-130		%Rec	1	8/27/2019 4:28:23 PM	R62453
Surr: Dibromofluoromethane	101	0	70-130		%Rec	1	8/27/2019 4:28:23 PM	R62453
Surr: Toluene-d8	102	0	70-130		%Rec	1	8/27/2019 4:28:23 PM	R62453
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: RAA
Gasoline Range Organics (GRO)	ND	0.031	0.050		mg/L	1	8/27/2019 4:28:23 PM	GW624
Surr: BFB	98.5	0	70-130		%Rec	1	8/27/2019 4:28:23 PM	GW624
<b>CARBON DIOXIDE</b>								Analyst: JRR
Total Carbon Dioxide	160	0	1.0	H	mg CO2/	1	8/26/2019 7:09:06 PM	R62429
<b>SM2510B: SPECIFIC CONDUCTANCE</b>								Analyst: JRR
Conductivity	5300	5.0	5.0		µmhos/c	1	8/26/2019 7:09:06 PM	R62429

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

**Qualifiers:**

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

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

**Hall Environmental Analysis Laboratory, Inc.**

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

**Client Sample ID:** MW-32

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019 7:20:00 AM

**Lab ID:** 1908E25-001

**Matrix:** AQUEOUS

**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>	
Bicarbonate (As CaCO3)	178.6	20.00	20.00		mg/L Ca	1	8/26/2019 7:09:06 PM	R62429
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	8/26/2019 7:09:06 PM	R62429
Total Alkalinity (as CaCO3)	178.6	20.00	20.00		mg/L Ca	1	8/26/2019 7:09:06 PM	R62429
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>JMT</b>	
Total Dissolved Solids	3830	40.0	40.0	*D	mg/L	1	8/29/2019 1:58:00 PM	47121

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E25

Date Reported: 9/30/2019

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

**Client Sample ID:** MW-27

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019 8:00:00 AM

**Lab ID:** 1908E25-002

**Matrix:** AQUEOUS

**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>								
Analyst: <b>JME</b>								
Diesel Range Organics (DRO)	0.23	0.13	0.40	J	mg/L	1	8/28/2019 11:30:56 PM	47076
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	8/28/2019 11:30:56 PM	47076
Surr: DNOP	123	0	52.7-168		%Rec	1	8/28/2019 11:30:56 PM	47076
<b>EPA METHOD 300.0: ANIONS</b>								
Analyst: <b>CAS</b>								
Fluoride	0.11	0.073	0.50	J	mg/L	5	9/9/2019 11:06:37 AM	R6278C
Chloride	960	50	50	*	mg/L	100	9/10/2019 5:41:44 PM	R6280E
Bromide	9.5	0.089	0.50		mg/L	5	9/9/2019 11:06:37 AM	R6278C
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	9/9/2019 11:06:37 AM	R6278C
Sulfate	2900	6.7	50	*	mg/L	100	9/10/2019 5:41:44 PM	R6280E
Nitrate+Nitrite as N	ND	0.048	1.0		mg/L	5	9/9/2019 2:32:30 PM	R6278C
<b>EPA METHOD 7470: MERCURY</b>								
Analyst: <b>rde</b>								
Mercury	0.000055	0.000038	0.00020	J	mg/L	1	9/12/2019 2:03:31 PM	47428
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>								
Analyst: <b>bcv</b>								
Arsenic	ND	0.015	0.020		mg/L	1	9/5/2019 2:17:07 PM	47071
Barium	0.059	0.0012	0.020		mg/L	1	9/5/2019 2:17:07 PM	47071
Cadmium	ND	0.00055	0.0020		mg/L	1	9/5/2019 2:17:07 PM	47071
Chromium	ND	0.00086	0.0060		mg/L	1	9/5/2019 2:17:07 PM	47071
Lead	ND	0.0035	0.0050		mg/L	1	9/5/2019 2:17:07 PM	47071
Selenium	ND	0.035	0.050		mg/L	1	9/5/2019 2:17:07 PM	47071
Silver	0.0086	0.00055	0.0050		mg/L	1	9/5/2019 2:17:07 PM	47071
<b>EPA METHOD 8260B: VOLATILES</b>								
Analyst: <b>RAA</b>								
Benzene	ND	0.17	1.0		µg/L	1	8/27/2019 4:57:24 PM	R6245E
Toluene	ND	0.35	1.0		µg/L	1	8/27/2019 4:57:24 PM	R6245E
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/27/2019 4:57:24 PM	R6245E
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	8/27/2019 4:57:24 PM	R6245E
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/27/2019 4:57:24 PM	R6245E
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/27/2019 4:57:24 PM	R6245E
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/27/2019 4:57:24 PM	R6245E
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/27/2019 4:57:24 PM	R6245E
Naphthalene	ND	0.28	2.0		µg/L	1	8/27/2019 4:57:24 PM	R6245E
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/27/2019 4:57:24 PM	R6245E
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/27/2019 4:57:24 PM	R6245E
Acetone	ND	1.2	10		µg/L	1	8/27/2019 4:57:24 PM	R6245E
Bromobenzene	ND	0.24	1.0		µg/L	1	8/27/2019 4:57:24 PM	R6245E
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/27/2019 4:57:24 PM	R6245E
Bromoform	ND	0.29	1.0		µg/L	1	8/27/2019 4:57:24 PM	R6245E
Bromomethane	ND	0.27	3.0		µg/L	1	8/27/2019 4:57:24 PM	R6245E

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**Qualifiers:**

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

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

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-27

Project: 2019 Annual GW Sampling Event

Collection Date: 8/22/2019 8:00:00 AM

Lab ID: 1908E25-002

Matrix: AQUEOUS

Received Date: 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: RAA	
2-Butanone	ND	2.1	10		µg/L	1	8/27/2019 4:57:24 PM	R62453
Carbon disulfide	ND	0.45	10		µg/L	1	8/27/2019 4:57:24 PM	R62453
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
Chloroethane	ND	0.18	2.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
Chloroform	ND	0.12	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
Chloromethane	ND	0.32	3.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
Dibromomethane	ND	0.21	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
2-Hexanone	ND	1.5	10		µg/L	1	8/27/2019 4:57:24 PM	R62453
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/27/2019 4:57:24 PM	R62453
Methylene Chloride	ND	0.15	3.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
Styrene	ND	0.19	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453

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**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E25

Date Reported: 9/30/2019

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

**Client Sample ID:** MW-27

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019 8:00:00 AM

**Lab ID:** 1908E25-002

**Matrix:** AQUEOUS

**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: RAA
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/27/2019 4:57:24 PM	R62453
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/27/2019 4:57:24 PM	R62453
Surr: 1,2-Dichloroethane-d4	96.2	0	70-130		%Rec	1	8/27/2019 4:57:24 PM	R62453
Surr: 4-Bromofluorobenzene	98.6	0	70-130		%Rec	1	8/27/2019 4:57:24 PM	R62453
Surr: Dibromofluoromethane	99.1	0	70-130		%Rec	1	8/27/2019 4:57:24 PM	R62453
Surr: Toluene-d8	100	0	70-130		%Rec	1	8/27/2019 4:57:24 PM	R62453
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: RAA
Gasoline Range Organics (GRO)	ND	0.031	0.050		mg/L	1	8/27/2019 4:57:24 PM	GW624
Surr: BFB	99.6	0	70-130		%Rec	1	8/27/2019 4:57:24 PM	GW624
<b>CARBON DIOXIDE</b>								Analyst: JRR
Total Carbon Dioxide	230	0	1.0	H	mg CO2/	1	8/28/2019 10:34:42 PM	R62496
<b>SM2510B: SPECIFIC CONDUCTANCE</b>								Analyst: JRR
Conductivity	7300	5.0	5.0		µmhos/c	1	8/28/2019 10:34:42 PM	R62496
<b>SM2320B: ALKALINITY</b>								Analyst: JRR
Bicarbonate (As CaCO3)	250.6	20.00	20.00		mg/L Ca	1	8/28/2019 10:34:42 PM	R62496
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	8/28/2019 10:34:42 PM	R62496
Total Alkalinity (as CaCO3)	250.6	20.00	20.00		mg/L Ca	1	8/28/2019 10:34:42 PM	R62496
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>								Analyst: JMT
Total Dissolved Solids	4990	200	200	*D	mg/L	1	8/29/2019 1:58:00 PM	47121

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

**Qualifiers:**

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- D Sample Diluted Due to Matrix
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- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E25

Date Reported: 9/30/2019

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

**Client Sample ID:** MW-38

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019 8:45:00 AM

**Lab ID:** 1908E25-003

**Matrix:** AQUEOUS

**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
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**EPA METHOD 8015D: DIESEL RANGE**

Analyst: **JME**

Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	8/28/2019 11:55:33 PM	47076
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	8/28/2019 11:55:33 PM	47076
Surr: DNOP	129	0	52.7-168		%Rec	1	8/28/2019 11:55:33 PM	47076

**EPA METHOD 300.0: ANIONS**

Analyst: **CAS**

Fluoride	0.61	0.073	0.50		mg/L	5	9/9/2019 11:58:05 AM	R6278C
Chloride	170	10	10		mg/L	20	9/9/2019 12:10:56 PM	R6278C
Bromide	2.3	0.089	0.50		mg/L	5	9/9/2019 11:58:05 AM	R6278C
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	9/9/2019 11:58:05 AM	R6278C
Sulfate	13	0.33	2.5		mg/L	5	9/9/2019 11:58:05 AM	R6278C
Nitrate+Nitrite as N	0.097	0.048	1.0	J	mg/L	5	9/9/2019 2:45:22 PM	R6278C

**EPA METHOD 7470: MERCURY**

Analyst: **rde**

Mercury	0.000044	0.000038	0.00020	J	mg/L	1	9/12/2019 2:10:12 PM	47428
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**EPA METHOD 6010B: DISSOLVED METALS**

Analyst: **bcv**

Arsenic	ND	0.019	0.020		mg/L	1	9/9/2019 12:32:32 PM	A62764
Barium	0.55	0.00056	0.020		mg/L	1	9/9/2019 9:45:54 AM	A62764
Cadmium	ND	0.00058	0.0020		mg/L	1	9/9/2019 9:45:54 AM	A62764
Calcium	130	0.30	5.0		mg/L	5	9/9/2019 9:47:43 AM	A62764
Chromium	ND	0.0012	0.0060		mg/L	1	9/9/2019 9:45:54 AM	A62764
Copper	ND	0.0023	0.0060		mg/L	1	9/9/2019 9:45:54 AM	A62764
Iron	0.18	0.0054	0.020		mg/L	1	9/9/2019 9:45:54 AM	A62764
Lead	ND	0.0048	0.0050		mg/L	1	9/9/2019 9:45:54 AM	A62764
Magnesium	21	0.061	1.0		mg/L	1	9/9/2019 9:45:54 AM	A62764
Manganese	2.8	0.0013	0.010		mg/L	5	9/9/2019 9:47:43 AM	A62764
Potassium	2.3	0.11	1.0		mg/L	1	9/9/2019 9:45:54 AM	A62764
Selenium	ND	0.041	0.050		mg/L	1	9/9/2019 9:45:54 AM	A62764
Silver	0.0018	0.0013	0.0050	J	mg/L	1	9/9/2019 9:45:54 AM	A62764
Sodium	220	1.2	5.0		mg/L	5	9/9/2019 9:47:43 AM	A62764
Uranium	ND	0.062	0.10		mg/L	1	9/9/2019 9:45:54 AM	A62764
Zinc	0.025	0.0026	0.020		mg/L	1	9/9/2019 9:45:54 AM	A62764

**EPA 6010B: TOTAL RECOVERABLE METALS**

Analyst: **bcv**

Arsenic	ND	0.015	0.020		mg/L	1	9/5/2019 2:18:47 PM	47071
Barium	0.56	0.0012	0.020		mg/L	1	9/5/2019 2:18:47 PM	47071
Cadmium	ND	0.00055	0.0020		mg/L	1	9/5/2019 2:18:47 PM	47071
Chromium	0.0070	0.00086	0.0060		mg/L	1	9/5/2019 2:18:47 PM	47071
Lead	ND	0.0035	0.0050		mg/L	1	9/5/2019 2:18:47 PM	47071
Selenium	ND	0.035	0.050		mg/L	1	9/5/2019 2:18:47 PM	47071
Silver	ND	0.00055	0.0050		mg/L	1	9/5/2019 2:18:47 PM	47071

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

**Qualifiers:**

- \* Value exceeds Maximum Contaminant Level.
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- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix

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- E Value above quantitation range
- J Analyte detected below quantitation limits
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- RL Reporting Limit

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-38

Project: 2019 Annual GW Sampling Event

Collection Date: 8/22/2019 8:45:00 AM

Lab ID: 1908E25-003

Matrix: AQUEOUS

Received Date: 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8270C: SEMIVOLATILES</b>							Analyst: DAM	
Acenaphthene	ND	3.0	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Acenaphthylene	ND	2.4	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Aniline	ND	3.6	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Anthracene	ND	2.7	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Azobenzene	ND	3.3	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Benz(a)anthracene	ND	3.6	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Benzo(a)pyrene	ND	3.5	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Benzo(b)fluoranthene	ND	3.4	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Benzo(g,h,i)perylene	ND	2.2	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Benzo(k)fluoranthene	ND	2.9	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Benzoic acid	ND	11	20		µg/L	1	9/5/2019 3:38:26 PM	47113
Benzyl alcohol	ND	2.4	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Bis(2-chloroethoxy)methane	ND	2.6	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Bis(2-chloroethyl)ether	ND	3.2	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Bis(2-ethylhexyl)phthalate	ND	4.3	10		µg/L	1	9/5/2019 3:38:26 PM	47113
4-Bromophenyl phenyl ether	ND	3.0	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Butyl benzyl phthalate	ND	3.3	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Carbazole	ND	2.9	10		µg/L	1	9/5/2019 3:38:26 PM	47113
4-Chloro-3-methylphenol	ND	3.4	10		µg/L	1	9/5/2019 3:38:26 PM	47113
4-Chloroaniline	ND	2.3	10		µg/L	1	9/5/2019 3:38:26 PM	47113
2-Chloronaphthalene	ND	3.1	10		µg/L	1	9/5/2019 3:38:26 PM	47113
2-Chlorophenol	ND	2.7	10		µg/L	1	9/5/2019 3:38:26 PM	47113
4-Chlorophenyl phenyl ether	ND	2.4	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Chrysene	ND	2.8	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Di-n-butyl phthalate	ND	2.7	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Di-n-octyl phthalate	ND	3.5	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Dibenz(a,h)anthracene	ND	3.0	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Dibenzofuran	ND	3.2	10		µg/L	1	9/5/2019 3:38:26 PM	47113
1,2-Dichlorobenzene	ND	4.8	10		µg/L	1	9/5/2019 3:38:26 PM	47113
1,3-Dichlorobenzene	ND	5.3	10		µg/L	1	9/5/2019 3:38:26 PM	47113
1,4-Dichlorobenzene	ND	4.4	10		µg/L	1	9/5/2019 3:38:26 PM	47113
3,3'-Dichlorobenzidine	ND	2.8	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Diethyl phthalate	ND	2.9	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Dimethyl phthalate	ND	3.2	10		µg/L	1	9/5/2019 3:38:26 PM	47113
2,4-Dichlorophenol	ND	2.9	20		µg/L	1	9/5/2019 3:38:26 PM	47113
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	9/5/2019 3:38:26 PM	47113
4,6-Dinitro-2-methylphenol	ND	2.9	20		µg/L	1	9/5/2019 3:38:26 PM	47113
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	9/5/2019 3:38:26 PM	47113

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E25

Date Reported: 9/30/2019

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

**Client Sample ID:** MW-38

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019 8:45:00 AM

**Lab ID:** 1908E25-003

**Matrix:** AQUEOUS

**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8270C: SEMIVOLATILES</b>								
							Analyst: <b>DAM</b>	
2,4-Dinitrotoluene	ND	3.8	10		µg/L	1	9/5/2019 3:38:26 PM	47113
2,6-Dinitrotoluene	ND	2.4	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Fluoranthene	ND	2.4	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Fluorene	ND	2.9	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Hexachlorobenzene	ND	3.1	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Hexachlorobutadiene	ND	4.7	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Hexachlorocyclopentadiene	ND	3.6	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Hexachloroethane	ND	4.8	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Indeno(1,2,3-cd)pyrene	ND	2.7	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Isophorone	ND	3.0	10		µg/L	1	9/5/2019 3:38:26 PM	47113
1-Methylnaphthalene	ND	3.1	10		µg/L	1	9/5/2019 3:38:26 PM	47113
2-Methylnaphthalene	ND	3.0	10		µg/L	1	9/5/2019 3:38:26 PM	47113
2-Methylphenol	ND	2.9	10		µg/L	1	9/5/2019 3:38:26 PM	47113
3+4-Methylphenol	ND	3.6	10		µg/L	1	9/5/2019 3:38:26 PM	47113
N-Nitrosodi-n-propylamine	ND	6.5	10		µg/L	1	9/5/2019 3:38:26 PM	47113
N-Nitrosodimethylamine	ND	5.0	10		µg/L	1	9/5/2019 3:38:26 PM	47113
N-Nitrosodiphenylamine	ND	2.4	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Naphthalene	ND	4.1	10		µg/L	1	9/5/2019 3:38:26 PM	47113
2-Nitroaniline	ND	3.2	10		µg/L	1	9/5/2019 3:38:26 PM	47113
3-Nitroaniline	ND	3.2	10		µg/L	1	9/5/2019 3:38:26 PM	47113
4-Nitroaniline	ND	2.7	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Nitrobenzene	ND	2.8	10		µg/L	1	9/5/2019 3:38:26 PM	47113
2-Nitrophenol	ND	3.0	10		µg/L	1	9/5/2019 3:38:26 PM	47113
4-Nitrophenol	ND	7.6	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Pentachlorophenol	ND	2.7	20		µg/L	1	9/5/2019 3:38:26 PM	47113
Phenanthrene	ND	2.8	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Phenol	ND	8.0	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Pyrene	ND	2.5	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Pyridine	ND	9.6	10		µg/L	1	9/5/2019 3:38:26 PM	47113
1,2,4-Trichlorobenzene	ND	4.0	10		µg/L	1	9/5/2019 3:38:26 PM	47113
2,4,5-Trichlorophenol	ND	3.0	10		µg/L	1	9/5/2019 3:38:26 PM	47113
2,4,6-Trichlorophenol	ND	2.3	10		µg/L	1	9/5/2019 3:38:26 PM	47113
Surr: 2-Fluorophenol	42.7	0	15-101		%Rec	1	9/5/2019 3:38:26 PM	47113
Surr: Phenol-d5	34.6	0	15-84.6		%Rec	1	9/5/2019 3:38:26 PM	47113
Surr: 2,4,6-Tribromophenol	53.3	0	27.8-112		%Rec	1	9/5/2019 3:38:26 PM	47113
Surr: Nitrobenzene-d5	81.0	0	33-113		%Rec	1	9/5/2019 3:38:26 PM	47113
Surr: 2-Fluorobiphenyl	65.8	0	26.6-107		%Rec	1	9/5/2019 3:38:26 PM	47113
Surr: 4-Terphenyl-d14	69.3	0	18.7-148		%Rec	1	9/5/2019 3:38:26 PM	47113

**EPA METHOD 8260B: VOLATILES**

Analyst: **RAA**

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E25

Date Reported: 9/30/2019

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-38

Project: 2019 Annual GW Sampling Event

Collection Date: 8/22/2019 8:45:00 AM

Lab ID: 1908E25-003

Matrix: AQUEOUS

Received Date: 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: RAA
Benzene	ND	0.17	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Toluene	ND	0.35	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Methyl tert-butyl ether (MTBE)	0.65	0.46	1.0	J	µg/L	1	8/27/2019 5:26:29 PM	R62453
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Naphthalene	ND	0.28	2.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Acetone	ND	1.2	10		µg/L	1	8/27/2019 5:26:29 PM	R62453
Bromobenzene	ND	0.24	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Bromoform	ND	0.29	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Bromomethane	ND	0.27	3.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
2-Butanone	ND	2.1	10		µg/L	1	8/27/2019 5:26:29 PM	R62453
Carbon disulfide	ND	0.45	10		µg/L	1	8/27/2019 5:26:29 PM	R62453
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Chloroethane	ND	0.18	2.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Chloroform	ND	0.12	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Chloromethane	ND	0.32	3.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Dibromomethane	ND	0.21	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/27/2019 5:26:29 PM	R62453

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E25

Date Reported: 9/30/2019

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

**Client Sample ID:** MW-38

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019 8:45:00 AM

**Lab ID:** 1908E25-003

**Matrix:** AQUEOUS

**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
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**EPA METHOD 8260B: VOLATILES**

Analyst: RAA

1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
2-Hexanone	ND	1.5	10		µg/L	1	8/27/2019 5:26:29 PM	R62453
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/27/2019 5:26:29 PM	R62453
Methylene Chloride	ND	0.15	3.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Styrene	ND	0.19	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
tert-Butylbenzene	0.57	0.21	1.0	J	µg/L	1	8/27/2019 5:26:29 PM	R62453
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/27/2019 5:26:29 PM	R62453
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/27/2019 5:26:29 PM	R62453
Surr: 1,2-Dichloroethane-d4	92.6	0	70-130		%Rec	1	8/27/2019 5:26:29 PM	R62453
Surr: 4-Bromofluorobenzene	95.3	0	70-130		%Rec	1	8/27/2019 5:26:29 PM	R62453
Surr: Dibromofluoromethane	98.8	0	70-130		%Rec	1	8/27/2019 5:26:29 PM	R62453
Surr: Toluene-d8	101	0	70-130		%Rec	1	8/27/2019 5:26:29 PM	R62453

**EPA METHOD 8015D: GASOLINE RANGE**

Analyst: RAA

Gasoline Range Organics (GRO)	0.052	0.031	0.050		mg/L	1	8/27/2019 5:26:29 PM	GW624
Surr: BFB	98.9	0	70-130		%Rec	1	8/27/2019 5:26:29 PM	GW624

**CARBON DIOXIDE**

Analyst: JRR

Total Carbon Dioxide	620	0	1.0	H	mg CO2/	1	8/26/2019 7:37:53 PM	R62429
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**SM2510B: SPECIFIC CONDUCTANCE**

Analyst: JRR

Conductivity	1700	5.0	5.0		µmhos/c	1	8/26/2019 7:37:53 PM	R62429
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Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

**Qualifiers:**

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

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

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-38**Project:** 2019 Annual GW Sampling Event**Collection Date:** 8/22/2019 8:45:00 AM**Lab ID:** 1908E25-003**Matrix:** AQUEOUS**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>	
Bicarbonate (As CaCO3)	686.8	20.00	20.00		mg/L Ca	1	8/26/2019 7:37:53 PM	R62429
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	8/26/2019 7:37:53 PM	R62429
Total Alkalinity (as CaCO3)	686.8	20.00	20.00		mg/L Ca	1	8/26/2019 7:37:53 PM	R62429
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>JMT</b>	
Total Dissolved Solids	875	100	100	*D	mg/L	1	8/29/2019 1:58:00 PM	47121

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

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1908E25

Date Reported: 9/30/2019

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

**Client Sample ID:** Trip Blank

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019

**Lab ID:** 1908E25-004

**Matrix:** TRIP BLANK

**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: RAA
Benzene	ND	0.17	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Toluene	ND	0.35	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Naphthalene	ND	0.28	2.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Acetone	ND	1.2	10		µg/L	1	8/27/2019 5:55:36 PM	R62453
Bromobenzene	ND	0.24	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Bromoform	ND	0.29	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Bromomethane	ND	0.27	3.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
2-Butanone	ND	2.1	10		µg/L	1	8/27/2019 5:55:36 PM	R62453
Carbon disulfide	ND	0.45	10		µg/L	1	8/27/2019 5:55:36 PM	R62453
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Chloroethane	ND	0.18	2.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Chloroform	ND	0.12	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Chloromethane	ND	0.32	3.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Dibromomethane	ND	0.21	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/27/2019 5:55:36 PM	R62453

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E25

Date Reported: 9/30/2019

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

**Client Sample ID:** Trip Blank

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019

**Lab ID:** 1908E25-004

**Matrix:** TRIP BLANK

**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: RAA
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
2-Hexanone	ND	1.5	10		µg/L	1	8/27/2019 5:55:36 PM	R62453
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/27/2019 5:55:36 PM	R62453
Methylene Chloride	0.18	0.15	3.0	J	µg/L	1	8/27/2019 5:55:36 PM	R62453
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Styrene	ND	0.19	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/27/2019 5:55:36 PM	R62453
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/27/2019 5:55:36 PM	R62453
Surr: 1,2-Dichloroethane-d4	95.6	0	70-130		%Rec	1	8/27/2019 5:55:36 PM	R62453
Surr: 4-Bromofluorobenzene	93.3	0	70-130		%Rec	1	8/27/2019 5:55:36 PM	R62453
Surr: Dibromofluoromethane	104	0	70-130		%Rec	1	8/27/2019 5:55:36 PM	R62453
Surr: Toluene-d8	105	0	70-130		%Rec	1	8/27/2019 5:55:36 PM	R62453
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: RAA
Gasoline Range Organics (GRO)	ND	0.031	0.050		mg/L	1	8/27/2019 5:55:36 PM	GW624
Surr: BFB	97.9	0	70-130		%Rec	1	8/27/2019 5:55:36 PM	GW624

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E25

Date Reported: 9/30/2019

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

**Client Sample ID:** MW-37

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019 9:10:00 AM

**Lab ID:** 1908E25-005

**Matrix:** AQUEOUS

**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>								
Analyst: <b>JME</b>								
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	8/29/2019 12:20:19 AM	47076
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	8/29/2019 12:20:19 AM	47076
Surr: DNOP	132	0	52.7-168		%Rec	1	8/29/2019 12:20:19 AM	47076
<b>EPA METHOD 300.0: ANIONS</b>								
Analyst: <b>CAS</b>								
Fluoride	0.51	0.073	0.50		mg/L	5	9/9/2019 12:23:48 PM	R6278C
Chloride	220	10	10		mg/L	20	9/9/2019 12:36:41 PM	R6278C
Bromide	3.0	0.089	0.50		mg/L	5	9/9/2019 12:23:48 PM	R6278C
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	9/9/2019 12:23:48 PM	R6278C
Sulfate	1200	3.3	25	*	mg/L	50	9/10/2019 5:54:09 PM	R6280C
Nitrate+Nitrite as N	0.18	0.048	1.0	J	mg/L	5	9/9/2019 2:58:14 PM	R6278C
<b>EPA METHOD 7470: MERCURY</b>								
Analyst: <b>rde</b>								
Mercury	0.000070	0.000038	0.00020	J	mg/L	1	9/12/2019 2:12:28 PM	47428
<b>EPA METHOD 6010B: DISSOLVED METALS</b>								
Analyst: <b>bcv</b>								
Arsenic	ND	0.019	0.020		mg/L	1	9/9/2019 12:34:22 PM	A62764
Barium	0.053	0.00056	0.020		mg/L	1	9/9/2019 9:49:32 AM	A62764
Cadmium	ND	0.00058	0.0020		mg/L	1	9/9/2019 9:49:32 AM	A62764
Calcium	220	0.30	5.0		mg/L	5	9/9/2019 9:51:12 AM	A62764
Chromium	ND	0.0012	0.0060		mg/L	1	9/9/2019 9:49:32 AM	A62764
Copper	0.0024	0.0023	0.0060	J	mg/L	1	9/9/2019 9:49:32 AM	A62764
Iron	0.63	0.0054	0.020		mg/L	1	9/9/2019 9:49:32 AM	A62764
Lead	ND	0.0048	0.0050		mg/L	1	9/9/2019 9:49:32 AM	A62764
Magnesium	41	0.061	1.0		mg/L	1	9/9/2019 9:49:32 AM	A62764
Manganese	2.0	0.0013	0.010		mg/L	5	9/9/2019 9:51:12 AM	A62764
Potassium	3.6	0.11	1.0		mg/L	1	9/9/2019 9:49:32 AM	A62764
Selenium	ND	0.041	0.050		mg/L	1	9/9/2019 9:49:32 AM	A62764
Silver	0.0030	0.0013	0.0050	J	mg/L	1	9/9/2019 9:49:32 AM	A62764
Sodium	530	2.4	10		mg/L	10	9/9/2019 12:36:04 PM	A62764
Uranium	ND	0.062	0.10		mg/L	1	9/9/2019 9:49:32 AM	A62764
Zinc	0.015	0.0026	0.020	J	mg/L	1	9/9/2019 9:49:32 AM	A62764
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>								
Analyst: <b>bcv</b>								
Arsenic	ND	0.015	0.020		mg/L	1	9/5/2019 2:22:15 PM	47071
Barium	0.17	0.0012	0.020		mg/L	1	9/5/2019 2:22:15 PM	47071
Cadmium	ND	0.00055	0.0020		mg/L	1	9/5/2019 2:22:15 PM	47071
Chromium	0.0040	0.00086	0.0060	J	mg/L	1	9/5/2019 2:22:15 PM	47071
Lead	ND	0.0035	0.0050		mg/L	1	9/5/2019 2:22:15 PM	47071
Selenium	ND	0.035	0.050		mg/L	1	9/5/2019 2:22:15 PM	47071
Silver	0.0024	0.00055	0.0050	J	mg/L	1	9/5/2019 2:22:15 PM	47071

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E25

Date Reported: 9/30/2019

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

**Client Sample ID:** MW-37

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019 9:10:00 AM

**Lab ID:** 1908E25-005

**Matrix:** AQUEOUS

**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: RAA
Benzene	ND	0.17	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Toluene	ND	0.35	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Naphthalene	ND	0.28	2.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Acetone	ND	1.2	10		µg/L	1	8/27/2019 6:24:43 PM	R62453
Bromobenzene	ND	0.24	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Bromoform	ND	0.29	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Bromomethane	ND	0.27	3.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
2-Butanone	ND	2.1	10		µg/L	1	8/27/2019 6:24:43 PM	R62453
Carbon disulfide	ND	0.45	10		µg/L	1	8/27/2019 6:24:43 PM	R62453
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Chloroethane	ND	0.18	2.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Chloroform	ND	0.12	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Chloromethane	ND	0.32	3.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Dibromomethane	ND	0.21	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/27/2019 6:24:43 PM	R62453

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E25

Date Reported: 9/30/2019

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-37

Project: 2019 Annual GW Sampling Event

Collection Date: 8/22/2019 9:10:00 AM

Lab ID: 1908E25-005

Matrix: AQUEOUS

Received Date: 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: RAA
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
2-Hexanone	ND	1.5	10		µg/L	1	8/27/2019 6:24:43 PM	R62453
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/27/2019 6:24:43 PM	R62453
Methylene Chloride	ND	0.15	3.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Styrene	ND	0.19	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/27/2019 6:24:43 PM	R62453
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/27/2019 6:24:43 PM	R62453
Surr: 1,2-Dichloroethane-d4	93.2	0	70-130		%Rec	1	8/27/2019 6:24:43 PM	R62453
Surr: 4-Bromofluorobenzene	96.3	0	70-130		%Rec	1	8/27/2019 6:24:43 PM	R62453
Surr: Dibromofluoromethane	99.4	0	70-130		%Rec	1	8/27/2019 6:24:43 PM	R62453
Surr: Toluene-d8	99.1	0	70-130		%Rec	1	8/27/2019 6:24:43 PM	R62453
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: RAA
Gasoline Range Organics (GRO)	ND	0.031	0.050		mg/L	1	8/27/2019 6:24:43 PM	GW624
Surr: BFB	97.5	0	70-130		%Rec	1	8/27/2019 6:24:43 PM	GW624
<b>CARBON DIOXIDE</b>								Analyst: JRR
Total Carbon Dioxide	520	0	1.0	H	mg CO2/	1	8/26/2019 8:03:18 PM	R62429
<b>SM2510B: SPECIFIC CONDUCTANCE</b>								Analyst: JRR
Conductivity	3600	5.0	5.0		µmhos/c	1	8/26/2019 8:03:18 PM	R62429

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

**Qualifiers:**

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

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

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-37**Project:** 2019 Annual GW Sampling Event**Collection Date:** 8/22/2019 9:10:00 AM**Lab ID:** 1908E25-005**Matrix:** AQUEOUS**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>	
Bicarbonate (As CaCO3)	572.6	20.00	20.00		mg/L Ca	1	8/26/2019 8:03:18 PM	R62429
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	8/26/2019 8:03:18 PM	R62429
Total Alkalinity (as CaCO3)	572.6	20.00	20.00		mg/L Ca	1	8/26/2019 8:03:18 PM	R62429
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>JMT</b>	
Total Dissolved Solids	2480	100	100	*D	mg/L	1	8/29/2019 1:58:00 PM	47121

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E25

Date Reported: 9/30/2019

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

**Client Sample ID:** MW-35

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019 9:40:00 AM

**Lab ID:** 1908E25-006

**Matrix:** AQUEOUS

**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
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**EPA METHOD 8015D: DIESEL RANGE**

Analyst: **JME**

Diesel Range Organics (DRO)	0.26	0.13	0.40	J	mg/L	1	8/29/2019 12:44:57 AM	47076
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	8/29/2019 12:44:57 AM	47076
Surr: DNOP	127	0	52.7-168		%Rec	1	8/29/2019 12:44:57 AM	47076

**EPA METHOD 300.0: ANIONS**

Analyst: **CAS**

Fluoride	0.61	0.073	0.50		mg/L	5	9/9/2019 12:49:33 PM	R6278C
Chloride	210	10	10		mg/L	20	9/9/2019 1:02:24 PM	R6278C
Bromide	2.9	0.089	0.50		mg/L	5	9/9/2019 12:49:33 PM	R6278C
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	9/9/2019 12:49:33 PM	R6278C
Sulfate	91	0.33	2.5		mg/L	5	9/9/2019 12:49:33 PM	R6278C
Nitrate+Nitrite as N	ND	0.048	1.0		mg/L	5	9/9/2019 3:11:06 PM	R6278C

**EPA METHOD 7470: MERCURY**

Analyst: **rde**

Mercury	0.00012	0.000038	0.00020	J	mg/L	1	9/12/2019 2:14:43 PM	47428
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**EPA METHOD 6010B: DISSOLVED METALS**

Analyst: **bcv**

Arsenic	0.037	0.019	0.020		mg/L	1	9/9/2019 9:58:36 AM	A62764
Barium	1.1	0.0028	0.10		mg/L	5	9/9/2019 10:00:19 AM	A62764
Cadmium	ND	0.00058	0.0020		mg/L	1	9/9/2019 9:58:36 AM	A62764
Calcium	140	0.30	5.0		mg/L	5	9/9/2019 10:00:19 AM	A62764
Chromium	ND	0.0012	0.0060		mg/L	1	9/9/2019 9:58:36 AM	A62764
Copper	ND	0.0023	0.0060		mg/L	1	9/9/2019 9:58:36 AM	A62764
Iron	1.9	0.027	0.10		mg/L	5	9/9/2019 10:00:19 AM	A62764
Lead	0.0061	0.0048	0.0050		mg/L	1	9/9/2019 9:58:36 AM	A62764
Magnesium	24	0.061	1.0		mg/L	1	9/9/2019 9:58:36 AM	A62764
Manganese	2.4	0.0013	0.010		mg/L	5	9/9/2019 10:00:19 AM	A62764
Potassium	3.0	0.11	1.0		mg/L	1	9/9/2019 9:58:36 AM	A62764
Selenium	ND	0.041	0.050		mg/L	1	9/9/2019 9:58:36 AM	A62764
Silver	0.0017	0.0013	0.0050	J	mg/L	1	9/9/2019 9:58:36 AM	A62764
Sodium	400	1.2	5.0		mg/L	5	9/9/2019 10:00:19 AM	A62764
Uranium	ND	0.062	0.10		mg/L	1	9/9/2019 9:58:36 AM	A62764
Zinc	0.021	0.0026	0.020		mg/L	1	9/9/2019 9:58:36 AM	A62764

**EPA 6010B: TOTAL RECOVERABLE METALS**

Analyst: **bcv**

Arsenic	0.016	0.015	0.020	J	mg/L	1	9/9/2019 8:11:09 AM	47071
Barium	1.2	0.0061	0.10		mg/L	5	9/9/2019 8:12:48 AM	47071
Cadmium	ND	0.00055	0.0020		mg/L	1	9/5/2019 2:30:53 PM	47071
Chromium	0.0038	0.00086	0.0060	J	mg/L	1	9/5/2019 2:30:53 PM	47071
Lead	0.0042	0.0035	0.0050	J	mg/L	1	9/5/2019 2:30:53 PM	47071
Selenium	ND	0.035	0.050		mg/L	1	9/9/2019 8:11:09 AM	47071
Silver	0.00077	0.00055	0.0050	J	mg/L	1	9/5/2019 2:30:53 PM	47071

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E25

Date Reported: 9/30/2019

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

**Client Sample ID:** MW-35

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019 9:40:00 AM

**Lab ID:** 1908E25-006

**Matrix:** AQUEOUS

**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								
Analyst: RAA								
Benzene	ND	0.17	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Toluene	ND	0.35	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Methyl tert-butyl ether (MTBE)	0.62	0.46	1.0	J	µg/L	1	8/27/2019 6:53:52 PM	R62453
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Naphthalene	ND	0.28	2.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Acetone	4.7	1.2	10	J	µg/L	1	8/27/2019 6:53:52 PM	R62453
Bromobenzene	ND	0.24	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Bromoform	ND	0.29	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Bromomethane	ND	0.27	3.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
2-Butanone	ND	2.1	10		µg/L	1	8/27/2019 6:53:52 PM	R62453
Carbon disulfide	ND	0.45	10		µg/L	1	8/27/2019 6:53:52 PM	R62453
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Chloroethane	ND	0.18	2.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Chloroform	ND	0.12	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Chloromethane	ND	0.32	3.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Dibromomethane	ND	0.21	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/27/2019 6:53:52 PM	R62453

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E25

Date Reported: 9/30/2019

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

**Client Sample ID:** MW-35

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019 9:40:00 AM

**Lab ID:** 1908E25-006

**Matrix:** AQUEOUS

**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: RAA
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
2-Hexanone	ND	1.5	10		µg/L	1	8/27/2019 6:53:52 PM	R62453
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/27/2019 6:53:52 PM	R62453
Methylene Chloride	ND	0.15	3.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Styrene	ND	0.19	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
tert-Butylbenzene	1.4	0.21	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/27/2019 6:53:52 PM	R62453
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/27/2019 6:53:52 PM	R62453
Surr: 1,2-Dichloroethane-d4	98.2	0	70-130		%Rec	1	8/27/2019 6:53:52 PM	R62453
Surr: 4-Bromofluorobenzene	96.6	0	70-130		%Rec	1	8/27/2019 6:53:52 PM	R62453
Surr: Dibromofluoromethane	101	0	70-130		%Rec	1	8/27/2019 6:53:52 PM	R62453
Surr: Toluene-d8	102	0	70-130		%Rec	1	8/27/2019 6:53:52 PM	R62453
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: RAA
Gasoline Range Organics (GRO)	0.35	0.031	0.050		mg/L	1	8/27/2019 6:53:52 PM	GW624
Surr: BFB	101	0	70-130		%Rec	1	8/27/2019 6:53:52 PM	GW624
<b>CARBON DIOXIDE</b>								Analyst: JRR
Total Carbon Dioxide	920	0	1.0	H	mg CO2/	1	8/26/2019 8:25:09 PM	R62429
<b>SM2510B: SPECIFIC CONDUCTANCE</b>								Analyst: JRR
Conductivity	2500	5.0	5.0		µmhos/c	1	8/26/2019 8:25:09 PM	R62429

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

**Analytical Report**

Lab Order **1908E25**

Date Reported: **9/30/2019**

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

**Client Sample ID:** MW-35

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019 9:40:00 AM

**Lab ID:** 1908E25-006

**Matrix:** AQUEOUS

**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
							Analyst: <b>JRR</b>	
<b>SM2320B: ALKALINITY</b>								
Bicarbonate (As CaCO3)	1005	20.00	20.00		mg/L Ca	1	8/26/2019 8:25:09 PM	R62429
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	8/26/2019 8:25:09 PM	R62429
Total Alkalinity (as CaCO3)	1005	20.00	20.00		mg/L Ca	1	8/26/2019 8:25:09 PM	R62429
							Analyst: <b>JMT</b>	
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>								
Total Dissolved Solids	1450	100	100	*D	mg/L	1	8/29/2019 1:58:00 PM	47121

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

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-12

Project: 2019 Annual GW Sampling Event

Collection Date: 8/22/2019 10:05:00 AM

Lab ID: 1908E25-007

Matrix: AQUEOUS

Received Date: 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>								Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	8/29/2019 1:09:40 AM	47076
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	8/29/2019 1:09:40 AM	47076
Surr: DNOP	129	0	52.7-168		%Rec	1	8/29/2019 1:09:40 AM	47076
<b>EPA METHOD 300.0: ANIONS</b>								Analyst: <b>CAS</b>
Fluoride	0.34	0.073	0.50	J	mg/L	5	9/9/2019 1:15:16 PM	R6278C
Chloride	5.7	2.5	2.5		mg/L	5	9/9/2019 1:15:16 PM	R6278C
Bromide	ND	0.089	0.50		mg/L	5	9/9/2019 1:15:16 PM	R6278C
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	9/9/2019 1:15:16 PM	R6278C
Sulfate	57	0.33	2.5		mg/L	5	9/9/2019 1:15:16 PM	R6278C
Nitrate+Nitrite as N	0.080	0.048	1.0	J	mg/L	5	9/9/2019 3:23:59 PM	R6278C
<b>EPA METHOD 7470: MERCURY</b>								Analyst: <b>rde</b>
Mercury	0.000079	0.000038	0.00020	J	mg/L	1	9/12/2019 2:16:59 PM	47428
<b>EPA METHOD 6010B: DISSOLVED METALS</b>								Analyst: <b>bcv</b>
Arsenic	ND	0.019	0.020		mg/L	1	9/9/2019 10:02:12 AM	A62764
Barium	0.045	0.00056	0.020		mg/L	1	9/9/2019 10:02:12 AM	A62764
Cadmium	ND	0.00058	0.0020		mg/L	1	9/9/2019 10:02:12 AM	A62764
Calcium	50	0.060	1.0		mg/L	1	9/9/2019 10:02:12 AM	A62764
Chromium	0.0036	0.0012	0.0060	J	mg/L	1	9/9/2019 10:02:12 AM	A62764
Copper	ND	0.0023	0.0060		mg/L	1	9/9/2019 10:02:12 AM	A62764
Iron	0.020	0.0054	0.020	J	mg/L	1	9/9/2019 10:02:12 AM	A62764
Lead	0.0054	0.0048	0.0050		mg/L	1	9/9/2019 10:02:12 AM	A62764
Magnesium	7.3	0.061	1.0		mg/L	1	9/9/2019 10:02:12 AM	A62764
Manganese	0.0095	0.00026	0.0020		mg/L	1	9/9/2019 10:02:12 AM	A62764
Potassium	0.57	0.11	1.0	J	mg/L	1	9/9/2019 10:02:12 AM	A62764
Selenium	ND	0.041	0.050		mg/L	1	9/9/2019 10:02:12 AM	A62764
Silver	ND	0.0013	0.0050		mg/L	1	9/9/2019 10:02:12 AM	A62764
Sodium	29	0.24	1.0		mg/L	1	9/9/2019 10:02:12 AM	A62764
Uranium	ND	0.062	0.10		mg/L	1	9/9/2019 10:02:12 AM	A62764
Zinc	0.017	0.0026	0.020	J	mg/L	1	9/9/2019 10:02:12 AM	A62764
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>								Analyst: <b>bcv</b>
Arsenic	ND	0.015	0.020		mg/L	1	9/9/2019 8:14:29 AM	47071
Barium	0.071	0.0012	0.020		mg/L	1	9/5/2019 2:32:34 PM	47071
Cadmium	ND	0.00055	0.0020		mg/L	1	9/5/2019 2:32:34 PM	47071
Chromium	0.31	0.00086	0.0060		mg/L	1	9/5/2019 2:32:34 PM	47071
Lead	0.0069	0.0035	0.0050		mg/L	1	9/5/2019 2:32:34 PM	47071
Selenium	ND	0.035	0.050		mg/L	1	9/9/2019 8:14:29 AM	47071
Silver	ND	0.00055	0.0050		mg/L	1	9/5/2019 2:32:34 PM	47071

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

**Qualifiers:**

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

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

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-12

Project: 2019 Annual GW Sampling Event

Collection Date: 8/22/2019 10:05:00 AM

Lab ID: 1908E25-007

Matrix: AQUEOUS

Received Date: 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8270C: SEMIVOLATILES</b>								Analyst: DAM
Acenaphthene	ND	3.0	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Acenaphthylene	ND	2.4	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Aniline	ND	3.6	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Anthracene	ND	2.7	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Azobenzene	ND	3.3	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Benz(a)anthracene	ND	3.6	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Benzo(a)pyrene	ND	3.5	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Benzo(b)fluoranthene	ND	3.4	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Benzo(g,h,i)perylene	ND	2.2	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Benzo(k)fluoranthene	ND	2.9	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Benzoic acid	ND	11	20		µg/L	1	9/5/2019 4:08:04 PM	47113
Benzyl alcohol	ND	2.4	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Bis(2-chloroethoxy)methane	ND	2.6	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Bis(2-chloroethyl)ether	ND	3.2	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Bis(2-ethylhexyl)phthalate	ND	4.3	10		µg/L	1	9/5/2019 4:08:04 PM	47113
4-Bromophenyl phenyl ether	ND	3.0	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Butyl benzyl phthalate	ND	3.3	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Carbazole	ND	2.9	10		µg/L	1	9/5/2019 4:08:04 PM	47113
4-Chloro-3-methylphenol	ND	3.4	10		µg/L	1	9/5/2019 4:08:04 PM	47113
4-Chloroaniline	ND	2.3	10		µg/L	1	9/5/2019 4:08:04 PM	47113
2-Chloronaphthalene	ND	3.1	10		µg/L	1	9/5/2019 4:08:04 PM	47113
2-Chlorophenol	ND	2.7	10		µg/L	1	9/5/2019 4:08:04 PM	47113
4-Chlorophenyl phenyl ether	ND	2.4	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Chrysene	ND	2.8	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Di-n-butyl phthalate	ND	2.7	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Di-n-octyl phthalate	ND	3.5	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Dibenz(a,h)anthracene	ND	3.0	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Dibenzofuran	ND	3.2	10		µg/L	1	9/5/2019 4:08:04 PM	47113
1,2-Dichlorobenzene	ND	4.8	10		µg/L	1	9/5/2019 4:08:04 PM	47113
1,3-Dichlorobenzene	ND	5.3	10		µg/L	1	9/5/2019 4:08:04 PM	47113
1,4-Dichlorobenzene	ND	4.4	10		µg/L	1	9/5/2019 4:08:04 PM	47113
3,3'-Dichlorobenzidine	ND	2.8	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Diethyl phthalate	ND	2.9	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Dimethyl phthalate	ND	3.2	10		µg/L	1	9/5/2019 4:08:04 PM	47113
2,4-Dichlorophenol	ND	2.9	20		µg/L	1	9/5/2019 4:08:04 PM	47113
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	9/5/2019 4:08:04 PM	47113
4,6-Dinitro-2-methylphenol	ND	2.9	20		µg/L	1	9/5/2019 4:08:04 PM	47113
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	9/5/2019 4:08:04 PM	47113

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E25

Date Reported: 9/30/2019

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

**Client Sample ID:** MW-12

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019 10:05:00 AM

**Lab ID:** 1908E25-007

**Matrix:** AQUEOUS

**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
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**EPA METHOD 8270C: SEMIVOLATILES**

Analyst: **DAM**

2,4-Dinitrotoluene	ND	3.8	10		µg/L	1	9/5/2019 4:08:04 PM	47113
2,6-Dinitrotoluene	ND	2.4	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Fluoranthene	ND	2.4	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Fluorene	ND	2.9	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Hexachlorobenzene	ND	3.1	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Hexachlorobutadiene	ND	4.7	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Hexachlorocyclopentadiene	ND	3.6	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Hexachloroethane	ND	4.8	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Indeno(1,2,3-cd)pyrene	ND	2.7	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Isophorone	ND	3.0	10		µg/L	1	9/5/2019 4:08:04 PM	47113
1-Methylnaphthalene	ND	3.1	10		µg/L	1	9/5/2019 4:08:04 PM	47113
2-Methylnaphthalene	ND	3.0	10		µg/L	1	9/5/2019 4:08:04 PM	47113
2-Methylphenol	ND	2.9	10		µg/L	1	9/5/2019 4:08:04 PM	47113
3+4-Methylphenol	ND	3.6	10		µg/L	1	9/5/2019 4:08:04 PM	47113
N-Nitrosodi-n-propylamine	ND	6.5	10		µg/L	1	9/5/2019 4:08:04 PM	47113
N-Nitrosodimethylamine	ND	5.0	10		µg/L	1	9/5/2019 4:08:04 PM	47113
N-Nitrosodiphenylamine	ND	2.4	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Naphthalene	ND	4.1	10		µg/L	1	9/5/2019 4:08:04 PM	47113
2-Nitroaniline	ND	3.2	10		µg/L	1	9/5/2019 4:08:04 PM	47113
3-Nitroaniline	ND	3.2	10		µg/L	1	9/5/2019 4:08:04 PM	47113
4-Nitroaniline	ND	2.7	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Nitrobenzene	ND	2.8	10		µg/L	1	9/5/2019 4:08:04 PM	47113
2-Nitrophenol	ND	3.0	10		µg/L	1	9/5/2019 4:08:04 PM	47113
4-Nitrophenol	ND	7.6	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Pentachlorophenol	ND	2.7	20		µg/L	1	9/5/2019 4:08:04 PM	47113
Phenanthrene	ND	2.8	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Phenol	ND	8.0	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Pyrene	ND	2.5	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Pyridine	ND	9.6	10		µg/L	1	9/5/2019 4:08:04 PM	47113
1,2,4-Trichlorobenzene	ND	4.0	10		µg/L	1	9/5/2019 4:08:04 PM	47113
2,4,5-Trichlorophenol	ND	3.0	10		µg/L	1	9/5/2019 4:08:04 PM	47113
2,4,6-Trichlorophenol	ND	2.3	10		µg/L	1	9/5/2019 4:08:04 PM	47113
Surr: 2-Fluorophenol	51.5	0	15-101		%Rec	1	9/5/2019 4:08:04 PM	47113
Surr: Phenol-d5	40.9	0	15-84.6		%Rec	1	9/5/2019 4:08:04 PM	47113
Surr: 2,4,6-Tribromophenol	52.3	0	27.8-112		%Rec	1	9/5/2019 4:08:04 PM	47113
Surr: Nitrobenzene-d5	76.4	0	33-113		%Rec	1	9/5/2019 4:08:04 PM	47113
Surr: 2-Fluorobiphenyl	62.0	0	26.6-107		%Rec	1	9/5/2019 4:08:04 PM	47113
Surr: 4-Terphenyl-d14	63.0	0	18.7-148		%Rec	1	9/5/2019 4:08:04 PM	47113

**EPA METHOD 8260B: VOLATILES**

Analyst: **RAA**

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E25

Date Reported: 9/30/2019

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

**Client Sample ID:** MW-12

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019 10:05:00 AM

**Lab ID:** 1908E25-007

**Matrix:** AQUEOUS

**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: RAA
Benzene	ND	0.17	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Toluene	ND	0.35	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Naphthalene	ND	0.28	2.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Acetone	ND	1.2	10		µg/L	1	8/27/2019 7:22:54 PM	R62453
Bromobenzene	ND	0.24	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Bromoform	ND	0.29	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Bromomethane	ND	0.27	3.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
2-Butanone	ND	2.1	10		µg/L	1	8/27/2019 7:22:54 PM	R62453
Carbon disulfide	ND	0.45	10		µg/L	1	8/27/2019 7:22:54 PM	R62453
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Chloroethane	ND	0.18	2.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Chloroform	ND	0.12	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Chloromethane	ND	0.32	3.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Dibromomethane	ND	0.21	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/27/2019 7:22:54 PM	R62453

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E25

Date Reported: 9/30/2019

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-12

Project: 2019 Annual GW Sampling Event

Collection Date: 8/22/2019 10:05:00 AM

Lab ID: 1908E25-007

Matrix: AQUEOUS

Received Date: 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>							Analyst: RAA	
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
2-Hexanone	ND	1.5	10		µg/L	1	8/27/2019 7:22:54 PM	R62453
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/27/2019 7:22:54 PM	R62453
Methylene Chloride	ND	0.15	3.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Styrene	ND	0.19	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/27/2019 7:22:54 PM	R62453
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/27/2019 7:22:54 PM	R62453
Surr: 1,2-Dichloroethane-d4	94.5	0	70-130		%Rec	1	8/27/2019 7:22:54 PM	R62453
Surr: 4-Bromofluorobenzene	97.6	0	70-130		%Rec	1	8/27/2019 7:22:54 PM	R62453
Surr: Dibromofluoromethane	101	0	70-130		%Rec	1	8/27/2019 7:22:54 PM	R62453
Surr: Toluene-d8	106	0	70-130		%Rec	1	8/27/2019 7:22:54 PM	R62453
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: RAA	
Gasoline Range Organics (GRO)	ND	0.031	0.050		mg/L	1	8/27/2019 7:22:54 PM	GW624
Surr: BFB	103	0	70-130		%Rec	1	8/27/2019 7:22:54 PM	GW624
<b>CARBON DIOXIDE</b>							Analyst: JRR	
Total Carbon Dioxide	140	0	1.0	H	mg CO2/	1	8/26/2019 8:59:20 PM	R62429
<b>SM2510B: SPECIFIC CONDUCTANCE</b>							Analyst: JRR	
Conductivity	440	5.0	5.0		µmhos/c	1	8/26/2019 8:59:20 PM	R62429

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

**Qualifiers:**

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

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

**Hall Environmental Analysis Laboratory, Inc.**

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

**Client Sample ID:** MW-12

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019 10:05:00 AM

**Lab ID:** 1908E25-007

**Matrix:** AQUEOUS

**Received Date:** 8/23/2019 8:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>	
Bicarbonate (As CaCO3)	154.4	20.00	20.00		mg/L Ca	1	8/26/2019 8:59:20 PM	R62429
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	8/26/2019 8:59:20 PM	R62429
Total Alkalinity (as CaCO3)	154.4	20.00	20.00		mg/L Ca	1	8/26/2019 8:59:20 PM	R62429
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>JMT</b>	
Total Dissolved Solids	262	40.0	40.0	D	mg/L	1	8/29/2019 1:58:00 PM	47121

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62780</b>	RunNo: <b>62780</b>								
Prep Date:	Analysis Date: <b>9/9/2019</b>	SeqNo: <b>2138812</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62780</b>	RunNo: <b>62780</b>								
Prep Date:	Analysis Date: <b>9/9/2019</b>	SeqNo: <b>2138813</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.55	0.10	0.5000	0	110	90	110			
Chloride	5.1	0.50	5.000	0	101	90	110			
Bromide	2.6	0.10	2.500	0	103	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.6	90	110			
Sulfate	10	0.50	10.00	0	102	90	110			
Nitrate+Nitrite as N	3.6	0.20	3.500	0	104	90	110			

Sample ID: <b>1908E25-001CMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>MW-32</b>	Batch ID: <b>R62780</b>	RunNo: <b>62780</b>								
Prep Date:	Analysis Date: <b>9/9/2019</b>	SeqNo: <b>2138815</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.4	0.50	2.500	0	96.0	61.6	129			
Bromide	17	0.50	12.50	4.395	97.5	81.9	109			

Sample ID: <b>1908E25-001CMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>MW-32</b>	Batch ID: <b>R62780</b>	RunNo: <b>62780</b>								
Prep Date:	Analysis Date: <b>9/9/2019</b>	SeqNo: <b>2138816</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.4	0.50	2.500	0	95.1	61.6	129	0.867	20	
Bromide	17	0.50	12.50	4.395	97.2	81.9	109	0.210	20	

Sample ID: <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62809</b>	RunNo: <b>62809</b>								
Prep Date:	Analysis Date: <b>9/10/2019</b>	SeqNo: <b>2140030</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

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

**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62809</b>	RunNo: <b>62809</b>								
Prep Date:	Analysis Date: <b>9/10/2019</b>	SeqNo: <b>2140030</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62809</b>	RunNo: <b>62809</b>								
Prep Date:	Analysis Date: <b>9/10/2019</b>	SeqNo: <b>2140031</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	97.9	90	110			
Sulfate	10	0.50	10.00	0	99.6	90	110			

Sample ID: <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62809</b>	RunNo: <b>62809</b>								
Prep Date:	Analysis Date: <b>9/10/2019</b>	SeqNo: <b>2140085</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62809</b>	RunNo: <b>62809</b>								
Prep Date:	Analysis Date: <b>9/10/2019</b>	SeqNo: <b>2140086</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.0	0.50	5.000	0	99.0	90	110			
Sulfate	10	0.50	10.00	0	100	90	110			

Sample ID: <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62940</b>	RunNo: <b>62940</b>								
Prep Date:	Analysis Date: <b>9/13/2019</b>	SeqNo: <b>2144926</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62940</b>	RunNo: <b>62940</b>								
Prep Date:	Analysis Date: <b>9/13/2019</b>	SeqNo: <b>2144928</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	98.5	90	110			

**Qualifiers:**

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

Client: Western Refining Southwest, Inc.

Project: 2019 Annual GW Sampling Event

Sample ID: <b>LCS-47076</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>47076</b>	RunNo: <b>62454</b>								
Prep Date: <b>8/27/2019</b>	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126320</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.5	0.40	2.500	0	100	66.7	148			
Surr: DNOP	0.24		0.2500		97.4	52.7	168			

Sample ID: <b>MB-47076</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47076</b>	RunNo: <b>62454</b>								
Prep Date: <b>8/27/2019</b>	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126322</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	0.40								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.50		0.5000		99.8	52.7	168			

### Qualifiers:

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D Sample Diluted Due to Matrix  
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ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of range due to dilution or matrix

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

Client: Western Refining Southwest, Inc.

Project: 2019 Annual GW Sampling Event

Sample ID: 100ng lcs	SampType: LCS	TestCode: EPA Method 8260B: VOLATILES								
Client ID: LCSW	Batch ID: R62453	RunNo: 62453								
Prep Date:	Analysis Date: 8/27/2019	SeqNo: 2124995 Units: µg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	89.9	70	130			
Toluene	19	1.0	20.00	0	92.9	70	130			
Chlorobenzene	19	1.0	20.00	0	92.7	70	130			
1,1-Dichloroethene	17	1.0	20.00	0	84.1	70	130			
Trichloroethene (TCE)	17	1.0	20.00	0	85.5	70	130			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		93.5	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		95.4	70	130			
Surr: Dibromofluoromethane	9.4		10.00		94.0	70	130			
Surr: Toluene-d8	9.6		10.00		95.9	70	130			

Sample ID: rb	SampType: MBLK	TestCode: EPA Method 8260B: VOLATILES								
Client ID: PBW	Batch ID: R62453	RunNo: 62453								
Prep Date:	Analysis Date: 8/27/2019	SeqNo: 2125016 Units: µg/L								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								

### Qualifiers:

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D Sample Diluted Due to Matrix  
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ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of range due to dilution or matrix

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>rb</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8260B: VOLATILES</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62453</b>	RunNo: <b>62453</b>								
Prep Date:	Analysis Date: <b>8/27/2019</b>	SeqNo: <b>2125016</b>			Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	0.23	3.0								J
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								

**Qualifiers:**

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

Client: Western Refining Southwest, Inc.

Project: 2019 Annual GW Sampling Event

Sample ID: <b>rb</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8260B: VOLATILES</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62453</b>	RunNo: <b>62453</b>								
Prep Date:	Analysis Date: <b>8/27/2019</b>	SeqNo: <b>2125016</b>			Units: <b>µg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.4	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		97.2	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.8	70	130			
Surr: Toluene-d8	9.8		10.00		98.4	70	130			

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>ics-47113</b>		SampType: <b>LCS</b>		TestCode: <b>EPA Method 8270C: Semivolatiles</b>						
Client ID: <b>LCSW</b>		Batch ID: <b>47113</b>		RunNo: <b>62675</b>						
Prep Date: <b>8/28/2019</b>		Analysis Date: <b>9/5/2019</b>		SeqNo: <b>2134037</b>			Units: <b>µg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	70	10	100.0	0	69.8	32.2	94			
4-Chloro-3-methylphenol	130	10	200.0	0	67.5	37.7	101			
2-Chlorophenol	140	10	200.0	0	72.4	32.6	90.1			
1,4-Dichlorobenzene	57	10	100.0	0	57.4	30	87.2			
2,4-Dinitrotoluene	66	10	100.0	0	66.4	35.9	85.8			
N-Nitrosodi-n-propylamine	73	10	100.0	0	73.4	37.1	108			
4-Nitrophenol	87	10	200.0	0	43.3	22.4	86.6			
Pentachlorophenol	110	20	200.0	0	57.0	31.6	91			
Phenol	88	10	200.0	0	43.8	21.7	84.9			
Pyrene	74	10	100.0	0	74.3	46.3	103			
1,2,4-Trichlorobenzene	62	10	100.0	0	61.9	30.2	88.3			
Surr: 2-Fluorophenol	100		200.0		50.2	15	101			
Surr: Phenol-d5	87		200.0		43.6	15	84.6			
Surr: 2,4,6-Tribromophenol	120		200.0		58.6	27.8	112			
Surr: Nitrobenzene-d5	74		100.0		73.8	33	113			
Surr: 2-Fluorobiphenyl	70		100.0		69.8	26.6	107			
Surr: 4-Terphenyl-d14	76		100.0		76.1	18.7	148			

Sample ID: <b>mb-47113</b>		SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8270C: Semivolatiles</b>						
Client ID: <b>PBW</b>		Batch ID: <b>47113</b>		RunNo: <b>62675</b>						
Prep Date: <b>8/28/2019</b>		Analysis Date: <b>9/5/2019</b>		SeqNo: <b>2134038</b>			Units: <b>µg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	ND	20								
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	10								

**Qualifiers:**

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

Client: Western Refining Southwest, Inc.

Project: 2019 Annual GW Sampling Event

Sample ID: <b>mb-47113</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8270C: Semivolatiles</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47113</b>	RunNo: <b>62675</b>								
Prep Date: <b>8/28/2019</b>	Analysis Date: <b>9/5/2019</b>	SeqNo: <b>2134038</b>	Units: <b>µg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3'-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	4.4	20								J
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

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

**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>mb-47113</b>		SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8270C: Semivolatiles</b>						
Client ID: <b>PBW</b>		Batch ID: <b>47113</b>		RunNo: <b>62675</b>						
Prep Date: <b>8/28/2019</b>		Analysis Date: <b>9/5/2019</b>		SeqNo: <b>2134038</b>			Units: <b>µg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	1.0		200.0		0.510	15	101			S
Surr: Phenol-d5	7.3		200.0		3.65	15	84.6			S
Surr: 2,4,6-Tribromophenol	0.24		200.0		0.120	27.8	112			S
Surr: Nitrobenzene-d5	62		100.0		62.0	33	113			
Surr: 2-Fluorobiphenyl	56		100.0		55.5	26.6	107			
Surr: 4-Terphenyl-d14	63		100.0		63.4	18.7	148			

Sample ID: <b>icsd-47113</b>		SampType: <b>LCSD</b>		TestCode: <b>EPA Method 8270C: Semivolatiles</b>						
Client ID: <b>LCSS02</b>		Batch ID: <b>47113</b>		RunNo: <b>62675</b>						
Prep Date: <b>8/28/2019</b>		Analysis Date: <b>9/5/2019</b>		SeqNo: <b>2134834</b>			Units: <b>µg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	80	10	100.0	0	80.2	32.2	94	13.8	32.9	
4-Chloro-3-methylphenol	180	10	200.0	0	89.4	37.7	101	27.9	29.9	
2-Chlorophenol	170	10	200.0	0	82.6	32.6	90.1	13.2	28.5	
1,4-Dichlorobenzene	66	10	100.0	0	66.4	15	87.2	14.6	44.9	
2,4-Dinitrotoluene	73	10	100.0	0	73.0	35.9	85.8	9.41	28.5	
N-Nitrosodi-n-propylamine	89	10	100.0	0	89.1	37.1	108	19.3	29.9	
4-Nitrophenol	100	10	200.0	0	50.3	15	86.6	14.9	68	
Pentachlorophenol	120	20	200.0	0	62.1	31.6	91	8.45	39.5	
Phenol	100	10	200.0	0	50.7	15	84.9	14.4	44.2	
Pyrene	79	10	100.0	0	78.9	46.3	103	5.93	23.8	
1,2,4-Trichlorobenzene	71	10	100.0	0	71.4	15.7	88.3	14.3	38	

**Qualifiers:**

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>Icsd-47113</b>	SampType: <b>LCSD</b>	TestCode: <b>EPA Method 8270C: Semivolatiles</b>								
Client ID: <b>LCSS02</b>	Batch ID: <b>47113</b>	RunNo: <b>62675</b>								
Prep Date: <b>8/28/2019</b>	Analysis Date: <b>9/5/2019</b>	SeqNo: <b>2134834</b>	Units: <b>µg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	110		200.0		56.5	15	101	0	0	
Surr: Phenol-d5	99		200.0		49.4	15	84.6	0	0	
Surr: 2,4,6-Tribromophenol	130		200.0		65.7	27.8	112	0	0	
Surr: Nitrobenzene-d5	85		100.0		85.3	33	113	0	0	
Surr: 2-Fluorobiphenyl	75		100.0		75.0	26.6	107	0	0	
Surr: 4-Terphenyl-d14	80		100.0		80.4	18.7	148	0	0	

Sample ID: <b>Ics-47316</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8270C: Semivolatiles</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>47316</b>	RunNo: <b>62883</b>								
Prep Date: <b>9/6/2019</b>	Analysis Date: <b>9/12/2019</b>	SeqNo: <b>2143013</b>	Units: <b>%Rec</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	92		200.0		45.8	15	101			
Surr: Phenol-d5	72		200.0		35.9	15	84.6			
Surr: 2,4,6-Tribromophenol	110		200.0		53.1	27.8	112			
Surr: Nitrobenzene-d5	67		100.0		66.9	33	113			
Surr: 2-Fluorobiphenyl	60		100.0		59.8	26.6	107			
Surr: 4-Terphenyl-d14	54		100.0		54.1	18.7	148			

Sample ID: <b>Icsd-47316</b>	SampType: <b>LCSD</b>	TestCode: <b>EPA Method 8270C: Semivolatiles</b>								
Client ID: <b>LCSS02</b>	Batch ID: <b>47316</b>	RunNo: <b>62883</b>								
Prep Date: <b>9/6/2019</b>	Analysis Date: <b>9/12/2019</b>	SeqNo: <b>2143016</b>	Units: <b>%Rec</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	120		200.0		58.8	15	101	0	0	
Surr: Phenol-d5	92		200.0		46.1	15	84.6	0	0	
Surr: 2,4,6-Tribromophenol	130		200.0		66.7	27.8	112	0	0	
Surr: Nitrobenzene-d5	82		100.0		82.4	33	113	0	0	
Surr: 2-Fluorobiphenyl	80		100.0		80.3	26.6	107	0	0	
Surr: 4-Terphenyl-d14	68		100.0		67.9	18.7	148	0	0	

Sample ID: <b>mb-47316</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8270C: Semivolatiles</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47316</b>	RunNo: <b>62883</b>								
Prep Date: <b>9/6/2019</b>	Analysis Date: <b>9/12/2019</b>	SeqNo: <b>2143019</b>	Units: <b>%Rec</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	81		200.0		40.4	15	101			
Surr: Phenol-d5	62		200.0		30.9	15	84.6			
Surr: 2,4,6-Tribromophenol	92		200.0		45.8	27.8	112			
Surr: Nitrobenzene-d5	54		100.0		53.9	33	113			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

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

**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>mb-47316</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8270C: Semivolatiles</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47316</b>	RunNo: <b>62883</b>								
Prep Date: <b>9/6/2019</b>	Analysis Date: <b>9/12/2019</b>	SeqNo: <b>2143019</b>	Units: <b>%Rec</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	48		100.0		48.0	26.6	107			
Surr: 4-Terphenyl-d14	49		100.0		49.1	18.7	148			

### Qualifiers:

\* Value exceeds Maximum Contaminant Level.  
 D Sample Diluted Due to Matrix  
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 P Sample pH Not In Range  
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# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>ics-1 99.8uS eC</b>	SampType: <b>ics</b>		TestCode: <b>SM2510B: Specific Conductance</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R62429</b>		RunNo: <b>62429</b>							
Prep Date:	Analysis Date: <b>8/26/2019</b>		SeqNo: <b>2122562</b>		Units: <b>µmhos/cm</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.80	0	101	85	115			

Sample ID: <b>ics-2 99.8uS eC</b>	SampType: <b>ics</b>		TestCode: <b>SM2510B: Specific Conductance</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R62429</b>		RunNo: <b>62429</b>							
Prep Date:	Analysis Date: <b>8/26/2019</b>		SeqNo: <b>2122588</b>		Units: <b>µmhos/cm</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.80	0	105	85	115			

Sample ID: <b>ics-1 99.8uS eC</b>	SampType: <b>ics</b>		TestCode: <b>SM2510B: Specific Conductance</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R62496</b>		RunNo: <b>62496</b>							
Prep Date:	Analysis Date: <b>8/28/2019</b>		SeqNo: <b>2126130</b>		Units: <b>µmhos/cm</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.80	0	100	85	115			

Sample ID: <b>ics-2 99.8uS eC</b>	SampType: <b>ics</b>		TestCode: <b>SM2510B: Specific Conductance</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R62496</b>		RunNo: <b>62496</b>							
Prep Date:	Analysis Date: <b>8/28/2019</b>		SeqNo: <b>2126193</b>		Units: <b>µmhos/cm</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.80	0	104	85	115			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>MB-47428</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47428</b>	RunNo: <b>62872</b>								
Prep Date: <b>9/11/2019</b>	Analysis Date: <b>9/12/2019</b>	SeqNo: <b>2142285</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.000039	0.00020								J

Sample ID: <b>LCS-47428</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>47428</b>	RunNo: <b>62872</b>								
Prep Date: <b>9/11/2019</b>	Analysis Date: <b>9/12/2019</b>	SeqNo: <b>2142286</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0047	0.00020	0.005000	0	93.1	80	120			

Sample ID: <b>1908E25-002DMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>MW-27</b>	Batch ID: <b>47428</b>	RunNo: <b>62872</b>								
Prep Date: <b>9/11/2019</b>	Analysis Date: <b>9/12/2019</b>	SeqNo: <b>2142289</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0047	0.00020	0.005000	.00005462	92.4	75	125			

Sample ID: <b>1908E25-002DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>MW-27</b>	Batch ID: <b>47428</b>	RunNo: <b>62872</b>								
Prep Date: <b>9/11/2019</b>	Analysis Date: <b>9/12/2019</b>	SeqNo: <b>2142290</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	.00005462	96.8	75	125	4.50	20	

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

Client: Western Refining Southwest, Inc.

Project: 2019 Annual GW Sampling Event

Sample ID: <b>MB-A</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>A62764</b>	RunNo: <b>62764</b>								
Prep Date:	Analysis Date: <b>9/9/2019</b>	SeqNo: <b>2137952</b> Units: <b>mg/L</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Uranium	ND	0.10								
Zinc	ND	0.020								

Sample ID: <b>LCS-A</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>A62764</b>	RunNo: <b>62764</b>								
Prep Date:	Analysis Date: <b>9/9/2019</b>	SeqNo: <b>2137953</b> Units: <b>mg/L</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.48	0.020	0.5000	0	95.6	80	120			
Barium	0.48	0.020	0.5000	0	95.1	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.4	80	120			
Calcium	50	1.0	50.00	0	100	80	120			
Chromium	0.49	0.0060	0.5000	0	97.1	80	120			
Copper	0.50	0.0060	0.5000	0	100	80	120			
Iron	0.49	0.020	0.5000	0	98.6	80	120			
Lead	0.49	0.0050	0.5000	0	98.6	80	120			
Magnesium	50	1.0	50.00	0	100	80	120			
Manganese	0.48	0.0020	0.5000	0	97.0	80	120			
Potassium	50	1.0	50.00	0	99.3	80	120			
Selenium	0.48	0.050	0.5000	0	96.3	80	120			
Silver	0.10	0.0050	0.1000	0	99.8	80	120			
Sodium	50	1.0	50.00	0	99.6	80	120			
Uranium	0.46	0.10	0.5000	0	91.3	80	120			
Zinc	0.48	0.020	0.5000	0	96.5	80	120			

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: 1908E25-001EMS		SampType: MS		TestCode: EPA Method 6010B: Dissolved Metals						
Client ID: MW-32		Batch ID: A62764		RunNo: 62764						
Prep Date:		Analysis Date: 9/9/2019		SeqNo: 2138005		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.020	0.5000	0.01761	94.7	75	125			
Cadmium	0.51	0.0020	0.5000	0	103	75	125			
Chromium	0.48	0.0060	0.5000	0	95.9	75	125			
Copper	0.54	0.0060	0.5000	0	108	75	125			
Iron	0.49	0.020	0.5000	0	97.2	75	125			
Lead	0.47	0.0050	0.5000	0	93.8	75	125			
Magnesium	99	1.0	50.00	49.89	97.8	75	125			
Manganese	0.47	0.0020	0.5000	0	94.2	75	125			
Potassium	53	1.0	50.00	3.662	99.0	75	125			
Selenium	0.59	0.050	0.5000	0	117	75	125			
Silver	0.11	0.0050	0.1000	0.004893	100	75	125			
Zinc	0.50	0.020	0.5000	0.02045	96.8	75	125			

Sample ID: 1908E25-001EMSD		SampType: MSD		TestCode: EPA Method 6010B: Dissolved Metals						
Client ID: MW-32		Batch ID: A62764		RunNo: 62764						
Prep Date:		Analysis Date: 9/9/2019		SeqNo: 2138006		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.49	0.020	0.5000	0.01761	93.9	75	125	0.847	20	
Cadmium	0.51	0.0020	0.5000	0	102	75	125	0.464	20	
Chromium	0.47	0.0060	0.5000	0	94.9	75	125	0.954	20	
Copper	0.54	0.0060	0.5000	0	107	75	125	0.325	20	
Iron	0.49	0.020	0.5000	0	98.5	75	125	1.35	20	
Lead	0.46	0.0050	0.5000	0	92.6	75	125	1.23	20	
Magnesium	99	1.0	50.00	49.89	97.7	75	125	0.0664	20	
Manganese	0.47	0.0020	0.5000	0	93.4	75	125	0.800	20	
Potassium	53	1.0	50.00	3.662	99.0	75	125	0.0371	20	
Selenium	0.58	0.050	0.5000	0	116	75	125	1.61	20	
Silver	0.10	0.0050	0.1000	0.004893	99.5	75	125	0.873	20	
Zinc	0.51	0.020	0.5000	0.02045	97.1	75	125	0.264	20	

Sample ID: 1908E25-001EMS		SampType: MS		TestCode: EPA Method 6010B: Dissolved Metals						
Client ID: MW-32		Batch ID: A62764		RunNo: 62764						
Prep Date:		Analysis Date: 9/9/2019		SeqNo: 2138098		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.55	0.020	0.5000	0	111	75	125			
Uranium	0.33	0.10	0.5000	0	65.6	75	125			S

**Qualifiers:**

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- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

Client: Western Refining Southwest, Inc.

Project: 2019 Annual GW Sampling Event

Sample ID: <b>1908E25-001EMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>MW-32</b>	Batch ID: <b>A62764</b>	RunNo: <b>62764</b>								
Prep Date:	Analysis Date: <b>9/9/2019</b>	SeqNo: <b>2138099</b>							Units: <b>mg/L</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.59	0.020	0.5000	0	119	75	125	7.03	20	
Uranium	0.34	0.10	0.5000	0	67.1	75	125	2.23	20	S

Sample ID: <b>MB-A</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>A62841</b>	RunNo: <b>62841</b>								
Prep Date:	Analysis Date: <b>9/11/2019</b>	SeqNo: <b>2141041</b>							Units: <b>mg/L</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								

Sample ID: <b>LCS-A</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>A62841</b>	RunNo: <b>62841</b>								
Prep Date:	Analysis Date: <b>9/11/2019</b>	SeqNo: <b>2141042</b>							Units: <b>mg/L</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	98.8	80	120			

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

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

**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>MB-47071</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47071</b>	RunNo: <b>62682</b>								
Prep Date: <b>8/26/2019</b>	Analysis Date: <b>9/5/2019</b>	SeqNo: <b>2134130</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: <b>LCS-47071</b>	SampType: <b>LCS</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>47071</b>	RunNo: <b>62682</b>								
Prep Date: <b>8/26/2019</b>	Analysis Date: <b>9/5/2019</b>	SeqNo: <b>2134131</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.48	0.020	0.5000	0	96.7	80	120			
Barium	0.47	0.020	0.5000	0	94.6	80	120			
Cadmium	0.50	0.0020	0.5000	0	100	80	120			
Chromium	0.48	0.0060	0.5000	0	96.6	80	120			
Lead	0.49	0.0050	0.5000	0	97.7	80	120			
Selenium	0.51	0.050	0.5000	0	102	80	120			
Silver	0.10	0.0050	0.1000	0	100	80	120			

Sample ID: <b>1908E25-001DMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>MW-32</b>	Batch ID: <b>47071</b>	RunNo: <b>62682</b>								
Prep Date: <b>8/26/2019</b>	Analysis Date: <b>9/5/2019</b>	SeqNo: <b>2134368</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.48	0.020	0.5000	0	96.4	75	125			
Barium	0.47	0.020	0.5000	0.02396	90.0	75	125			
Cadmium	0.51	0.0020	0.5000	0	103	75	125			
Chromium	0.44	0.0060	0.5000	0	88.9	75	125			
Lead	0.43	0.0050	0.5000	0	85.8	75	125			
Selenium	0.52	0.050	0.5000	0	104	75	125			
Silver	0.11	0.0050	0.1000	0.004506	102	75	125			

Sample ID: <b>1908E25-001DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>MW-32</b>	Batch ID: <b>47071</b>	RunNo: <b>62682</b>								
Prep Date: <b>8/26/2019</b>	Analysis Date: <b>9/5/2019</b>	SeqNo: <b>2134369</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.49	0.020	0.5000	0	98.6	75	125	2.25	20	
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**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

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

**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>1908E25-001DMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>MW-32</b>	Batch ID: <b>47071</b>	RunNo: <b>62682</b>								
Prep Date: <b>8/26/2019</b>	Analysis Date: <b>9/5/2019</b>	SeqNo: <b>2134369</b> Units: <b>mg/L</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.020	0.5000	0.02396	91.2	75	125	1.18	20	
Cadmium	0.53	0.0020	0.5000	0	106	75	125	2.85	20	
Chromium	0.45	0.0060	0.5000	0	91.0	75	125	2.34	20	
Lead	0.44	0.0050	0.5000	0	89.0	75	125	3.64	20	
Selenium	0.50	0.050	0.5000	0	99.8	75	125	4.30	20	
Silver	0.11	0.0050	0.1000	0.004506	105	75	125	2.13	20	

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

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>GW62453</b>		RunNo: <b>62453</b>							
Prep Date:	Analysis Date: <b>8/27/2019</b>		SeqNo: <b>2126272</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.3	70	130			
Surr: BFB	9.9		10.00		99.0	70	130			

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>GW62453</b>		RunNo: <b>62453</b>							
Prep Date:	Analysis Date: <b>8/27/2019</b>		SeqNo: <b>2126273</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	9.9		10.00		98.5	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 Limit                                |
| S % Recovery outside of range due to dilution or matrix |                                                   |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>mb-1 alk</b>	SampType: <b>mblk</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62429</b>	RunNo: <b>62429</b>								
Prep Date:	Analysis Date: <b>8/26/2019</b>	SeqNo: <b>2122487</b>			Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: <b>ics-1 alk</b>	SampType: <b>ics</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62429</b>	RunNo: <b>62429</b>								
Prep Date:	Analysis Date: <b>8/26/2019</b>	SeqNo: <b>2122488</b>			Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.32	20.00	80.00	0	99.2	90	110			

Sample ID: <b>mb-2 alk</b>	SampType: <b>mblk</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62429</b>	RunNo: <b>62429</b>								
Prep Date:	Analysis Date: <b>8/26/2019</b>	SeqNo: <b>2122510</b>			Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: <b>ics-2 alk</b>	SampType: <b>ics</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62429</b>	RunNo: <b>62429</b>								
Prep Date:	Analysis Date: <b>8/26/2019</b>	SeqNo: <b>2122511</b>			Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.64	20.00	80.00	0	99.6	90	110			

Sample ID: <b>mb-3 alk</b>	SampType: <b>mblk</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62429</b>	RunNo: <b>62429</b>								
Prep Date:	Analysis Date: <b>8/26/2019</b>	SeqNo: <b>2122533</b>			Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: <b>ics-3 alk</b>	SampType: <b>ics</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62429</b>	RunNo: <b>62429</b>								
Prep Date:	Analysis Date: <b>8/26/2019</b>	SeqNo: <b>2122534</b>			Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80.12	20.00	80.00	0	100	90	110			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>mb-1 alk</b>	SampType: <b>mblk</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62496</b>	RunNo: <b>62496</b>								
Prep Date:	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126078</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: <b>ics-1 alk</b>	SampType: <b>ics</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62496</b>	RunNo: <b>62496</b>								
Prep Date:	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126079</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.96	20.00	80.00	0	98.7	90	110			

Sample ID: <b>mb-2 alk</b>	SampType: <b>mblk</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62496</b>	RunNo: <b>62496</b>								
Prep Date:	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126101</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: <b>ics-2 alk</b>	SampType: <b>ics</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62496</b>	RunNo: <b>62496</b>								
Prep Date:	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126102</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80.56	20.00	80.00	0	101	90	110			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E25

30-Sep-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>MB-47121</b>	SampType: <b>MBLK</b>	TestCode: <b>SM2540C MOD: Total Dissolved Solids</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47121</b>	RunNo: <b>62516</b>								
Prep Date: <b>8/28/2019</b>	Analysis Date: <b>8/29/2019</b>	SeqNo: <b>2126971</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: <b>LCS-47121</b>	SampType: <b>LCS</b>	TestCode: <b>SM2540C MOD: Total Dissolved Solids</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>47121</b>	RunNo: <b>62516</b>								
Prep Date: <b>8/28/2019</b>	Analysis Date: <b>8/29/2019</b>	SeqNo: <b>2126972</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Sample ID: <b>1908E25-001CDUP</b>	SampType: <b>DUP</b>	TestCode: <b>SM2540C MOD: Total Dissolved Solids</b>								
Client ID: <b>MW-32</b>	Batch ID: <b>47121</b>	RunNo: <b>62516</b>								
Prep Date: <b>8/28/2019</b>	Analysis Date: <b>8/29/2019</b>	SeqNo: <b>2126980</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	3750	40.0						2.01	10	*D

**Qualifiers:**

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



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: **1908E25**      RcptNo: **1**

Received By: *Daniel M.*      8/23/2019 8:00:00 AM

Completed By: **Michelle Garcia**      8/23/2019 3:38:04 PM

Reviewed By: *DAD 8/23/19 / LB 8/24/19*  
*unpres.*

*Michelle Garcia*

**Chain of Custody**

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

**Log In**

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

# of preserved bottles checked for pH: *0/8*  
 (<2 or >12 unless noted)  
 Adjusted? *No*  
 Checked by: *mg 8/24/19*

**Special Handling (if applicable)**

15. 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"/>		

16. Additional remarks:

**Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.0	Good	Yes			
2	1.1	Good	Yes			

# Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

Email: **gjmccartney@marathonpetroleum.com**

QA/QC Package:  
 Standard  
 Other  
 EDD (Type) EXCEL

Level 4 (Full Validation)

Turn-Around Time:

Standard  Rush

Project Name: **2019 Annual GW**

**Sampling Event**

Project #:

Project Manager: **Gregory McCartney**

Sampler: **Tracy Payne - 919-561-7055**

On Ice:  Yes  No

Sample Temperature: 23.03 = 20°C / 40.3°C

HEAL No.  
1908E25

-001

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type
<u>8/22/19</u>	<u>0720</u>	<u>H<sub>2</sub>O</u>	<u>MW-32</u>	<u>40ml VOA-5</u>	<u>HCl</u>
		<u>H<sub>2</sub>O</u>	<u>MW-32</u>	<u>250 ml amber-1</u>	<u>Neat</u>
		<u>H<sub>2</sub>O</u>	<u>MW-32</u>	<u>250 ml plastic-1</u>	<u>HNO<sub>3</sub></u>
		<u>H<sub>2</sub>O</u>	<u>MW-32</u>	<u>125 ml plastic-1</u>	<u>HNO<sub>3</sub></u>
		<u>H<sub>2</sub>O</u>	<u>MW-32</u>	<u>125 ml plastic-1</u>	<u>H<sub>2</sub>SO<sub>4</sub></u>
		<u>H<sub>2</sub>O</u>	<u>MW-32</u>	<u>500 ml plastic-1</u>	<u>Neat</u>

Date	Time	Relinquished by	Date	Time	Received by
<u>8/22/19</u>	<u>1549</u>	<u>[Signature]</u>	<u>8/22/19</u>	<u>1549</u>	<u>[Signature]</u>
<u>8/22/19</u>	<u>1807</u>	<u>[Signature]</u>	<u>8/23/17</u>	<u>8:00</u>	<u>[Signature]</u>



# 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)	<input checked="" type="checkbox"/>
TPH 8015B (GRO/DRO/MRO)	<input checked="" type="checkbox"/>
TPH (Method 418.1)	
EDB (Method 504.1)	
PAH (8310 or 8270SIMS)	
RCRA 8 Metals Total	<input checked="" type="checkbox"/>
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)	<input checked="" type="checkbox"/>
8270 (Semi-VOA)	
Dissolved Metals	<input checked="" type="checkbox"/>
General Chem.-Anions&CO <sub>2</sub>	<input checked="" type="checkbox"/>
General Chem. - Alkalinity	
Air Bubbles (Y or N)	

Remarks: See Analytical Methods and Target Analytes.







# Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

Email: [gjmccartney@marathonpetroleum.com](mailto:gjmccartney@marathonpetroleum.com)

QA/QC Package:

Standard  Level 4 (Full Validation)

Other \_\_\_\_\_

EDD (Type) EXCEL

Turn-Around Time:

Standard  Rush

Project Name: **2019 Annual GW**

**Sampling Event**

Project #:

Project Manager: **Gregory McCartney**

Sampler: **Tracy Payne - 919-561-7055**

On Ice:  Yes  No

Sample Temperature: 44.3-11.2-20.3-20.2

Container Type and #

HEAL No. 1908E25

-006

Preservative Type

40ml VOA-5

HCl

250 ml amber-1

Neat

250 ml plastic-1

HNO<sub>3</sub>

125 ml plastic-1

HNO<sub>3</sub>

125 ml plastic-1

H<sub>2</sub>SO<sub>4</sub>

500 ml plastic-1

Neat

Date: 8/22/19 Time: 1549

Relinquished by: [Signature]

Date: 8/22/19 Time: 1807

Relinquished by: [Signature]

Received by: [Signature]

Date: 8/22/19 Time: 1545

Received by: [Signature]

Date: 8/29/19

Time: [Signature]

Remarks: **See Analytical Methods and Target Analytes.**

## Analysis Request

BTEX+MTBE+TMB's(8021)

BTEX+MTBE+TPH(Gas only)

TPH 8015B (GRO/DRO/MRO)

TPH (Method 418.1)

EDB (Method 504.1)

PAH (8310 or 8270SIMS)

RCRA 8 Metals Total

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)

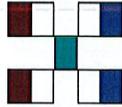
8270 (Semi-VOA)

Dissolved Metals

General Chem.-Anions&CO<sub>2</sub>

General Chem. - Alkalinity

Air Bubbles (Y or N)



**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



**TABLE 2**  
**Analytical Methods and Target Analytes**  
**Facility-Wide Groundwater Monitoring Plan - June 2014**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

<b>VOCs (EPA Method 8260B) <sup>(1)</sup></b>
- Target List
<i>Benzene</i>
<i>Toluene</i>
<i>Ethylbenzene</i>
<i>Xylenes</i>
<i>Methyl tert butyl ether (MTBE)</i>
<b>SVOCs - (EPA Method 8270)</b>
- Method List
<b>TPH-GRO (EPA Method 8015B)</b>
- Gasoline Range Organics
<b>TPH-DRO (EPA Method 8015B)</b>
- Diesel Range Organics
- Motor Oil Range Organics
<b>Total Carbon Dioxide (Laboratory Calculated)</b>
- Dissolved CO <sub>2</sub>
<b>Specific Conductivity (EPA Method 120.1 or field measurement)</b>
- Specific conductance
<b>TDS (EPA Method 160.1 or field measurement)</b>
- Total dissolved solids
<b>General Chemistry - Anions (EPA Method 300.0)</b>
<i>Fluoride</i>
<i>Chloride</i>
<i>Bromide</i>
<i>Nitrogen, Nitrite (as N)</i>
<i>Nitrogen, Nitrate (as N)</i>
<i>Phosphorous, Orthophosphate (As P)</i>
<i>Sulfate</i>
<b>General Chemistry - Alkalinity (EPA Method 310.1)</b>
<i>Alkalinity, Total</i>
<i>Carbonate</i>
<i>Bicarbonate</i>

<b>Total Recoverable Metals (EPA Method 6010B/7470)</b>	
- Target List (not applicable to River Terrace Sampling Events)	
<i>Arsenic</i>	<i>Lead</i>
<i>Barium</i>	<i>Mercury</i>
<i>Cadmium</i>	<i>Selenium</i>
<i>Chromium</i>	<i>Silver</i>
- Target List (for River Terrace Sampling Events Only)	
<i>Lead</i>	
<i>Mercury (DW-1 ONLY)</i>	
<b>Dissolved Metals (EPA Method 6010B / 7470)</b>	
- Target List (for Refinery Complex, Outfalls, and River)	
<i>Arsenic</i>	<i>Manganese</i>
<i>Barium</i>	<i>Mercury</i>
<i>Cadmium</i>	<i>Potassium</i>
<i>Calcium</i>	<i>Selenium</i>
<i>Chromium</i>	<i>Silver</i>
<i>Copper</i>	<i>Sodium</i>
<i>Iron</i>	<i>Uranium</i>
<i>Lead</i>	<i>Zinc</i>
<i>Magnesium</i>	

TPH = total petroleum hydrocarbons  
GRO = gasoline range organics  
VOCs = volatile organic compounds  
DRO = diesel range organics  
TDS = total dissolved solids

**NOTES:**

- (1) VOCs Target List for River Terrace samples are analyzed by EPA Method 8021B per NMED's letter Approval with Direction dated June 16, 2009.
- (2) Target List for San Juan River Terrace Monitoring Wells and Piezometer Wells only, per the River Terrace Bioventing System Monitoring Plan.

**TABLE 2**  
**Analytical Methods and Target Analytes**  
**Facility-Wide Groundwater Monitoring Plan - June 2014**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

<b>VOCs (EPA Method 8260B) <sup>(1)</sup></b>
- Target List
<i>Benzene</i>
<i>Toluene</i>
<i>Ethylbenzene</i>
<i>Xylenes</i>
<i>Methyl tert butyl ether (MTBE)</i>
<b>SVOCs - (EPA Method 8270)</b>
- Method List
<b>TPH-GRO (EPA Method 8015B)</b>
- Gasoline Range Organics
<b>TPH-DRO (EPA Method 8015B)</b>
- Diesel Range Organics
- Motor Oil Range Organics
<b>Total Carbon Dioxide (Laboratory Calculated)</b>
- Dissolved CO <sub>2</sub>
<b>Specific Conductivity (EPA Method 120.1 or field measurement)</b>
- Specific conductance
<b>TDS (EPA Method 160.1 or field measurement)</b>
- Total dissolved solids
<b>General Chemistry - Anions (EPA Method 300.0)</b>
<i>Fluoride</i>
<i>Chloride</i>
<i>Bromide</i>
<i>Nitrogen, Nitrite (as N)</i>
<i>Nitrogen, Nitrate (as N)</i>
<i>Phosphorous, Orthophosphate (As P)</i>
<i>Sulfate</i>
<b>General Chemistry - Alkalinity (EPA Method 310.1)</b>
<i>Alkalinity, Total</i>
<i>Carbonate</i>
<i>Bicarbonate</i>

<b>Total Recoverable Metals (EPA Method 6010B/7470)</b>
- Target List (not applicable to River Terrace Sampling Events)
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Chromium</i>
<i>Lead</i>
<i>Mercury</i>
<i>Selenium</i>
<i>Silver</i>
- Target List (for River Terrace Sampling Events Only)
<i>Lead</i>
<i>Mercury (DW-1 ONLY)</i>
<b>Dissolved Metals (EPA Method 6010B / 7470)</b>
- Target List (for Refinery Complex, Outfalls, and River)
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Calcium</i>
<i>Chromium</i>
<i>Copper</i>
<i>Iron</i>
<i>Lead</i>
<i>Magnesium</i>
<i>Manganese</i>
<i>Mercury</i>
<i>Potassium</i>
<i>Selenium</i>
<i>Silver</i>
<i>Sodium</i>
<i>Uranium</i>
<i>Zinc</i>

TPH = total petroleum hydrocarbons  
GRO = gasoline range organics  
VOCs = volatile organic compounds  
DRO = diesel range organics  
TDS = total dissolved solids

**NOTES:**

- (1) VOCs Target List for River Terrace samples are analyzed by EPA Method 8021B per NMED's letter Approval with Direction dated June 16, 2009.
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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)

October 01, 2019

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

RE: 2019 Annual GW Sampling Event

OrderNo.: 1908E78

Dear Gregory J. McCartney:

Hall Environmental Analysis Laboratory received 17 sample(s) on 8/24/2019 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 #NM0901

Sincerely,

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

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#: 1908E78  
Date: 10/1/2019

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

**Project:** 2019 Annual GW Sampling Event

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Analytical Notes Regarding EPA Method 8270:

The method blank had poor surrogate recoveries. The blank and all samples were reextracted to confirm the initial data.

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-59

Project: 2019 Annual GW Sampling Event

Collection Date: 8/22/2019 2:40:00 PM

Lab ID: 1908E78-001

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>								
Analyst: <b>JME</b>								
Diesel Range Organics (DRO)	0.31	0.13	0.40	J	mg/L	1	8/29/2019 1:58:59 AM	47076
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	8/29/2019 1:58:59 AM	47076
Surr: DNOP	132	0	52.7-168		%Rec	1	8/29/2019 1:58:59 AM	47076
<b>EPA METHOD 300.0: ANIONS</b>								
Analyst: <b>CJS</b>								
Fluoride	ND	0.073	0.50		mg/L	5	9/9/2019 10:11:53 AM	R62781
Chloride	240	5.0	10		mg/L	20	9/9/2019 10:24:14 AM	R62781
Bromide	3.6	0.25	0.50		mg/L	5	9/9/2019 10:11:53 AM	R62781
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	9/9/2019 10:11:53 AM	R62781
Sulfate	390	5.0	10	*	mg/L	20	9/9/2019 10:24:14 AM	R62781
Nitrate+Nitrite as N	0.32	0.048	1.0	J	mg/L	5	9/9/2019 5:36:18 PM	R62781
<b>EPA METHOD 7470: MERCURY</b>								
Analyst: <b>rde</b>								
Mercury	0.00013	0.000038	0.00020	J	mg/L	1	9/12/2019 3:42:20 PM	47428
<b>EPA METHOD 6010B: DISSOLVED METALS</b>								
Analyst: <b>bcv</b>								
Arsenic	0.027	0.019	0.020		mg/L	1	9/9/2019 10:05:52 AM	A62764
Barium	0.073	0.00056	0.020		mg/L	1	9/9/2019 10:05:52 AM	A62764
Cadmium	ND	0.00058	0.0020		mg/L	1	9/9/2019 10:05:52 AM	A62764
Calcium	200	0.60	10		mg/L	10	9/18/2019 12:08:48 PM	A63017
Chromium	ND	0.0012	0.0060		mg/L	1	9/9/2019 10:05:52 AM	A62764
Copper	ND	0.0023	0.0060		mg/L	1	9/9/2019 10:05:52 AM	A62764
Iron	7.6	0.054	0.20		mg/L	10	9/18/2019 12:08:48 PM	A63017
Lead	ND	0.0048	0.0050		mg/L	1	9/20/2019 9:21:26 AM	A63074
Magnesium	62	0.061	1.0		mg/L	1	9/9/2019 10:05:52 AM	A62764
Manganese	1.5	0.0013	0.010		mg/L	5	9/9/2019 10:07:34 AM	A62764
Potassium	3.3	0.11	1.0		mg/L	1	9/9/2019 10:05:52 AM	A62764
Selenium	ND	0.041	0.050		mg/L	1	9/9/2019 10:05:52 AM	A62764
Silver	0.0020	0.0013	0.0050	J	mg/L	1	9/9/2019 10:05:52 AM	A62764
Sodium	480	2.4	10		mg/L	10	9/18/2019 12:08:48 PM	A63017
Uranium	ND	0.062	0.10		mg/L	1	9/9/2019 10:05:52 AM	A62764
Zinc	0.025	0.0026	0.020		mg/L	1	9/9/2019 10:05:52 AM	A62764
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>								
Analyst: <b>bcv</b>								
Arsenic	ND	0.015	0.020		mg/L	1	9/9/2019 8:16:04 AM	47071
Barium	0.11	0.0012	0.020		mg/L	1	9/5/2019 2:34:09 PM	47071
Cadmium	ND	0.00055	0.0020		mg/L	1	9/5/2019 2:34:09 PM	47071
Chromium	ND	0.00086	0.0060		mg/L	1	9/5/2019 2:34:09 PM	47071
Lead	ND	0.0035	0.0050		mg/L	1	9/5/2019 2:34:09 PM	47071
Selenium	ND	0.035	0.050		mg/L	1	9/9/2019 8:16:04 AM	47071
Silver	0.0018	0.00055	0.0050	J	mg/L	1	9/5/2019 2:34:09 PM	47071

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

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

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-59

Project: 2019 Annual GW Sampling Event

Collection Date: 8/22/2019 2:40:00 PM

Lab ID: 1908E78-001

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8270C: SEMIVOLATILES</b>								Analyst: DAM
Acenaphthene	ND	3.0	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Acenaphthylene	ND	2.4	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Aniline	ND	3.6	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Anthracene	ND	2.7	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Azobenzene	ND	3.3	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Benz(a)anthracene	ND	3.6	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Benzo(a)pyrene	ND	3.5	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Benzo(b)fluoranthene	ND	3.4	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Benzo(g,h,i)perylene	ND	2.2	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Benzo(k)fluoranthene	ND	2.9	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Benzoic acid	ND	11	20		µg/L	1	9/5/2019 9:10:22 PM	47113
Benzyl alcohol	ND	2.4	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Bis(2-chloroethoxy)methane	ND	2.6	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Bis(2-chloroethyl)ether	ND	3.2	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Bis(2-chloroisopropyl)ether	ND	3.9	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Bis(2-ethylhexyl)phthalate	ND	4.3	10		µg/L	1	9/5/2019 9:10:22 PM	47113
4-Bromophenyl phenyl ether	ND	3.0	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Butyl benzyl phthalate	ND	3.3	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Carbazole	ND	2.9	10		µg/L	1	9/5/2019 9:10:22 PM	47113
4-Chloro-3-methylphenol	ND	3.4	10		µg/L	1	9/5/2019 9:10:22 PM	47113
4-Chloroaniline	ND	2.3	10		µg/L	1	9/5/2019 9:10:22 PM	47113
2-Chloronaphthalene	ND	3.1	10		µg/L	1	9/5/2019 9:10:22 PM	47113
2-Chlorophenol	ND	2.7	10		µg/L	1	9/5/2019 9:10:22 PM	47113
4-Chlorophenyl phenyl ether	ND	2.4	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Chrysene	ND	2.8	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Di-n-butyl phthalate	ND	2.7	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Di-n-octyl phthalate	ND	3.5	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Dibenz(a,h)anthracene	ND	3.0	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Dibenzofuran	ND	3.2	10		µg/L	1	9/5/2019 9:10:22 PM	47113
1,2-Dichlorobenzene	ND	4.8	10		µg/L	1	9/5/2019 9:10:22 PM	47113
1,3-Dichlorobenzene	ND	5.3	10		µg/L	1	9/5/2019 9:10:22 PM	47113
1,4-Dichlorobenzene	ND	4.4	10		µg/L	1	9/5/2019 9:10:22 PM	47113
3,3'-Dichlorobenzidine	ND	2.8	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Diethyl phthalate	ND	2.9	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Dimethyl phthalate	ND	3.2	10		µg/L	1	9/5/2019 9:10:22 PM	47113
2,4-Dichlorophenol	ND	2.9	20		µg/L	1	9/5/2019 9:10:22 PM	47113
2,4-Dimethylphenol	ND	3.0	10		µg/L	1	9/5/2019 9:10:22 PM	47113
4,6-Dinitro-2-methylphenol	ND	2.9	20		µg/L	1	9/5/2019 9:10:22 PM	47113
2,4-Dinitrophenol	ND	2.6	20		µg/L	1	9/5/2019 9:10:22 PM	47113

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

**Hall Environmental Analysis Laboratory, Inc.**

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-59

Project: 2019 Annual GW Sampling Event

Collection Date: 8/22/2019 2:40:00 PM

Lab ID: 1908E78-001

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8270C: SEMIVOLATILES</b>								Analyst: DAM
2,4-Dinitrotoluene	ND	3.8	10		µg/L	1	9/5/2019 9:10:22 PM	47113
2,6-Dinitrotoluene	ND	2.4	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Fluoranthene	ND	2.4	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Fluorene	ND	2.9	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Hexachlorobenzene	ND	3.1	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Hexachlorobutadiene	ND	4.7	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Hexachlorocyclopentadiene	ND	3.6	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Hexachloroethane	ND	4.8	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Indeno(1,2,3-cd)pyrene	ND	2.7	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Isophorone	ND	3.0	10		µg/L	1	9/5/2019 9:10:22 PM	47113
1-Methylnaphthalene	ND	3.1	10		µg/L	1	9/5/2019 9:10:22 PM	47113
2-Methylnaphthalene	ND	3.0	10		µg/L	1	9/5/2019 9:10:22 PM	47113
2-Methylphenol	ND	2.9	10		µg/L	1	9/5/2019 9:10:22 PM	47113
3+4-Methylphenol	ND	3.6	10		µg/L	1	9/5/2019 9:10:22 PM	47113
N-Nitrosodi-n-propylamine	ND	6.5	10		µg/L	1	9/5/2019 9:10:22 PM	47113
N-Nitrosodimethylamine	ND	5.0	10		µg/L	1	9/5/2019 9:10:22 PM	47113
N-Nitrosodiphenylamine	ND	2.4	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Naphthalene	ND	4.1	10		µg/L	1	9/5/2019 9:10:22 PM	47113
2-Nitroaniline	ND	3.2	10		µg/L	1	9/5/2019 9:10:22 PM	47113
3-Nitroaniline	ND	3.2	10		µg/L	1	9/5/2019 9:10:22 PM	47113
4-Nitroaniline	ND	2.7	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Nitrobenzene	ND	2.8	10		µg/L	1	9/5/2019 9:10:22 PM	47113
2-Nitrophenol	ND	3.0	10		µg/L	1	9/5/2019 9:10:22 PM	47113
4-Nitrophenol	ND	7.6	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Pentachlorophenol	ND	2.7	20		µg/L	1	9/5/2019 9:10:22 PM	47113
Phenanthrene	ND	2.8	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Phenol	ND	8.0	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Pyrene	ND	2.5	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Pyridine	ND	9.6	10		µg/L	1	9/5/2019 9:10:22 PM	47113
1,2,4-Trichlorobenzene	ND	4.0	10		µg/L	1	9/5/2019 9:10:22 PM	47113
2,4,5-Trichlorophenol	ND	3.0	10		µg/L	1	9/5/2019 9:10:22 PM	47113
2,4,6-Trichlorophenol	ND	2.3	10		µg/L	1	9/5/2019 9:10:22 PM	47113
Surr: 2-Fluorophenol	54.6	0	15-101		%Rec	1	9/5/2019 9:10:22 PM	47113
Surr: Phenol-d5	37.7	0	15-84.6		%Rec	1	9/5/2019 9:10:22 PM	47113
Surr: 2,4,6-Tribromophenol	64.7	0	27.8-112		%Rec	1	9/5/2019 9:10:22 PM	47113
Surr: Nitrobenzene-d5	89.6	0	33-113		%Rec	1	9/5/2019 9:10:22 PM	47113
Surr: 2-Fluorobiphenyl	73.6	0	26.6-107		%Rec	1	9/5/2019 9:10:22 PM	47113
Surr: 4-Terphenyl-d14	68.2	0	18.7-148		%Rec	1	9/5/2019 9:10:22 PM	47113

**EPA METHOD 8260B: VOLATILES**

Analyst: JMR

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

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

**Client Sample ID:** MW-59

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019 2:40:00 PM

**Lab ID:** 1908E78-001

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
Benzene	7.5	0.17	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Toluene	ND	0.35	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Ethylbenzene	64	0.13	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Methyl tert-butyl ether (MTBE)	830	4.6	10		µg/L	10	8/31/2019 12:00:16 AM	R62584
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
1,2-Dichloroethane (EDC)	10	0.19	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Naphthalene	ND	0.28	2.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Acetone	ND	1.2	10		µg/L	1	8/30/2019 12:27:59 PM	R62584
Bromobenzene	ND	0.24	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Bromoform	ND	0.29	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Bromomethane	ND	0.27	3.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
2-Butanone	ND	2.1	10		µg/L	1	8/30/2019 12:27:59 PM	R62584
Carbon disulfide	ND	0.45	10		µg/L	1	8/30/2019 12:27:59 PM	R62584
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Chloroethane	ND	0.18	2.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Chloroform	ND	0.12	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Chloromethane	ND	0.32	3.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Dibromomethane	ND	0.21	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/30/2019 12:27:59 PM	R62584

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-59

Project: 2019 Annual GW Sampling Event

Collection Date: 8/22/2019 2:40:00 PM

Lab ID: 1908E78-001

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
2-Hexanone	ND	1.5	10		µg/L	1	8/30/2019 12:27:59 PM	R62584
Isopropylbenzene	14	0.19	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
4-Isopropyltoluene	0.53	0.22	1.0	J	µg/L	1	8/30/2019 12:27:59 PM	R62584
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/30/2019 12:27:59 PM	R62584
Methylene Chloride	ND	0.15	3.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
n-Butylbenzene	2.8	0.23	3.0	J	µg/L	1	8/30/2019 12:27:59 PM	R62584
n-Propylbenzene	21	0.21	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
sec-Butylbenzene	4.7	0.25	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Styrene	ND	0.19	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
tert-Butylbenzene	0.46	0.21	1.0	J	µg/L	1	8/30/2019 12:27:59 PM	R62584
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/30/2019 12:27:59 PM	R62584
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/30/2019 12:27:59 PM	R62584
Surr: 1,2-Dichloroethane-d4	99.6	0	70-130		%Rec	1	8/30/2019 12:27:59 PM	R62584
Surr: 4-Bromofluorobenzene	97.4	0	70-130		%Rec	1	8/30/2019 12:27:59 PM	R62584
Surr: Dibromofluoromethane	102	0	70-130		%Rec	1	8/30/2019 12:27:59 PM	R62584
Surr: Toluene-d8	97.5	0	70-130		%Rec	1	8/30/2019 12:27:59 PM	R62584
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: JMR
Gasoline Range Organics (GRO)	1.2	0.031	0.050		mg/L	1	8/30/2019 12:27:59 PM	G62584
Surr: BFB	101	0	70-130		%Rec	1	8/30/2019 12:27:59 PM	G62584
<b>CARBON DIOXIDE</b>								Analyst: JRR
Total Carbon Dioxide	1100	0	1.0	H	mg CO2/	1	8/28/2019 4:59:13 PM	R62496
<b>SM2510B: SPECIFIC CONDUCTANCE</b>								Analyst: JRR
Conductivity	3200	5.0	5.0		µmhos/c	1	8/28/2019 4:59:13 PM	R62496

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

**Analytical Report**

Lab Order **1908E78**

Date Reported: **10/1/2019**

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

**Client Sample ID:** MW-59

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019 2:40:00 PM

**Lab ID:** 1908E78-001

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>	
Bicarbonate (As CaCO3)	1102	20.00	20.00		mg/L Ca	1	8/28/2019 4:59:13 PM	R62496
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	8/28/2019 4:59:13 PM	R62496
Total Alkalinity (as CaCO3)	1102	20.00	20.00		mg/L Ca	1	8/28/2019 4:59:13 PM	R62496
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>KS</b>	
Total Dissolved Solids	2100	40.0	40.0	*D	mg/L	1	9/3/2019 10:47:00 AM	47157

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

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-63

Project: 2019 Annual GW Sampling Event

Collection Date: 8/22/2019 3:30:00 PM

Lab ID: 1908E78-002

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>								
Analyst: <b>JME</b>								
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	8/29/2019 2:23:38 AM	47076
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	8/29/2019 2:23:38 AM	47076
Surr: DNOP	132	0	52.7-168		%Rec	1	8/29/2019 2:23:38 AM	47076
<b>EPA METHOD 300.0: ANIONS</b>								
Analyst: <b>CJS</b>								
Fluoride	ND	0.073	0.50		mg/L	5	9/9/2019 10:36:34 AM	R62781
Chloride	160	5.0	10		mg/L	20	9/9/2019 10:48:55 AM	R62781
Bromide	3.2	0.25	0.50		mg/L	5	9/9/2019 10:36:34 AM	R62781
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	9/9/2019 10:36:34 AM	R62781
Sulfate	2200	12	25	*	mg/L	50	9/10/2019 4:13:44 PM	R62815
Nitrate+Nitrite as N	66	0.097	2.0	*	mg/L	10	9/10/2019 6:48:08 PM	A62815
<b>EPA METHOD 7470: MERCURY</b>								
Analyst: <b>rde</b>								
Mercury	0.00028	0.000038	0.00020		mg/L	1	9/12/2019 3:44:36 PM	47428
<b>EPA METHOD 6010B: DISSOLVED METALS</b>								
Analyst: <b>bcv</b>								
Arsenic	ND	0.019	0.020		mg/L	1	9/9/2019 10:09:15 AM	A62764
Barium	0.013	0.00056	0.020	J	mg/L	1	9/9/2019 10:09:15 AM	A62764
Cadmium	ND	0.00058	0.0020		mg/L	1	9/9/2019 10:09:15 AM	A62764
Calcium	420	0.30	5.0		mg/L	5	9/9/2019 10:11:11 AM	A62764
Chromium	ND	0.0012	0.0060		mg/L	1	9/9/2019 10:09:15 AM	A62764
Copper	0.0043	0.0023	0.0060	J	mg/L	1	9/9/2019 10:09:15 AM	A62764
Iron	ND	0.0054	0.020		mg/L	1	9/9/2019 10:09:15 AM	A62764
Lead	ND	0.0048	0.0050		mg/L	1	9/9/2019 10:09:15 AM	A62764
Magnesium	180	0.30	5.0		mg/L	5	9/9/2019 10:11:11 AM	A62764
Manganese	0.55	0.00026	0.0020		mg/L	1	9/9/2019 10:09:15 AM	A62764
Potassium	4.5	0.11	1.0		mg/L	1	9/9/2019 10:09:15 AM	A62764
Selenium	ND	0.041	0.050		mg/L	1	9/9/2019 10:09:15 AM	A62764
Silver	0.0053	0.0013	0.0050		mg/L	1	9/9/2019 10:09:15 AM	A62764
Sodium	540	2.4	10		mg/L	10	9/9/2019 12:39:35 PM	A62764
Uranium	ND	0.062	0.10		mg/L	1	9/9/2019 10:09:15 AM	A62764
Zinc	0.023	0.0026	0.020		mg/L	1	9/9/2019 10:09:15 AM	A62764
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>								
Analyst: <b>bcv</b>								
Arsenic	ND	0.015	0.020		mg/L	1	9/9/2019 8:24:39 AM	47071
Barium	0.35	0.0012	0.020		mg/L	1	9/5/2019 2:35:49 PM	47071
Cadmium	ND	0.00055	0.0020		mg/L	1	9/5/2019 2:35:49 PM	47071
Chromium	0.0099	0.00086	0.0060		mg/L	1	9/5/2019 2:35:49 PM	47071
Lead	ND	0.0035	0.0050		mg/L	1	9/5/2019 2:35:49 PM	47071
Selenium	ND	0.035	0.050		mg/L	1	9/9/2019 8:24:39 AM	47071
Silver	0.0027	0.00055	0.0050	J	mg/L	1	9/5/2019 2:35:49 PM	47071

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-63

Project: 2019 Annual GW Sampling Event

Collection Date: 8/22/2019 3:30:00 PM

Lab ID: 1908E78-002

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
Benzene	ND	0.17	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Toluene	ND	0.35	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Methyl tert-butyl ether (MTBE)	3.8	0.46	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Naphthalene	ND	0.28	2.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Acetone	8.0	1.2	10	J	µg/L	1	8/30/2019 1:54:24 PM	R62584
Bromobenzene	ND	0.24	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Bromoform	ND	0.29	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Bromomethane	ND	0.27	3.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
2-Butanone	ND	2.1	10		µg/L	1	8/30/2019 1:54:24 PM	R62584
Carbon disulfide	ND	0.45	10		µg/L	1	8/30/2019 1:54:24 PM	R62584
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Chloroethane	ND	0.18	2.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Chloroform	ND	0.12	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Chloromethane	ND	0.32	3.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Dibromomethane	ND	0.21	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/30/2019 1:54:24 PM	R62584

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-63

Project: 2019 Annual GW Sampling Event

Collection Date: 8/22/2019 3:30:00 PM

Lab ID: 1908E78-002

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
2-Hexanone	ND	1.5	10		µg/L	1	8/30/2019 1:54:24 PM	R62584
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/30/2019 1:54:24 PM	R62584
Methylene Chloride	ND	0.15	3.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Styrene	ND	0.19	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/30/2019 1:54:24 PM	R62584
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/30/2019 1:54:24 PM	R62584
Surr: 1,2-Dichloroethane-d4	96.7	0	70-130		%Rec	1	8/30/2019 1:54:24 PM	R62584
Surr: 4-Bromofluorobenzene	96.9	0	70-130		%Rec	1	8/30/2019 1:54:24 PM	R62584
Surr: Dibromofluoromethane	102	0	70-130		%Rec	1	8/30/2019 1:54:24 PM	R62584
Surr: Toluene-d8	99.0	0	70-130		%Rec	1	8/30/2019 1:54:24 PM	R62584
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: JMR
Gasoline Range Organics (GRO)	ND	0.031	0.050		mg/L	1	8/30/2019 1:54:24 PM	G62584
Surr: BFB	101	0	70-130		%Rec	1	8/30/2019 1:54:24 PM	G62584
<b>CARBON DIOXIDE</b>								Analyst: JRR
Total Carbon Dioxide	600	0	1.0	H	mg CO2/	1	8/28/2019 5:38:01 PM	R62496
<b>SM2510B: SPECIFIC CONDUCTANCE</b>								Analyst: JRR
Conductivity	4900	5.0	5.0		µmhos/c	1	8/28/2019 5:38:01 PM	R62496

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

**Qualifiers:**

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

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

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** MW-63**Project:** 2019 Annual GW Sampling Event**Collection Date:** 8/22/2019 3:30:00 PM**Lab ID:** 1908E78-002**Matrix:** AQUEOUS**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>	
Bicarbonate (As CaCO3)	593.4	20.00	20.00		mg/L Ca	1	8/28/2019 5:38:01 PM	R62496
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	8/28/2019 5:38:01 PM	R62496
Total Alkalinity (as CaCO3)	593.4	20.00	20.00		mg/L Ca	1	8/28/2019 5:38:01 PM	R62496
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>KS</b>	
Total Dissolved Solids	4090	100	100	*D	mg/L	1	9/3/2019 10:47:00 AM	47157

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

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-64

Project: 2019 Annual GW Sampling Event

Collection Date: 8/22/2019 4:15:00 PM

Lab ID: 1908E78-003

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>								Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	8/29/2019 2:48:19 AM	47076
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	8/29/2019 2:48:19 AM	47076
Surr: DNOP	137	0	52.7-168		%Rec	1	8/29/2019 2:48:19 AM	47076
<b>EPA METHOD 300.0: ANIONS</b>								Analyst: <b>CJS</b>
Fluoride	ND	0.073	0.50		mg/L	5	9/9/2019 11:01:15 AM	R62781
Chloride	860	25	50	*	mg/L	100	9/10/2019 4:26:36 PM	R62815
Bromide	2.4	0.25	0.50		mg/L	5	9/9/2019 11:01:15 AM	R62781
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	9/9/2019 11:01:15 AM	R62781
Sulfate	1500	25	50	*	mg/L	100	9/10/2019 4:26:36 PM	R62815
Nitrate+Nitrite as N	45	0.097	2.0	*	mg/L	10	9/10/2019 7:01:00 PM	A62815
<b>EPA METHOD 7470: MERCURY</b>								Analyst: <b>rde</b>
Mercury	0.00021	0.000038	0.00020		mg/L	1	9/12/2019 3:46:54 PM	47428
<b>EPA METHOD 6010B: DISSOLVED METALS</b>								Analyst: <b>bcv</b>
Arsenic	ND	0.019	0.020		mg/L	1	9/9/2019 10:13:01 AM	A62764
Barium	0.0098	0.00056	0.020	J	mg/L	1	9/9/2019 10:13:01 AM	A62764
Cadmium	ND	0.00058	0.0020		mg/L	1	9/9/2019 10:13:01 AM	A62764
Calcium	440	0.30	5.0		mg/L	5	9/9/2019 10:14:58 AM	A62764
Chromium	ND	0.0012	0.0060		mg/L	1	9/9/2019 10:13:01 AM	A62764
Copper	0.0029	0.0023	0.0060	J	mg/L	1	9/9/2019 10:13:01 AM	A62764
Iron	0.027	0.0054	0.020		mg/L	1	9/9/2019 10:13:01 AM	A62764
Lead	ND	0.0048	0.0050		mg/L	1	9/9/2019 10:13:01 AM	A62764
Magnesium	67	0.061	1.0		mg/L	1	9/9/2019 10:13:01 AM	A62764
Manganese	0.00036	0.00026	0.0020	J	mg/L	1	9/9/2019 10:13:01 AM	A62764
Potassium	4.4	0.11	1.0		mg/L	1	9/9/2019 10:13:01 AM	A62764
Selenium	ND	0.041	0.050		mg/L	1	9/9/2019 10:13:01 AM	A62764
Silver	0.0060	0.0013	0.0050		mg/L	1	9/9/2019 10:13:01 AM	A62764
Sodium	780	2.4	10		mg/L	10	9/9/2019 12:41:23 PM	A62764
Uranium	ND	0.062	0.10		mg/L	1	9/9/2019 10:13:01 AM	A62764
Zinc	0.015	0.0026	0.020	J	mg/L	1	9/9/2019 10:13:01 AM	A62764
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>								Analyst: <b>bcv</b>
Arsenic	ND	0.015	0.020		mg/L	1	9/9/2019 8:26:22 AM	47071
Barium	0.35	0.0012	0.020		mg/L	1	9/5/2019 2:37:29 PM	47071
Cadmium	ND	0.00055	0.0020		mg/L	1	9/5/2019 2:37:29 PM	47071
Chromium	0.011	0.00086	0.0060		mg/L	1	9/5/2019 2:37:29 PM	47071
Lead	ND	0.0035	0.0050		mg/L	1	9/5/2019 2:37:29 PM	47071
Selenium	ND	0.035	0.050		mg/L	1	9/9/2019 8:26:22 AM	47071
Silver	0.0032	0.00055	0.0050	J	mg/L	1	9/5/2019 2:37:29 PM	47071

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-64

Project: 2019 Annual GW Sampling Event

Collection Date: 8/22/2019 4:15:00 PM

Lab ID: 1908E78-003

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
Benzene	ND	0.17	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Toluene	ND	0.35	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Naphthalene	ND	0.28	2.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Acetone	ND	1.2	10		µg/L	1	8/30/2019 3:21:00 PM	R62584
Bromobenzene	ND	0.24	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Bromoform	ND	0.29	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Bromomethane	ND	0.27	3.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
2-Butanone	ND	2.1	10		µg/L	1	8/30/2019 3:21:00 PM	R62584
Carbon disulfide	ND	0.45	10		µg/L	1	8/30/2019 3:21:00 PM	R62584
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Chloroethane	ND	0.18	2.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Chloroform	ND	0.12	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Chloromethane	ND	0.32	3.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Dibromomethane	ND	0.21	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/30/2019 3:21:00 PM	R62584

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-64

Project: 2019 Annual GW Sampling Event

Collection Date: 8/22/2019 4:15:00 PM

Lab ID: 1908E78-003

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
2-Hexanone	ND	1.5	10		µg/L	1	8/30/2019 3:21:00 PM	R62584
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/30/2019 3:21:00 PM	R62584
Methylene Chloride	ND	0.15	3.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Styrene	ND	0.19	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/30/2019 3:21:00 PM	R62584
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/30/2019 3:21:00 PM	R62584
Surr: 1,2-Dichloroethane-d4	96.3	0	70-130		%Rec	1	8/30/2019 3:21:00 PM	R62584
Surr: 4-Bromofluorobenzene	92.6	0	70-130		%Rec	1	8/30/2019 3:21:00 PM	R62584
Surr: Dibromofluoromethane	102	0	70-130		%Rec	1	8/30/2019 3:21:00 PM	R62584
Surr: Toluene-d8	97.3	0	70-130		%Rec	1	8/30/2019 3:21:00 PM	R62584
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: JMR
Gasoline Range Organics (GRO)	ND	0.031	0.050		mg/L	1	8/30/2019 3:21:00 PM	G62584
Surr: BFB	97.2	0	70-130		%Rec	1	8/30/2019 3:21:00 PM	G62584
<b>CARBON DIOXIDE</b>								Analyst: JRR
Total Carbon Dioxide	270	0	1.0	H	mg CO2/	1	8/28/2019 6:01:59 PM	R62496
<b>SM2510B: SPECIFIC CONDUCTANCE</b>								Analyst: JRR
Conductivity	5900	5.0	5.0		µmhos/c	1	8/28/2019 6:01:59 PM	R62496

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

**Analytical Report**

Lab Order **1908E78**

Date Reported: **10/1/2019**

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

**Client Sample ID:** MW-64

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/22/2019 4:15:00 PM

**Lab ID:** 1908E78-003

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>	
Bicarbonate (As CaCO3)	276.5	20.00	20.00		mg/L Ca	1	8/28/2019 6:01:59 PM	R62496
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	8/28/2019 6:01:59 PM	R62496
Total Alkalinity (as CaCO3)	276.5	20.00	20.00		mg/L Ca	1	8/28/2019 6:01:59 PM	R62496
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>KS</b>	
Total Dissolved Solids	4060	100	100	*D	mg/L	1	9/3/2019 10:47:00 AM	47157

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

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-70

Project: 2019 Annual GW Sampling Event

Collection Date: 8/23/2019 7:45:00 AM

Lab ID: 1908E78-004

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>								Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	8/29/2019 3:13:07 AM	47076
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	8/29/2019 3:13:07 AM	47076
Surr: DNOP	149	0	52.7-168		%Rec	1	8/29/2019 3:13:07 AM	47076
<b>EPA METHOD 300.0: ANIONS</b>								Analyst: <b>CJS</b>
Fluoride	0.26	0.073	0.50	J	mg/L	5	9/9/2019 11:50:39 AM	R62781
Chloride	340	5.0	10	*	mg/L	20	9/9/2019 12:02:59 PM	R62781
Bromide	1.6	0.25	0.50		mg/L	5	9/9/2019 11:50:39 AM	R62781
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	9/9/2019 11:50:39 AM	R62781
Sulfate	2100	25	50	*	mg/L	100	9/10/2019 4:39:29 PM	R62815
Nitrate+Nitrite as N	0.33	0.048	1.0	J	mg/L	5	9/9/2019 6:13:22 PM	R62781
<b>EPA METHOD 7470: MERCURY</b>								Analyst: <b>rde</b>
Mercury	0.00012	0.000038	0.00020	J	mg/L	1	9/12/2019 3:49:11 PM	47428
<b>EPA METHOD 6010B: DISSOLVED METALS</b>								Analyst: <b>bcv</b>
Arsenic	ND	0.019	0.020		mg/L	1	9/9/2019 10:22:22 AM	A62764
Barium	0.013	0.00056	0.020	J	mg/L	1	9/9/2019 10:22:22 AM	A62764
Cadmium	ND	0.00058	0.0020		mg/L	1	9/9/2019 10:22:22 AM	A62764
Calcium	610	0.60	10		mg/L	10	9/9/2019 12:48:44 PM	A62764
Chromium	ND	0.0012	0.0060		mg/L	1	9/9/2019 10:22:22 AM	A62764
Copper	0.0037	0.0023	0.0060	J	mg/L	1	9/9/2019 10:22:22 AM	A62764
Iron	5.3	0.054	0.20		mg/L	10	9/18/2019 12:10:59 PM	A63017
Lead	ND	0.0048	0.0050		mg/L	1	9/9/2019 10:22:22 AM	A62764
Magnesium	150	0.30	5.0		mg/L	5	9/9/2019 10:24:06 AM	A62764
Manganese	1.6	0.0013	0.010		mg/L	5	9/9/2019 10:24:06 AM	A62764
Potassium	3.5	0.11	1.0		mg/L	1	9/9/2019 10:22:22 AM	A62764
Selenium	ND	0.041	0.050		mg/L	1	9/9/2019 10:22:22 AM	A62764
Silver	0.0071	0.0013	0.0050		mg/L	1	9/9/2019 10:22:22 AM	A62764
Sodium	610	2.4	10		mg/L	10	9/9/2019 12:48:44 PM	A62764
Uranium	ND	0.062	0.10		mg/L	1	9/9/2019 10:22:22 AM	A62764
Zinc	0.017	0.0026	0.020	J	mg/L	1	9/9/2019 10:22:22 AM	A62764
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>								Analyst: <b>bcv</b>
Arsenic	ND	0.015	0.020		mg/L	1	9/9/2019 8:28:03 AM	47071
Barium	0.15	0.0012	0.020		mg/L	1	9/5/2019 2:39:08 PM	47071
Cadmium	ND	0.00055	0.0020		mg/L	1	9/5/2019 2:39:08 PM	47071
Chromium	ND	0.00086	0.0060		mg/L	1	9/5/2019 2:39:08 PM	47071
Lead	ND	0.0035	0.0050		mg/L	1	9/5/2019 2:39:08 PM	47071
Selenium	ND	0.035	0.050		mg/L	1	9/9/2019 8:28:03 AM	47071
Silver	0.0051	0.00055	0.0050		mg/L	1	9/5/2019 2:39:08 PM	47071

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

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

**Client Sample ID:** MW-70

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 7:45:00 AM

**Lab ID:** 1908E78-004

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
Benzene	ND	0.17	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Toluene	ND	0.35	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Methyl tert-butyl ether (MTBE)	0.54	0.46	1.0	J	µg/L	1	8/30/2019 3:49:54 PM	R62584
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Naphthalene	ND	0.28	2.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Acetone	ND	1.2	10		µg/L	1	8/30/2019 3:49:54 PM	R62584
Bromobenzene	ND	0.24	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Bromoform	ND	0.29	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Bromomethane	ND	0.27	3.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
2-Butanone	ND	2.1	10		µg/L	1	8/30/2019 3:49:54 PM	R62584
Carbon disulfide	ND	0.45	10		µg/L	1	8/30/2019 3:49:54 PM	R62584
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Chloroethane	ND	0.18	2.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Chloroform	ND	0.12	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Chloromethane	ND	0.32	3.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Dibromomethane	ND	0.21	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/30/2019 3:49:54 PM	R62584

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-70

Project: 2019 Annual GW Sampling Event

Collection Date: 8/23/2019 7:45:00 AM

Lab ID: 1908E78-004

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
2-Hexanone	ND	1.5	10		µg/L	1	8/30/2019 3:49:54 PM	R62584
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/30/2019 3:49:54 PM	R62584
Methylene Chloride	ND	0.15	3.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Styrene	ND	0.19	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/30/2019 3:49:54 PM	R62584
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/30/2019 3:49:54 PM	R62584
Surr: 1,2-Dichloroethane-d4	96.3	0	70-130		%Rec	1	8/30/2019 3:49:54 PM	R62584
Surr: 4-Bromofluorobenzene	93.7	0	70-130		%Rec	1	8/30/2019 3:49:54 PM	R62584
Surr: Dibromofluoromethane	101	0	70-130		%Rec	1	8/30/2019 3:49:54 PM	R62584
Surr: Toluene-d8	99.0	0	70-130		%Rec	1	8/30/2019 3:49:54 PM	R62584
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: JMR
Gasoline Range Organics (GRO)	ND	0.031	0.050		mg/L	1	8/30/2019 3:49:54 PM	G62584
Surr: BFB	98.0	0	70-130		%Rec	1	8/30/2019 3:49:54 PM	G62584
<b>CARBON DIOXIDE</b>								Analyst: JRR
Total Carbon Dioxide	790	0	1.0	H	mg CO2/	1	8/28/2019 6:15:44 PM	R62496
<b>SM2510B: SPECIFIC CONDUCTANCE</b>								Analyst: JRR
Conductivity	5400	5.0	5.0		µmhos/c	1	8/28/2019 6:15:44 PM	R62496

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

**Analytical Report**

Lab Order **1908E78**

Date Reported: **10/1/2019**

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

**Client Sample ID:** MW-70

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 7:45:00 AM

**Lab ID:** 1908E78-004

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>SM2320B: ALKALINITY</b>								Analyst: <b>JRR</b>
Bicarbonate (As CaCO3)	785.4	20.00	20.00		mg/L Ca	1	8/28/2019 6:15:44 PM	R62496
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	8/28/2019 6:15:44 PM	R62496
Total Alkalinity (as CaCO3)	785.4	20.00	20.00		mg/L Ca	1	8/28/2019 6:15:44 PM	R62496
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>								Analyst: <b>KS</b>
Total Dissolved Solids	4740	100	100	*D	mg/L	1	9/3/2019 10:47:00 AM	47157

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

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: 2019 Annual GW Sampling Event

Collection Date:

Lab ID: 1908E78-005

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
Benzene	ND	0.17	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Toluene	ND	0.35	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Naphthalene	ND	0.28	2.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Acetone	ND	1.2	10		µg/L	1	8/30/2019 4:18:48 PM	R62584
Bromobenzene	ND	0.24	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Bromoform	ND	0.29	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Bromomethane	ND	0.27	3.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
2-Butanone	ND	2.1	10		µg/L	1	8/30/2019 4:18:48 PM	R62584
Carbon disulfide	ND	0.45	10		µg/L	1	8/30/2019 4:18:48 PM	R62584
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Chlorobenzene	0.48	0.19	1.0	J	µg/L	1	8/30/2019 4:18:48 PM	R62584
Chloroethane	ND	0.18	2.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Chloroform	ND	0.12	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Chloromethane	ND	0.32	3.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Dibromomethane	ND	0.21	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/30/2019 4:18:48 PM	R62584

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

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

**Client Sample ID:** Trip Blank

**Project:** 2019 Annual GW Sampling Event

**Collection Date:**

**Lab ID:** 1908E78-005

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
2-Hexanone	ND	1.5	10		µg/L	1	8/30/2019 4:18:48 PM	R62584
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/30/2019 4:18:48 PM	R62584
Methylene Chloride	0.19	0.15	3.0	J	µg/L	1	8/30/2019 4:18:48 PM	R62584
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Styrene	ND	0.19	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/30/2019 4:18:48 PM	R62584
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/30/2019 4:18:48 PM	R62584
Surr: 1,2-Dichloroethane-d4	94.1	0	70-130		%Rec	1	8/30/2019 4:18:48 PM	R62584
Surr: 4-Bromofluorobenzene	93.2	0	70-130		%Rec	1	8/30/2019 4:18:48 PM	R62584
Surr: Dibromofluoromethane	101	0	70-130		%Rec	1	8/30/2019 4:18:48 PM	R62584
Surr: Toluene-d8	95.9	0	70-130		%Rec	1	8/30/2019 4:18:48 PM	R62584
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: JMR
Gasoline Range Organics (GRO)	ND	0.031	0.050		mg/L	1	8/30/2019 4:18:48 PM	G62584
Surr: BFB	96.4	0	70-130		%Rec	1	8/30/2019 4:18:48 PM	G62584

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

**Qualifiers:**

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

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

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Duplicate #2

Project: 2019 Annual GW Sampling Event

Collection Date: 8/23/2019

Lab ID: 1908E78-006

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>								
Analyst: <b>JME</b>								
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	8/29/2019 3:37:47 AM	47076
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	8/29/2019 3:37:47 AM	47076
Surr: DNOP	110	0	52.7-168		%Rec	1	8/29/2019 3:37:47 AM	47076
<b>EPA METHOD 300.0: ANIONS</b>								
Analyst: <b>CJS</b>								
Fluoride	0.27	0.073	0.50	J	mg/L	5	9/9/2019 12:15:20 PM	R62781
Chloride	340	5.0	10	*	mg/L	20	9/9/2019 12:27:40 PM	R62781
Bromide	1.6	0.25	0.50		mg/L	5	9/9/2019 12:15:20 PM	R62781
Phosphorus, Orthophosphate (As P)	ND	5.0	10	H	mg/L	20	9/9/2019 12:27:40 PM	R62781
Sulfate	2100	25	50	*	mg/L	100	9/10/2019 4:52:21 PM	R62815
Nitrate+Nitrite as N	0.29	0.048	1.0	J	mg/L	5	9/9/2019 6:25:43 PM	R62781
<b>EPA METHOD 7470: MERCURY</b>								
Analyst: <b>rde</b>								
Mercury	0.00014	0.000038	0.00020	J	mg/L	1	9/12/2019 3:51:29 PM	47428
<b>EPA METHOD 6010B: DISSOLVED METALS</b>								
Analyst: <b>bcv</b>								
Arsenic	ND	0.019	0.020		mg/L	1	9/9/2019 10:25:48 AM	A62764
Barium	0.013	0.00056	0.020	J	mg/L	1	9/9/2019 10:25:48 AM	A62764
Cadmium	ND	0.00058	0.0020		mg/L	1	9/9/2019 10:25:48 AM	A62764
Calcium	610	0.60	10		mg/L	10	9/9/2019 12:50:39 PM	A62764
Chromium	ND	0.0012	0.0060		mg/L	1	9/9/2019 10:25:48 AM	A62764
Copper	0.0034	0.0023	0.0060	J	mg/L	1	9/9/2019 10:25:48 AM	A62764
Iron	5.3	0.054	0.20		mg/L	10	9/18/2019 12:13:10 PM	A63017
Lead	ND	0.0048	0.0050		mg/L	1	9/9/2019 10:25:48 AM	A62764
Magnesium	150	0.30	5.0		mg/L	5	9/9/2019 10:27:31 AM	A62764
Manganese	1.7	0.0013	0.010		mg/L	5	9/9/2019 10:27:31 AM	A62764
Potassium	3.4	0.11	1.0		mg/L	1	9/9/2019 10:25:48 AM	A62764
Selenium	ND	0.041	0.050		mg/L	1	9/9/2019 10:25:48 AM	A62764
Silver	0.0073	0.0013	0.0050		mg/L	1	9/9/2019 10:25:48 AM	A62764
Sodium	600	2.4	10		mg/L	10	9/9/2019 12:50:39 PM	A62764
Uranium	ND	0.062	0.10		mg/L	1	9/9/2019 10:25:48 AM	A62764
Zinc	0.023	0.0026	0.020		mg/L	1	9/9/2019 10:25:48 AM	A62764
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>								
Analyst: <b>bcv</b>								
Arsenic	ND	0.015	0.020		mg/L	1	9/9/2019 8:29:45 AM	47071
Barium	0.15	0.0012	0.020		mg/L	1	9/5/2019 2:40:48 PM	47071
Cadmium	ND	0.00055	0.0020		mg/L	1	9/5/2019 2:40:48 PM	47071
Chromium	0.0019	0.00086	0.0060	J	mg/L	1	9/5/2019 2:40:48 PM	47071
Lead	ND	0.0035	0.0050		mg/L	1	9/5/2019 2:40:48 PM	47071
Selenium	ND	0.035	0.050		mg/L	1	9/9/2019 8:29:45 AM	47071
Silver	0.0049	0.00055	0.0050	J	mg/L	1	9/5/2019 2:40:48 PM	47071

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

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

**Client Sample ID:** Duplicate #2

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019

**Lab ID:** 1908E78-006

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
Benzene	ND	0.17	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Toluene	ND	0.35	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Methyl tert-butyl ether (MTBE)	0.52	0.46	1.0	J	µg/L	1	8/30/2019 4:47:43 PM	R62584
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Naphthalene	ND	0.28	2.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Acetone	ND	1.2	10		µg/L	1	8/30/2019 4:47:43 PM	R62584
Bromobenzene	ND	0.24	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Bromoform	ND	0.29	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Bromomethane	ND	0.27	3.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
2-Butanone	ND	2.1	10		µg/L	1	8/30/2019 4:47:43 PM	R62584
Carbon disulfide	ND	0.45	10		µg/L	1	8/30/2019 4:47:43 PM	R62584
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Chloroethane	ND	0.18	2.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Chloroform	ND	0.12	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Chloromethane	ND	0.32	3.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Dibromomethane	ND	0.21	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/30/2019 4:47:43 PM	R62584

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

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

**Client Sample ID:** Duplicate #2

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019

**Lab ID:** 1908E78-006

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
2-Hexanone	ND	1.5	10		µg/L	1	8/30/2019 4:47:43 PM	R62584
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/30/2019 4:47:43 PM	R62584
Methylene Chloride	ND	0.15	3.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Styrene	ND	0.19	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/30/2019 4:47:43 PM	R62584
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/30/2019 4:47:43 PM	R62584
Surr: 1,2-Dichloroethane-d4	92.2	0	70-130		%Rec	1	8/30/2019 4:47:43 PM	R62584
Surr: 4-Bromofluorobenzene	93.4	0	70-130		%Rec	1	8/30/2019 4:47:43 PM	R62584
Surr: Dibromofluoromethane	100	0	70-130		%Rec	1	8/30/2019 4:47:43 PM	R62584
Surr: Toluene-d8	100	0	70-130		%Rec	1	8/30/2019 4:47:43 PM	R62584
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: JMR
Gasoline Range Organics (GRO)	ND	0.031	0.050		mg/L	1	8/30/2019 4:47:43 PM	G62584
Surr: BFB	97.2	0	70-130		%Rec	1	8/30/2019 4:47:43 PM	G62584
<b>CARBON DIOXIDE</b>								Analyst: JRR
Total Carbon Dioxide	770	0	1.0	H	mg CO2/	1	8/28/2019 6:58:18 PM	R62496
<b>SM2510B: SPECIFIC CONDUCTANCE</b>								Analyst: JRR
Conductivity	5400	5.0	5.0		µmhos/c	1	8/28/2019 6:58:18 PM	R62496

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

**Analytical Report**

Lab Order **1908E78**

Date Reported: **10/1/2019**

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

**Client Sample ID:** Duplicate #2

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019

**Lab ID:** 1908E78-006

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>	
Bicarbonate (As CaCO3)	791.1	20.00	20.00		mg/L Ca	1	8/28/2019 6:58:18 PM	R62496
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	8/28/2019 6:58:18 PM	R62496
Total Alkalinity (as CaCO3)	791.1	20.00	20.00		mg/L Ca	1	8/28/2019 6:58:18 PM	R62496
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>KS</b>	
Total Dissolved Solids	4450	100	100	*D	mg/L	1	9/3/2019 10:47:00 AM	47157

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Field Balnk #2

Project: 2019 Annual GW Sampling Event

Collection Date: 8/23/2019 8:15:00 AM

Lab ID: 1908E78-007

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses Result MDL RL Qual Units DF Date Analyzed Batch ID

EPA METHOD 8015D: DIESEL RANGE

Analyst: JME

Table with 8 columns: Analyte, Result, MDL, RL, Qual, Units, DF, Date Analyzed, Batch ID. Rows include Diesel Range Organics (DRO), Motor Oil Range Organics (MRO), and Surr: DNOP.

EPA METHOD 300.0: ANIONS

Analyst: CJS

Table with 8 columns: Analyte, Result, MDL, RL, Qual, Units, DF, Date Analyzed, Batch ID. Rows include Fluoride, Chloride, Bromide, Phosphorus, Orthophosphate (As P), Sulfate, and Nitrate+Nitrite as N.

EPA METHOD 7470: MERCURY

Analyst: rde

Table with 8 columns: Analyte, Result, MDL, RL, Qual, Units, DF, Date Analyzed, Batch ID. Row includes Mercury.

EPA METHOD 6010B: DISSOLVED METALS

Analyst: bcv

Table with 8 columns: Analyte, Result, MDL, RL, Qual, Units, DF, Date Analyzed, Batch ID. Rows include Arsenic, Barium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Potassium, Selenium, Silver, Sodium, Uranium, and Zinc.

EPA 6010B: TOTAL RECOVERABLE METALS

Analyst: bcv

Table with 8 columns: Analyte, Result, MDL, RL, Qual, Units, DF, Date Analyzed, Batch ID. Rows include Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, and Silver.

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

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Field Balnk #2

Project: 2019 Annual GW Sampling Event

Collection Date: 8/23/2019 8:15:00 AM

Lab ID: 1908E78-007

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
Benzene	ND	0.17	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Toluene	ND	0.35	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Naphthalene	ND	0.28	2.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Acetone	ND	1.2	10		µg/L	1	8/30/2019 5:16:36 PM	R62584
Bromobenzene	ND	0.24	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Bromoform	ND	0.29	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Bromomethane	ND	0.27	3.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
2-Butanone	ND	2.1	10		µg/L	1	8/30/2019 5:16:36 PM	R62584
Carbon disulfide	ND	0.45	10		µg/L	1	8/30/2019 5:16:36 PM	R62584
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Chloroethane	ND	0.18	2.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Chloroform	ND	0.12	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Chloromethane	ND	0.32	3.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Dibromomethane	ND	0.21	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/30/2019 5:16:36 PM	R62584

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Field Balnk #2

Project: 2019 Annual GW Sampling Event

Collection Date: 8/23/2019 8:15:00 AM

Lab ID: 1908E78-007

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
2-Hexanone	ND	1.5	10		µg/L	1	8/30/2019 5:16:36 PM	R62584
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/30/2019 5:16:36 PM	R62584
Methylene Chloride	ND	0.15	3.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Styrene	ND	0.19	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/30/2019 5:16:36 PM	R62584
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/30/2019 5:16:36 PM	R62584
Surr: 1,2-Dichloroethane-d4	93.9	0	70-130		%Rec	1	8/30/2019 5:16:36 PM	R62584
Surr: 4-Bromofluorobenzene	93.4	0	70-130		%Rec	1	8/30/2019 5:16:36 PM	R62584
Surr: Dibromofluoromethane	99.2	0	70-130		%Rec	1	8/30/2019 5:16:36 PM	R62584
Surr: Toluene-d8	97.1	0	70-130		%Rec	1	8/30/2019 5:16:36 PM	R62584
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: JMR
Gasoline Range Organics (GRO)	ND	0.031	0.050		mg/L	1	8/30/2019 5:16:36 PM	G62584
Surr: BFB	96.3	0	70-130		%Rec	1	8/30/2019 5:16:36 PM	G62584
<b>CARBON DIOXIDE</b>								Analyst: JRR
Total Carbon Dioxide	9.7	0	1.0	H	mg CO2/	1	8/28/2019 7:28:07 PM	R62496
<b>SM2510B: SPECIFIC CONDUCTANCE</b>								Analyst: JRR
Conductivity	ND	5.0	5.0		µmhos/c	1	8/28/2019 7:28:07 PM	R62496

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

**Analytical Report**

Lab Order **1908E78**

Date Reported: **10/1/2019**

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

**Client Sample ID:** Field Balnk #2

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 8:15:00 AM

**Lab ID:** 1908E78-007

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
							Analyst: <b>JRR</b>	
<b>SM2320B: ALKALINITY</b>								
Bicarbonate (As CaCO3)	ND	20.00	20.00		mg/L Ca	1	8/28/2019 7:28:07 PM	R62496
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	8/28/2019 7:28:07 PM	R62496
Total Alkalinity (as CaCO3)	ND	20.00	20.00		mg/L Ca	1	8/28/2019 7:28:07 PM	R62496
							Analyst: <b>KS</b>	
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>								
Total Dissolved Solids	ND	20.0	20.0		mg/L	1	9/3/2019 10:47:00 AM	47157

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

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

**Client Sample ID:** MW-44

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 8:40:00 AM

**Lab ID:** 1908E78-008

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>								
						Analyst: <b>JME</b>		
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	8/29/2019 4:26:58 AM	47076
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	8/29/2019 4:26:58 AM	47076
Surr: DNOP	109	0	52.7-168		%Rec	1	8/29/2019 4:26:58 AM	47076
<b>EPA METHOD 300.0: ANIONS</b>								
						Analyst: <b>CJS</b>		
Fluoride	ND	0.073	0.50		mg/L	5	9/9/2019 1:29:23 PM	R62781
Chloride	50	1.2	2.5		mg/L	5	9/9/2019 1:29:23 PM	R62781
Bromide	ND	0.25	0.50		mg/L	5	9/9/2019 1:29:23 PM	R62781
Phosphorus, Orthophosphate (As P)	ND	5.0	10	H	mg/L	20	9/9/2019 1:41:45 PM	R62781
Sulfate	3500	25	50	*	mg/L	100	9/10/2019 5:30:57 PM	A62815
Nitrate+Nitrite as N	0.11	0.048	1.0	J	mg/L	5	9/9/2019 7:27:26 PM	R62781
<b>EPA METHOD 7470: MERCURY</b>								
						Analyst: <b>rde</b>		
Mercury	0.00014	0.000038	0.00020	J	mg/L	1	9/12/2019 3:55:59 PM	47428
<b>EPA METHOD 6010B: DISSOLVED METALS</b>								
						Analyst: <b>bcv</b>		
Arsenic	ND	0.019	0.020		mg/L	1	9/9/2019 10:32:51 AM	A62764
Barium	0.0096	0.00056	0.020	J	mg/L	1	9/9/2019 10:32:51 AM	A62764
Cadmium	ND	0.00058	0.0020		mg/L	1	9/9/2019 10:32:51 AM	A62764
Calcium	470	0.30	5.0		mg/L	5	9/9/2019 10:34:48 AM	A62764
Chromium	ND	0.0012	0.0060		mg/L	1	9/9/2019 10:32:51 AM	A62764
Copper	0.0024	0.0023	0.0060	J	mg/L	1	9/9/2019 10:32:51 AM	A62764
Iron	0.014	0.0054	0.020	J	mg/L	1	9/9/2019 10:32:51 AM	A62764
Lead	ND	0.0048	0.0050		mg/L	1	9/9/2019 10:32:51 AM	A62764
Magnesium	59	0.061	1.0		mg/L	1	9/9/2019 10:32:51 AM	A62764
Manganese	0.43	0.00026	0.0020		mg/L	1	9/9/2019 10:32:51 AM	A62764
Potassium	7.6	0.11	1.0		mg/L	1	9/9/2019 10:32:51 AM	A62764
Selenium	ND	0.041	0.050		mg/L	1	9/9/2019 10:32:51 AM	A62764
Silver	0.0063	0.0013	0.0050		mg/L	1	9/9/2019 10:32:51 AM	A62764
Sodium	880	2.4	10		mg/L	10	9/9/2019 12:52:32 PM	A62764
Uranium	ND	0.062	0.10		mg/L	1	9/9/2019 10:32:51 AM	A62764
Zinc	0.024	0.0026	0.020		mg/L	1	9/9/2019 10:32:51 AM	A62764
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>								
						Analyst: <b>bcv</b>		
Arsenic	0.017	0.015	0.020	J	mg/L	1	9/9/2019 8:33:15 AM	47071
Barium	0.082	0.0012	0.020		mg/L	1	9/5/2019 2:44:17 PM	47071
Cadmium	ND	0.00055	0.0020		mg/L	1	9/5/2019 2:44:17 PM	47071
Chromium	0.0072	0.00086	0.0060		mg/L	1	9/5/2019 2:44:17 PM	47071
Lead	0.0042	0.0035	0.0050	J	mg/L	1	9/5/2019 2:44:17 PM	47071
Selenium	ND	0.035	0.050		mg/L	1	9/9/2019 8:33:15 AM	47071
Silver	0.0056	0.00055	0.0050		mg/L	1	9/5/2019 2:44:17 PM	47071

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

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

**Client Sample ID:** MW-44

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 8:40:00 AM

**Lab ID:** 1908E78-008

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
Benzene	ND	0.17	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Toluene	ND	0.35	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Methyl tert-butyl ether (MTBE)	1.0	0.46	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Naphthalene	ND	0.28	2.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Acetone	ND	1.2	10		µg/L	1	8/30/2019 5:45:27 PM	R62584
Bromobenzene	ND	0.24	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Bromoform	ND	0.29	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Bromomethane	ND	0.27	3.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
2-Butanone	ND	2.1	10		µg/L	1	8/30/2019 5:45:27 PM	R62584
Carbon disulfide	ND	0.45	10		µg/L	1	8/30/2019 5:45:27 PM	R62584
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Chloroethane	ND	0.18	2.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Chloroform	ND	0.12	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Chloromethane	ND	0.32	3.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Dibromomethane	ND	0.21	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/30/2019 5:45:27 PM	R62584

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

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

**Client Sample ID:** MW-44

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 8:40:00 AM

**Lab ID:** 1908E78-008

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
2-Hexanone	ND	1.5	10		µg/L	1	8/30/2019 5:45:27 PM	R62584
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/30/2019 5:45:27 PM	R62584
Methylene Chloride	ND	0.15	3.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Styrene	ND	0.19	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/30/2019 5:45:27 PM	R62584
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/30/2019 5:45:27 PM	R62584
Surr: 1,2-Dichloroethane-d4	95.3	0	70-130		%Rec	1	8/30/2019 5:45:27 PM	R62584
Surr: 4-Bromofluorobenzene	97.7	0	70-130		%Rec	1	8/30/2019 5:45:27 PM	R62584
Surr: Dibromofluoromethane	102	0	70-130		%Rec	1	8/30/2019 5:45:27 PM	R62584
Surr: Toluene-d8	101	0	70-130		%Rec	1	8/30/2019 5:45:27 PM	R62584
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: JMR
Gasoline Range Organics (GRO)	ND	0.031	0.050		mg/L	1	8/30/2019 5:45:27 PM	G62584
Surr: BFB	101	0	70-130		%Rec	1	8/30/2019 5:45:27 PM	G62584
<b>CARBON DIOXIDE</b>								Analyst: JRR
Total Carbon Dioxide	340	0	1.0	H	mg CO2/	1	8/28/2019 7:34:01 PM	R62496
<b>SM2510B: SPECIFIC CONDUCTANCE</b>								Analyst: JRR
Conductivity	5800	5.0	5.0		µmhos/c	1	8/28/2019 7:34:01 PM	R62496

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

**Qualifiers:**

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

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

**Hall Environmental Analysis Laboratory, Inc.**

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

**Client Sample ID:** MW-44

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 8:40:00 AM

**Lab ID:** 1908E78-008

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
							Analyst: <b>JRR</b>	
<b>SM2320B: ALKALINITY</b>								
Bicarbonate (As CaCO3)	371.1	20.00	20.00		mg/L Ca	1	8/28/2019 7:34:01 PM	R62496
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	8/28/2019 7:34:01 PM	R62496
Total Alkalinity (as CaCO3)	371.1	20.00	20.00		mg/L Ca	1	8/28/2019 7:34:01 PM	R62496
							Analyst: <b>KS</b>	
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>								
Total Dissolved Solids	4830	100	100	*D	mg/L	1	9/3/2019 10:47:00 AM	47157

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

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-62

Project: 2019 Annual GW Sampling Event

Collection Date: 8/23/2019 9:10:00 AM

Lab ID: 1908E78-009

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>								Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	8/29/2019 5:40:30 AM	47077
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	8/29/2019 5:40:30 AM	47077
Surr: DNOP	117	0	52.7-168		%Rec	1	8/29/2019 5:40:30 AM	47077
<b>EPA METHOD 300.0: ANIONS</b>								Analyst: <b>CJS</b>
Fluoride	ND	0.073	0.50		mg/L	5	9/9/2019 2:18:47 PM	R62781
Chloride	12	1.2	2.5		mg/L	5	9/9/2019 2:18:47 PM	R62781
Bromide	ND	0.25	0.50		mg/L	5	9/9/2019 2:18:47 PM	R62781
Phosphorus, Orthophosphate (As P)	ND	5.0	10	H	mg/L	20	9/9/2019 2:31:07 PM	R62781
Sulfate	4000	25	50	*	mg/L	100	9/10/2019 6:09:33 PM	A62815
Nitrate+Nitrite as N	0.076	0.048	1.0	J	mg/L	5	9/9/2019 7:39:47 PM	R62781
<b>EPA METHOD 7470: MERCURY</b>								Analyst: <b>rde</b>
Mercury	0.00012	0.000038	0.00020	J	mg/L	1	9/12/2019 3:58:11 PM	47428
<b>EPA METHOD 6010B: DISSOLVED METALS</b>								Analyst: <b>bcv</b>
Arsenic	ND	0.019	0.020		mg/L	1	9/9/2019 10:36:38 AM	B62764
Barium	0.0091	0.00056	0.020	J	mg/L	1	9/9/2019 10:36:38 AM	B62764
Cadmium	ND	0.00058	0.0020		mg/L	1	9/9/2019 10:36:38 AM	B62764
Calcium	440	0.30	5.0		mg/L	5	9/9/2019 10:38:35 AM	B62764
Chromium	ND	0.0012	0.0060		mg/L	1	9/9/2019 10:36:38 AM	B62764
Copper	0.0023	0.0023	0.0060	J	mg/L	1	9/9/2019 10:36:38 AM	B62764
Iron	ND	0.0054	0.020		mg/L	1	9/9/2019 10:36:38 AM	B62764
Lead	ND	0.0048	0.0050		mg/L	1	9/9/2019 10:36:38 AM	B62764
Magnesium	39	0.061	1.0		mg/L	1	9/9/2019 10:36:38 AM	B62764
Manganese	1.4	0.0013	0.010		mg/L	5	9/9/2019 10:38:35 AM	B62764
Potassium	8.8	0.11	1.0		mg/L	1	9/9/2019 10:36:38 AM	B62764
Selenium	ND	0.041	0.050		mg/L	1	9/9/2019 10:36:38 AM	B62764
Silver	0.0058	0.0013	0.0050		mg/L	1	9/9/2019 10:36:38 AM	B62764
Sodium	1400	4.8	20		mg/L	20	9/9/2019 12:54:21 PM	B62764
Uranium	ND	0.062	0.10		mg/L	1	9/9/2019 10:36:38 AM	B62764
Zinc	0.024	0.0026	0.020		mg/L	1	9/9/2019 10:36:38 AM	B62764
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>								Analyst: <b>bcv</b>
Arsenic	ND	0.015	0.020		mg/L	1	9/9/2019 8:34:59 AM	47071
Barium	0.017	0.0012	0.020	J	mg/L	1	9/5/2019 2:45:55 PM	47071
Cadmium	ND	0.00055	0.0020		mg/L	1	9/5/2019 2:45:55 PM	47071
Chromium	ND	0.00086	0.0060		mg/L	1	9/5/2019 2:45:55 PM	47071
Lead	ND	0.0035	0.0050		mg/L	1	9/5/2019 2:45:55 PM	47071
Selenium	ND	0.035	0.050		mg/L	1	9/9/2019 8:34:59 AM	47071
Silver	0.0061	0.00055	0.0050		mg/L	1	9/5/2019 2:45:55 PM	47071

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

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

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

**Client Sample ID:** MW-62

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 9:10:00 AM

**Lab ID:** 1908E78-009

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
Benzene	ND	0.17	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Toluene	ND	0.35	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Naphthalene	ND	0.28	2.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Acetone	ND	1.2	10		µg/L	1	8/30/2019 6:14:18 PM	R62584
Bromobenzene	ND	0.24	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Bromoform	ND	0.29	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Bromomethane	ND	0.27	3.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
2-Butanone	ND	2.1	10		µg/L	1	8/30/2019 6:14:18 PM	R62584
Carbon disulfide	ND	0.45	10		µg/L	1	8/30/2019 6:14:18 PM	R62584
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Chloroethane	ND	0.18	2.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Chloroform	ND	0.12	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Chloromethane	ND	0.32	3.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Dibromomethane	ND	0.21	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/30/2019 6:14:18 PM	R62584

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-62

Project: 2019 Annual GW Sampling Event

Collection Date: 8/23/2019 9:10:00 AM

Lab ID: 1908E78-009

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Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
2-Hexanone	ND	1.5	10		µg/L	1	8/30/2019 6:14:18 PM	R62584
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/30/2019 6:14:18 PM	R62584
Methylene Chloride	ND	0.15	3.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Styrene	ND	0.19	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/30/2019 6:14:18 PM	R62584
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/30/2019 6:14:18 PM	R62584
Surr: 1,2-Dichloroethane-d4	94.2	0	70-130		%Rec	1	8/30/2019 6:14:18 PM	R62584
Surr: 4-Bromofluorobenzene	96.6	0	70-130		%Rec	1	8/30/2019 6:14:18 PM	R62584
Surr: Dibromofluoromethane	100	0	70-130		%Rec	1	8/30/2019 6:14:18 PM	R62584
Surr: Toluene-d8	98.4	0	70-130		%Rec	1	8/30/2019 6:14:18 PM	R62584
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: JMR
Gasoline Range Organics (GRO)	ND	0.031	0.050		mg/L	1	8/30/2019 6:14:18 PM	G62584
Surr: BFB	99.5	0	70-130		%Rec	1	8/30/2019 6:14:18 PM	G62584
<b>CARBON DIOXIDE</b>								Analyst: JRR
Total Carbon Dioxide	590	0	1.0	H	mg CO2/	1	8/28/2019 7:50:23 PM	R62496
<b>SM2510B: SPECIFIC CONDUCTANCE</b>								Analyst: JRR
Conductivity	7200	5.0	5.0		µmhos/c	1	8/28/2019 7:50:23 PM	R62496

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

**Analytical Report**

Lab Order **1908E78**

Date Reported: **10/1/2019**

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

**Client Sample ID:** MW-62

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 9:10:00 AM

**Lab ID:** 1908E78-009

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>	
Bicarbonate (As CaCO3)	630.2	20.00	20.00		mg/L Ca	1	8/28/2019 7:50:23 PM	R62496
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	8/28/2019 7:50:23 PM	R62496
Total Alkalinity (as CaCO3)	630.2	20.00	20.00		mg/L Ca	1	8/28/2019 7:50:23 PM	R62496
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>KS</b>	
Total Dissolved Solids	6110	20.0	20.0	*	mg/L	1	9/3/2019 10:47:00 AM	47157

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

**Hall Environmental Analysis Laboratory, Inc.****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** Trip Blank**Project:** 2019 Annual GW Sampling Event**Collection Date:****Lab ID:** 1908E78-010**Matrix:** AQUEOUS**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
Benzene	ND	0.17	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Toluene	ND	0.35	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Naphthalene	ND	0.28	2.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Acetone	ND	1.2	10		µg/L	1	8/30/2019 6:43:12 PM	R62584
Bromobenzene	ND	0.24	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Bromoform	ND	0.29	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Bromomethane	ND	0.27	3.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
2-Butanone	ND	2.1	10		µg/L	1	8/30/2019 6:43:12 PM	R62584
Carbon disulfide	ND	0.45	10		µg/L	1	8/30/2019 6:43:12 PM	R62584
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Chlorobenzene	0.48	0.19	1.0	J	µg/L	1	8/30/2019 6:43:12 PM	R62584
Chloroethane	ND	0.18	2.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Chloroform	ND	0.12	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Chloromethane	ND	0.32	3.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Dibromomethane	ND	0.21	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/30/2019 6:43:12 PM	R62584

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

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

**Client Sample ID:** Trip Blank

**Project:** 2019 Annual GW Sampling Event

**Collection Date:**

**Lab ID:** 1908E78-010

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
2-Hexanone	ND	1.5	10		µg/L	1	8/30/2019 6:43:12 PM	R62584
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/30/2019 6:43:12 PM	R62584
Methylene Chloride	0.19	0.15	3.0	J	µg/L	1	8/30/2019 6:43:12 PM	R62584
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Styrene	ND	0.19	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/30/2019 6:43:12 PM	R62584
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/30/2019 6:43:12 PM	R62584
Surr: 1,2-Dichloroethane-d4	96.6	0	70-130		%Rec	1	8/30/2019 6:43:12 PM	R62584
Surr: 4-Bromofluorobenzene	95.7	0	70-130		%Rec	1	8/30/2019 6:43:12 PM	R62584
Surr: Dibromofluoromethane	101	0	70-130		%Rec	1	8/30/2019 6:43:12 PM	R62584
Surr: Toluene-d8	98.5	0	70-130		%Rec	1	8/30/2019 6:43:12 PM	R62584
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: JMR
Gasoline Range Organics (GRO)	ND	0.031	0.050		mg/L	1	8/30/2019 6:43:12 PM	G62584
Surr: BFB	99.4	0	70-130		%Rec	1	8/30/2019 6:43:12 PM	G62584

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

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-31

Project: 2019 Annual GW Sampling Event

Collection Date: 8/23/2019 9:40:00 AM

Lab ID: 1908E78-011

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>								Analyst: <b>JME</b>
Diesel Range Organics (DRO)	1.1	0.13	0.40		mg/L	1	8/29/2019 6:53:42 AM	47077
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	8/29/2019 6:53:42 AM	47077
Surr: DNOP	119	0	52.7-168		%Rec	1	8/29/2019 6:53:42 AM	47077
<b>EPA METHOD 300.0: ANIONS</b>								Analyst: <b>CJS</b>
Fluoride	ND	0.073	0.50		mg/L	5	9/9/2019 2:43:28 PM	R62781
Chloride	130	5.0	10		mg/L	20	9/9/2019 2:55:49 PM	R62781
Bromide	2.9	0.25	0.50		mg/L	5	9/9/2019 2:43:28 PM	R62781
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	9/9/2019 2:43:28 PM	R62781
Sulfate	79	1.2	2.5		mg/L	5	9/9/2019 2:43:28 PM	R62781
Nitrate+Nitrite as N	0.13	0.048	1.0	J	mg/L	5	9/9/2019 7:52:08 PM	R62781
<b>EPA METHOD 7470: MERCURY</b>								Analyst: <b>rde</b>
Mercury	0.000082	0.000038	0.00020	J	mg/L	1	9/12/2019 4:00:23 PM	47428
<b>EPA METHOD 6010B: DISSOLVED METALS</b>								Analyst: <b>bcv</b>
Arsenic	ND	0.019	0.020		mg/L	1	9/9/2019 10:45:59 AM	B62764
Barium	0.87	0.00056	0.020		mg/L	1	9/9/2019 10:45:59 AM	B62764
Cadmium	ND	0.00058	0.0020		mg/L	1	9/9/2019 10:45:59 AM	B62764
Calcium	110	0.30	5.0		mg/L	5	9/9/2019 10:47:53 AM	B62764
Chromium	ND	0.0012	0.0060		mg/L	1	9/9/2019 10:45:59 AM	B62764
Copper	ND	0.0023	0.0060		mg/L	1	9/9/2019 10:45:59 AM	B62764
Iron	0.035	0.0054	0.020		mg/L	1	9/9/2019 10:45:59 AM	B62764
Lead	ND	0.0048	0.0050		mg/L	1	9/9/2019 10:45:59 AM	B62764
Magnesium	37	0.061	1.0		mg/L	1	9/9/2019 10:45:59 AM	B62764
Manganese	0.63	0.00026	0.0020		mg/L	1	9/9/2019 10:45:59 AM	B62764
Potassium	3.8	0.11	1.0		mg/L	1	9/9/2019 10:45:59 AM	B62764
Selenium	ND	0.041	0.050		mg/L	1	9/9/2019 10:45:59 AM	B62764
Silver	0.0016	0.0013	0.0050	J	mg/L	1	9/9/2019 10:45:59 AM	B62764
Sodium	480	1.2	5.0		mg/L	5	9/9/2019 10:47:53 AM	B62764
Uranium	ND	0.062	0.10		mg/L	1	9/9/2019 10:45:59 AM	B62764
Zinc	0.011	0.0026	0.020	J	mg/L	1	9/9/2019 10:45:59 AM	B62764
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>								Analyst: <b>bcv</b>
Arsenic	ND	0.015	0.020		mg/L	1	9/9/2019 8:36:53 AM	47071
Barium	0.92	0.0012	0.020		mg/L	1	9/5/2019 2:57:08 PM	47071
Cadmium	ND	0.00055	0.0020		mg/L	1	9/5/2019 2:57:08 PM	47071
Chromium	ND	0.00086	0.0060		mg/L	1	9/5/2019 2:57:08 PM	47071
Lead	ND	0.0035	0.0050		mg/L	1	9/5/2019 2:57:08 PM	47071
Selenium	ND	0.035	0.050		mg/L	1	9/9/2019 8:36:53 AM	47071
Silver	0.0020	0.00055	0.0050	J	mg/L	1	9/5/2019 2:57:08 PM	47071

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

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

**Client Sample ID:** MW-31

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 9:40:00 AM

**Lab ID:** 1908E78-011

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
Benzene	1100	3.3	20		µg/L	20	9/3/2019 12:40:54 PM	W6258
Toluene	390	7.0	20		µg/L	20	9/3/2019 12:40:54 PM	W6258
Ethylbenzene	710	2.6	20		µg/L	20	9/3/2019 12:40:54 PM	W6258
Methyl tert-butyl ether (MTBE)	0.51	0.46	1.0	J	µg/L	1	8/30/2019 7:12:01 PM	R62584
1,2,4-Trimethylbenzene	330	4.3	20		µg/L	20	9/3/2019 12:40:54 PM	W6258
1,3,5-Trimethylbenzene	33	0.19	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
Naphthalene	160	5.5	40		µg/L	20	9/3/2019 12:40:54 PM	W6258
1-Methylnaphthalene	78	0.31	4.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
2-Methylnaphthalene	74	0.35	4.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
Acetone	ND	1.2	10		µg/L	1	8/30/2019 7:12:01 PM	R62584
Bromobenzene	ND	0.24	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
Bromoform	ND	0.29	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
Bromomethane	ND	0.27	3.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
2-Butanone	ND	2.1	10		µg/L	1	8/30/2019 7:12:01 PM	R62584
Carbon disulfide	ND	0.45	10		µg/L	1	8/30/2019 7:12:01 PM	R62584
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
Chloroethane	ND	0.18	2.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
Chloroform	ND	0.12	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
Chloromethane	ND	0.32	3.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
Dibromomethane	ND	0.21	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/30/2019 7:12:01 PM	R62584

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

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

**Client Sample ID:** MW-31

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 9:40:00 AM

**Lab ID:** 1908E78-011

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
2-Hexanone	ND	1.5	10		µg/L	1	8/30/2019 7:12:01 PM	R62584
Isopropylbenzene	55	0.19	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
4-Isopropyltoluene	2.6	0.22	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/30/2019 7:12:01 PM	R62584
Methylene Chloride	ND	0.15	3.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
n-Propylbenzene	190	4.3	20		µg/L	20	9/3/2019 12:40:54 PM	W6258
sec-Butylbenzene	35	0.25	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
Styrene	0.27	0.19	1.0	J	µg/L	1	8/30/2019 7:12:01 PM	R62584
tert-Butylbenzene	2.4	0.21	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/30/2019 7:12:01 PM	R62584
Xylenes, Total	1200	9.1	30		µg/L	20	9/3/2019 12:40:54 PM	W6258
Surr: 1,2-Dichloroethane-d4	114	0	70-130		%Rec	1	8/30/2019 7:12:01 PM	R62584
Surr: 4-Bromofluorobenzene	156	0	70-130	S	%Rec	1	8/30/2019 7:12:01 PM	R62584
Surr: Dibromofluoromethane	113	0	70-130		%Rec	1	8/30/2019 7:12:01 PM	R62584
Surr: Toluene-d8	99.8	0	70-130		%Rec	1	8/30/2019 7:12:01 PM	R62584
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: JMR
Gasoline Range Organics (GRO)	11	0.61	1.0		mg/L	20	9/3/2019 12:40:54 PM	G6258
Surr: BFB	97.5	0	70-130		%Rec	20	9/3/2019 12:40:54 PM	G6258
<b>CARBON DIOXIDE</b>								Analyst: JRR
Total Carbon Dioxide	960	0	2.5	H	mg CO2/	2.5	9/4/2019 12:06:53 AM	R62602
<b>SM2510B: SPECIFIC CONDUCTANCE</b>								Analyst: JRR
Conductivity	2800	5.0	5.0		µmhos/c	1	8/28/2019 8:14:40 PM	R6249

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

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

**Client Sample ID:** MW-31

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 9:40:00 AM

**Lab ID:** 1908E78-011

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>	
Bicarbonate (As CaCO3)	1073	50.00	50.00		mg/L Ca	2.5	9/4/2019 12:06:53 AM	R62602
Carbonate (As CaCO3)	ND	5.000	5.000		mg/L Ca	2.5	9/4/2019 12:06:53 AM	R62602
Total Alkalinity (as CaCO3)	1073	50.00	50.00		mg/L Ca	2.5	9/4/2019 12:06:53 AM	R62602
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>KS</b>	
Total Dissolved Solids	1720	40.0	40.0	*D	mg/L	1	9/3/2019 10:47:00 AM	47157

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-29

Project: 2019 Annual GW Sampling Event

Collection Date: 8/23/2019 10:30:00 AM

Lab ID: 1908E78-012

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Table with columns: Analyses, Result, MDL, RL, Qual, Units, DF, Date Analyzed, Batch ID. Contains sections for EPA METHOD 8015D: DIESEL RANGE, EPA METHOD 300.0: ANIONS, EPA METHOD 7470: MERCURY, EPA METHOD 6010B: DISSOLVED METALS, and EPA 6010B: TOTAL RECOVERABLE METALS.

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

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

**Client Sample ID:** MW-29

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 10:30:00 AM

**Lab ID:** 1908E78-012

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
Benzene	0.36	0.17	1.0	J	µg/L	1	8/30/2019 7:40:52 PM	R62584
Toluene	ND	0.35	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
Ethylbenzene	0.18	0.13	1.0	J	µg/L	1	8/30/2019 7:40:52 PM	R62584
Methyl tert-butyl ether (MTBE)	0.51	0.46	1.0	J	µg/L	1	8/30/2019 7:40:52 PM	R62584
1,2,4-Trimethylbenzene	0.38	0.21	1.0	J	µg/L	1	8/30/2019 7:40:52 PM	R62584
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
Naphthalene	0.30	0.28	2.0	J	µg/L	1	8/30/2019 7:40:52 PM	R62584
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
Acetone	ND	1.2	10		µg/L	1	8/30/2019 7:40:52 PM	R62584
Bromobenzene	ND	0.24	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
Bromoform	ND	0.29	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
Bromomethane	ND	0.27	3.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
2-Butanone	ND	2.1	10		µg/L	1	8/30/2019 7:40:52 PM	R62584
Carbon disulfide	ND	0.45	10		µg/L	1	8/30/2019 7:40:52 PM	R62584
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
Chloroethane	ND	0.18	2.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
Chloroform	ND	0.12	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
Chloromethane	ND	0.32	3.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
Dibromomethane	ND	0.21	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/30/2019 7:40:52 PM	R62584

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

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

**Client Sample ID:** MW-29

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 10:30:00 AM

**Lab ID:** 1908E78-012

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
2-Hexanone	ND	1.5	10		µg/L	1	8/30/2019 7:40:52 PM	R62584
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/30/2019 7:40:52 PM	R62584
Methylene Chloride	ND	0.15	3.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
Styrene	ND	0.19	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/30/2019 7:40:52 PM	R62584
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/30/2019 7:40:52 PM	R62584
Surr: 1,2-Dichloroethane-d4	93.4	0	70-130		%Rec	1	8/30/2019 7:40:52 PM	R62584
Surr: 4-Bromofluorobenzene	97.1	0	70-130		%Rec	1	8/30/2019 7:40:52 PM	R62584
Surr: Dibromofluoromethane	100	0	70-130		%Rec	1	8/30/2019 7:40:52 PM	R62584
Surr: Toluene-d8	98.9	0	70-130		%Rec	1	8/30/2019 7:40:52 PM	R62584
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: JMR
Gasoline Range Organics (GRO)	ND	0.031	0.050		mg/L	1	8/30/2019 7:40:52 PM	G62584
Surr: BFB	101	0	70-130		%Rec	1	8/30/2019 7:40:52 PM	G62584
<b>CARBON DIOXIDE</b>								Analyst: JRR
Total Carbon Dioxide	250	0	1.0	H	mg CO2/	1	8/28/2019 8:49:48 PM	R62496
<b>SM2510B: SPECIFIC CONDUCTANCE</b>								Analyst: JRR
Conductivity	1100	5.0	5.0		µmhos/c	1	8/28/2019 8:49:48 PM	R62496

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

**Analytical Report**

Lab Order **1908E78**

Date Reported: **10/1/2019**

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

**Client Sample ID:** MW-29

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 10:30:00 AM

**Lab ID:** 1908E78-012

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>	
Bicarbonate (As CaCO3)	266.8	20.00	20.00		mg/L Ca	1	8/28/2019 8:49:48 PM	R62496
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	8/28/2019 8:49:48 PM	R62496
Total Alkalinity (as CaCO3)	266.8	20.00	20.00		mg/L Ca	1	8/28/2019 8:49:48 PM	R62496
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>KS</b>	
Total Dissolved Solids	640	40.0	40.0	*D	mg/L	1	9/3/2019 10:47:00 AM	47157

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-53

Project: 2019 Annual GW Sampling Event

Collection Date: 8/23/2019 11:35:00 AM

Lab ID: 1908E78-013

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses Result MDL RL Qual Units DF Date Analyzed Batch ID

EPA METHOD 8015D: DIESEL RANGE

Analyst: JME

Table with 8 columns: Analyte, Result, MDL, RL, Qual, Units, DF, Date Analyzed, Batch ID. Rows include Diesel Range Organics (DRO), Motor Oil Range Organics (MRO), and Surr: DNOP.

EPA METHOD 300.0: ANIONS

Analyst: CJS

Table with 8 columns: Analyte, Result, MDL, RL, Qual, Units, DF, Date Analyzed, Batch ID. Rows include Fluoride, Chloride, Bromide, Phosphorus, Orthophosphate (As P), Sulfate, and Nitrate+Nitrite as N.

EPA METHOD 7470: MERCURY

Analyst: rde

Table with 8 columns: Analyte, Result, MDL, RL, Qual, Units, DF, Date Analyzed, Batch ID. Row includes Mercury.

EPA METHOD 6010B: DISSOLVED METALS

Analyst: bcv

Table with 8 columns: Analyte, Result, MDL, RL, Qual, Units, DF, Date Analyzed, Batch ID. Rows include Arsenic, Barium, Cadmium, Calcium, Chromium, Copper, Iron, Lead, Magnesium, Manganese, Potassium, Selenium, Silver, Sodium, Uranium, and Zinc.

EPA 6010B: TOTAL RECOVERABLE METALS

Analyst: bcv

Table with 8 columns: Analyte, Result, MDL, RL, Qual, Units, DF, Date Analyzed, Batch ID. Rows include Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, and Silver.

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

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

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

**Client Sample ID:** MW-53

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 11:35:00 AM

**Lab ID:** 1908E78-013

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
Benzene	ND	0.17	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Toluene	ND	0.35	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Methyl tert-butyl ether (MTBE)	0.69	0.46	1.0	J	µg/L	1	8/30/2019 8:09:41 PM	R62584
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Naphthalene	ND	0.28	2.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Acetone	ND	1.2	10		µg/L	1	8/30/2019 8:09:41 PM	R62584
Bromobenzene	ND	0.24	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Bromoform	ND	0.29	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Bromomethane	ND	0.27	3.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
2-Butanone	ND	2.1	10		µg/L	1	8/30/2019 8:09:41 PM	R62584
Carbon disulfide	ND	0.45	10		µg/L	1	8/30/2019 8:09:41 PM	R62584
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Chloroethane	ND	0.18	2.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Chloroform	ND	0.12	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Chloromethane	ND	0.32	3.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Dibromomethane	ND	0.21	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/30/2019 8:09:41 PM	R62584

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

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

**Client Sample ID:** MW-53

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 11:35:00 AM

**Lab ID:** 1908E78-013

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
2-Hexanone	ND	1.5	10		µg/L	1	8/30/2019 8:09:41 PM	R62584
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/30/2019 8:09:41 PM	R62584
Methylene Chloride	ND	0.15	3.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Styrene	ND	0.19	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/30/2019 8:09:41 PM	R62584
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/30/2019 8:09:41 PM	R62584
Surr: 1,2-Dichloroethane-d4	92.4	0	70-130		%Rec	1	8/30/2019 8:09:41 PM	R62584
Surr: 4-Bromofluorobenzene	95.6	0	70-130		%Rec	1	8/30/2019 8:09:41 PM	R62584
Surr: Dibromofluoromethane	97.8	0	70-130		%Rec	1	8/30/2019 8:09:41 PM	R62584
Surr: Toluene-d8	98.1	0	70-130		%Rec	1	8/30/2019 8:09:41 PM	R62584
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: JMR
Gasoline Range Organics (GRO)	ND	0.031	0.050		mg/L	1	8/30/2019 8:09:41 PM	G62584
Surr: BFB	98.2	0	70-130		%Rec	1	8/30/2019 8:09:41 PM	G62584
<b>CARBON DIOXIDE</b>								Analyst: JRR
Total Carbon Dioxide	320	0	1.0	H	mg CO2/	1	8/28/2019 9:02:51 PM	R62496
<b>SM2510B: SPECIFIC CONDUCTANCE</b>								Analyst: JRR
Conductivity	5200	5.0	5.0		µmhos/c	1	8/28/2019 9:02:51 PM	R62496

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

**Analytical Report**

Lab Order **1908E78**

Date Reported: **10/1/2019**

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

**Client Sample ID:** MW-53

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 11:35:00 AM

**Lab ID:** 1908E78-013

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>	
Bicarbonate (As CaCO3)	350.9	20.00	20.00		mg/L Ca	1	8/28/2019 9:02:51 PM	R62496
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	8/28/2019 9:02:51 PM	R62496
Total Alkalinity (as CaCO3)	350.9	20.00	20.00		mg/L Ca	1	8/28/2019 9:02:51 PM	R62496
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>KS</b>	
Total Dissolved Solids	3380	40.0	40.0	*D	mg/L	1	9/3/2019 10:47:00 AM	47157

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

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-52

Project: 2019 Annual GW Sampling Event

Collection Date: 8/23/2019 12:15:00 PM

Lab ID: 1908E78-014

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>								Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	8/29/2019 8:07:06 AM	47077
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	8/29/2019 8:07:06 AM	47077
Surr: DNOP	124	0	52.7-168		%Rec	1	8/29/2019 8:07:06 AM	47077
<b>EPA METHOD 300.0: ANIONS</b>								Analyst: <b>CJS</b>
Fluoride	ND	0.073	0.50		mg/L	5	9/9/2019 3:57:34 PM	R62781
Chloride	830	12	25	*	mg/L	50	9/10/2019 6:35:17 PM	A62815
Bromide	2.3	0.25	0.50		mg/L	5	9/9/2019 3:57:34 PM	R62781
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	9/9/2019 3:57:34 PM	R62781
Sulfate	1400	12	25	*	mg/L	50	9/10/2019 6:35:17 PM	A62815
Nitrate+Nitrite as N	39	0.097	2.0	*	mg/L	10	9/13/2019 1:17:21 PM	R6294C
<b>EPA METHOD 7470: MERCURY</b>								Analyst: <b>rde</b>
Mercury	0.00014	0.000038	0.00020	J	mg/L	1	9/12/2019 4:13:57 PM	47428
<b>EPA METHOD 6010B: DISSOLVED METALS</b>								Analyst: <b>bcv</b>
Arsenic	ND	0.019	0.020		mg/L	1	9/9/2019 10:57:09 AM	B62764
Barium	0.012	0.00056	0.020	J	mg/L	1	9/9/2019 10:57:09 AM	B62764
Cadmium	ND	0.00058	0.0020		mg/L	1	9/9/2019 10:57:09 AM	B62764
Calcium	340	0.30	5.0		mg/L	5	9/9/2019 10:59:06 AM	B62764
Chromium	ND	0.0012	0.0060		mg/L	1	9/9/2019 10:57:09 AM	B62764
Copper	0.0042	0.0023	0.0060	J	mg/L	1	9/9/2019 10:57:09 AM	B62764
Iron	0.12	0.0054	0.020		mg/L	1	9/9/2019 10:57:09 AM	B62764
Lead	ND	0.0048	0.0050		mg/L	1	9/9/2019 10:57:09 AM	B62764
Magnesium	88	0.061	1.0		mg/L	1	9/9/2019 10:57:09 AM	B62764
Manganese	2.2	0.0013	0.010		mg/L	5	9/9/2019 10:59:06 AM	B62764
Potassium	4.8	0.11	1.0		mg/L	1	9/9/2019 10:57:09 AM	B62764
Selenium	0.11	0.041	0.050		mg/L	1	9/9/2019 10:57:09 AM	B62764
Silver	0.0046	0.0013	0.0050	J	mg/L	1	9/9/2019 10:57:09 AM	B62764
Sodium	640	2.4	10		mg/L	10	9/9/2019 12:58:01 PM	B62764
Uranium	ND	0.062	0.10		mg/L	1	9/9/2019 10:57:09 AM	B62764
Zinc	0.044	0.0026	0.020		mg/L	1	9/9/2019 10:57:09 AM	B62764
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>								Analyst: <b>bcv</b>
Arsenic	ND	0.015	0.020		mg/L	1	9/9/2019 8:49:30 AM	47071
Barium	0.18	0.0012	0.020		mg/L	1	9/5/2019 3:02:05 PM	47071
Cadmium	ND	0.00055	0.0020		mg/L	1	9/5/2019 3:02:05 PM	47071
Chromium	ND	0.00086	0.0060		mg/L	1	9/5/2019 3:02:05 PM	47071
Lead	ND	0.0035	0.0050		mg/L	1	9/5/2019 3:02:05 PM	47071
Selenium	0.083	0.035	0.050		mg/L	1	9/9/2019 8:49:30 AM	47071
Silver	0.0041	0.00055	0.0050	J	mg/L	1	9/5/2019 3:02:05 PM	47071

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-52

Project: 2019 Annual GW Sampling Event

Collection Date: 8/23/2019 12:15:00 PM

Lab ID: 1908E78-014

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
Benzene	ND	0.17	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Toluene	ND	0.35	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Methyl tert-butyl ether (MTBE)	0.57	0.46	1.0	J	µg/L	1	8/30/2019 8:38:29 PM	R62584
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Naphthalene	ND	0.28	2.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Acetone	ND	1.2	10		µg/L	1	8/30/2019 8:38:29 PM	R62584
Bromobenzene	ND	0.24	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Bromoform	ND	0.29	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Bromomethane	ND	0.27	3.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
2-Butanone	ND	2.1	10		µg/L	1	8/30/2019 8:38:29 PM	R62584
Carbon disulfide	ND	0.45	10		µg/L	1	8/30/2019 8:38:29 PM	R62584
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Chloroethane	ND	0.18	2.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Chloroform	ND	0.12	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Chloromethane	ND	0.32	3.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Dibromomethane	ND	0.21	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/30/2019 8:38:29 PM	R62584

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

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

**Client Sample ID:** MW-52

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 12:15:00 PM

**Lab ID:** 1908E78-014

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
2-Hexanone	ND	1.5	10		µg/L	1	8/30/2019 8:38:29 PM	R62584
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/30/2019 8:38:29 PM	R62584
Methylene Chloride	ND	0.15	3.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Styrene	ND	0.19	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/30/2019 8:38:29 PM	R62584
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/30/2019 8:38:29 PM	R62584
Surr: 1,2-Dichloroethane-d4	98.1	0	70-130		%Rec	1	8/30/2019 8:38:29 PM	R62584
Surr: 4-Bromofluorobenzene	97.0	0	70-130		%Rec	1	8/30/2019 8:38:29 PM	R62584
Surr: Dibromofluoromethane	104	0	70-130		%Rec	1	8/30/2019 8:38:29 PM	R62584
Surr: Toluene-d8	98.1	0	70-130		%Rec	1	8/30/2019 8:38:29 PM	R62584
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: JMR
Gasoline Range Organics (GRO)	ND	0.031	0.050		mg/L	1	8/30/2019 8:38:29 PM	G62584
Surr: BFB	99.8	0	70-130		%Rec	1	8/30/2019 8:38:29 PM	G62584
<b>CARBON DIOXIDE</b>								Analyst: JRR
Total Carbon Dioxide	190	0	1.0	H	mg CO2/	1	8/28/2019 9:22:51 PM	R62496
<b>SM2510B: SPECIFIC CONDUCTANCE</b>								Analyst: JRR
Conductivity	5100	5.0	5.0		µmhos/c	1	8/28/2019 9:22:51 PM	R62496

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

**Analytical Report**

Lab Order **1908E78**

Date Reported: **10/1/2019**

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

**Client Sample ID:** MW-52

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 12:15:00 PM

**Lab ID:** 1908E78-014

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>	
Bicarbonate (As CaCO3)	197.6	20.00	20.00		mg/L Ca	1	8/28/2019 9:22:51 PM	R62496
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	8/28/2019 9:22:51 PM	R62496
Total Alkalinity (as CaCO3)	197.6	20.00	20.00		mg/L Ca	1	8/28/2019 9:22:51 PM	R62496
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>KS</b>	
Total Dissolved Solids	3550	40.0	40.0	*D	mg/L	1	9/3/2019 10:47:00 AM	47157

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

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-67

Project: 2019 Annual GW Sampling Event

Collection Date: 8/23/2019 1:30:00 PM

Lab ID: 1908E78-015

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>								Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	8/29/2019 8:31:27 AM	47077
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	8/29/2019 8:31:27 AM	47077
Surr: DNOP	118	0	52.7-168		%Rec	1	8/29/2019 8:31:27 AM	47077
<b>EPA METHOD 300.0: ANIONS</b>								Analyst: <b>CJS</b>
Fluoride	0.52	0.073	0.50		mg/L	5	9/9/2019 4:46:57 PM	R62781
Chloride	17	1.2	2.5		mg/L	5	9/9/2019 4:46:57 PM	R62781
Bromide	ND	0.25	0.50		mg/L	5	9/9/2019 4:46:57 PM	R62781
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	9/9/2019 4:46:57 PM	R62781
Sulfate	260	5.0	10	*	mg/L	20	9/9/2019 4:59:18 PM	R62781
Nitrate+Nitrite as N	3.8	0.048	1.0		mg/L	5	9/9/2019 8:41:30 PM	R62781
<b>EPA METHOD 7470: MERCURY</b>								Analyst: <b>rde</b>
Mercury	0.00013	0.000038	0.00020	J	mg/L	1	9/12/2019 4:16:12 PM	47428
<b>EPA METHOD 6010B: DISSOLVED METALS</b>								Analyst: <b>bcv</b>
Arsenic	ND	0.019	0.020		mg/L	1	9/9/2019 11:00:57 AM	B62764
Barium	0.032	0.00056	0.020		mg/L	1	9/9/2019 11:00:57 AM	B62764
Cadmium	ND	0.00058	0.0020		mg/L	1	9/9/2019 11:00:57 AM	B62764
Calcium	160	0.30	5.0		mg/L	5	9/9/2019 11:02:48 AM	B62764
Chromium	ND	0.0012	0.0060		mg/L	1	9/9/2019 11:00:57 AM	B62764
Copper	ND	0.0023	0.0060		mg/L	1	9/9/2019 11:00:57 AM	B62764
Iron	ND	0.0054	0.020		mg/L	1	9/9/2019 11:00:57 AM	B62764
Lead	ND	0.0048	0.0050		mg/L	1	9/20/2019 9:28:40 AM	A63074
Magnesium	31	0.061	1.0		mg/L	1	9/9/2019 11:00:57 AM	B62764
Manganese	0.15	0.00026	0.0020		mg/L	1	9/9/2019 11:00:57 AM	B62764
Potassium	3.8	0.11	1.0		mg/L	1	9/9/2019 11:00:57 AM	B62764
Selenium	ND	0.041	0.050		mg/L	1	9/9/2019 11:00:57 AM	B62764
Silver	0.0020	0.0013	0.0050	J	mg/L	1	9/9/2019 11:00:57 AM	B62764
Sodium	72	0.24	1.0		mg/L	1	9/9/2019 11:00:57 AM	B62764
Uranium	ND	0.062	0.10		mg/L	1	9/9/2019 11:00:57 AM	B62764
Zinc	0.044	0.0026	0.020		mg/L	1	9/9/2019 11:00:57 AM	B62764
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>								Analyst: <b>bcv</b>
Arsenic	ND	0.015	0.020		mg/L	1	9/9/2019 8:51:14 AM	47071
Barium	0.057	0.0012	0.020		mg/L	1	9/5/2019 3:03:46 PM	47071
Cadmium	ND	0.00055	0.0020		mg/L	1	9/5/2019 3:03:46 PM	47071
Chromium	ND	0.00086	0.0060		mg/L	1	9/5/2019 3:03:46 PM	47071
Lead	0.0045	0.0035	0.0050	J	mg/L	1	9/5/2019 3:03:46 PM	47071
Selenium	ND	0.035	0.050		mg/L	1	9/9/2019 8:51:14 AM	47071
Silver	0.0023	0.00055	0.0050	J	mg/L	1	9/5/2019 3:03:46 PM	47071

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-67

Project: 2019 Annual GW Sampling Event

Collection Date: 8/23/2019 1:30:00 PM

Lab ID: 1908E78-015

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
Benzene	ND	0.17	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Toluene	ND	0.35	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Naphthalene	ND	0.28	2.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Acetone	ND	1.2	10		µg/L	1	8/30/2019 9:07:18 PM	R62584
Bromobenzene	ND	0.24	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Bromoform	ND	0.29	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Bromomethane	ND	0.27	3.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
2-Butanone	ND	2.1	10		µg/L	1	8/30/2019 9:07:18 PM	R62584
Carbon disulfide	ND	0.45	10		µg/L	1	8/30/2019 9:07:18 PM	R62584
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Chloroethane	ND	0.18	2.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Chloroform	ND	0.12	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Chloromethane	ND	0.32	3.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Dibromomethane	ND	0.21	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/30/2019 9:07:18 PM	R62584

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

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

**Client Sample ID:** MW-67

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 1:30:00 PM

**Lab ID:** 1908E78-015

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
2-Hexanone	ND	1.5	10		µg/L	1	8/30/2019 9:07:18 PM	R62584
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/30/2019 9:07:18 PM	R62584
Methylene Chloride	ND	0.15	3.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Styrene	ND	0.19	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/30/2019 9:07:18 PM	R62584
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/30/2019 9:07:18 PM	R62584
Surr: 1,2-Dichloroethane-d4	96.1	0	70-130		%Rec	1	8/30/2019 9:07:18 PM	R62584
Surr: 4-Bromofluorobenzene	99.9	0	70-130		%Rec	1	8/30/2019 9:07:18 PM	R62584
Surr: Dibromofluoromethane	103	0	70-130		%Rec	1	8/30/2019 9:07:18 PM	R62584
Surr: Toluene-d8	97.2	0	70-130		%Rec	1	8/30/2019 9:07:18 PM	R62584
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: JMR
Gasoline Range Organics (GRO)	ND	0.031	0.050		mg/L	1	8/30/2019 9:07:18 PM	G62584
Surr: BFB	103	0	70-130		%Rec	1	8/30/2019 9:07:18 PM	G62584
<b>CARBON DIOXIDE</b>								Analyst: JRR
Total Carbon Dioxide	340	0	1.0	H	mg CO2/	1	8/28/2019 9:46:16 PM	R62496
<b>SM2510B: SPECIFIC CONDUCTANCE</b>								Analyst: JRR
Conductivity	1200	5.0	5.0		µmhos/c	1	8/28/2019 9:46:16 PM	R62496

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

**Qualifiers:**

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

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

**Hall Environmental Analysis Laboratory, Inc.**

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

**Client Sample ID:** MW-67

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 1:30:00 PM

**Lab ID:** 1908E78-015

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
							Analyst: <b>JRR</b>	
<b>SM2320B: ALKALINITY</b>								
Bicarbonate (As CaCO3)	358.2	20.00	20.00		mg/L Ca	1	8/28/2019 9:46:16 PM	R62496
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	8/28/2019 9:46:16 PM	R62496
Total Alkalinity (as CaCO3)	358.2	20.00	20.00		mg/L Ca	1	8/28/2019 9:46:16 PM	R62496
							Analyst: <b>KS</b>	
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>								
Total Dissolved Solids	842	20.0	20.0	*	mg/L	1	9/3/2019 10:47:00 AM	47157

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

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-68

Project: 2019 Annual GW Sampling Event

Collection Date: 8/23/2019 2:30:00 PM

Lab ID: 1908E78-016

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8015D: DIESEL RANGE</b>								Analyst: <b>JME</b>
Diesel Range Organics (DRO)	ND	0.13	0.40		mg/L	1	8/29/2019 8:55:50 AM	47077
Motor Oil Range Organics (MRO)	ND	2.5	2.5		mg/L	1	8/29/2019 8:55:50 AM	47077
Surr: DNOP	119	0	52.7-168		%Rec	1	8/29/2019 8:55:50 AM	47077
<b>EPA METHOD 300.0: ANIONS</b>								Analyst: <b>CJS</b>
Fluoride	0.24	0.073	0.50	J	mg/L	5	9/9/2019 5:11:38 PM	R62781
Chloride	50	1.2	2.5		mg/L	5	9/9/2019 5:11:38 PM	R62781
Bromide	ND	0.25	0.50		mg/L	5	9/9/2019 5:11:38 PM	R62781
Phosphorus, Orthophosphate (As P)	ND	1.2	2.5	H	mg/L	5	9/9/2019 5:11:38 PM	R62781
Sulfate	260	5.0	10	*	mg/L	20	9/9/2019 5:23:58 PM	R62781
Nitrate+Nitrite as N	6.8	0.048	1.0		mg/L	5	9/9/2019 8:53:51 PM	R62781
<b>EPA METHOD 7470: MERCURY</b>								Analyst: <b>rde</b>
Mercury	0.00015	0.000038	0.00020	J	mg/L	1	9/12/2019 4:18:26 PM	47428
<b>EPA METHOD 6010B: DISSOLVED METALS</b>								Analyst: <b>bcv</b>
Arsenic	ND	0.019	0.020		mg/L	1	9/9/2019 11:10:01 AM	B62764
Barium	0.019	0.00056	0.020	J	mg/L	1	9/9/2019 11:10:01 AM	B62764
Cadmium	ND	0.00058	0.0020		mg/L	1	9/9/2019 11:10:01 AM	B62764
Calcium	100	0.30	5.0		mg/L	5	9/11/2019 1:15:40 PM	A62841
Chromium	ND	0.0012	0.0060		mg/L	1	9/9/2019 11:10:01 AM	B62764
Copper	ND	0.0023	0.0060		mg/L	1	9/9/2019 11:10:01 AM	B62764
Iron	ND	0.0054	0.020		mg/L	1	9/9/2019 11:10:01 AM	B62764
Lead	ND	0.0048	0.0050		mg/L	1	9/20/2019 9:30:28 AM	A63074
Magnesium	28	0.061	1.0		mg/L	1	9/9/2019 11:10:01 AM	B62764
Manganese	0.00059	0.00026	0.0020	J	mg/L	1	9/9/2019 11:10:01 AM	B62764
Potassium	2.7	0.11	1.0		mg/L	1	9/9/2019 11:10:01 AM	B62764
Selenium	ND	0.041	0.050		mg/L	1	9/9/2019 11:10:01 AM	B62764
Silver	0.0014	0.0013	0.0050	J	mg/L	1	9/9/2019 11:10:01 AM	B62764
Sodium	100	1.2	5.0		mg/L	5	9/9/2019 11:11:54 AM	B62764
Uranium	ND	0.062	0.10		mg/L	1	9/9/2019 11:10:01 AM	B62764
Zinc	0.010	0.0026	0.020	J	mg/L	1	9/9/2019 11:10:01 AM	B62764
<b>EPA 6010B: TOTAL RECOVERABLE METALS</b>								Analyst: <b>bcv</b>
Arsenic	ND	0.015	0.020		mg/L	1	9/9/2019 8:52:56 AM	47071
Barium	0.15	0.0012	0.020		mg/L	1	9/5/2019 3:05:25 PM	47071
Cadmium	ND	0.00055	0.0020		mg/L	1	9/5/2019 3:05:25 PM	47071
Chromium	0.0049	0.00086	0.0060	J	mg/L	1	9/5/2019 3:05:25 PM	47071
Lead	ND	0.0035	0.0050		mg/L	1	9/5/2019 3:05:25 PM	47071
Selenium	ND	0.035	0.050		mg/L	1	9/9/2019 8:52:56 AM	47071
Silver	0.0011	0.00055	0.0050	J	mg/L	1	9/5/2019 3:05:25 PM	47071

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

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

**Client Sample ID:** MW-68

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 2:30:00 PM

**Lab ID:** 1908E78-016

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
Benzene	ND	0.17	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Toluene	ND	0.35	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Methyl tert-butyl ether (MTBE)	0.47	0.46	1.0	J	µg/L	1	8/30/2019 11:02:40 PM	R62584
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Naphthalene	ND	0.28	2.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Acetone	ND	1.2	10		µg/L	1	8/30/2019 11:02:40 PM	R62584
Bromobenzene	ND	0.24	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Bromoform	ND	0.29	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Bromomethane	ND	0.27	3.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
2-Butanone	ND	2.1	10		µg/L	1	8/30/2019 11:02:40 PM	R62584
Carbon disulfide	ND	0.45	10		µg/L	1	8/30/2019 11:02:40 PM	R62584
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Chlorobenzene	ND	0.19	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Chloroethane	ND	0.18	2.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Chloroform	ND	0.12	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Chloromethane	ND	0.32	3.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Dibromomethane	ND	0.21	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/30/2019 11:02:40 PM	R62584

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-68

Project: 2019 Annual GW Sampling Event

Collection Date: 8/23/2019 2:30:00 PM

Lab ID: 1908E78-016

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
2-Hexanone	ND	1.5	10		µg/L	1	8/30/2019 11:02:40 PM	R62584
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/30/2019 11:02:40 PM	R62584
Methylene Chloride	ND	0.15	3.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Styrene	ND	0.19	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/30/2019 11:02:40 PM	R62584
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/30/2019 11:02:40 PM	R62584
Surr: 1,2-Dichloroethane-d4	93.6	0	70-130		%Rec	1	8/30/2019 11:02:40 PM	R62584
Surr: 4-Bromofluorobenzene	97.7	0	70-130		%Rec	1	8/30/2019 11:02:40 PM	R62584
Surr: Dibromofluoromethane	100	0	70-130		%Rec	1	8/30/2019 11:02:40 PM	R62584
Surr: Toluene-d8	97.0	0	70-130		%Rec	1	8/30/2019 11:02:40 PM	R62584
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: JMR
Gasoline Range Organics (GRO)	ND	0.031	0.050		mg/L	1	8/30/2019 11:02:40 PM	G62584
Surr: BFB	98.1	0	70-130		%Rec	1	8/30/2019 11:02:40 PM	G62584
<b>CARBON DIOXIDE</b>								Analyst: JRR
Total Carbon Dioxide	220	0	1.0	H	mg CO2/	1	8/28/2019 10:02:22 PM	R62496
<b>SM2510B: SPECIFIC CONDUCTANCE</b>								Analyst: JRR
Conductivity	1200	5.0	5.0		µmhos/c	1	8/28/2019 10:02:22 PM	R62496

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

**Qualifiers:**

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

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

**Hall Environmental Analysis Laboratory, Inc.**

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

**Client Sample ID:** MW-68

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/23/2019 2:30:00 PM

**Lab ID:** 1908E78-016

**Matrix:** AQUEOUS

**Received Date:** 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>SM2320B: ALKALINITY</b>							Analyst: <b>JRR</b>	
Bicarbonate (As CaCO3)	238.3	20.00	20.00		mg/L Ca	1	8/28/2019 10:02:22 PM	R62496
Carbonate (As CaCO3)	ND	2.000	2.000		mg/L Ca	1	8/28/2019 10:02:22 PM	R62496
Total Alkalinity (as CaCO3)	238.3	20.00	20.00		mg/L Ca	1	8/28/2019 10:02:22 PM	R62496
<b>SM2540C MOD: TOTAL DISSOLVED SOLIDS</b>							Analyst: <b>KS</b>	
Total Dissolved Solids	802	40.0	40.0	*D	mg/L	1	9/3/2019 10:47:00 AM	47157

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

## Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: 2019 Annual GW Sampling Event

Collection Date:

Lab ID: 1908E78-017

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
Benzene	ND	0.17	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Toluene	ND	0.35	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Ethylbenzene	ND	0.13	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Methyl tert-butyl ether (MTBE)	ND	0.46	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
1,2,4-Trimethylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
1,3,5-Trimethylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
1,2-Dichloroethane (EDC)	ND	0.19	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
1,2-Dibromoethane (EDB)	ND	0.17	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Naphthalene	ND	0.28	2.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
1-Methylnaphthalene	ND	0.31	4.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
2-Methylnaphthalene	ND	0.35	4.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Acetone	ND	1.2	10		µg/L	1	8/30/2019 11:31:28 PM	R62584
Bromobenzene	ND	0.24	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Bromodichloromethane	ND	0.13	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Bromoform	ND	0.29	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Bromomethane	ND	0.27	3.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
2-Butanone	ND	2.1	10		µg/L	1	8/30/2019 11:31:28 PM	R62584
Carbon disulfide	ND	0.45	10		µg/L	1	8/30/2019 11:31:28 PM	R62584
Carbon Tetrachloride	ND	0.14	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Chlorobenzene	0.48	0.19	1.0	J	µg/L	1	8/30/2019 11:31:28 PM	R62584
Chloroethane	ND	0.18	2.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Chloroform	ND	0.12	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Chloromethane	ND	0.32	3.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
2-Chlorotoluene	ND	0.25	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
4-Chlorotoluene	ND	0.23	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
cis-1,2-DCE	ND	0.19	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
cis-1,3-Dichloropropene	ND	0.14	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
1,2-Dibromo-3-chloropropane	ND	0.33	2.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Dibromochloromethane	ND	0.24	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Dibromomethane	ND	0.21	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
1,2-Dichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
1,3-Dichlorobenzene	ND	0.25	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
1,4-Dichlorobenzene	ND	0.29	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Dichlorodifluoromethane	ND	0.26	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
1,1-Dichloroethane	ND	0.14	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
1,1-Dichloroethene	ND	0.21	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
1,2-Dichloropropane	ND	0.21	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
1,3-Dichloropropane	ND	0.20	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
2,2-Dichloropropane	ND	0.23	2.0		µg/L	1	8/30/2019 11:31:28 PM	R62584

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

**Qualifiers:**

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

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908E78

Date Reported: 10/1/2019

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: 2019 Annual GW Sampling Event

Collection Date:

Lab ID: 1908E78-017

Matrix: AQUEOUS

Received Date: 8/24/2019 10:00:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 8260B: VOLATILES</b>								Analyst: JMR
1,1-Dichloropropene	ND	0.16	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Hexachlorobutadiene	ND	0.31	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
2-Hexanone	ND	1.5	10		µg/L	1	8/30/2019 11:31:28 PM	R62584
Isopropylbenzene	ND	0.19	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
4-Isopropyltoluene	ND	0.22	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
4-Methyl-2-pentanone	ND	0.71	10		µg/L	1	8/30/2019 11:31:28 PM	R62584
Methylene Chloride	0.18	0.15	3.0	J	µg/L	1	8/30/2019 11:31:28 PM	R62584
n-Butylbenzene	ND	0.23	3.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
n-Propylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
sec-Butylbenzene	ND	0.25	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Styrene	ND	0.19	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
tert-Butylbenzene	ND	0.21	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
1,1,1,2-Tetrachloroethane	ND	0.21	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
1,1,2,2-Tetrachloroethane	ND	0.55	2.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Tetrachloroethene (PCE)	ND	0.15	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
trans-1,2-DCE	ND	0.18	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
trans-1,3-Dichloropropene	ND	0.17	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
1,2,3-Trichlorobenzene	ND	0.30	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
1,2,4-Trichlorobenzene	ND	0.20	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
1,1,1-Trichloroethane	ND	0.17	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
1,1,2-Trichloroethane	ND	0.22	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Trichloroethene (TCE)	ND	0.17	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Trichlorofluoromethane	ND	0.19	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
1,2,3-Trichloropropane	ND	0.30	2.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Vinyl chloride	ND	0.18	1.0		µg/L	1	8/30/2019 11:31:28 PM	R62584
Xylenes, Total	ND	0.45	1.5		µg/L	1	8/30/2019 11:31:28 PM	R62584
Surr: 1,2-Dichloroethane-d4	95.3	0	70-130		%Rec	1	8/30/2019 11:31:28 PM	R62584
Surr: 4-Bromofluorobenzene	92.9	0	70-130		%Rec	1	8/30/2019 11:31:28 PM	R62584
Surr: Dibromofluoromethane	101	0	70-130		%Rec	1	8/30/2019 11:31:28 PM	R62584
Surr: Toluene-d8	99.6	0	70-130		%Rec	1	8/30/2019 11:31:28 PM	R62584
<b>EPA METHOD 8015D: GASOLINE RANGE</b>								Analyst: JMR
Gasoline Range Organics (GRO)	ND	0.031	0.050		mg/L	1	8/30/2019 11:31:28 PM	G62584
Surr: BFB	97.5	0	70-130		%Rec	1	8/30/2019 11:31:28 PM	G62584

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

**Qualifiers:**

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>MB</b>	SampType: <b>mblk</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62781</b>	RunNo: <b>62781</b>								
Prep Date:	Analysis Date: <b>9/9/2019</b>	SeqNo: <b>2138877</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID: <b>LCS</b>	SampType: <b>ics</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62781</b>	RunNo: <b>62781</b>								
Prep Date:	Analysis Date: <b>9/9/2019</b>	SeqNo: <b>2138878</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.49	0.10	0.5000	0	98.3	90	110			
Chloride	4.9	0.50	5.000	0	97.5	90	110			
Bromide	2.5	0.10	2.500	0	99.5	90	110			
Phosphorus, Orthophosphate (As P)	4.7	0.50	5.000	0	94.1	90	110			
Sulfate	9.9	0.50	10.00	0	99.1	90	110			
Nitrate+Nitrite as N	3.5	0.20	3.500	0	100	90	110			

Sample ID: <b>1908E78-007CMS</b>	SampType: <b>ms</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>Field Balnk #2</b>	Batch ID: <b>R62781</b>	RunNo: <b>62781</b>								
Prep Date:	Analysis Date: <b>9/9/2019</b>	SeqNo: <b>2138892</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.4	0.50	2.500	0	96.9	61.6	129			
Chloride	23	2.5	25.00	0	92.6	83.1	116			
Bromide	12	0.50	12.50	0	94.5	81.9	109			
Sulfate	47	2.5	50.00	0	93.8	84.2	122			

Sample ID: <b>1908E78-007CMSD</b>	SampType: <b>msd</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>Field Balnk #2</b>	Batch ID: <b>R62781</b>	RunNo: <b>62781</b>								
Prep Date:	Analysis Date: <b>9/9/2019</b>	SeqNo: <b>2138893</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.4	0.50	2.500	0	97.1	61.6	129	0.227	20	
Chloride	23	2.5	25.00	0	93.6	83.1	116	1.06	20	
Bromide	12	0.50	12.50	0	95.5	81.9	109	0.960	20	
Sulfate	48	2.5	50.00	0	95.1	84.2	122	1.35	20	

**Qualifiers:**

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- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

Client: Western Refining Southwest, Inc.

Project: 2019 Annual GW Sampling Event

Sample ID: <b>MB</b>	SampType: <b>mblk</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62815</b>	RunNo: <b>62815</b>								
Prep Date:	Analysis Date: <b>9/10/2019</b>	SeqNo: <b>2140293</b>							Units: <b>mg/L</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID: <b>LCS</b>	SampType: <b>ics</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62815</b>	RunNo: <b>62815</b>								
Prep Date:	Analysis Date: <b>9/10/2019</b>	SeqNo: <b>2140294</b>							Units: <b>mg/L</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.8	0.50	5.000	0	97.0	90	110			
Sulfate	9.8	0.50	10.00	0	98.1	90	110			

Sample ID: <b>LCS</b>	SampType: <b>ics</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>A62815</b>	RunNo: <b>62815</b>								
Prep Date:	Analysis Date: <b>9/10/2019</b>	SeqNo: <b>2140323</b>							Units: <b>mg/L</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.0	0.50	5.000	0	101	90	110			
Sulfate	10	0.50	10.00	0	101	90	110			
Nitrate+Nitrite as N	3.6	0.20	3.500	0	102	90	110			

Sample ID: <b>MB</b>	SampType: <b>mblk</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBW</b>	Batch ID: <b>A62815</b>	RunNo: <b>62815</b>								
Prep Date:	Analysis Date: <b>9/10/2019</b>	SeqNo: <b>2140324</b>							Units: <b>mg/L</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	0.041	0.20								J

Sample ID: <b>MB</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62940</b>	RunNo: <b>62940</b>								
Prep Date:	Analysis Date: <b>9/13/2019</b>	SeqNo: <b>2144926</b>							Units: <b>mg/L</b>	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

### Qualifiers:

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ND Not Detected at the Reporting Limit  
PQL Practical Quantitative Limit  
S % Recovery outside of range due to dilution or matrix

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

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

**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>LCS</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 300.0: Anions</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62940</b>	RunNo: <b>62940</b>								
Prep Date:	Analysis Date: <b>9/13/2019</b>	SeqNo: <b>2144928</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	3.4	0.20	3.500	0	98.5	90	110			

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>1908E78-009BMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>MW-62</b>	Batch ID: <b>47077</b>	RunNo: <b>62454</b>								
Prep Date: <b>8/27/2019</b>	Analysis Date: <b>8/29/2019</b>	SeqNo: <b>2126312</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.7	0.40	2.500	0	107	68.3	147			
Surr: DNOP	0.27		0.2500		107	52.7	168			

Sample ID: <b>1908E78-009BMSD</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>MW-62</b>	Batch ID: <b>47077</b>	RunNo: <b>62454</b>								
Prep Date: <b>8/27/2019</b>	Analysis Date: <b>8/29/2019</b>	SeqNo: <b>2126313</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	0.40	2.500	0	114	68.3	147	6.23	20	
Surr: DNOP	0.28		0.2500		113	52.7	168	0	0	

Sample ID: <b>LCS-47076</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>47076</b>	RunNo: <b>62454</b>								
Prep Date: <b>8/27/2019</b>	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126320</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.5	0.40	2.500	0	100	66.7	148			
Surr: DNOP	0.24		0.2500		97.4	52.7	168			

Sample ID: <b>LCS-47077</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>47077</b>	RunNo: <b>62454</b>								
Prep Date: <b>8/27/2019</b>	Analysis Date: <b>8/29/2019</b>	SeqNo: <b>2126321</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	0.40	2.500	0	122	66.7	148			
Surr: DNOP	0.31		0.2500		122	52.7	168			

Sample ID: <b>MB-47076</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47076</b>	RunNo: <b>62454</b>								
Prep Date: <b>8/27/2019</b>	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126322</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	0.40								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.50		0.5000		99.8	52.7	168			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

Client: Western Refining Southwest, Inc.

Project: 2019 Annual GW Sampling Event

Sample ID: <b>MB-47077</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47077</b>	RunNo: <b>62454</b>								
Prep Date: <b>8/27/2019</b>	Analysis Date: <b>8/29/2019</b>	SeqNo: <b>2126323</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	0.40								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.66		0.5000		132	52.7	168			

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: 100ng lcs		SampType: LCS		TestCode: EPA Method 8260B: VOLATILES						
Client ID: LCSW		Batch ID: R62584		RunNo: 62584						
Prep Date:		Analysis Date: 8/30/2019		SeqNo: 2129847			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	100	70	130			
Toluene	19	1.0	20.00	0	96.8	70	130			
Chlorobenzene	20	1.0	20.00	0	98.5	70	130			
1,1-Dichloroethene	19	1.0	20.00	0	93.3	70	130			
Trichloroethene (TCE)	19	1.0	20.00	0	93.7	70	130			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		94.4	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		96.1	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.6	70	130			
Surr: Toluene-d8	9.5		10.00		94.8	70	130			

Sample ID: 1908e78-001ams		SampType: MS		TestCode: EPA Method 8260B: VOLATILES						
Client ID: MW-59		Batch ID: R62584		RunNo: 62584						
Prep Date:		Analysis Date: 8/30/2019		SeqNo: 2129850			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	24	1.0	20.00	7.519	80.9	70	130			
Toluene	17	1.0	20.00	0	83.2	70	130			
Chlorobenzene	17	1.0	20.00	0	85.4	70	130			
1,1-Dichloroethene	15	1.0	20.00	0	74.7	70	130			
Trichloroethene (TCE)	15	1.0	20.00	0	76.3	70	130			
Surr: 1,2-Dichloroethane-d4	10		10.00		99.9	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		96.5	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.9		10.00		99.0	70	130			

Sample ID: 1908e78-001amsd		SampType: MSD		TestCode: EPA Method 8260B: VOLATILES						
Client ID: MW-59		Batch ID: R62584		RunNo: 62584						
Prep Date:		Analysis Date: 8/30/2019		SeqNo: 2129852			Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	25	1.0	20.00	7.519	88.0	70	130	5.75	20	
Toluene	19	1.0	20.00	0	95.1	70	130	13.4	20	
Chlorobenzene	19	1.0	20.00	0	93.8	70	130	9.40	20	
1,1-Dichloroethene	16	1.0	20.00	0	79.7	70	130	6.53	20	
Trichloroethene (TCE)	17	1.0	20.00	0	84.0	70	130	9.69	20	
Surr: 1,2-Dichloroethane-d4	9.6		10.00		96.0	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.8		10.00		97.9	70	130	0	0	
Surr: Dibromofluoromethane	10		10.00		100	70	130	0	0	
Surr: Toluene-d8	9.7		10.00		96.6	70	130	0	0	

**Qualifiers:**

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

Client: Western Refining Southwest, Inc.

Project: 2019 Annual GW Sampling Event

Sample ID: <b>rb</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8260B: VOLATILES</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62584</b>	RunNo: <b>62584</b>								
Prep Date:	Analysis Date: <b>8/30/2019</b>	SeqNo: <b>2129876</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								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sample ID: <b>rb</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8260B: VOLATILES</b>							
Client ID: <b>PBW</b>	Batch ID: <b>R62584</b>		RunNo: <b>62584</b>							
Prep Date:	Analysis Date: <b>8/30/2019</b>		SeqNo: <b>2129876</b>		Units: <b>µg/L</b>					
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.2		10.00		91.6	70	130			
Surr: 4-Bromofluorobenzene	9.5		10.00		94.9	70	130			
Surr: Dibromofluoromethane	9.6		10.00		95.8	70	130			
Surr: Toluene-d8	9.8		10.00		98.4	70	130			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sample ID: <b>100ng lcs</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 8260B: VOLATILES</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>W62589</b>		RunNo: <b>62589</b>							
Prep Date:	Analysis Date: <b>9/3/2019</b>		SeqNo: <b>2131150</b>		Units: <b>µg/L</b>					
Benzene	20	1.0	20.00	0	98.8	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	9.3		10.00		92.8	70	130			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>100ng lcs</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8260B: VOLATILES</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>W62589</b>	RunNo: <b>62589</b>								
Prep Date:	Analysis Date: <b>9/3/2019</b>	SeqNo: <b>2131150</b>	Units: <b>µg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	9.9		10.00		99.2	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.5	70	130			
Surr: Toluene-d8	9.7		10.00		97.4	70	130			

Sample ID: <b>rb</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8260B: VOLATILES</b>								
Client ID: <b>PBW</b>	Batch ID: <b>W62589</b>	RunNo: <b>62589</b>								
Prep Date:	Analysis Date: <b>9/3/2019</b>	SeqNo: <b>2131182</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								
1,2,4-Trimethylbenzene	ND	1.0								
Naphthalene	ND	2.0								
n-Propylbenzene	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.2		10.00		91.7	70	130			
Surr: 4-Bromofluorobenzene	9.9		10.00		98.9	70	130			
Surr: Dibromofluoromethane	10		10.00		100	70	130			
Surr: Toluene-d8	9.7		10.00		96.7	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 Limit                                |
| S % Recovery outside of range due to dilution or matrix |                                                   |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

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

**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>ics-47113</b>		SampType: <b>LCS</b>			TestCode: <b>EPA Method 8270C: Semivolatiles</b>					
Client ID: <b>LCSW</b>		Batch ID: <b>47113</b>			RunNo: <b>62675</b>					
Prep Date: <b>8/28/2019</b>		Analysis Date: <b>9/5/2019</b>			SeqNo: <b>2134037</b>		Units: <b>µg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	70	10	100.0	0	69.8	32.2	94			
4-Chloro-3-methylphenol	130	10	200.0	0	67.5	37.7	101			
2-Chlorophenol	140	10	200.0	0	72.4	32.6	90.1			
1,4-Dichlorobenzene	57	10	100.0	0	57.4	30	87.2			
2,4-Dinitrotoluene	66	10	100.0	0	66.4	35.9	85.8			
N-Nitrosodi-n-propylamine	73	10	100.0	0	73.4	37.1	108			
4-Nitrophenol	87	10	200.0	0	43.3	22.4	86.6			
Pentachlorophenol	110	20	200.0	0	57.0	31.6	91			
Phenol	88	10	200.0	0	43.8	21.7	84.9			
Pyrene	74	10	100.0	0	74.3	46.3	103			
1,2,4-Trichlorobenzene	62	10	100.0	0	61.9	30.2	88.3			
Surr: 2-Fluorophenol	100		200.0		50.2	15	101			
Surr: Phenol-d5	87		200.0		43.6	15	84.6			
Surr: 2,4,6-Tribromophenol	120		200.0		58.6	27.8	112			
Surr: Nitrobenzene-d5	74		100.0		73.8	33	113			
Surr: 2-Fluorobiphenyl	70		100.0		69.8	26.6	107			
Surr: 4-Terphenyl-d14	76		100.0		76.1	18.7	148			

Sample ID: <b>mb-47113</b>		SampType: <b>MBLK</b>			TestCode: <b>EPA Method 8270C: Semivolatiles</b>					
Client ID: <b>PBW</b>		Batch ID: <b>47113</b>			RunNo: <b>62675</b>					
Prep Date: <b>8/28/2019</b>		Analysis Date: <b>9/5/2019</b>			SeqNo: <b>2134038</b>		Units: <b>µg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	10								
Acenaphthylene	ND	10								
Aniline	ND	10								
Anthracene	ND	10								
Azobenzene	ND	10								
Benz(a)anthracene	ND	10								
Benzo(a)pyrene	ND	10								
Benzo(b)fluoranthene	ND	10								
Benzo(g,h,i)perylene	ND	10								
Benzo(k)fluoranthene	ND	10								
Benzoic acid	ND	20								
Benzyl alcohol	ND	10								
Bis(2-chloroethoxy)methane	ND	10								
Bis(2-chloroethyl)ether	ND	10								
Bis(2-chloroisopropyl)ether	ND	10								
Bis(2-ethylhexyl)phthalate	ND	10								

**Qualifiers:**

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>mb-47113</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8270C: Semivolatiles</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47113</b>	RunNo: <b>62675</b>								
Prep Date: <b>8/28/2019</b>	Analysis Date: <b>9/5/2019</b>	SeqNo: <b>2134038</b>	Units: <b>µg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Bromophenyl phenyl ether	ND	10								
Butyl benzyl phthalate	ND	10								
Carbazole	ND	10								
4-Chloro-3-methylphenol	ND	10								
4-Chloroaniline	ND	10								
2-Chloronaphthalene	ND	10								
2-Chlorophenol	ND	10								
4-Chlorophenyl phenyl ether	ND	10								
Chrysene	ND	10								
Di-n-butyl phthalate	ND	10								
Di-n-octyl phthalate	ND	10								
Dibenz(a,h)anthracene	ND	10								
Dibenzofuran	ND	10								
1,2-Dichlorobenzene	ND	10								
1,3-Dichlorobenzene	ND	10								
1,4-Dichlorobenzene	ND	10								
3,3'-Dichlorobenzidine	ND	10								
Diethyl phthalate	ND	10								
Dimethyl phthalate	ND	10								
2,4-Dichlorophenol	ND	20								
2,4-Dimethylphenol	ND	10								
4,6-Dinitro-2-methylphenol	ND	20								
2,4-Dinitrophenol	4.4	20								J
2,4-Dinitrotoluene	ND	10								
2,6-Dinitrotoluene	ND	10								
Fluoranthene	ND	10								
Fluorene	ND	10								
Hexachlorobenzene	ND	10								
Hexachlorobutadiene	ND	10								
Hexachlorocyclopentadiene	ND	10								
Hexachloroethane	ND	10								
Indeno(1,2,3-cd)pyrene	ND	10								
Isophorone	ND	10								
1-Methylnaphthalene	ND	10								
2-Methylnaphthalene	ND	10								
2-Methylphenol	ND	10								
3+4-Methylphenol	ND	10								
N-Nitrosodi-n-propylamine	ND	10								
N-Nitrosodimethylamine	ND	10								

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

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

**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>mb-47113</b>		SampType: <b>MBLK</b>		TestCode: <b>EPA Method 8270C: Semivolatiles</b>						
Client ID: <b>PBW</b>		Batch ID: <b>47113</b>		RunNo: <b>62675</b>						
Prep Date: <b>8/28/2019</b>		Analysis Date: <b>9/5/2019</b>		SeqNo: <b>2134038</b>			Units: <b>µg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
N-Nitrosodiphenylamine	ND	10								
Naphthalene	ND	10								
2-Nitroaniline	ND	10								
3-Nitroaniline	ND	10								
4-Nitroaniline	ND	10								
Nitrobenzene	ND	10								
2-Nitrophenol	ND	10								
4-Nitrophenol	ND	10								
Pentachlorophenol	ND	20								
Phenanthrene	ND	10								
Phenol	ND	10								
Pyrene	ND	10								
Pyridine	ND	10								
1,2,4-Trichlorobenzene	ND	10								
2,4,5-Trichlorophenol	ND	10								
2,4,6-Trichlorophenol	ND	10								
Surr: 2-Fluorophenol	1.0		200.0		0.510	15	101			S
Surr: Phenol-d5	7.3		200.0		3.65	15	84.6			S
Surr: 2,4,6-Tribromophenol	0.24		200.0		0.120	27.8	112			S
Surr: Nitrobenzene-d5	62		100.0		62.0	33	113			
Surr: 2-Fluorobiphenyl	56		100.0		55.5	26.6	107			
Surr: 4-Terphenyl-d14	63		100.0		63.4	18.7	148			

Sample ID: <b>icsd-47113</b>		SampType: <b>LCSD</b>		TestCode: <b>EPA Method 8270C: Semivolatiles</b>						
Client ID: <b>LCSS02</b>		Batch ID: <b>47113</b>		RunNo: <b>62675</b>						
Prep Date: <b>8/28/2019</b>		Analysis Date: <b>9/5/2019</b>		SeqNo: <b>2134834</b>			Units: <b>µg/L</b>			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	80	10	100.0	0	80.2	32.2	94	13.8	32.9	
4-Chloro-3-methylphenol	180	10	200.0	0	89.4	37.7	101	27.9	29.9	
2-Chlorophenol	170	10	200.0	0	82.6	32.6	90.1	13.2	28.5	
1,4-Dichlorobenzene	66	10	100.0	0	66.4	15	87.2	14.6	44.9	
2,4-Dinitrotoluene	73	10	100.0	0	73.0	35.9	85.8	9.41	28.5	
N-Nitrosodi-n-propylamine	89	10	100.0	0	89.1	37.1	108	19.3	29.9	
4-Nitrophenol	100	10	200.0	0	50.3	15	86.6	14.9	68	
Pentachlorophenol	120	20	200.0	0	62.1	31.6	91	8.45	39.5	
Phenol	100	10	200.0	0	50.7	15	84.9	14.4	44.2	
Pyrene	79	10	100.0	0	78.9	46.3	103	5.93	23.8	
1,2,4-Trichlorobenzene	71	10	100.0	0	71.4	15.7	88.3	14.3	38	

**Qualifiers:**

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>lcsd-47113</b>	SampType: <b>LCSD</b>	TestCode: <b>EPA Method 8270C: Semivolatiles</b>								
Client ID: <b>LCSS02</b>	Batch ID: <b>47113</b>	RunNo: <b>62675</b>								
Prep Date: <b>8/28/2019</b>	Analysis Date: <b>9/5/2019</b>	SeqNo: <b>2134834</b>	Units: <b>µg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	110		200.0		56.5	15	101	0	0	
Surr: Phenol-d5	99		200.0		49.4	15	84.6	0	0	
Surr: 2,4,6-Tribromophenol	130		200.0		65.7	27.8	112	0	0	
Surr: Nitrobenzene-d5	85		100.0		85.3	33	113	0	0	
Surr: 2-Fluorobiphenyl	75		100.0		75.0	26.6	107	0	0	
Surr: 4-Terphenyl-d14	80		100.0		80.4	18.7	148	0	0	

Sample ID: <b>lcs-47316</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8270C: Semivolatiles</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>47316</b>	RunNo: <b>62883</b>								
Prep Date: <b>9/6/2019</b>	Analysis Date: <b>9/12/2019</b>	SeqNo: <b>2143013</b>	Units: <b>%Rec</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	92		200.0		45.8	15	101			
Surr: Phenol-d5	72		200.0		35.9	15	84.6			
Surr: 2,4,6-Tribromophenol	110		200.0		53.1	27.8	112			
Surr: Nitrobenzene-d5	67		100.0		66.9	33	113			
Surr: 2-Fluorobiphenyl	60		100.0		59.8	26.6	107			
Surr: 4-Terphenyl-d14	54		100.0		54.1	18.7	148			

Sample ID: <b>lcsd-47316</b>	SampType: <b>LCSD</b>	TestCode: <b>EPA Method 8270C: Semivolatiles</b>								
Client ID: <b>LCSS02</b>	Batch ID: <b>47316</b>	RunNo: <b>62883</b>								
Prep Date: <b>9/6/2019</b>	Analysis Date: <b>9/12/2019</b>	SeqNo: <b>2143016</b>	Units: <b>%Rec</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	120		200.0		58.8	15	101	0	0	
Surr: Phenol-d5	92		200.0		46.1	15	84.6	0	0	
Surr: 2,4,6-Tribromophenol	130		200.0		66.7	27.8	112	0	0	
Surr: Nitrobenzene-d5	82		100.0		82.4	33	113	0	0	
Surr: 2-Fluorobiphenyl	80		100.0		80.3	26.6	107	0	0	
Surr: 4-Terphenyl-d14	68		100.0		67.9	18.7	148	0	0	

Sample ID: <b>mb-47316</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8270C: Semivolatiles</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47316</b>	RunNo: <b>62883</b>								
Prep Date: <b>9/6/2019</b>	Analysis Date: <b>9/12/2019</b>	SeqNo: <b>2143019</b>	Units: <b>%Rec</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorophenol	81		200.0		40.4	15	101			
Surr: Phenol-d5	62		200.0		30.9	15	84.6			
Surr: 2,4,6-Tribromophenol	92		200.0		45.8	27.8	112			
Surr: Nitrobenzene-d5	54		100.0		53.9	33	113			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

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

**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>mb-47316</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8270C: Semivolatiles</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47316</b>	RunNo: <b>62883</b>								
Prep Date: <b>9/6/2019</b>	Analysis Date: <b>9/12/2019</b>	SeqNo: <b>2143019</b> Units: <b>%Rec</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 2-Fluorobiphenyl	48		100.0		48.0	26.6	107			
Surr: 4-Terphenyl-d14	49		100.0		49.1	18.7	148			

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>ics-1 99.8uS eC</b>	SampType: <b>ics</b>	TestCode: <b>SM2510B: Specific Conductance</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62496</b>	RunNo: <b>62496</b>								
Prep Date:	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126130</b>	Units: <b>µmhos/cm</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.80	0	100	85	115			

Sample ID: <b>ics-2 99.8uS eC</b>	SampType: <b>ics</b>	TestCode: <b>SM2510B: Specific Conductance</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62496</b>	RunNo: <b>62496</b>								
Prep Date:	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126193</b>	Units: <b>µmhos/cm</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	100	5.0	99.80	0	104	85	115			

Sample ID: <b>1908e78-014c dup</b>	SampType: <b>dup</b>	TestCode: <b>SM2510B: Specific Conductance</b>								
Client ID: <b>MW-52</b>	Batch ID: <b>R62496</b>	RunNo: <b>62496</b>								
Prep Date:	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126195</b>	Units: <b>µmhos/cm</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	5100	5.0						0.146	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 Limit                                |
| S % Recovery outside of range due to dilution or matrix |                                                   |

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>MB-47428</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47428</b>	RunNo: <b>62872</b>								
Prep Date: <b>9/11/2019</b>	Analysis Date: <b>9/12/2019</b>	SeqNo: <b>2142285</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.000039	0.00020								J

Sample ID: <b>LCS-47428</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 7470: Mercury</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>47428</b>	RunNo: <b>62872</b>								
Prep Date: <b>9/11/2019</b>	Analysis Date: <b>9/12/2019</b>	SeqNo: <b>2142286</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0047	0.00020	0.005000	0	93.1	80	120			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

Client: Western Refining Southwest, Inc.

Project: 2019 Annual GW Sampling Event

Sample ID: <b>MB-A</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>A62764</b>	RunNo: <b>62764</b>								
Prep Date:	Analysis Date: <b>9/9/2019</b>	SeqNo: <b>2137952</b> Units: <b>mg/L</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Uranium	ND	0.10								
Zinc	ND	0.020								

Sample ID: <b>LCS-A</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>A62764</b>	RunNo: <b>62764</b>								
Prep Date:	Analysis Date: <b>9/9/2019</b>	SeqNo: <b>2137953</b> Units: <b>mg/L</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.48	0.020	0.5000	0	95.6	80	120			
Barium	0.48	0.020	0.5000	0	95.1	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.4	80	120			
Calcium	50	1.0	50.00	0	100	80	120			
Chromium	0.49	0.0060	0.5000	0	97.1	80	120			
Copper	0.50	0.0060	0.5000	0	100	80	120			
Iron	0.49	0.020	0.5000	0	98.6	80	120			
Lead	0.49	0.0050	0.5000	0	98.6	80	120			
Magnesium	50	1.0	50.00	0	100	80	120			
Manganese	0.48	0.0020	0.5000	0	97.0	80	120			
Potassium	50	1.0	50.00	0	99.3	80	120			
Selenium	0.48	0.050	0.5000	0	96.3	80	120			
Silver	0.10	0.0050	0.1000	0	99.8	80	120			
Sodium	50	1.0	50.00	0	99.6	80	120			
Uranium	0.46	0.10	0.5000	0	91.3	80	120			
Zinc	0.48	0.020	0.5000	0	96.5	80	120			

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>MB-B</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>B62764</b>	RunNo: <b>62764</b>								
Prep Date:	Analysis Date: <b>9/9/2019</b>	SeqNo: <b>2137955</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.020								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Uranium	ND	0.10								
Zinc	ND	0.020								

Sample ID: <b>MB-A</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>A62841</b>	RunNo: <b>62841</b>								
Prep Date:	Analysis Date: <b>9/11/2019</b>	SeqNo: <b>2141041</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								

Sample ID: <b>LCS-A</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>A62841</b>	RunNo: <b>62841</b>								
Prep Date:	Analysis Date: <b>9/11/2019</b>	SeqNo: <b>2141042</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	98.8	80	120			

Sample ID: <b>MB-A</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>A63017</b>	RunNo: <b>63017</b>								
Prep Date:	Analysis Date: <b>9/18/2019</b>	SeqNo: <b>2148716</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Iron	ND	0.020								
Sodium	ND	1.0								

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>LCS-A</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 6010B: Dissolved Metals</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>A63017</b>		RunNo: <b>63017</b>							
Prep Date:	Analysis Date: <b>9/18/2019</b>		SeqNo: <b>2148717</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	98.6	80	120			
Iron	0.49	0.020	0.5000	0	97.5	80	120			
Sodium	49	1.0	50.00	0	97.5	80	120			

Sample ID: <b>MB-A</b>	SampType: <b>MBLK</b>		TestCode: <b>EPA Method 6010B: Dissolved Metals</b>							
Client ID: <b>PBW</b>	Batch ID: <b>A63074</b>		RunNo: <b>63074</b>							
Prep Date:	Analysis Date: <b>9/20/2019</b>		SeqNo: <b>2151039</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0050								

Sample ID: <b>LCS-A</b>	SampType: <b>LCS</b>		TestCode: <b>EPA Method 6010B: Dissolved Metals</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>A63074</b>		RunNo: <b>63074</b>							
Prep Date:	Analysis Date: <b>9/20/2019</b>		SeqNo: <b>2151040</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.47	0.0050	0.5000	0	94.4	80	120			

Sample ID: <b>1908E78-013EMS</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 6010B: Dissolved Metals</b>							
Client ID: <b>MW-53</b>	Batch ID: <b>A63074</b>		RunNo: <b>63074</b>							
Prep Date:	Analysis Date: <b>9/20/2019</b>		SeqNo: <b>2151068</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.47	0.0050	0.5000	0	94.4	75	125			

Sample ID: <b>1908E78-013EMSD</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 6010B: Dissolved Metals</b>							
Client ID: <b>MW-53</b>	Batch ID: <b>A63074</b>		RunNo: <b>63074</b>							
Prep Date:	Analysis Date: <b>9/20/2019</b>		SeqNo: <b>2151069</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.46	0.0050	0.5000	0	92.5	75	125	2.00	20	

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

Client: Western Refining Southwest, Inc.

Project: 2019 Annual GW Sampling Event

Sample ID: <b>MB-47071</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47071</b>	RunNo: <b>62682</b>								
Prep Date: <b>8/26/2019</b>	Analysis Date: <b>9/5/2019</b>	SeqNo: <b>2134130</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID: <b>LCS-47071</b>	SampType: <b>LCS</b>	TestCode: <b>EPA 6010B: Total Recoverable Metals</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>47071</b>	RunNo: <b>62682</b>								
Prep Date: <b>8/26/2019</b>	Analysis Date: <b>9/5/2019</b>	SeqNo: <b>2134131</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.48	0.020	0.5000	0	96.7	80	120			
Barium	0.47	0.020	0.5000	0	94.6	80	120			
Cadmium	0.50	0.0020	0.5000	0	100	80	120			
Chromium	0.48	0.0060	0.5000	0	96.6	80	120			
Lead	0.49	0.0050	0.5000	0	97.7	80	120			
Selenium	0.51	0.050	0.5000	0	102	80	120			
Silver	0.10	0.0050	0.1000	0	100	80	120			

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>1908e78-002ams</b>	SampType: <b>MS</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>MW-63</b>	Batch ID: <b>G62584</b>		RunNo: <b>62584</b>							
Prep Date:	Analysis Date: <b>8/30/2019</b>		SeqNo: <b>2129905</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.43	0.050	0.5000	0	86.3	70	130			
Surr: BFB	9.8		10.00		97.6	70	130			

Sample ID: <b>1908e78-002amsd</b>	SampType: <b>MSD</b>		TestCode: <b>EPA Method 8015D: Gasoline Range</b>							
Client ID: <b>MW-63</b>	Batch ID: <b>G62584</b>		RunNo: <b>62584</b>							
Prep Date:	Analysis Date: <b>8/30/2019</b>		SeqNo: <b>2129906</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.52	0.050	0.5000	0	104	70	130	18.7	20	
Surr: BFB	10		10.00		102	70	130	0	0	

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>G62584</b>		RunNo: <b>62584</b>							
Prep Date:	Analysis Date: <b>8/30/2019</b>		SeqNo: <b>2129924</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.47	0.050	0.5000	0	93.6	70	130			
Surr: BFB	9.8		10.00		98.5	70	130			

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>G62584</b>		RunNo: <b>62584</b>							
Prep Date:	Analysis Date: <b>8/30/2019</b>		SeqNo: <b>2129925</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	10		10.00		102	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>G62589</b>		RunNo: <b>62589</b>							
Prep Date:	Analysis Date: <b>9/3/2019</b>		SeqNo: <b>2131205</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.48	0.050	0.5000	0	95.6	70	130			
Surr: BFB	10		10.00		102	70	130			

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>G62589</b>		RunNo: <b>62589</b>							
Prep Date:	Analysis Date: <b>9/3/2019</b>		SeqNo: <b>2131206</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

**Qualifiers:**

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

**Client:** Western Refining Southwest, Inc.**Project:** 2019 Annual GW Sampling Event

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>G62589</b>	RunNo: <b>62589</b>								
Prep Date:	Analysis Date: <b>9/3/2019</b>	SeqNo: <b>2131206</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	10		10.00		102	70	130			

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>mb-1 alk</b>	SampType: <b>mblk</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62496</b>	RunNo: <b>62496</b>								
Prep Date:	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126078</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: <b>ics-1 alk</b>	SampType: <b>ics</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62496</b>	RunNo: <b>62496</b>								
Prep Date:	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126079</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78.96	20.00	80.00	0	98.7	90	110			

Sample ID: <b>mb-2 alk</b>	SampType: <b>mblk</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62496</b>	RunNo: <b>62496</b>								
Prep Date:	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126101</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: <b>ics-2 alk</b>	SampType: <b>ics</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>R62496</b>	RunNo: <b>62496</b>								
Prep Date:	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126102</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80.56	20.00	80.00	0	101	90	110			

Sample ID: <b>1908e78-014c dup</b>	SampType: <b>dup</b>	TestCode: <b>SM2320B: Alkalinity</b>									
Client ID: <b>MW-52</b>	Batch ID: <b>R62496</b>	RunNo: <b>62496</b>									
Prep Date:	Analysis Date: <b>8/28/2019</b>	SeqNo: <b>2126115</b>	Units: <b>mg/L CaCO3</b>								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Alkalinity (as CaCO3)	197.9	20.00						0.162	20		

Sample ID: <b>mb-1 alk</b>	SampType: <b>mblk</b>	TestCode: <b>SM2320B: Alkalinity</b>								
Client ID: <b>PBW</b>	Batch ID: <b>R62602</b>	RunNo: <b>62602</b>								
Prep Date:	Analysis Date: <b>9/3/2019</b>	SeqNo: <b>2131549</b>	Units: <b>mg/L CaCO3</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>ics-1 alk</b>	SampType: <b>ics</b>		TestCode: <b>SM2320B: Alkalinity</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R62602</b>		RunNo: <b>62602</b>							
Prep Date:	Analysis Date: <b>9/3/2019</b>		SeqNo: <b>2131550</b>		Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79.04	20.00	80.00	0	98.8	90	110			

Sample ID: <b>mb-2 alk</b>	SampType: <b>mbk</b>		TestCode: <b>SM2320B: Alkalinity</b>							
Client ID: <b>PBW</b>	Batch ID: <b>R62602</b>		RunNo: <b>62602</b>							
Prep Date:	Analysis Date: <b>9/3/2019</b>		SeqNo: <b>2131579</b>		Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20.00								

Sample ID: <b>ics-2 alk</b>	SampType: <b>ics</b>		TestCode: <b>SM2320B: Alkalinity</b>							
Client ID: <b>LCSW</b>	Batch ID: <b>R62602</b>		RunNo: <b>62602</b>							
Prep Date:	Analysis Date: <b>9/3/2019</b>		SeqNo: <b>2131580</b>		Units: <b>mg/L CaCO3</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80.40	20.00	80.00	0	101	90	110			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908E78

01-Oct-19

**Client:** Western Refining Southwest, Inc.  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>MB-47157</b>	SampType: <b>MBLK</b>	TestCode: <b>SM2540C MOD: Total Dissolved Solids</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47157</b>	RunNo: <b>62586</b>								
Prep Date: <b>8/29/2019</b>	Analysis Date: <b>9/3/2019</b>	SeqNo: <b>2129944</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID: <b>LCS-47157</b>	SampType: <b>LCS</b>	TestCode: <b>SM2540C MOD: Total Dissolved Solids</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>47157</b>	RunNo: <b>62586</b>								
Prep Date: <b>8/29/2019</b>	Analysis Date: <b>9/3/2019</b>	SeqNo: <b>2129945</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1030	20.0	1000	0	103	80	120			

Sample ID: <b>1908E78-015CDUP</b>	SampType: <b>DUP</b>	TestCode: <b>SM2540C MOD: Total Dissolved Solids</b>								
Client ID: <b>MW-67</b>	Batch ID: <b>47157</b>	RunNo: <b>62586</b>								
Prep Date: <b>8/29/2019</b>	Analysis Date: <b>9/3/2019</b>	SeqNo: <b>2129959</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	853	20.0						1.30	10	*

**Qualifiers:**

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



# Sample Log-In Check List

Client Name: **Western Refining Southw**      Work Order Number: **1908E78**      RcptNo: **1**

Received By: **Anne Thorne**      8/23/2019 10:00:00 AM      *Anne Thorne*  
 Completed By: **Anne Thorne**      8/26/2019 1:11:43 PM      *Anne Thorne*  
 Reviewed By: *LB*      *8/26/19*

**Chain of Custody**

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

**Log In**

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

# of preserved bottles checked for pH: 42  
 (2 or >12 unless noted)  
 Adjusted? No  
 Checked by: *my* 08/26/19

**Special Handling (if applicable)**

15. 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"/>		

16. Additional remarks:

**17. Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	4.6	Good	Yes			
2	2.9	Good	Yes			
3	1.0	Good	Yes			
4	0.8	Good	Yes			

# Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**

Mailing Address: **50 CR 4990**

Phone #: **419-421-2338**

Email: **gjmccartney@marathonpetroleum.com**

QA/QC Package:  Standard  Other

X EDD (Type) **EXCEL**

X Level 4 (Full Validation)

Project Name: **2019 Annual GW Sampling Event**

Project #: \_\_\_\_\_

Project Manager: **Gregory McCartney**

Sampler: **Tracy Payne - 919-561-7055**

On Ice:  Yes  No

Sample Temperature: **1908 ETS**

HEAL No. **1908 ETS**

Preservative Type

Container Type and #

40ml VOA-5

250 ml amber-1

1 liter amber-2

250 ml plastic-1

125 ml plastic-1

125 ml plastic-1

500 ml plastic-1

Neat

HCl

Neat

Neat

HNO<sub>3</sub>

HNO<sub>3</sub>

H<sub>2</sub>SO<sub>4</sub>

Neat

Date

Time

Matrix

Sample Request ID

MW-59

MW-59

MW-59

MW-59

MW-59

MW-59

MW-59

H<sub>2</sub>O

H<sub>2</sub>O

H<sub>2</sub>O

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Relinquished by:

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Analysis Request											
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### Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

Email: **gjmccartney@marathonpetroleum.com**

QA/QC Package:

Standard  X Level 4 (Full Validation)

Other

X EDD (Type) **EXCEL**

Turn-Around Time:

Standard  Rush

Project Name: **2019 Annual GW**

**Sampling Event**

Project #:

Project Manager: **Gregory McCartney**

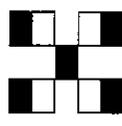
Sampler: **Tracy Payne - 919-561-7055**

On Ice:  Yes  No

Sample Temperature: **See pg 1**

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
8/22/19	1530	H <sub>2</sub> O	MW-63	40ml VOA-5	HCl	1908 E78
		H <sub>2</sub> O	MW-63	250 ml amber-1	Neat	202
		H <sub>2</sub> O	MW-63	250 ml plastic-1	HNO <sub>3</sub>	202
		H <sub>2</sub> O	MW-63	125 ml plastic-1	HNO <sub>3</sub>	202
		H <sub>2</sub> O	MW-63	125 ml plastic-1	H <sub>2</sub> SO <sub>4</sub>	202
		H <sub>2</sub> O	MW-63	500 ml plastic-1	Neat	202

Date	Time	Relinquished by:	Date	Time	Received by:
8/23/19	1540	<i>[Signature]</i>	8/23/19	1540	<i>[Signature]</i>
8/23/19	1740	<i>Christa Waters</i>	8/23/19	1600	<i>[Signature]</i>



## HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

### Analysis Request

BTEX+MTBE+TMB's(8021)	BTEX+MTBE+TPH (Gas only)	TPH 8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals Total	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)	8270 (Semi-VOA)	Dissolved Metals	General Chem.-Anions&CO <sub>2</sub>	General Chem. - Alkalinity	Air Bubbles (Y or N)
		X							X					
		X				X								
												X		
											X	X		
												X	X	
													X	

Remarks: See Analytical Methods and Target Analytes.

# Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

Email: [gjmccartney@marathonpetroleum.com](mailto:gjmccartney@marathonpetroleum.com)

QA/QC Package:  
 Standard  Level 4 (Full Validation)  
 Other  
 X EDD (Type) EXCEL

Turn-Around Time:

Standard  Rush

Project Name: **2019 Annual GW**

**Sampling Event**

Project #:

Project Manager: **Gregory McCartney**

Sampler: **Tracy Payne - 919-561-7055**

On Ice:  Yes  No

Sample Temperature: *See Remarks pg. 1*

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
8/22/19	1615	H <sub>2</sub> O	MW-64	40ml VOA-5	HCl	1908E78
		H <sub>2</sub> O	MW-64	250 ml amber-1	Neat	203
		H <sub>2</sub> O	MW-64	250 ml plastic-1	HNO <sub>3</sub>	203
		H <sub>2</sub> O	MW-64	125 ml plastic-1	HNO <sub>3</sub>	203
		H <sub>2</sub> O	MW-64	125 ml plastic-1	H <sub>2</sub> SO <sub>4</sub>	203
		H <sub>2</sub> O	MW-64	500 ml plastic-1	Neat	203

Date: 8/23/19 Time: 1546

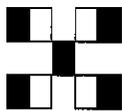
Relinquished by: *[Signature]*

Date: 8/23/19 Time: 1546

Date: 8/23/19 Time: 1746

Relinquished by: *[Signature]*

Date: 08/24/19 Time: 1600



# 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

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 Total	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)	8270 (Semi-VOA)	Dissolved Metals	General Chem. - Anions & CO <sub>2</sub>	General Chem. - Alkalinity	Air Bubbles (Y or N)
		X							X					
		X												
						X					X	X		
											X	X		
													X	

Remarks: See Analytical Methods and Target Analytes.







# Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

Email: [gjmccartney@marathonpetroleum.com](mailto:gjmccartney@marathonpetroleum.com)

QA/QC Package:  Standard  Other

Level 4 (Full Validation)

X EDD (Type) EXCEL

Project Manager: **Gregory McCartney**

Sampler: **Tracy Payne - 919-561-7055**

On Ice:  Yes  No

Sample Temperature: See pg 1 R.M.A.F.

Container Type and #

Preservative Type

HEAL No.

1908 578

40ml VOA-5

HCl

250 ml amber-1

Neat

250 ml plastic-1

HNO<sub>3</sub>

125 ml plastic-1

HNO<sub>3</sub>

125 ml plastic-1

H<sub>2</sub>SO<sub>4</sub>

500 ml plastic-1

Neat

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### Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**  
 Mailing Address: **50 CR 4990**  
**Bloomfield, NM 87413**  
 Phone #: **419-421-2338**

Email: [gjmccartney@marathonpetroleum.com](mailto:gjmccartney@marathonpetroleum.com)  
 QA/QC Package:  
 Standard  Level 4 (Full Validation)  
 Other  
 EDD (Type) **EXCEL**

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
8/23/19	0910	H <sub>2</sub> O	MW-62	40ml VOA-5	HCl	1908 E78
		H <sub>2</sub> O	MW-62	250 ml amber-1	Neat	209
		H <sub>2</sub> O	MW-62	250 ml plastic-1	HNO <sub>3</sub>	209
		H <sub>2</sub> O	MW-62	125 ml plastic-1	HNO <sub>3</sub>	202
		H <sub>2</sub> O	MW-62	125 ml plastic-1	H <sub>2</sub> SO <sub>4</sub>	209
		H <sub>2</sub> O	MW-62	500 ml plastic-1	Neat	209
8/23/19		H <sub>2</sub> O	TRIP BLANK	40 ml VOA-5	HCl	010

Relinquished by: *[Signature]*  
 Date: 8/23/19 1546  
 Relinquished by: *[Signature]*  
 Date: 8/23/19 1740

Turn-Around Time:  
 Standard  Rush  
 Project Name: **2019 Annual GW Sampling Event**  
 Project #:

Project Manager: **Gregory McCartney**  
 Sampler: **Tracy Payne - 919-561-7055**  
 On Ice:  Yes  No  
 Sample Temperature: *See pg 1 remark*

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 Total	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)	8270 (Semi-VOA)	Dissolved Metals	General Chem. - Anions & CO <sub>2</sub>	General Chem. - Alkalinity	Air Bubbles (Y or N)
		X							X					
		X				X					X	X		
											X	X		
									X					

Received by: *[Signature]* Date: 8/23/19 Time: 1546  
 Received by: *[Signature]* Date: 8/23/19 Time: 1740



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

### Analysis Request

Remarks: See Analytical Methods and Target Analytes.

# Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

Email: **gjmccartney@marathonpetroleum.com**

QA/QC Package:  
 Standard     Level 4 (Full Validation)  
 Other  
 EDD (Type) **EXCEL**

Turn-Around Time:

Standard     Rush

Project Name: **2019 Annual GW**

**Sampling Event**

Project #:

Project Manager: **Gregory McCartney**

Sampler: **Tracy Payne - 919-561-7055**

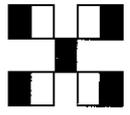
On Ice:  Yes     No

Sample Temperature: *See pg 1 Remarks*

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
8/23/19	0940	H <sub>2</sub> O	MW-31	40ml VOA-5	HCl	1908 ETR
		H <sub>2</sub> O	MW-31	250 ml amber-1	Neat	112
		H <sub>2</sub> O	MW-31	250 ml plastic-1	HNO <sub>3</sub>	112
		H <sub>2</sub> O	MW-31	125 ml plastic-1	HNO <sub>3</sub>	112
		H <sub>2</sub> O	MW-31	125 ml plastic-1	H <sub>2</sub> SO <sub>4</sub>	112
		H <sub>2</sub> O	MW-31	500 ml plastic-1	Neat	112

Date: 8/23/19 1546  
 Relinquished by: *[Signature]*  
 Date: 8/23/19 1740  
 Relinquished by: *[Signature]*

Received by: *[Signature]*  
 Date: 8/23/19 1546  
 Received by: *[Signature]*  
 Date: 08/24/19 1000



# HALL ENVIRONMENTAL ANALYSIS LABORATORY

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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 Total	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)	8270 (Semi-VOA)	Dissolved Metals	General Chem.-Anions&CO <sub>2</sub>	General Chem. - Alkalinity	Air Bubbles (Y or N)
		X							X					
		X												
						X								
											X	X		
												X		
													X	

Remarks: See Analytical Methods and Target Analytes.

# Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

Email: **gjmcartney@marathonpetroleum.com**

QA/QC Package:

Standard  Level 4 (Full Validation)

Other \_\_\_\_\_

EDD (Type) **EXCEL**

Turn-Around Time:  
 Standard  Rush

Project Name: **2019 Annual GW**

**Sampling Event**

Project #:

Project Manager: **Gregory McCartney**

Sampler: **Tracy Payne - 919-561-7055**

On Ice:  Yes  No

Sample Temperature: *See Pg 1 Remarks*

Container Type and #

Preservative Type

HEAL No.

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 Total	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)	8270 (Semi-VOA)	Dissolved Metals	General Chem.-Anions&CO <sub>2</sub>	General Chem. - Alkalinity	Air Bubbles (Y or N)

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
8/23/19	1030	H <sub>2</sub> O	MW-29	40ml VOA-5	HCl	1901 E78
		H <sub>2</sub> O	MW-29	250 ml amber-1	Neat	-02 36
		H <sub>2</sub> O	MW-29	250 ml plastic-1	HNO <sub>3</sub>	012
		H <sub>2</sub> O	MW-29	125 ml plastic-1	HNO <sub>3</sub>	012
		H <sub>2</sub> O	MW-29	125 ml plastic-1	H <sub>2</sub> SO <sub>4</sub>	012
		H <sub>2</sub> O	MW-29	500 ml plastic-1	Neat	012

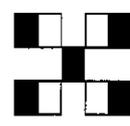
Relinquished by: *[Signature]* Date: **8/23/19** Time: **1546**

Received by: *[Signature]* Date: **8/23/19** Time: **1546**

Relinquished by: *[Signature]* Date: **8/23/19** Time: **1740**

Received by: *[Signature]* Date: **8/24/19** Time: **1000**

Remarks: See Analytical Methods and Target Analytes.



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



# Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

Email: **gjmccartney@marathonpetroleum.com**

QA/QC Package:

Standard  Level 4 (Full Validation)

Other

EDD (Type) **EXCEL**

Turn-Around Time:

Standard  Rush

Project Name: **2019 Annual GW**

**Sampling Event**

Project #:

Project Manager: **Gregory McCartney**

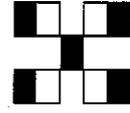
Sampler: **Tracy Payne - 919-561-7055**

On Ice:  Yes  No

Sample Temperature: *See pg 1 Remarks*

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
8/23/19	1215	H <sub>2</sub> O	MW-52	40ml VOA-5	HCl	1908 E 78
		H <sub>2</sub> O	MW-52	250 ml amber-1	Neat	h12
		H <sub>2</sub> O	MW-52	250 ml plastic-1	HNO <sub>3</sub>	h12
		H <sub>2</sub> O	MW-52	125 ml plastic-1	HNO <sub>3</sub>	h12
		H <sub>2</sub> O	MW-52	125 ml plastic-1	H <sub>2</sub> SO <sub>4</sub>	h12
		H <sub>2</sub> O	MW-52	500 ml plastic-1	Neat	h12

Date:	Time:	Relinquished by:	Date:	Time:	Received by:
8/23/19	1546	<i>[Signature]</i>	8/23/19	1546	<i>[Signature]</i>
8/23/19	1740	<i>[Signature]</i>	8/24/19		<i>[Signature]</i>



# HALL ENVIRONMENTAL ANALYSIS LABORATORY

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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 Total	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)	8270 (Semi-VOA)	Dissolved Metals	General Chem.-Anions&CO <sub>2</sub>	General Chem. - Alkalinity	Air Bubbles (Y or N)
		X							X					
		X												
						X						X		
												X		
												X		
													X	

Remarks: See Analytical Methods and Target Analytes.

# Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**  
 Mailing Address: **50 CR 4990**  
**Bloomfield, NM 87413**  
 Phone #: **419-421-2338**

Email: [gjmccartney@marathonpetroleum.com](mailto:gjmccartney@marathonpetroleum.com)  
 QA/QC Package:  
 Standard  Level 4 (Full Validation)  
 Other \_\_\_\_\_  
 EDD (Type) EXCEL

Turn-Around Time:  
 Standard  Rush  
 Project Name: **2019 Annual GW**  
**Sampling Event**  
 Project #:

Project Manager: **Gregory McCartney**  
 Sampler: **Tracy Payne - 919-561-7055**  
 On Ice:  Yes  No  
 Sample Temperature: See pg 1 Remo-15



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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
8/23/19	1330	H <sub>2</sub> O	MW-67	40ml VOA-5	HCl	1908 E-78
		H <sub>2</sub> O	MW-67	250 ml amber-1	Neat	215
		H <sub>2</sub> O	MW-67	250 ml plastic-1	HNO <sub>3</sub>	215
		H <sub>2</sub> O	MW-67	125 ml plastic-1	HNO <sub>3</sub>	212
		H <sub>2</sub> O	MW-67	125 ml plastic-1	H <sub>2</sub> SO <sub>4</sub>	212
		H <sub>2</sub> O	MW-67	500 ml plastic-1	Neat	212

Received by: *[Signature]* Date: 8/23/19 Time: 1546  
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 Received by: *[Signature]* Date: 8/23/19 Time: 1746  
 Relinquished by: *[Signature]*

Remarks: See Analytical Methods and Target Analytes.

# Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**  
 Mailing Address: **50 CR 4990**  
**Bloomfield, NM 87413**  
 Phone #: **419-421-2338**

Turn-Around Time:  
 Standard     Rush  
 Project Name: **2019 Annual GW**  
**Sampling Event**  
 Project #:

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

Project Manager: **Gregory McCartney**  
 Sampler: **Tracy Payne - 919-561-7055**  
 On Ice:  Yes     No  
 Sample Temperature: *See pg 1 Remarks*

Project Manager: **Gregory McCartney**  
 Project Name: **2019 Annual GW**  
 Project #:

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
8/23/19	1430	H <sub>2</sub> O	MW-68	40ml VOA-5	HCl	1908E78
		H <sub>2</sub> O	MW-68	250 ml amber-1	Neat	912
		H <sub>2</sub> O	MW-68	250 ml plastic-1	HNO <sub>3</sub>	912
		H <sub>2</sub> O	MW-68	125 ml plastic-1	HNO <sub>3</sub>	912
		H <sub>2</sub> O	MW-68	125 ml plastic-1	H <sub>2</sub> SO <sub>4</sub>	912
		H <sub>2</sub> O	MW-68	500 ml plastic-1	Neat	912
8/23/19		H <sub>2</sub> O	TRIP BLANK	40ml VOA-5	HCl	1908E78

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 Total	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)	8270 (Semi-VOA)	Dissolved Metals	General Chem.-Anions&CO <sub>2</sub>	General Chem. - Alkalinity	Air Bubbles (Y or N)
		X							X					
		X												
						X								
											X	X		
											X	X		
													X	

Received by: *[Signature]* Date: 8/23/19 Time: 1546  
 Received by: *[Signature]* Date: 08/24/19 Time: 1600

Remarks: See Analytical Methods and Target Analytes.



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 09, 2019

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

RE: 2019 Annual GW Sampling Event

OrderNo.: 1908G31

Dear Gregory J. McCartney:

Hall Environmental Analysis Laboratory received 10 sample(s) on 8/28/2019 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 #NM0901

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written in a cursive style.

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
 Lab Order 1908G31  
 Date Reported: 9/9/2019

**CLIENT:** Western Refining Southwest, Inc Bloomfi  
**Project:** 2019 Annual GW Sampling Event  
**Lab ID:** 1908G31-001

**Client Sample ID:** CW 0+60  
**Collection Date:** 8/26/2019 8:55:00 AM  
**Received Date:** 8/28/2019 8:15:00 AM

**Matrix:** AQUEOUS

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	0.70	0.40		mg/L	1	9/3/2019 2:17:46 PM	47204
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	9/3/2019 2:17:46 PM	47204
Surr: DNOP	111	52.7-168		%Rec	1	9/3/2019 2:17:46 PM	47204
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>CCM</b>
Benzene	1.0	1.0	J	µg/L	1	9/3/2019 1:49:00 PM	SL_W62
Toluene	ND	1.0		µg/L	1	9/3/2019 1:49:00 PM	SL_W62
Ethylbenzene	4.1	1.0		µg/L	1	9/3/2019 1:49:00 PM	SL_W62
Methyl tert-butyl ether (MTBE)	1.1	1.0		µg/L	1	9/3/2019 1:49:00 PM	SL_W62
Xylenes, Total	1.3	1.5	J	µg/L	1	9/3/2019 1:49:00 PM	SL_W62
Surr: 1,2-Dichloroethane-d4	89.4	70-130		%Rec	1	9/3/2019 1:49:00 PM	SL_W62
Surr: 4-Bromofluorobenzene	93.1	70-130		%Rec	1	9/3/2019 1:49:00 PM	SL_W62
Surr: Dibromofluoromethane	98.8	70-130		%Rec	1	9/3/2019 1:49:00 PM	SL_W62
Surr: Toluene-d8	138	70-130	S	%Rec	1	9/3/2019 1:49:00 PM	SL_W62

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report  
 Lab Order 1908G31  
 Date Reported: 9/9/2019

**CLIENT:** Western Refining Southwest, Inc Bloomfi      **Client Sample ID:** OW 25+70  
**Project:** 2019 Annual GW Sampling Event      **Collection Date:** 8/26/2019 11:50:00 AM  
**Lab ID:** 1908G31-002      **Matrix:** AQUEOUS      **Received Date:** 8/28/2019 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	9/3/2019 3:30:54 PM	47204
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	9/3/2019 3:30:54 PM	47204
Surr: DNOP	119	52.7-168		%Rec	1	9/3/2019 3:30:54 PM	47204
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	0.052	0.050		mg/L	1	9/3/2019 9:44:35 PM	G62609
Surr: BFB	106	65.8-143		%Rec	1	9/3/2019 9:44:35 PM	G62609
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>CCM</b>
Benzene	ND	1.0		µg/L	1	9/3/2019 3:01:00 PM	SL_W62
Toluene	ND	1.0		µg/L	1	9/3/2019 3:01:00 PM	SL_W62
Ethylbenzene	ND	1.0		µg/L	1	9/3/2019 3:01:00 PM	SL_W62
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	9/3/2019 3:01:00 PM	SL_W62
Xylenes, Total	0.49	1.5	J	µg/L	1	9/3/2019 3:01:00 PM	SL_W62
Surr: 1,2-Dichloroethane-d4	98.9	70-130		%Rec	1	9/3/2019 3:01:00 PM	SL_W62
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	9/3/2019 3:01:00 PM	SL_W62
Surr: Dibromofluoromethane	102	70-130		%Rec	1	9/3/2019 3:01:00 PM	SL_W62
Surr: Toluene-d8	92.6	70-130		%Rec	1	9/3/2019 3:01:00 PM	SL_W62

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908G31

Date Reported: 9/9/2019

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

**Client Sample ID:** DUPLICATE #3

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/26/2019

**Lab ID:** 1908G31-003

**Matrix:** AQUEOUS

**Received Date:** 8/28/2019 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	9/3/2019 4:19:52 PM	47204
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	9/3/2019 4:19:52 PM	47204
Surr: DNOP	123	52.7-168		%Rec	1	9/3/2019 4:19:52 PM	47204
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	0.073	0.050		mg/L	1	9/3/2019 10:08:05 PM	G62609
Surr: BFB	99.8	65.8-143		%Rec	1	9/3/2019 10:08:05 PM	G62609
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>CCM</b>
Benzene	ND	1.0		µg/L	1	9/3/2019 3:26:00 PM	SL_W62
Toluene	ND	1.0		µg/L	1	9/3/2019 3:26:00 PM	SL_W62
Ethylbenzene	ND	1.0		µg/L	1	9/3/2019 3:26:00 PM	SL_W62
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	9/3/2019 3:26:00 PM	SL_W62
Xylenes, Total	0.51	1.5	J	µg/L	1	9/3/2019 3:26:00 PM	SL_W62
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	9/3/2019 3:26:00 PM	SL_W62
Surr: 4-Bromofluorobenzene	99.2	70-130		%Rec	1	9/3/2019 3:26:00 PM	SL_W62
Surr: Dibromofluoromethane	102	70-130		%Rec	1	9/3/2019 3:26:00 PM	SL_W62
Surr: Toluene-d8	94.2	70-130		%Rec	1	9/3/2019 3:26:00 PM	SL_W62

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908G31

Date Reported: 9/9/2019

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

**Client Sample ID:** OW 8+10

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/27/2019 7:50:00 AM

**Lab ID:** 1908G31-004

**Matrix:** AQUEOUS

**Received Date:** 8/28/2019 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	9/3/2019 4:44:13 PM	47204
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	9/3/2019 4:44:13 PM	47204
Surr: DNOP	121	52.7-168		%Rec	1	9/3/2019 4:44:13 PM	47204
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/3/2019 10:31:42 PM	G62609
Surr: BFB	108	65.8-143		%Rec	1	9/3/2019 10:31:42 PM	G62609
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>CCM</b>
Benzene	ND	1.0		µg/L	1	9/3/2019 3:50:00 PM	SL_W62
Toluene	ND	1.0		µg/L	1	9/3/2019 3:50:00 PM	SL_W62
Ethylbenzene	ND	1.0		µg/L	1	9/3/2019 3:50:00 PM	SL_W62
Methyl tert-butyl ether (MTBE)	1.6	1.0		µg/L	1	9/3/2019 3:50:00 PM	SL_W62
Xylenes, Total	ND	1.5		µg/L	1	9/3/2019 3:50:00 PM	SL_W62
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	9/3/2019 3:50:00 PM	SL_W62
Surr: 4-Bromofluorobenzene	96.5	70-130		%Rec	1	9/3/2019 3:50:00 PM	SL_W62
Surr: Dibromofluoromethane	106	70-130		%Rec	1	9/3/2019 3:50:00 PM	SL_W62
Surr: Toluene-d8	91.5	70-130		%Rec	1	9/3/2019 3:50:00 PM	SL_W62

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908G31

Date Reported: 9/9/2019

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

**Client Sample ID:** OW 19+50

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/27/2019 8:10:00 AM

**Lab ID:** 1908G31-005

**Matrix:** AQUEOUS

**Received Date:** 8/28/2019 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	0.19	0.40	J	mg/L	1	9/3/2019 5:08:42 PM	47204
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	9/3/2019 5:08:42 PM	47204
Surr: DNOP	121	52.7-168		%Rec	1	9/3/2019 5:08:42 PM	47204
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/3/2019 10:55:13 PM	G62609
Surr: BFB	105	65.8-143		%Rec	1	9/3/2019 10:55:13 PM	G62609
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>CCM</b>
Benzene	ND	1.0		µg/L	1	9/3/2019 4:15:00 PM	SL_W62
Toluene	ND	1.0		µg/L	1	9/3/2019 4:15:00 PM	SL_W62
Ethylbenzene	ND	1.0		µg/L	1	9/3/2019 4:15:00 PM	SL_W62
Methyl tert-butyl ether (MTBE)	5.1	1.0		µg/L	1	9/3/2019 4:15:00 PM	SL_W62
Xylenes, Total	ND	1.5		µg/L	1	9/3/2019 4:15:00 PM	SL_W62
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	9/3/2019 4:15:00 PM	SL_W62
Surr: 4-Bromofluorobenzene	96.3	70-130		%Rec	1	9/3/2019 4:15:00 PM	SL_W62
Surr: Dibromofluoromethane	103	70-130		%Rec	1	9/3/2019 4:15:00 PM	SL_W62
Surr: Toluene-d8	92.9	70-130		%Rec	1	9/3/2019 4:15:00 PM	SL_W62

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908G31

Date Reported: 9/9/2019

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

**Client Sample ID:** OW 22+00

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/27/2019 8:25:00 AM

**Lab ID:** 1908G31-006

**Matrix:** AQUEOUS

**Received Date:** 8/28/2019 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	9/3/2019 5:33:13 PM	47204
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	9/3/2019 5:33:13 PM	47204
Surr: DNOP	112	52.7-168		%Rec	1	9/3/2019 5:33:13 PM	47204
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/3/2019 11:18:42 PM	G62609
Surr: BFB	115	65.8-143		%Rec	1	9/3/2019 11:18:42 PM	G62609
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>CCM</b>
Benzene	ND	1.0		µg/L	1	9/3/2019 4:39:00 PM	SL_W62
Toluene	ND	1.0		µg/L	1	9/3/2019 4:39:00 PM	SL_W62
Ethylbenzene	ND	1.0		µg/L	1	9/3/2019 4:39:00 PM	SL_W62
Methyl tert-butyl ether (MTBE)	1.2	1.0		µg/L	1	9/3/2019 4:39:00 PM	SL_W62
Xylenes, Total	ND	1.5		µg/L	1	9/3/2019 4:39:00 PM	SL_W62
Surr: 1,2-Dichloroethane-d4	103	70-130		%Rec	1	9/3/2019 4:39:00 PM	SL_W62
Surr: 4-Bromofluorobenzene	95.4	70-130		%Rec	1	9/3/2019 4:39:00 PM	SL_W62
Surr: Dibromofluoromethane	106	70-130		%Rec	1	9/3/2019 4:39:00 PM	SL_W62
Surr: Toluene-d8	93.3	70-130		%Rec	1	9/3/2019 4:39:00 PM	SL_W62

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

**Hall Environmental Analysis Laboratory, Inc.**

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

**Client Sample ID:** OW 23+90

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/27/2019 8:45:00 AM

**Lab ID:** 1908G31-007

**Matrix:** AQUEOUS

**Received Date:** 8/28/2019 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	0.027	0.050	J	mg/L	1	9/3/2019 11:42:15 PM	G62609
Surr: BFB	115	65.8-143		%Rec	1	9/3/2019 11:42:15 PM	G62609
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>CCM</b>
Benzene	ND	1.0		µg/L	1	9/3/2019 5:04:00 PM	SL_W62
Toluene	ND	1.0		µg/L	1	9/3/2019 5:04:00 PM	SL_W62
Ethylbenzene	ND	1.0		µg/L	1	9/3/2019 5:04:00 PM	SL_W62
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	9/3/2019 5:04:00 PM	SL_W62
Xylenes, Total	ND	1.5		µg/L	1	9/3/2019 5:04:00 PM	SL_W62
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	1	9/3/2019 5:04:00 PM	SL_W62
Surr: 4-Bromofluorobenzene	99.7	70-130		%Rec	1	9/3/2019 5:04:00 PM	SL_W62
Surr: Dibromofluoromethane	105	70-130		%Rec	1	9/3/2019 5:04:00 PM	SL_W62
Surr: Toluene-d8	93.3	70-130		%Rec	1	9/3/2019 5:04:00 PM	SL_W62

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908G31

Date Reported: 9/9/2019

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

**Client Sample ID:** CW 25+95

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/27/2019 9:00:00 AM

**Lab ID:** 1908G31-008

**Matrix:** AQUEOUS

**Received Date:** 8/28/2019 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	9/3/2019 5:57:44 PM	47204
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	9/3/2019 5:57:44 PM	47204
Surr: DNOP	124	52.7-168		%Rec	1	9/3/2019 5:57:44 PM	47204
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>CCM</b>
Benzene	ND	1.0		µg/L	1	9/4/2019 1:59:00 PM	SL_W62
Toluene	ND	1.0		µg/L	1	9/4/2019 1:59:00 PM	SL_W62
Ethylbenzene	ND	1.0		µg/L	1	9/4/2019 1:59:00 PM	SL_W62
Methyl tert-butyl ether (MTBE)	0.67	1.0	J	µg/L	1	9/4/2019 1:59:00 PM	SL_W62
Xylenes, Total	ND	1.5		µg/L	1	9/4/2019 1:59:00 PM	SL_W62
Surr: 1,2-Dichloroethane-d4	94.0	70-130		%Rec	1	9/4/2019 1:59:00 PM	SL_W62
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	9/4/2019 1:59:00 PM	SL_W62
Surr: Dibromofluoromethane	93.7	70-130		%Rec	1	9/4/2019 1:59:00 PM	SL_W62
Surr: Toluene-d8	89.2	70-130		%Rec	1	9/4/2019 1:59:00 PM	SL_W62

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908G31

Date Reported: 9/9/2019

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

**Client Sample ID:** FIELD BLANK #3

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/27/2019 9:08:00 AM

**Lab ID:** 1908G31-009

**Matrix:** AQUEOUS

**Received Date:** 8/28/2019 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: DIESEL RANGE</b>							Analyst: <b>BRM</b>
Diesel Range Organics (DRO)	ND	0.40		mg/L	1	9/3/2019 6:22:17 PM	47204
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	9/3/2019 6:22:17 PM	47204
Surr: DNOP	116	52.7-168		%Rec	1	9/3/2019 6:22:17 PM	47204
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>CCM</b>
Benzene	ND	1.0		µg/L	1	9/3/2019 6:17:00 PM	SL_W62
Toluene	ND	1.0		µg/L	1	9/3/2019 6:17:00 PM	SL_W62
Ethylbenzene	ND	1.0		µg/L	1	9/3/2019 6:17:00 PM	SL_W62
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	9/3/2019 6:17:00 PM	SL_W62
Xylenes, Total	ND	1.5		µg/L	1	9/3/2019 6:17:00 PM	SL_W62
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	9/3/2019 6:17:00 PM	SL_W62
Surr: 4-Bromofluorobenzene	94.8	70-130		%Rec	1	9/3/2019 6:17:00 PM	SL_W62
Surr: Dibromofluoromethane	108	70-130		%Rec	1	9/3/2019 6:17:00 PM	SL_W62
Surr: Toluene-d8	90.8	70-130		%Rec	1	9/3/2019 6:17:00 PM	SL_W62

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

# Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1908G31

Date Reported: 9/9/2019

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

**Client Sample ID:** TRIP BLANK

**Project:** 2019 Annual GW Sampling Event

**Collection Date:**

**Lab ID:** 1908G31-010

**Matrix:** AQUEOUS

**Received Date:** 8/28/2019 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
<b>EPA METHOD 8015D: GASOLINE RANGE</b>							Analyst: <b>NSB</b>
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	9/4/2019 1:16:22 AM	G62609
Surr: BFB	103	65.8-143		%Rec	1	9/4/2019 1:16:22 AM	G62609
<b>EPA METHOD 8260: VOLATILES SHORT LIST</b>							Analyst: <b>CCM</b>
Benzene	ND	1.0		µg/L	1	9/3/2019 6:41:00 PM	SL_W62
Toluene	ND	1.0		µg/L	1	9/3/2019 6:41:00 PM	SL_W62
Ethylbenzene	ND	1.0		µg/L	1	9/3/2019 6:41:00 PM	SL_W62
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	9/3/2019 6:41:00 PM	SL_W62
Xylenes, Total	ND	1.5		µg/L	1	9/3/2019 6:41:00 PM	SL_W62
Surr: 1,2-Dichloroethane-d4	104	70-130		%Rec	1	9/3/2019 6:41:00 PM	SL_W62
Surr: 4-Bromofluorobenzene	95.2	70-130		%Rec	1	9/3/2019 6:41:00 PM	SL_W62
Surr: Dibromofluoromethane	106	70-130		%Rec	1	9/3/2019 6:41:00 PM	SL_W62
Surr: Toluene-d8	93.5	70-130		%Rec	1	9/3/2019 6:41:00 PM	SL_W62

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908G31

09-Sep-19

**Client:** Western Refining Southwest, Inc Bloomfield  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>1908G31-001BMS</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>CW 0+60</b>	Batch ID: <b>47204</b>	RunNo: <b>62625</b>								
Prep Date: <b>8/30/2019</b>	Analysis Date: <b>9/3/2019</b>	SeqNo: <b>2131977</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.7	0.40	2.500	0.6979	121	68.3	147			
Surr: DNOP	0.29		0.2500		116	52.7	168			

Sample ID: <b>1908G31-001BMDS</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>CW 0+60</b>	Batch ID: <b>47204</b>	RunNo: <b>62625</b>								
Prep Date: <b>8/30/2019</b>	Analysis Date: <b>9/3/2019</b>	SeqNo: <b>2131978</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.5	0.40	2.500	0.6979	113	68.3	147	5.20	20	
Surr: DNOP	0.27		0.2500		108	52.7	168	0	0	

Sample ID: <b>LCS-47204</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>47204</b>	RunNo: <b>62625</b>								
Prep Date: <b>8/30/2019</b>	Analysis Date: <b>9/3/2019</b>	SeqNo: <b>2132011</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	0.40	2.500	0	105	66.7	148			
Surr: DNOP	0.25		0.2500		98.5	52.7	168			

Sample ID: <b>MB-47204</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 8015D: Diesel Range</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47204</b>	RunNo: <b>62625</b>								
Prep Date: <b>8/30/2019</b>	Analysis Date: <b>9/3/2019</b>	SeqNo: <b>2132013</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	0.40								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.54		0.5000		109	52.7	168			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908G31

09-Sep-19

**Client:** Western Refining Southwest, Inc Bloomfield  
**Project:** 2019 Annual GW Sampling Event

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>G62609</b>		RunNo: <b>62609</b>							
Prep Date:	Analysis Date: <b>9/3/2019</b>		SeqNo: <b>2130655</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		100	65.8	143			

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>G62609</b>		RunNo: <b>62609</b>							
Prep Date:	Analysis Date: <b>9/3/2019</b>		SeqNo: <b>2130656</b>		Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.45	0.050	0.5000	0	90.8	73.6	119			
Surr: BFB	23		20.00		113	65.8	143			

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908G31

09-Sep-19

**Client:** Western Refining Southwest, Inc Bloomfield  
**Project:** 2019 Annual GW Sampling Event

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>SL_W62593</b>	RunNo: <b>62593</b>								
Prep Date:	Analysis Date: <b>9/3/2019</b>	SeqNo: <b>2132411</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	99.1	70	130			
Toluene	20	1.0	20.00	0	99.4	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.6	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		97.2	70	130			
Surr: Dibromofluoromethane	9.7		10.00		96.9	70	130			
Surr: Toluene-d8	9.5		10.00		94.8	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>SL_W62593</b>	RunNo: <b>62593</b>								
Prep Date:	Analysis Date: <b>9/3/2019</b>	SeqNo: <b>2132412</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	9.8		10.00		98.0	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		95.6	70	130			
Surr: Dibromofluoromethane	9.7		10.00		97.4	70	130			
Surr: Toluene-d8	9.4		10.00		93.8	70	130			

Sample ID: <b>1908G31-001ams</b>	SampType: <b>MS</b>	TestCode: <b>EPA Method 8260: Volatiles Short List</b>								
Client ID: <b>CW 0+60</b>	Batch ID: <b>SL_W62593</b>	RunNo: <b>62593</b>								
Prep Date:	Analysis Date: <b>9/3/2019</b>	SeqNo: <b>2132414</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	0.9960	103	70	130			
Toluene	20	1.0	20.00	0	99.8	70	130			
Surr: 1,2-Dichloroethane-d4	9.1		10.00		90.6	70	130			
Surr: 4-Bromofluorobenzene	9.3		10.00		93.4	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.8	70	130			
Surr: Toluene-d8	16		10.00		158	70	130			S

Sample ID: <b>1908G31-001amsd</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8260: Volatiles Short List</b>								
Client ID: <b>CW 0+60</b>	Batch ID: <b>SL_W62593</b>	RunNo: <b>62593</b>								
Prep Date:	Analysis Date: <b>9/3/2019</b>	SeqNo: <b>2132415</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	0.9960	97.5	70	130	5.24	20	

**Qualifiers:**

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908G31

09-Sep-19

**Client:** Western Refining Southwest, Inc Bloomfield  
**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>1908G31-001amsd</b>	SampType: <b>MSD</b>	TestCode: <b>EPA Method 8260: Volatiles Short List</b>								
Client ID: <b>CW 0+60</b>	Batch ID: <b>SL_W62593</b>	RunNo: <b>62593</b>								
Prep Date:	Analysis Date: <b>9/3/2019</b>	SeqNo: <b>2132415</b>	Units: <b>µg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Toluene	19	1.0	20.00	0	94.6	70	130	5.32	20	
Surr: 1,2-Dichloroethane-d4	9.2		10.00		92.2	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.4		10.00		94.2	70	130	0	0	
Surr: Dibromofluoromethane	9.8		10.00		97.8	70	130	0	0	
Surr: Toluene-d8	16		10.00		156	70	130	0	0	S

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>SL_W62628</b>	RunNo: <b>62628</b>								
Prep Date:	Analysis Date: <b>9/4/2019</b>	SeqNo: <b>2132823</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	102	70	130			
Toluene	19	1.0	20.00	0	95.9	70	130			
Surr: 1,2-Dichloroethane-d4	9.3		10.00		93.2	70	130			
Surr: 4-Bromofluorobenzene	9.7		10.00		96.9	70	130			
Surr: Dibromofluoromethane	9.5		10.00		95.1	70	130			
Surr: Toluene-d8	8.9		10.00		88.8	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>SL_W62628</b>	RunNo: <b>62628</b>								
Prep Date:	Analysis Date: <b>9/4/2019</b>	SeqNo: <b>2132828</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	9.5		10.00		94.6	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		96.2	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.3	70	130			
Surr: Toluene-d8	8.8		10.00		87.7	70	130			

**Qualifiers:**

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

**Sample Log-In Check List**

Client Name: **Western Refining Southw**

Work Order Number: **1908G31**

RcptNo: **1**

Received By: **Desiree Dominguez** 8/28/2019 8:15:00 AM



Completed By: **Anne Thorne** 8/28/2019 11:01:24 AM



Reviewed By: *DM 8/29/19*

**Chain of Custody**

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

**Log In**

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

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

Adjusted? JO

Checked by: 8/29/19

**Special Handling (if applicable)**

15. 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:			

16. Additional remarks:  
 CUSTODY SEALS INTACT ON SAMPLE BOTTLES/at 8/28/19

**17. Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.9	Good	Yes			

# Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

Email: **gjmcartney@marathonpetroleum.com**

QA/QC Package:

Standard  X Level 4 (Full Validation)

Other \_\_\_\_\_

X EDD (Type) EXCEL

Turn-Around Time:

Standard  Rush

Project Name: **2019 Annual GW**

**Sampling Event**

Project #:

Project Manager: **Gregory McCartney**

Sampler: **Tracy Payne - 919-561-7055**

On Ice:  Yes  No

Sample Temperature: **3.3 - 0.4 = 2.9°**

Date Time Matrix Sample Request ID

8/26/19 0855

↓ ↓

H<sub>2</sub>O CW 0+60

H<sub>2</sub>O CW 0+60

Container Type and #

40ml VOA-5

500ml plastic 250 ML AMBER-1

Preservative Type

HCl

Neat

HEAL No.

1908631

001

001

Date Time Relinquished by:

8/27/19 1510

*[Signature]*

Date Time Relinquished by:

8/27/19 1844

*[Signature]*

Received by:

*[Signature]* Date 8/27/19 Time 1510

Received by:

*[Signature]* Date 8/28/19 Time 8:15

## Analysis Request

BTEX+MTBE+TPH(Gas only)	
BTEX+MTBE+TPH(Gas only)	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 PCBs	
8260B (VOA) BTEX, MTBE only	X
8270 (Semi-VOA)	
Air Bubbles (Y or N)	

Remarks:

### Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

Email: **gjmccartney@marathonpetroleum.com**

QA/QC Package:  
 Standard  Level 4 (Full Validation)  
 Other  
 EDD (Type) EXCEL

Turn-Around Time:  
 Standard  Rush

Project Name: **2019 Annual GW Sampling Event**

Project #:

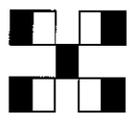
Project Manager: **Gregory McCartney**

Sampler: **Tracy Payne - 919-561-7055**  
 On Ice:  Yes  No

Sample Temperature: **3.3 - 0.4 = 2.9°C**

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
8/26/19	1150	H <sub>2</sub> O	OW 25+70	40ml VOA-5	HCl	1908631
↓	↓	H <sub>2</sub> O	OW 25+70	250 ml amber-1	Neat	702

Date	Time	Relinquished by:	Date	Time	Received by:	Date	Time
8/27/19	1516	<i>[Signature]</i>	8/27/19	1516	<i>[Signature]</i>	8/27/19	1516
8/27/19	1844	<i>[Signature]</i>	8/28/19	8:15	<i>[Signature]</i> courier	8/28/19	8:15



## 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 PCB's	8260B (VOA) BTEX,MTBE only	8270 (Semi-VOA)	Air Bubbles (Y or N)
		X							X		
		X									

Remarks: See Analytical Methods and Target Analytes.







# Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

Email: **gjmccartney@marathonpetroleum.com**

- QA/QC Package:
- Standard
  - Other
  - X EDD (Type) **EXCEL**
- X Level 4 (Full Validation)

Turn-Around Time:

Standard  Rush

Project Name: **2019 Annual GW**

**Sampling Event**

Project #:

Project Manager: **Gregory McCartney**

Sampler: **Tracy Payne - 919-561-7055**

On Ice:  Yes  No

Sample Temperature: **3.3 - 0.4 = 2.9 °C**

Date Time Matrix Sample Request ID

8/27/19 0825

H<sub>2</sub>O

OW 22+00

Container Type and #

40ml VOA-5  
250 ml  
amber-1

Preservative Type

HCl  
Neat

HEAL No.

1908631  
206  
206

## Analysis Request

BTEX+MTBE+TMB's(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, 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: See Analytical Methods and Target Analytes.

Date: 8/27/19 1510  
 Relinquished by: *[Signature]*  
 Date: 8/27/19 1844  
 Relinquished by: *[Signature]*

Received by: *[Signature]* Date: 8/27/19 1510  
 Received by: *[Signature]* Date: 8/28/19 8:15

# Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

Email: **gimccartney@marathonpetroleum.com**

QA/QC Package:  
 Standard  Level 4 (Full Validation)  
 Other  
 EDD (Type) EXCEL

Turn-Around Time:  
 Standard  Rush

Project Name: **2019 Annual GW Sampling Event**

Project #:

Project Manager: **Gregory McCartney**

Sampler: **Tracy Payne - 919-561-7055**  
 On Ice:  Yes  No

Sample Temperature: **3.3-0.4 = 2.9°C**

Container Type and #  
**40ml VOAX**  
 250 ml  
 amber-1

Preservative Type  
**HCl**  
 Neal

HEAL No.  
**1908G31**  
**707**



**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+TPH(Gas only)	X
TPH 8015B (GRO/DRO/MRO)	X
TPH (Method 418.1)	X
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>-</sup> , SO <sub>4</sub> <sup>-</sup> )	
8081 Pesticides / 8082 PCB's	
8260B (VOA) BTEX, MTBE only	X
8270 (Semi-VOA)	
Air Bubbles (Y or N)	

Remarks: See Analytical Methods and Target Analytes.

Date: <b>8/27/19</b>	Time: <b>1510</b>	Relinquished by: <b>[Signature]</b>	Date: <b>8/27/19</b>	Time: <b>1510</b>
Date: <b>8/28/19</b>	Time: <b>1844</b>	Relinquished by: <b>[Signature]</b>	Date: <b>8/28/19</b>	Time: <b>8:15</b>

Received by: **[Signature]**  
 Received by: **[Signature]**

# Chain-of-Custody Record

Client: **Western - Bloomfield Terminal**

Mailing Address: **50 CR 4990**

**Bloomfield, NM 87413**

Phone #: **419-421-2338**

Email: **gjmcartney@marathonpetroleum.com**

QA/QC Package:  
 Standard  Level 4 (Full Validation)  
 Other \_\_\_\_\_

X EDD (Type) EXCEL

Turn-Around Time:

Standard  Rush

Project Name: **2019 Annual GW**

**Sampling Event**

Project #:

Project Manager: **Gregory McCartney**

Sampler: **Tracy Payne - 919-561-7055**

On Ice:  Yes  No

Sample Temperature: **3.3 - 0.4 = 2.9°**

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
8/27/19	0900	H <sub>2</sub> O	CW 25+95	40ml VOA-5	HCl	1908631
↓	↓	H <sub>2</sub> O	CW 25+95	500 ml plastic 250 ML AMBER-1	Neat	208

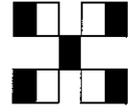
Received by: *[Signature]* Date: 8/27/19 Time: 1510

Received by: *[Signature]* Date: 8/28/19 Time: 8:15

Relinquished by: *[Signature]* Date: 8/27/19 Time: 1844

Relinquished by: *[Signature]* Date: 8/27/19 Time: 1510

Remarks: courier



# 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+TPH(Gas only)	TPH 8015B (PRO EXTENDED only)	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)	Air Bubbles (Y or N)
	X							X		

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)

September 18, 2019

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

RE: 2019 Annual GW Sampling Event

OrderNo.: 1908I12

Dear Gregory J. McCartney:

Hall Environmental Analysis Laboratory received 1 sample(s) on 8/29/2019 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 #NM0901

Sincerely,

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

Andy Freeman  
Laboratory Manager  
4901 Hawkins NE  
Albuquerque, NM 87109

# Hall Environmental Analysis Laboratory, Inc.

## Analytical Report

Lab Order 1908I12

Date Reported: 9/18/2019

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

**Client Sample ID:** Mw-27

**Project:** 2019 Annual GW Sampling Event

**Collection Date:** 8/28/2019 8:00:00 AM

**Lab ID:** 1908I12-001

**Matrix:** AQUEOUS

**Received Date:** 8/29/2019 8:15:00 AM

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed	Batch ID
<b>EPA METHOD 245.1: MERCURY</b>							Analyst: <b>rde</b>	
Mercury	ND	0.000038	0.00020		mg/L	1	9/17/2019 12:18:40 PM	47502
<b>EPA METHOD 6010B: DISSOLVED METALS</b>							Analyst: <b>bcv</b>	
Arsenic	ND	0.019	0.020		mg/L	1	9/9/2019 12:15:34 PM	A62764
Barium	0.045	0.00056	0.020		mg/L	1	9/9/2019 9:25:24 AM	A62764
Cadmium	ND	0.00058	0.0020		mg/L	1	9/9/2019 9:25:24 AM	A62764
Calcium	670	0.60	10		mg/L	10	9/11/2019 12:49:35 PM	A62841
Chromium	ND	0.0012	0.0060		mg/L	1	9/9/2019 9:25:24 AM	A62764
Copper	ND	0.0023	0.0060		mg/L	1	9/9/2019 9:25:24 AM	A62764
Iron	1.1	0.027	0.10		mg/L	5	9/9/2019 9:27:07 AM	A62764
Lead	ND	0.0048	0.0050		mg/L	1	9/9/2019 9:25:24 AM	A62764
Magnesium	110	0.30	5.0		mg/L	5	9/9/2019 9:27:07 AM	A62764
Manganese	1.8	0.0013	0.010		mg/L	5	9/9/2019 9:27:07 AM	A62764
Potassium	6.0	0.11	1.0		mg/L	1	9/9/2019 9:25:24 AM	A62764
Selenium	ND	0.041	0.050		mg/L	1	9/9/2019 9:25:24 AM	A62764
Silver	0.0086	0.0013	0.0050		mg/L	1	9/9/2019 9:25:24 AM	A62764
Sodium	870	2.4	10		mg/L	10	9/9/2019 12:17:15 PM	A62764
Uranium	ND	0.062	0.10		mg/L	1	9/9/2019 9:25:24 AM	A62764
Zinc	0.015	0.0026	0.020	J	mg/L	1	9/9/2019 9:25:24 AM	A62764

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908112

18-Sep-19

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

**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>MB-47502</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 245.1: Mercury</b>								
Client ID: <b>PBW</b>	Batch ID: <b>47502</b>	RunNo: <b>62984</b>								
Prep Date: <b>9/16/2019</b>	Analysis Date: <b>9/17/2019</b>	SeqNo: <b>2147224</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID: <b>LCS-47502</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 245.1: Mercury</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>47502</b>	RunNo: <b>62984</b>								
Prep Date: <b>9/16/2019</b>	Analysis Date: <b>9/17/2019</b>	SeqNo: <b>2147225</b>	Units: <b>mg/L</b>							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	97.3	80	120			

**Qualifiers:**

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908112

18-Sep-19

Client: Western Refining Southwest, Inc.

Project: 2019 Annual GW Sampling Event

Sample ID: <b>MB-A</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>
Client ID: <b>PBW</b>	Batch ID: <b>A62764</b>	RunNo: <b>62764</b>
Prep Date:	Analysis Date: <b>9/9/2019</b>	SeqNo: <b>2137952</b> Units: <b>mg/L</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								
Uranium	ND	0.10								
Zinc	ND	0.020								

Sample ID: <b>LCS-A</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>
Client ID: <b>LCSW</b>	Batch ID: <b>A62764</b>	RunNo: <b>62764</b>
Prep Date:	Analysis Date: <b>9/9/2019</b>	SeqNo: <b>2137953</b> Units: <b>mg/L</b>

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.48	0.020	0.5000	0	95.6	80	120			
Barium	0.48	0.020	0.5000	0	95.1	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.4	80	120			
Chromium	0.49	0.0060	0.5000	0	97.1	80	120			
Copper	0.50	0.0060	0.5000	0	100	80	120			
Iron	0.49	0.020	0.5000	0	98.6	80	120			
Lead	0.49	0.0050	0.5000	0	98.6	80	120			
Magnesium	50	1.0	50.00	0	100	80	120			
Manganese	0.48	0.0020	0.5000	0	97.0	80	120			
Potassium	50	1.0	50.00	0	99.3	80	120			
Selenium	0.48	0.050	0.5000	0	96.3	80	120			
Silver	0.10	0.0050	0.1000	0	99.8	80	120			
Sodium	50	1.0	50.00	0	99.6	80	120			
Uranium	0.46	0.10	0.5000	0	91.3	80	120			
Zinc	0.48	0.020	0.5000	0	96.5	80	120			

### Qualifiers:

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

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

# QC SUMMARY REPORT

## Hall Environmental Analysis Laboratory, Inc.

WO#: 1908112

18-Sep-19

**Client:** Western Refining Southwest, Inc.**Project:** 2019 Annual GW Sampling Event

Sample ID: <b>MB-A</b>	SampType: <b>MBLK</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>PBW</b>	Batch ID: <b>A62841</b>	RunNo: <b>62841</b>								
Prep Date:	Analysis Date: <b>9/11/2019</b>	SeqNo: <b>2141041</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								

Sample ID: <b>LCS-A</b>	SampType: <b>LCS</b>	TestCode: <b>EPA Method 6010B: Dissolved Metals</b>								
Client ID: <b>LCSW</b>	Batch ID: <b>A62841</b>	RunNo: <b>62841</b>								
Prep Date:	Analysis Date: <b>9/11/2019</b>	SeqNo: <b>2141042</b>			Units: <b>mg/L</b>					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	98.8	80	120			

### Qualifiers:

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

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

**Sample Log-In Check List**

Client Name: **Western Refining Southw** Work Order Number: **1908112** RcptNo: 1

Received By: **Desiree Dominguez** **8/29/2019** *DD*  
 Completed By: **Isaiah Ortiz** **8/30/2019 8:10:39 AM** *I-Ox*  
 Reviewed By: *LB* *9/3/19*

**Chain of Custody**

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

**Log In**

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

# of preserved bottles checked for pH: 1  
 Adjusted? NO (2 or >12 unless noted)  
 Checked by: DAD *9/3/19*  
*DAO 9/3/19*

**Special Handling (if applicable)**

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

Person Notified: \_\_\_\_\_ Date: \_\_\_\_\_  
 By Whom: \_\_\_\_\_ Via:  eMail  Phone  Fax  In Person  
 Regarding: \_\_\_\_\_  
 Client Instructions: \_\_\_\_\_

16. Additional remarks:

**Cooler Information**

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



**TABLE 2**  
**Analytical Methods and Target Analytes**  
**Facility-Wide Groundwater Monitoring Plan - June 2014**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

<b>VOCs (EPA Method 8260B) <sup>(1)</sup></b>
- Target List
<i>Benzene</i>
<i>Toluene</i>
<i>Ethylbenzene</i>
<i>Xylenes</i>
<i>Methyl tert butyl ether (MTBE)</i>
<b>SVOCs - (EPA Method 8270)</b>
- Method List
<b>TPH-GRO (EPA Method 8015B)</b>
- Gasoline Range Organics
<b>TPH-DRO (EPA Method 8015B)</b>
- Diesel Range Organics
- Motor Oil Range Organics
<b>Total Carbon Dioxide (Laboratory Calculated)</b>
- Dissolved CO <sub>2</sub>
<b>Specific Conductivity (EPA Method 120.1 or field measurement)</b>
- Specific conductance
<b>TDS (EPA Method 160.1 or field measurement)</b>
- Total dissolved solids
<b>General Chemistry - Anions (EPA Method 300.0)</b>
<i>Fluoride</i>
<i>Chloride</i>
<i>Bromide</i>
<i>Nitrogen, Nitrite (as N)</i>
<i>Nitrogen, Nitrate (as N)</i>
<i>Phosphorous, Orthophosphate (As P)</i>
<i>Sulfate</i>
<b>General Chemistry - Alkalinity (EPA Method 310.1)</b>
<i>Alkalinity, Total</i>
<i>Carbonate</i>
<i>Bicarbonate</i>

<b>Total Recoverable Metals (EPA Method 6010B/7470)</b>
- Target List (not applicable to River Terrace Sampling Events)
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Chromium</i>
<i>Lead</i>
<i>Mercury</i>
<i>Selenium</i>
<i>Silver</i>
- Target List (for River Terrace Sampling Events Only)
<i>Lead</i>
<i>Mercury (DW-1 ONLY)</i>
<b>Dissolved Metals (EPA Method 6010B / 7470)</b>
- Target List (for Refinery Complex, Outfalls, and River)
<i>Arsenic</i>
<i>Barium</i>
<i>Cadmium</i>
<i>Calcium</i>
<i>Chromium</i>
<i>Copper</i>
<i>Iron</i>
<i>Lead</i>
<i>Magnesium</i>
<i>Manganese</i>
<i>Mercury</i>
<i>Potassium</i>
<i>Selenium</i>
<i>Silver</i>
<i>Sodium</i>
<i>Uranium</i>
<i>Zinc</i>

TPH = total petroleum hydrocarbons  
GRO = gasoline range organics  
VOCs = volatile organic compounds  
DRO = diesel range organics  
TDS = total dissolved solids

**NOTES:**

- (1) VOCs Target List for River Terrace samples are analyzed by EPA Method 8021B per NMED's letter Approval with Direction dated June 16, 2009.
- (2) Target List for San Juan River Terrace Monitoring Wells and Piezometer Wells only, per the River Terrace Bioventing System Monitoring Plan.

**APPENDIX B**  
**DATA VALIDATION**

## 1.0 DATA VALIDATION INTRODUCTION

---

This summary presents data verification results for groundwater and surface water sampling activities conducted in 2019 at the Bloomfield Terminal pursuant to Section IV.A.2. of the July 2007 Consent Order (NMED, 2007) issued by the New Mexico Environment Department Hazardous Waste Bureau (NMED-HWB), and Section 2.F of Discharge Permit GW-001 (NMOCD, 2017) issued by the New Mexico Energy, Mineral, and Natural Resources Department Oil Conservation Division (EMNRD-OCD). The data review was performed in accordance with the procedures specified in the Order issued by NMED (NMED, 2007), USEPA Functional Guidelines for Organic and Inorganic Data Review, and quality assurance and control parameters set by the project laboratory Hall Environmental Analysis Laboratory, Inc (HEAL). The samples evaluated include groundwater samples collected from monitoring wells installed at the Refinery Complex and North Boundary Barrier, and surface water samples collected from the San Juan River.

A total of 43 groundwater samples, four groundwater “outfall” samples, and eight surface water samples (excluding quality assurance samples) were collected in semi-annual and annual monitoring events between April 3, 2019 and August 28, 2019. Groundwater samples, outfall samples, and surface water samples were submitted to HEAL for the following parameters:

- Volatile organic compounds (VOCs) by USEPA Method 8260B;
- Semi-volatile organic compounds (SVOCs) by USEPA Method 8270C
- Gasoline, diesel, and motor oil range organics by SW-846 Method 8015D;
- Total metals (arsenic, barium, cadmium, chromium, lead, selenium, and silver) and dissolved metals (arsenic, barium, cadmium, calcium, chromium, copper, iron, lead, magnesium, manganese, potassium, selenium, silver, sodium, uranium, and zinc) by SW846 Method 6010B/E200.7; and
- Mercury by EPA Method 7470.

Groundwater and surface water samples were also analyzed for general water quality parameters including, fluoride, chloride, nitrate, nitrite, bromide, phosphorous, sulfate, total carbon dioxide, total alkalinity, carbonate, bicarbonate, total dissolved solids, and specific conductance.

Additionally, 23 quality assurance samples consisting of trip blanks, field blanks, equipment rinsate blanks, and field duplicates were collected and analyzed as part of the investigation activities. Table B-1 presents a summary of the field sample identifications, laboratory sample identifications, and sample collection dates.

## 2.0 QUALITY CONTROL PARAMETERS REVIEWED

---

Sample results were subject to a Level II data review that includes an evaluation of the following quality control (QC) parameters:

- Chain-of-Custody;
- Sample Preservation and Temperature Upon Laboratory Receipt;
- Holding Times;
- Blank Contamination (method blanks, trip blanks, field blanks, and equipment rinsate blanks);
- Surrogate Recovery (for organic parameters);
- Laboratory Control Sample (LCS) Recovery and Relative Percent Difference (RPD);
- Matrix Spike/Matrix Spike Duplicate (MS/MSD) Recovery and RPD;
- Duplicates (field duplicate, laboratory duplicate); and
- Other Applicable QC Parameters.

The data qualifiers used to qualify the analytical results associated with QC parameters outside of the established data quality objectives are defined below:

- J+ The analyte was positively identified; however, the result should be considered an estimated value with a potential high bias.
- J- The analyte was positively identified; however, the result should be considered an estimated value with a potential low bias.
- UJ The reporting limit for a constituent that was not detected is considered an estimated value.
- R Quality control indicates that the data is not usable.

Results qualified as “J+”, “J-”, or “UJ” are of acceptable data quality and may be used quantitatively to fulfill the objectives of the analytical program, per EPA guidelines.

Results for the performance monitoring events that required qualification based on the data verification are summarized in Table B-2.

## 2.1 CHAIN-OF-CUSTODY

The chain-of-custody documentation associated with project samples was found to be complete. Chain-of-custodies included sample identifications, date and time of collection, requested parameters, and relinquished/received signatures.

## 2.2 SAMPLE PRESERVATION AND TEMPERATURE UPON LABORATORY RECEIPT

Samples collected were received preserved and intact by HEAL. Samples were received by the laboratory at a temperature of 6.0 degrees Celsius or lower. Data qualification on lower temperature samples was not required.

## 2.3 HOLDING TIMES

All samples were extracted and analyzed within method-specified holding time limits with the exception of total carbon dioxide and phosphorus, both general water quality parameters. The recommended holding time for total carbon dioxide analysis is "immediate". Unless the sample is analyzed in the field it is flagged by the laboratory. The holding time for phosphorus is 48 hours. Since analyses were conducted in a reasonable time period after collection of samples and samples were properly preserved, the data was accepted but was flagged as estimated with a potential low bias. Data qualification for exceeding holding times is shown on Table B-2.

## 2.4 BLANK CONTAMINATION

### 2.4.1 Method Blank

Method blanks were analyzed at the appropriate frequency. Target compounds were not detected in the method blanks above target screening levels with the following exception:

Lab Report 1908E25

- VOC methylene chloride was detected in the method blank (Batch ID R62453) at a concentration of 0.23 ug/L. The data was qualified "J";
- SVOC 2,4-dinitrophenol was detected in the method blank (Batch ID 47113) at a concentration of 4.4 ug/L. The data was qualified "J"; and
- Mercury was detected in the method blank (Batch ID 47428) at a concentration of 0.000039 mg/L. The data was qualified "J".

Lab Report 1908E78

- Nitrate+Nitrite as N was detected in the method blank (Batch ID A62815) at a concentration of 0.041 mg/L. The data was qualified "J";
- 2,4-Dinitrophenol was detected in the method blank (Batch ID 47113) at a concentration of 4.4 ug/L. The data was qualified "J"; and
- Mercury was detected in the method blank (Batch ID 47428) at a concentration of 0.000039 mg/L. The data was qualified "J".

## 2.4.2 Trip Blank

Trip blanks were analyzed at the appropriate frequency as specified in the Order and Permit. Target compounds were not detected in the trip blanks with the following exceptions:

Lab Report 1908E25 – The following data was flagged with “J” (Analyte detected below quantitation limit) Batch ID R62453.

- Methylene Chloride – 0.18 ug/L vs screening level of 5 ug/L. Methylene chloride was not detected in the method blank. The data was not qualified.

Lab Report 1908E78-010 - The following data was flagged with “J” (Analyte detected below quantitation limit) Batch ID R62584.

- Chlorobenzene – 0.48 ug/L vs screening level of 100 ug/L. Chlorobenzene was not detected in the method blank. The data was not qualified; and
- Methylene Chloride – 0.19 ug/L vs screening level of 5 ug/L. Methylene chloride was not detected in the method blank. The data was not qualified.

Lab Report 1908E78-017 - The following data was flagged with “J” (Analyte detected below quantitation limit) Batch ID R62584.

- Chlorobenzene – 0.48 ug/L vs screening level of 100 ug/L. Chlorobenzene was not detected in the method blank. The data was not qualified; and
- Methylene Chloride – 0.18 ug/L vs screening level of 5 ug/L. Methylene chloride was not detected in the method blank. The data was not qualified.

## 2.4.3 Field Blanks/Equipment Rinsate Blank

Field and equipment rinsate blanks were collected as specified in the Order and Permit. Target compounds were not detected in the field blanks or equipment blanks with the following exceptions:

Lab Report 1908D80-005 (Field Blank #1)

- Total Carbon Dioxide – 10 mg CO<sub>2</sub>/L. The data was flagged with “H” (Holding times for preparation or analysis exceeded). The results were qualified with “J-” in Table B-2; and
- Zinc – 0.025 mg/L vs screening level of 10 mg/L. The reporting limit is 0.020 mg/L. In Batch ID A62764 zinc was not detected in the method blank. Zinc was detected in LCS at a concentration of 0.48 mg/L with a spike value of 0.50 mg/L. The results were not qualified.

Lab Report 1908D80-009 (Equipment Blank #1)

- Total Carbon Dioxide – 9.6 mg CO<sub>2</sub>/L. The data was flagged with “H” (Holding times for preparation or analysis exceeded). The results were qualified with a “J-” in Table B-2;
- Nitrogen, Nitrate (as N) – 0.10 mg/L. The reporting limit is 0.10 mg/L. In Batch ID R62406 nitrogen, nitrate (as N) was not detected in the method blank. Nitrogen, nitrate (as N) was detected in the LCS at the spike value. The results were not qualified; and
- Zinc – 0.022 mg/L vs screening level of 10 mg/L. The reporting limit is 0.020 mg/L. In Batch ID A62764 zinc was not detected in the method blank. Zinc was detected in LCS at

a concentration of 0.48 mg/L. with a spike value of 0.50 mg/L. The results were not qualified.

#### Lab Report 1908E78-007 (Equipment Blank #2)

- Nitrate+Nitrite as N – 0.49 mg/L. The reporting limit is 1.0 mg/L. In Batch ID R62781 nitrate+nitrite as N was not detected in the method blank. Nitrate+Nitrite as N was detected in the LCS at the spike value. The results were not qualified;
- Mercury – 0.00011 mg/L. The reporting limit is 0.00020 mg/L. Mercury was detected in the method blank (Batch ID 47428) at a concentration of 0.000039 mg/L. Mercury was detected in the LCS at below spike value. The data was qualified “J”; and
- Zinc – 0.016 mg/L vs screening level of 10 mg/L. The reporting limit is 0.020 mg/L. In Batch ID A62764 zinc was not detected in the method blank. Zinc was detected in LCS at a concentration of 0.48 mg/L. with a spike value of 0.50 mg/L. The results were not qualified.

#### 2.4.4 Common Laboratory Contaminants

Per USEPA guidelines, common laboratory contaminants for VOC analysis are acetone, 2-butanone (MEK), cyclohexane, chloromethane, and methylene chloride. Data qualification was not required since COCs were not detected in the method blanks. Methylene chloride was detected above the reporting in the following trip blanks:

Lab Report 1908E25 – The following data was flagged with “J” (Analyte detected below quantitation limit) Batch ID R62453.

- Methylene Chloride – 0.18 ug/L vs screening level of 5 ug/L. Methylene chloride was not detected in the method blank. The data was not qualified.

Lab Report 1908E78-010 - The following data was flagged with “J” (Analyte detected below quantitation limit) Batch ID R62584.

- Methylene Chloride – 0.19 ug/L vs screening level of 5 ug/L. Methylene chloride was not detected in the method blank. The data was not qualified.

Lab Report 1908E78-017 - The following data was flagged with “J” (Analyte detected below quantitation limit) Batch ID R62584.

- Methylene Chloride – 0.18 ug/L vs screening level of 5 ug/L. Methylene chloride was not detected in the method blank. The data was not qualified.

#### 2.4.5 Methanol Blanks

Methanol Blanks are not applicable and were not analyzed.

### 2.5 SURROGATE RECOVERY

Surrogate recoveries for the organic and inorganic analyses were performed at the required frequency and were within laboratory acceptance limits, with the following exceptions:

#### Lab Report 1904357-001

- Surrogate recovery for bromofluorobenzene (BFB) was above the upper acceptance limit for field sample CW 0+60. The associated detected field sample results for gasoline range organics (GRO) are qualified “J+” due to a potential high bias.
- Surrogate recovery for toluene-d8 was above the upper acceptance limit for field sample CW 0+60. The associated detected field sample results for benzene, ethylbenzene, MTBE, and total xylenes are qualified “J+” due to a potential high bias. Toluene concentrations were non-detectable and were qualified “UJ”.

#### Lab Report 1908E25

- Surrogate recoveries for 2-fluorophenol, phenol-d5, and 2,4,6-tribromophenol were below the lower acceptance limits for the SVOC method blank (Laboratory Batch ID 471113). The surrogate recoveries for SVOC analysis of MW-38 and MW-12 were within the laboratory acceptance limits. No data was qualified.

#### Lab Report 1908G31-001

- Surrogate recovery for toluene-d8 was above the upper acceptance limit for field sample CW 0+60. The associated detected field sample results for benzene, ethylbenzene, MTBE, and total xylenes are qualified “J+” due to a potential high bias. Toluene concentrations were non-detectable and were qualified “UJ”.

Data qualification for surrogate recovery is shown on Table B-2.

## 2.6 LCS RECOVERY AND RELATIVE PERCENT DIFFERENCE

LCS/LCS duplicates were performed at the required frequency and were evaluated based on the following criteria:

- If the analyte recovery was above acceptance limits for the LCS or LCS duplicate, but the analyte was not detected in the associated batch, then data qualification was not required.
- If the analyte recovery was above acceptance limits for the LCS or LCS duplicate and the analyte was detected in the associated batch, then the analyte results were qualified “J+” to account for a potential high bias.
- If the analyte recovery was below acceptance limits for LCS or LCS duplicate then the analyte results in the associated analytical batch were qualified (“UJ” for non-detects and “J-” for detected results) to account for a potential low bias.

LCS/LCSD percent recoveries and relative percent differences (RPDs) were within acceptance limits and no qualification was required.

## 2.7 MS/MSD RECOVERY AND RELATIVE PERCENT DIFFERENCE

MS/MSD samples were performed at the required frequency and were evaluated by the following criteria:

- If the MS or MSD recovery for an analyte was above acceptance limits but the analyte was not detected in the associated analytical batch, then data qualification was not required.
- If the MS or MSD recovery for an analyte was above acceptance limits and the analyte was detected in the associated analytical batch, then analyte results were qualified “J+” to account for a potential high bias.
- Low MS/MSD recoveries for inorganic parameters result in sample qualification of the associated analytical batch with a “J-”.
- Results were not qualified based on non-project specific MS/MSD (i.e., batch QC) recoveries.

Some lab reports do not report MS/MSD results if none of the samples included under that report were used for the MS/MSD; however, in many instances the sample used for the MS/MSD was a sample of similar matrix materials submitted by Marathon in a different data set and its MS/MSD results were included in other lab reports, which are included in this data validation review.

MS/MSD percent recoveries and RPDs were within acceptance limits and no qualification was required with the following exceptions:

#### Lab Report 1908D80

- The MS/MSD recoveries for mercury in Laboratory Batch ID 47323 were slightly below the acceptable range. The mercury data was qualified “UJ” for MW-13.

#### Lab Report 1908E25

- The MS/MSD recoveries for uranium in Laboratory Batch ID A62764 were below the acceptable range. The uranium data was qualified “UJ” for MW-32.

#### Lab Report 1908G31

- The MS/MSD recoveries for the surrogate toluene-d8 in Laboratory Batch ID SL\_W62593 were above the acceptable range. The associated detected field sample results for benzene, ethylbenzene, MTBE, and total xylenes are qualified “J+” due to a potential high bias. Toluene concentrations were non-detectable and were qualified “UJ”.

## 2.8 DUPLICATES

### 2.8.1 Field Duplicates

Field duplicates were collected at a rate as stated in the Order and Permit. The RPDs between the field duplicate and its associated sample were calculated and are presented in Table B-3. The field duplicates were evaluated by the following criteria:

- If an analyte was detected at a concentration greater than five times the method reporting limit, the RPD should be less than 25 percent for ground water samples.

- If an analyte was detected at a concentration that is less than five times the method reporting limit, then the difference between the sample and the field duplicate should not exceed the method reporting limit.
- Duplicate RPDs are calculated by dividing the difference of the concentrations by the average of the concentrations.

Field duplicate RPDs were within acceptance limits except for the following:

Lab Reports 1908D80-006 (MW-11) and 1908D80-007 (DUPLICATE #1)

- 4-Isopropyltoluene concentrations of 3 ug/L vs 2.3 ug/L in the duplicate sample. The RPD was 26.4%;
- Sec-Butylbenzene concentrations of 13 ug/L vs 10 ug/L in the duplicate sample. The RPD was 26.1%;
- Sulfate concentrations of 6.9 mg/L vs 9.6 mg/L in the duplicate sample. The RPD was 32.7%;
- Total lead concentrations of 0.014 mg/L vs 0.0072 mg/L in the duplicate sample. The RPD was 64.2%; and
- GRO concentrations of 2.4 mg/L vs 1.8 mg/L in the duplicate sample. The RPD was 28.6%.

Lab Reports 1908E78-004 (MW-70) and 1908E78-006 (DUPLICATE #2)

- Zinc concentrations of 0.017 mg/L vs 0.023 mg/L in the duplicate sample. The RPD was 30.0%.

Lab Reports 1908G31-002 (OW 25+70) and 1908G31-003 (DUPLICATE #3)

- GRO concentrations of 0.052 mg/L vs 0.073 mg/L in the duplicate sample. The RPD was 33.6%.

### 3.0 COMPLETENESS SUMMARY

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The following equation was used to calculate the technical completeness:

$$\% \text{ Technical Completeness} = \left( \frac{\text{Number of usable results}}{\text{Number of reported results}} \right) \times 100$$

The technical completeness attained for semi-annual and annual monitoring activities conducted in 2019 was 100 percent. The completeness results are provided in Table B-4. The analytical results for the required analytes per the Order and Permit were considered usable for the intended purposes and the project DQOs have been met.

**Table B-1**  
**Sample Identification - 2019 Annual Monitoring Report**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

Sample ID	Lab ID	Date Collected	Sample Type
MW-1	1904276-001	04/03/19	GW
Field Blank #1	1904276-002	04/03/19	FB
Equipment Blank #1	1904276-003	04/03/19	EB
MW-35	1904276-004	04/03/19	GW
MW-13	1904276-005	04/03/19	GW
Trip Blank	1904276-006	04/03/19	TB
CW 0+60	1904357-001	04/03/19	GW
MW-12	1904357-002	04/04/19	GW
MW-38	1904357-003	04/04/19	GW
MW-37	1904357-004	04/04/19	GW
OW 25+70	1904357-005	04/04/19	GW
Trip Blank	1904357-006	04/04/19	TB
East Outfall #2	1904357-007	04/04/19	Outfall
East Outfall #3	1904357-008	04/04/19	Outfall
OW 8+10	1904419-001	04/05/19	GW
OW 19+50	1904419-002	04/05/19	GW
OW 22+00	1904419-003	04/05/19	GW
OW 23+90	1904419-004	04/05/19	GW
CW 25+95	1904419-005	04/05/19	GW
Duplicate #1	1904419-006	04/05/19	FD
Field Blank #2	1904419-007	04/05/19	FB
Trip Blank	1904419-008	04/05/19	TB
Upstream	1904422-001	04/05/19	SW
North of 45	1904422-002	04/05/19	SW
North of 46	1904422-003	04/05/19	SW
Downstream	1904422-004	04/05/19	SW
Trip Blank	1904422-005	04/05/19	TB
East Outfall #2	1908972-001	08/15/19	Outfall
East Outfall #3	1908972-002	08/15/19	Outfall
Upstream	1908972-003	08/16/19	SW
North of 45	1908972-004	08/16/19	SW
North of 46	1908972-005	08/16/19	SW
Downstream	1908972-006	08/16/19	SW
Trip Blank	1908972-007	08/16/19	TB
MW-1	1908D80-001	08/21/19	GW
MW-13	1908D80-002	08/21/19	GW
Trip Blank	1908D80-003	08/21/19	TB
MW-34	1908D80-004	08/21/19	GW
Field Blank #1	1908D80-005	08/21/19	FB
MW-11	1908D80-006	08/21/19	GW
DUPLICATE #1	1908D80-007	08/21/19	FD
Trip Blank	1908D80-008	08/21/19	TB
EQUIPMENT BLANK #1	1908D80-009	08/21/19	EB
MW-32	1908E25-001	08/22/19	GW
MW-27	1908E25-002	08/22/19	GW
MW-38	1908E25-003	08/22/19	GW
Trip Blank	1908E25-004	08/22/19	TB
MW-37	1908E25-005	08/22/19	GW

**Table B-1**  
**Sample Identification - 2019 Annual Monitoring Report**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

Sample ID	Lab ID	Date Collected	Sample Type
MW-35	1908E25-006	08/22/19	GW
MW-12	1908E25-007	08/21/19	GW
MW-59	1908E78-001	08/22/19	GW
MW-63	1908E78-002	08/22/19	GW
MW-64	1908E78-003	08/22/19	GW
MW-70	1908E78-004	08/23/19	GW
Trip Blank	1908E78-005	08/23/19	TB
DUPLICATE #2	1908E78-006	08/23/19	FD
FIELD BLANK #2	1908E78-007	08/23/19	FB
MW-44	1908E78-008	08/23/19	GW
MW-62	1908E78-009	08/23/19	GW
Trip Blank	1908E78-010	08/23/19	TB
MW-31	1908E78-011	08/23/19	GW
MW-29	1908E78-012	08/23/19	GW
MW-53	1908E78-013	08/23/19	GW
MW-52	1908E78-014	08/23/19	GW
MW-67	1908E78-015	08/23/19	GW
MW-68	1908E78-016	08/23/19	GW
Trip Blank	1908E78-017	08/23/19	TB
CW 0+60	1908G31-001	08/26/19	GW
OW 25+70	1908G31-002	08/26/19	GW
DUPLICATE #3	1908G31-003	08/26/19	FD
OW 8+10	1908G31-004	08/27/19	GW
OW 19+50	1908G31-005	08/27/19	GW
OW 22+00	1908G31-006	08/27/19	GW
OW 23+90	1908G31-007	08/27/19	GW
CW 25+95	1908G31-008	08/27/19	GW
FIELD BLANK #3	1908G31-009	08/27/19	FB
TRIP BLANK	1908G31-010	08/27/19	TB
MW-27	1908I12-001	08/28/19	GW

**Notes:**

GW = Groundwater  
 FD = Field Duplicate  
 SW = Surface Water

TB = Trip Blank  
 EB = Equipment Blank  
 FB = Field Blank

**Table B-2**  
**Qualified Data - 2019 Annual Monitoring Report**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

SAMPLE ID	DATE COLLECTED	ANALYTE	RESULTS	UNITS	SAMPLE TYPE	QUALIFIER	COMMENTS
CW 0+60	04/03/19	Gasoline Range Organics	3.1	mg/L	GW	J+	Qualified high bias - high recovery in surrogate.
CW 0+60	04/03/19	Benzene	0.0021	mg/L	GW	J+	Qualified high bias - high recovery in surrogate.
CW 0+60	04/03/19	Toluene	<0.001	mg/L	GW	UJ	Qualified high bias - high recovery in surrogate.
CW 0+60	04/03/19	Ethylbenzene	0.004	mg/L	GW	J+	Qualified high bias - high recovery in surrogate.
CW 0+60	04/03/19	MTBE	0.0012	mg/L	GW	J+	Qualified high bias - high recovery in surrogate.
CW 0+60	04/03/19	Total Xylenes	0.0018	mg/L	GW	J+	Qualified high bias - high recovery in surrogate.
East Outfall #2	04/04/19	Total Carbon Dioxide	310	mg CO2/L	GW	J-	Qualified low bias - analysis outside holding time.
East Outfall #3	04/04/19	Total Carbon Dioxide	300	mg CO2/L	GW	J-	Qualified low bias - analysis outside holding time.
Upstream	04/05/19	Total Carbon Dioxide	87	mg CO2/L	SW	J-	Qualified low bias - analysis outside holding time.
Upstream	04/05/19	Phosphorus, Orthophosphate (As P)	<5	mg/L	SW	UJ	Qualified low bias - analysis outside holding time.
Upstream	04/05/19	Arsenic	<0.020	mg/L	SW	UJ	Qualified high bias - detection of arsenic in method blank.
North of 45	04/05/19	Total Carbon Dioxide	86	mg CO2/L	SW	J-	Qualified low bias - analysis outside holding time.
North of 45	04/05/19	Phosphorus, Orthophosphate (As P)	<5	mg/L	SW	UJ	Qualified low bias - analysis outside holding time.
North of 46	04/05/19	Total Carbon Dioxide	92	mg CO2/L	SW	J-	Qualified low bias - analysis outside holding time.
North of 46	04/05/19	Phosphorus, Orthophosphate (As P)	<5	mg/L	SW	UJ	Qualified low bias - analysis outside holding time.
Downstream	04/05/19	Total Carbon Dioxide	89	mg CO2/L	SW	J-	Qualified low bias - analysis outside holding time.
Downstream	04/05/19	Phosphorus, Orthophosphate (As P)	<5	mg/L	SW	UJ	Qualified low bias - analysis outside holding time.
East Outfall #2	08/15/19	Total Carbon Dioxide	300	mg CO2/L	GW	J-	Qualified low bias - analysis outside holding time.
East Outfall #2	08/15/19	Phosphorus, Orthophosphate (As P)	<2.5	mg/L	GW	UJ	Qualified low bias - analysis outside holding time.
East Outfall #3	08/15/19	Total Carbon Dioxide	290	mg CO2/L	GW	J-	Qualified low bias - analysis outside holding time.
East Outfall #3	08/15/19	Phosphorus, Orthophosphate (As P)	<0.50	mg/L	GW	UJ	Qualified low bias - analysis outside holding time.
Upstream	08/16/19	Total Carbon Dioxide	79	mg CO2/L	SW	J-	Qualified low bias - analysis outside holding time.
Upstream	08/16/19	Phosphorus, Orthophosphate (As P)	<2.5	mg/L	SW	UJ	Qualified low bias - analysis outside holding time.
North of 45	08/16/19	Total Carbon Dioxide	80	mg CO2/L	SW	J-	Qualified low bias - analysis outside holding time.
North of 45	08/16/19	Phosphorus, Orthophosphate (As P)	<0.50	mg/L	SW	UJ	Qualified low bias - analysis outside holding time.
North of 46	08/16/19	Total Carbon Dioxide	80	mg CO2/L	SW	J-	Qualified low bias - analysis outside holding time.
North of 46	08/16/19	Phosphorus, Orthophosphate (As P)	<0.50	mg/L	SW	UJ	Qualified low bias - analysis outside holding time.
Downstream	08/16/19	Total Carbon Dioxide	80	mg CO2/L	SW	J-	Qualified low bias - analysis outside holding time.
Downstream	08/16/19	Phosphorus, Orthophosphate (As P)	<0.50	mg/L	SW	UJ	Qualified low bias - analysis outside holding time.
MW-1	08/21/19	Total Carbon Dioxide	280	mg CO2/L	GW	J-	Qualified low bias - analysis outside holding time.

**Table B-2**  
**Qualified Data - 2019 Annual Monitoring Report**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

SAMPLE ID	DATE COLLECTED	ANALYTE	RESULTS	UNITS	SAMPLE TYPE	QUALIFIER	COMMENTS
MW-1	08/21/19	Phosphorus, Orthophosphate (As P)	<2.5	mg/L	GW	UJ	Qualified low bias - analysis outside holding time.
MW-13	08/21/19	Total Carbon Dioxide	860	mg CO2/L	GW	J-	Qualified low bias - analysis outside holding time.
MW-13	08/21/19	Phosphorus, Orthophosphate (As P)	<2.5	mg/L	GW	UJ	Qualified low bias - analysis outside holding time.
MW-34	08/21/19	Total Carbon Dioxide	1100	mg CO2/L	GW	J-	Qualified low bias - analysis outside holding time.
Field Blank #1	08/21/19	Total Carbon Dioxide	10	mg CO2/L	FB	J-	Qualified low bias - analysis outside holding time.
MW-11	08/21/19	Total Carbon Dioxide	970	mg CO2/L	GW	J-	Qualified low bias - analysis outside holding time.
DUPLICATE #1	08/21/19	Total Carbon Dioxide	960	mg CO2/L	FD	J-	Qualified low bias - analysis outside holding time.
EQUIPMENT BLANK #1	08/21/19	Total Carbon Dioxide	9.6	mg CO2/L	EB	J-	Qualified low bias - analysis outside holding time.
MW-13	08/21/19	Mercury	<0.001	mg/L	GW	UJ	Qualified low bias - low recovery of mercury in the matrix spike and matrix spike duplicate.
MW-32	08/22/19	Phosphorus, Orthophosphate (As P)	<2.5	mg/L	GW	UJ	Qualified low bias - analysis outside holding time.
MW-32	08/22/19	Total Carbon Dioxide	160	mg CO2/L	GW	J-	Qualified low bias - analysis outside holding time.
MW-27	08/22/19	Phosphorus, Orthophosphate (As P)	<2.5	mg/L	GW	UJ	Qualified low bias - analysis outside holding time.
MW-27	08/22/19	Total Carbon Dioxide	230	mg CO2/L	GW	J-	Qualified low bias - analysis outside holding time.
MW-38	08/22/19	Phosphorus, Orthophosphate (As P)	<2.5	mg/L	GW	UJ	Qualified low bias - analysis outside holding time.
MW-38	08/22/19	Total Carbon Dioxide	620	mg CO2/L	GW	J-	Qualified low bias - analysis outside holding time.
MW-37	08/22/19	Phosphorus, Orthophosphate (As P)	<2.5	mg/L	GW	UJ	Qualified low bias - analysis outside holding time.
MW-37	08/22/19	Total Carbon Dioxide	520	mg CO2/L	GW	J-	Qualified low bias - analysis outside holding time.
MW-35	08/22/19	Phosphorus, Orthophosphate (As P)	<2.5	mg/L	GW	UJ	Qualified low bias - analysis outside holding time.
MW-35	08/22/19	Total Carbon Dioxide	920	mg CO2/L	GW	J-	Qualified low bias - analysis outside holding time.
MW-12	08/22/19	Phosphorus, Orthophosphate (As P)	<2.5	mg/L	GW	UJ	Qualified low bias - analysis outside holding time.
MW-12	08/22/19	Total Carbon Dioxide	140	mg CO2/L	GW	J-	Qualified low bias - analysis outside holding time.
MW-32	08/22/19	Uranium	<0.10	mg/L	GW	UJ	Qualified low bias - low recovery of uranium in the matrix spike and matrix spike duplicate.
CW 0+60	08/26/19	Benzene	0.001	mg/L	GW	J+	Qualified high bias - high recovery in surrogate.
CW 0+60	08/26/19	Toluene	<0.001	mg/L	GW	UJ	Qualified low bias - low recovery in surrogate.
CW 0+60	08/26/19	Ethylbenzene	0.0041	mg/L	GW	J+	Qualified high bias - high recovery in surrogate.
CW 0+60	08/26/19	MTBE	0.0011	mg/L	GW	J+	Qualified high bias - high recovery in surrogate.
CW 0+60	08/26/19	Total Xylenes	0.0013	mg/L	GW	J+	Qualified high bias - high recovery in surrogate.

**Table B-2**  
**Qualified Data - 2019 Annual Monitoring Report**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

SAMPLE ID	DATE COLLECTED	ANALYTE	RESULTS	UNITS	SAMPLE TYPE	QUALIFIER	COMMENTS
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Notes:

J- = Low bias

J+ = High bias

UJ - analyte was not detected, but results may be biased low

GW = Groundwater

TB = Trip Blank

FD = Field Duplicate

EB = Equipment Blank

SW = Surface Water

FB = Field Blank

**Table B-3**  
**Field Duplicate Summary - 2019 Annual Monitoring Report**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

Parameter	OW 22+00	Duplicate #1	RPD %
	1904419-003	1904419-006	
	4/5/2019	4/5/2019	
	Sample Result	Field Duplicate	
<b>Volatile Organic Compounds (ug/L)</b>			
1,1,1,2-Tetrachloroethane	---	---	NC
1,1,1-Trichloroethane	---	---	NC
1,1,2,2-Tetrachloroethane	---	---	NC
1,1,2-Trichloroethane	---	---	NC
1,1-Dichloroethane	---	---	NC
1,1-Dichloroethene	---	---	NC
1,1-Dichloropropene	---	---	NC
1,2,3-Trichlorobenzene	---	---	NC
1,2,3-Trichloropropane	---	---	NC
1,2,4-Trichlorobenzene	---	---	NC
1,2,4-Trimethylbenzene	---	---	NC
1,2-Dibromo-3-chloropropane	---	---	NC
1,2-Dibromoethane (EDB)	---	---	NC
1,2-Dichlorobenzene	---	---	NC
1,2-Dichloroethane (EDC)	---	---	NC
1,2-Dichloropropane	---	---	NC
1,3,5-Trimethylbenzene	---	---	NC
1,3-Dichlorobenzene	---	---	NC
1,3-Dichloropropane	---	---	NC
1,4-Dichlorobenzene	---	---	NC
1-Methylnaphthalene	---	---	NC
2,2-Dichloropropane	---	---	NC
2-Butanone	---	---	NC
2-Chlorotoluene	---	---	NC
2-Hexanone	---	---	NC
2-Methylnaphthalene	---	---	NC
4-Chlorotoluene	---	---	NC
4-Isopropyltoluene	---	---	NC
4-Methyl-2-pentanone	---	---	NC
Acetone	---	---	NC
Benzene	<1.0	<1.0	NC
Bromobenzene	---	---	NC
Bromodichloromethane	---	---	NC
Bromoform	---	---	NC
Bromomethane	---	---	NC
Carbon disulfide	---	---	NC
Carbon Tetrachloride	---	---	NC
Chlorobenzene	---	---	NC
Chloroethane	---	---	NC
Chloroform	---	---	NC
Chloromethane	---	---	NC
cis-1,2-DCE	---	---	NC
cis-1,3-Dichloropropene	---	---	NC
Dibromochloromethane	---	---	NC
Dibromomethane	---	---	NC
Dichlorodifluoromethane	---	---	NC
Ethylbenzene	<1.0	<1.0	NC
Hexachlorobutadiene	---	---	NC
Isopropylbenzene	---	---	NC
Methyl tert-butyl ether (MTBE)	<1.0	<1.0	NC
Methylene Chloride	---	---	NC
Naphthalene	---	---	NC
n-Butylbenzene	---	---	NC
n-Propylbenzene	---	---	NC
sec-Butylbenzene	---	---	NC
Styrene	---	---	NC
tert-Butylbenzene	---	---	NC
Tetrachloroethene (PCE)	---	---	NC

**Table B-3**  
**Field Duplicate Summary - 2019 Annual Monitoring Report**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

Parameter	OW 22+00	Duplicate #1	RPD %
	1904419-003	1904419-006	
	4/5/2019	4/5/2019	
	Sample Result	Field Duplicate	
<b>Volatile Organic Compounds (ug/L)</b>			
Toluene	< 1.0	< 1.0	NC
trans-1,2-DCE	---	---	NC
trans-1,3-Dichloropropene	---	---	NC
Trichloroethene (TCE)	---	---	NC
Trichlorofluoromethane	---	---	NC
Vinyl chloride	---	---	NC
Xylenes, Total	<1.5	<1.5	NC
<b>General Chemistry (mg/L)</b>			
Fluoride	---	---	NC
Chloride	---	---	NC
Nitrite	---	---	NC
Bromide	---	---	NC
Nitrate	---	---	NC
Phosphorus	---	---	NC
Sulfate	---	---	NC
Carbon Dioxide (CO <sub>2</sub> )	---	---	NC
Alkalinity (CaCO <sub>3</sub> )	---	---	NC
Bicarbonate (CaCO <sub>3</sub> )	---	---	NC
<b>Total Metals (mg/L)</b>			
Arsenic	---	---	NC
Barium	---	---	NC
Cadmium	---	---	NC
Chromium	---	---	NC
Lead	---	---	NC
Selenium	---	---	NC
Silver	---	---	NC
Mercury	---	---	NC
<b>Dissolved Metals (mg/L)</b>			
Arsenic	---	---	NC
Barium	---	---	NC
Cadmium	---	---	NC
Calcium	---	---	NC
Chromium	---	---	NC
Copper	---	---	NC
Iron	---	---	NC
Lead	---	---	NC
Magnesium	---	---	NC
Manganese	---	---	NC
Potassium	---	---	NC
Selenium	---	---	NC
Silver	---	---	NC
Sodium	---	---	NC
Uranium	---	---	NC
Zinc	---	---	NC
<b>Total Petroleum Hydrocarbons (mg/L)</b>			
Diesel Range Organics	<0.40	<0.040	NC
Gasoline Range Organics	<0.050	<0.050	NC
Motor Oil Range Organics	<2.5	<2.5	NC

**Notes:**

RPD = Relative percent difference; [(difference)/(average)]\* 100

NC = Not calculated; RPD values were not calculated for non-detects or J-flagged data

ug/L = micrograms per liter

mg/L = milligrams per liter

--- = not analyzed

**Table B-3**  
**Field Duplicate Summary - 2019 Annual Monitoring Report**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

Parameter	MW-11	DUPLICATE #1	RPD %
	1908D80-006	1908D80-007	
	8/21/2019	8/21/2019	
	Sample Result	Field Duplicate	
<b>Volatile Organic Compounds (ug/L)</b>			
1,1,1,2-Tetrachloroethane	< 1.0	< 1.0	NC
1,1,1-Trichloroethane	< 1.0	< 1.0	NC
1,1,2,2-Tetrachloroethane	< 2.0	< 2.0	NC
1,1,2-Trichloroethane	< 1.0	< 1.0	NC
1,1-Dichloroethane	< 1.0	< 1.0	NC
1,1-Dichloroethene	< 1.0	< 1.0	NC
1,1-Dichloropropene	< 1.0	< 1.0	NC
1,2,3-Trichlorobenzene	< 1.0	< 1.0	NC
1,2,3-Trichloropropane	< 2.0	< 2.0	NC
1,2,4-Trichlorobenzene	< 1.0	< 1.0	NC
1,2,4-Trimethylbenzene	110	93	16.7
1,2-Dibromo-3-chloropropane	< 2.0	< 2.0	NC
1,2-Dibromoethane (EDB)	< 1.0	< 1.0	NC
1,2-Dichlorobenzene	< 1.0	< 1.0	NC
1,2-Dichloroethane (EDC)	< 1.0	< 1.0	NC
1,2-Dichloropropane	< 1.0	< 1.0	NC
1,3,5-Trimethylbenzene	< 1.0	< 1.0	NC
1,3-Dichlorobenzene	< 1.0	< 1.0	NC
1,3-Dichloropropane	< 1.0	< 1.0	NC
1,4-Dichlorobenzene	< 1.0	< 1.0	NC
1-Methylnaphthalene	18	16	11.8
2,2-Dichloropropane	< 2.0	< 2.0	NC
2-Butanone	< 10	< 10	NC
2-Chlorotoluene	< 1.0	< 1.0	NC
2-Hexanone	< 10	< 10	NC
2-Methylnaphthalene	28	24	15.4
4-Chlorotoluene	< 1.0	< 1.0	NC
4-Isopropyltoluene	3	2.3	26.4
4-Methyl-2-pentanone	< 10	< 10	NC
Acetone	< 10	< 10	NC
Benzene	8	7	13.3
Bromobenzene	< 1.0	< 1.0	NC
Bromodichloromethane	< 1.0	< 1.0	NC
Bromoform	< 1.0	< 1.0	NC
Bromomethane	< 3.0	< 3.0	NC
Carbon disulfide	< 10	< 10	NC
Carbon Tetrachloride	< 1.0	< 1.0	NC
Chlorobenzene	< 1.0	< 1.0	NC
Chloroethane	< 2.0	< 2.0	NC
Chloroform	< 1.0	< 1.0	NC
Chloromethane	< 3.0	< 3.0	NC
cis-1,2-DCE	< 1.0	< 1.0	NC
cis-1,3-Dichloropropene	< 1.0	< 1.0	NC
Dibromochloromethane	< 1.0	< 1.0	NC
Dibromomethane	< 1.0	< 1.0	NC
Dichlorodifluoromethane	< 1.0	< 1.0	NC
Ethylbenzene	< 1.0	< 1.0	NC
Hexachlorobutadiene	< 1.0	< 1.0	NC
Isopropylbenzene	81	71	13.2
Methyl tert-butyl ether (MTBE)	< 1.0	< 1.0	0.0
Methylene Chloride	< 3.0	< 3.0	NC
Naphthalene	99	92	7.3
n-Butylbenzene	3.3	<0.003	NC
n-Propylbenzene	86	70	20.5
sec-Butylbenzene	13	10	26.1

**Table B-3**  
**Field Duplicate Summary - 2019 Annual Monitoring Report**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

Parameter	MW-11	DUPLICATE #1	RPD %
	1908D80-006	1908D80-007	
	8/21/2019	8/21/2019	
	Sample Result	Field Duplicate	
<b>Volatile Organic Compounds (ug/L)</b>			
Styrene	< 1.0	< 1.0	NC
tert-Butylbenzene	2.5	2.1	17.4
Tetrachloroethene (PCE)	< 1.0	< 1.0	NC
Toluene	< 1.0	< 1.0	NC
trans-1,2-DCE	< 1.0	< 1.0	NC
trans-1,3-Dichloropropene	< 1.0	< 1.0	NC
Trichloroethene (TCE)	< 1.0	< 1.0	NC
Trichlorofluoromethane	< 1.0	< 1.0	NC
Vinyl chloride	< 1.0	< 1.0	NC
Xylenes, Total	< 1.5	< 1.5	NC
<b>Semi-Volatile Organic Compounds (ug/L)</b>			
1,2,4-Trichlorobenzene	< 10	< 10	NC
1,2-Dichlorobenzene	< 10	< 10	NC
1,3-Dichlorobenzene	< 10	< 10	NC
1,4-Dichlorobenzene	< 10	< 10	NC
1-Methylnaphthalene	34	< 10	NC
2,4,5-Trichlorophenol	< 10	< 10	NC
2,4,6-Trichlorophenol	< 10	< 10	NC
2,4-Dichlorophenol	< 20	< 20	NC
2,4-Dimethylphenol	< 10	< 10	NC
2,4-Dinitrophenol	< 20	< 20	NC
2,4-Dinitrotoluene	< 10	< 10	NC
2,6-Dinitrotoluene	< 10	< 10	NC
2-Chloronaphthalene	< 10	< 10	NC
2-Chlorophenol	< 10	< 10	NC
2-Methylnaphthalene	24	< 10	NC
2-Methylphenol	< 10	< 10	NC
2-Nitroaniline	< 10	< 10	NC
2-Nitrophenol	< 10	< 10	NC
3+4-Methylphenol	< 10	< 10	NC
3,3'-Dichlorobenzidine	< 10	< 10	NC
3-Nitroaniline	< 10	< 10	NC
4,6-Dinitro-2-methylphenol	< 20	< 20	NC
4-Bromophenyl phenyl ether	< 10	< 10	NC
4-Chloro-3-methylphenol	< 10	< 10	NC
4-Chloroaniline	< 10	< 10	NC
4-Chlorophenyl phenyl ether	< 10	< 10	NC
4-Nitroaniline	< 10	< 10	NC
4-Nitrophenol	< 10	< 10	NC
Acenaphthene	< 10	< 10	NC
Acenaphthylene	< 10	< 10	NC
Aniline	< 10	< 10	NC
Anthracene	< 10	< 10	NC
Azobenzene	< 10	< 10	NC
Benz(a)anthracene	< 10	< 10	NC
Benzo(a)pyrene	< 10	< 10	NC
Benzo(b)fluoranthene	< 10	< 10	NC
Benzo(g,h,i)perylene	< 10	< 10	NC
Benzo(k)fluoranthene	< 10	< 10	NC
Benzoic acid	< 20	< 20	NC
Benzyl alcohol	< 10	< 10	NC
Bis(2-chloroethoxy)methane	< 10	< 10	NC
Bis(2-chloroethyl)ether	< 10	< 10	NC
Bis(2-chloroisopropyl)ether	< 10	< 10	NC
Bis(2-ethylhexyl)phthalate	< 10	< 10	NC
Butyl benzyl phthalate	< 10	< 10	NC
Carbazole	< 10	< 10	NC
Chrysene	< 10	< 10	NC

**Table B-3**  
**Field Duplicate Summary - 2019 Annual Monitoring Report**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

Parameter	MW-11	DUPLICATE #1	RPD %
	1908D80-006	1908D80-007	
	8/21/2019	8/21/2019	
	Sample Result	Field Duplicate	
<b>Semi-Volatile Organic Compounds (ug/L)</b>			
Di-n-butyl phthalate	< 10	< 10	NC
Di-n-octyl phthalate	< 10	< 10	NC
Dibenz(a,h)anthracene	< 10	< 10	NC
Dibenzofuran	< 10	< 10	NC
Diethyl phthalate	< 10	< 10	NC
Dimethyl phthalate	< 10	< 10	NC
Fluoranthene	< 10	< 10	NC
Fluorene	< 10	< 10	NC
Hexachlorobenzene	< 10	< 10	NC
Hexachlorobutadiene	< 10	< 10	NC
Hexachlorocyclopentadiene	< 10	< 10	NC
Hexachloroethane	< 10	< 10	NC
Indeno(1,2,3-cd)pyrene	< 10	< 10	NC
Isophorone	< 10	< 10	NC
N-Nitrosodi-n-propylamine	< 10	< 10	NC
N-Nitrosodimethylamine	< 10	< 10	NC
N-Nitrosodiphenylamine	< 10	< 10	NC
Naphthalene	85	< 10	NC
Nitrobenzene	< 10	< 10	NC
Pentachlorophenol	< 20	< 20	NC
Phenanthrene	< 10	< 10	NC
Phenol	< 10	< 10	NC
Pyrene	< 10	< 10	NC
Pyridine	< 10	< 10	NC
<b>General Chemistry (mg/L)</b>			
Fluoride	<0.050	<0.50	NC
Chloride	240	250	4.1
Nitrite	<0.50	<0.50	NC
Bromide	3.8	3.9	2.6
Nitrate	<0.50	<0.50	NC
Phosphorus	<2.5	<2.5	NC
Sulfate	6.9	9.6	32.7
Carbon Dioxide (CO <sub>2</sub> )	970	960	1.0
Alkalinity (CaCO <sub>3</sub> )	1084	1073	1.0
Bicarbonate (CaCO <sub>3</sub> )	1084	1073	1.0
<b>Total Metals (mg/L)</b>			
Arsenic	< 0.020	< 0.020	NC
Barium	0.99	1	1.0
Cadmium	< 0.0020	< 0.0020	NC
Chromium	< 0.0060	< 0.0060	NC
Lead	0.014	0.0072	64.2
Selenium	< 0.050	< 0.050	NC
Silver	< 0.0050	<0.0050	NC
Mercury	< 0.00020	< 0.00020	NC
<b>Dissolved Metals (mg/L)</b>			
Arsenic	< 0.020	<0.020	NC
Barium	0.97	0.97	0.0
Cadmium	< 0.0020	< 0.0020	NC
Calcium	130	140	7.4
Chromium	< 0.0060	< 0.0060	NC
Copper	< 0.0060	< 0.0060	NC
Iron	6.5	6.5	0.0
Lead	0.0068	0.008	16.2
Magnesium	31	31	0.0
Manganese	2.2	2.2	0.0
Potassium	1.9	1.9	0.0

**Table B-3**  
**Field Duplicate Summary - 2019 Annual Monitoring Report**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

Parameter	MW-11	DUPLICATE #1	RPD %
	1908D80-006	1908D80-007	
	8/21/2019	8/21/2019	
	Sample Result	Field Duplicate	
<b>Dissolved Metals (mg/L)</b>			
Selenium	<0.050	<0.050	NC
Silver	< 0.0050	< 0.0050	NC
Sodium	490	500	2.0
Uranium	<0.10	<0.10	NC
Zinc	< 0.020	< 0.020	NC
<b>Total Petroleum Hydrocarbons (mg/L)</b>			
Diesel Range Organics	0.52	0.53	1.9
Gasoline Range Organics	2.4	1.8	28.6
Motor Oil Range Organics	< 2.5	< 2.5	NC

**Notes:**

RPD = Relative percent difference;  $[(\text{difference})/(\text{average})] * 100$

NC = Not calculated; RPD values were not calculated for non-detects or J-flagged data

ug/L = micrograms per liter

mg/L = milligrams per liter

--- = not analyzed

**Table B-3**  
**Field Duplicate Summary - 2019 Annual Monitoring Report**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

Parameter	MW-70	DUPLICATE #2	RPD %
	1908E78-004	1908E78-006	
	8/23/2019	8/23/2019	
	Sample Result	Field Duplicate	
<b>Volatile Organic Compounds (ug/L)</b>			
1,1,1,2-Tetrachloroethane	< 1.0	< 1.0	NC
1,1,1-Trichloroethane	< 1.0	< 1.0	NC
1,1,2,2-Tetrachloroethane	< 2.0	< 2.0	NC
1,1,2-Trichloroethane	< 1.0	< 1.0	NC
1,1-Dichloroethane	< 1.0	< 1.0	NC
1,1-Dichloroethene	< 1.0	< 1.0	NC
1,1-Dichloropropene	< 1.0	< 1.0	NC
1,2,3-Trichlorobenzene	< 1.0	< 1.0	NC
1,2,3-Trichloropropane	< 2.0	< 2.0	NC
1,2,4-Trichlorobenzene	< 1.0	< 1.0	NC
1,2,4-Trimethylbenzene	< 1.0	< 1.0	NC
1,2-Dibromo-3-chloropropane	< 2.0	< 2.0	NC
1,2-Dibromoethane (EDB)	< 1.0	< 1.0	NC
1,2-Dichlorobenzene	< 1.0	< 1.0	NC
1,2-Dichloroethane (EDC)	< 1.0	< 1.0	NC
1,2-Dichloropropane	< 1.0	< 1.0	NC
1,3,5-Trimethylbenzene	< 1.0	< 1.0	NC
1,3-Dichlorobenzene	< 1.0	< 1.0	NC
1,3-Dichloropropane	< 1.0	< 1.0	NC
1,4-Dichlorobenzene	< 1.0	< 1.0	NC
1-Methylnaphthalene	< 4.0	< 4.0	NC
2,2-Dichloropropane	< 2.0	< 2.0	NC
2-Butanone	< 10	< 10	NC
2-Chlorotoluene	< 1.0	< 1.0	NC
2-Hexanone	< 10	< 10	NC
2-Methylnaphthalene	< 4.0	< 4.0	NC
4-Chlorotoluene	< 1.0	< 1.0	NC
4-Isopropyltoluene	< 1.0	< 1.0	NC
4-Methyl-2-pentanone	< 10	< 10	NC
Acetone	< 10	< 10	NC
Benzene	< 1.0	< 1.0	NC
Bromobenzene	< 1.0	< 1.0	NC
Bromodichloromethane	< 1.0	< 1.0	NC
Bromoform	< 1.0	< 1.0	NC
Bromomethane	< 3.0	< 3.0	NC
Carbon disulfide	< 10	< 10	NC
Carbon Tetrachloride	< 1.0	< 1.0	NC
Chlorobenzene	< 1.0	< 1.0	NC
Chloroethane	< 2.0	< 2.0	NC
Chloroform	< 1.0	< 1.0	NC
Chloromethane	< 3.0	< 3.0	NC
cis-1,2-DCE	< 1.0	< 1.0	NC
cis-1,3-Dichloropropene	< 1.0	< 1.0	NC
Dibromochloromethane	< 1.0	< 1.0	NC
Dibromomethane	< 1.0	< 1.0	NC
Dichlorodifluoromethane	< 1.0	< 1.0	NC
Ethylbenzene	< 1.0	< 1.0	NC
Hexachlorobutadiene	< 1.0	< 1.0	NC
Isopropylbenzene	< 1.0	< 1.0	NC
Methyl tert-butyl ether (MTBE)	0.54	0.52	3.8
Methylene Chloride	< 3.0	< 3.0	NC
Naphthalene	< 3.0	< 3.0	NC
n-Butylbenzene	< 1.0	< 1.0	NC
n-Propylbenzene	< 2.0	< 2.0	NC

**Table B-3**  
**Field Duplicate Summary - 2019 Annual Monitoring Report**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

Parameter	MW-70	DUPLICATE #2	RPD %
	1908E78-004	1908E78-006	
	8/23/2019	8/23/2019	
	Sample Result	Field Duplicate	
<b>Volatile Organic Compounds (ug/L)</b>			
sec-Butylbenzene	< 1.0	< 1.0	NC
Styrene	< 1.0	< 1.0	NC
tert-Butylbenzene	< 1.0	< 1.0	NC
Tetrachloroethene (PCE)	< 1.0	< 1.0	NC
Toluene	< 1.0	< 1.0	NC
trans-1,2-DCE	< 1.0	< 1.0	NC
trans-1,3-Dichloropropene	< 1.0	< 1.0	NC
Trichloroethene (TCE)	< 1.0	< 1.0	NC
Trichlorofluoromethane	< 1.0	< 1.0	NC
Vinyl chloride	< 1.0	< 1.0	NC
Xylenes, Total	< 1.5	< 1.5	NC
<b>General Chemistry (mg/L)</b>			
Fluoride	0.26	0.27	3.8
Chloride	340	340	0.0
Nitrite	0.33	0.29	12.9
Bromide	1.6	1.6	0.0
Nitrate	0.33	0.29	12.9
Phosphorus	< 2.5	< 10	NC
Sulfate	2100	2100	0.0
Carbon Dioxide (CO <sub>2</sub> )	790	770	2.6
Alkalinity (CaCO <sub>3</sub> )	785.4	791.1	0.7
Bicarbonate (CaCO <sub>3</sub> )	785.4	791.1	0.7
<b>Total Metals (mg/L)</b>			
Arsenic	<0.020	< 0.020	NC
Barium	0.15	0.15	0.0
Cadmium	< 0.0020	< 0.0020	NC
Chromium	<0.0060	0.0019	NC
Lead	< 0.0050	< 0.0050	NC
Selenium	< 0.050	< 0.050	NC
Silver	0.0051	0.0049	4.0
Mercury	0.00012	0.00014	15.4
<b>Dissolved Metals (mg/L)</b>			
Arsenic	<0.020	<0.020	NC
Barium	0.013	0.013	0.0
Cadmium	< 0.0020	< 0.0020	NC
Calcium	610	610	0.0
Chromium	< 0.0060	< 0.0060	NC
Copper	0.0037	0.0034	8.5
Iron	5.3	5.3	0.0
Lead	< 0.0050	< 0.0050	NC
Magnesium	150	150	0.0
Manganese	1.6	1.7	6.1
Potassium	3.5	3.4	2.9
Selenium	< 0.050	< 0.050	NC
Silver	0.0071	0.0073	2.8
Sodium	610	600	1.7
Uranium	< 0.10	< 0.10	NC
Zinc	0.017	0.023	30.0
<b>Total Petroleum Hydrocarbons (mg/L)</b>			
Diesel Range Organics	< 0.40	< 0.40	NC
Gasoline Range Organics	<0.050	<0.050	NC
Motor Oil Range Organics	< 2.5	< 2.5	NC

**Notes:**

RPD = Relative percent difference; [(difference)/(average)]\* 100

NC = Not calculated; RPD values were not calculated for non-detects or J-flagged data

ug/L = micrograms per liter

mg/L = milligrams per liter

--- = not analyzed

**Table B-3**  
**Field Duplicate Summary - 2019 Annual Monitoring Report**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

Parameter	OW 25+70	DUPLICATE #3	RPD %
	1908G31-002	1908G31-003	
	8/26/2019	8/26/2019	
	Sample Result	Field Duplicate	
<b>Volatile Organic Compounds (ug/L)</b>			
1,1,1,2-Tetrachloroethane	---	---	NC
1,1,1-Trichloroethane	---	---	NC
1,1,2,2-Tetrachloroethane	---	---	NC
1,1,2-Trichloroethane	---	---	NC
1,1-Dichloroethane	---	---	NC
1,1-Dichloroethene	---	---	NC
1,1-Dichloropropene	---	---	NC
1,2,3-Trichlorobenzene	---	---	NC
1,2,3-Trichloropropane	---	---	NC
1,2,4-Trichlorobenzene	---	---	NC
1,2,4-Trimethylbenzene	---	---	NC
1,2-Dibromo-3-chloropropane	---	---	NC
1,2-Dibromoethane (EDB)	---	---	NC
1,2-Dichlorobenzene	---	---	NC
1,2-Dichloroethane (EDC)	---	---	NC
1,2-Dichloropropane	---	---	NC
1,3,5-Trimethylbenzene	---	---	NC
1,3-Dichlorobenzene	---	---	NC
1,3-Dichloropropane	---	---	NC
1,4-Dichlorobenzene	---	---	NC
1-Methylnaphthalene	---	---	NC
2,2-Dichloropropane	---	---	NC
2-Butanone	---	---	NC
2-Chlorotoluene	---	---	NC
2-Hexanone	---	---	NC
2-Methylnaphthalene	---	---	NC
4-Chlorotoluene	---	---	NC
4-Isopropyltoluene	---	---	NC
4-Methyl-2-pentanone	---	---	NC
Acetone	---	---	NC
Benzene	< 1.0	< 1.0	NC
Bromobenzene	---	---	NC
Bromodichloromethane	---	---	NC
Bromoform	---	---	NC
Bromomethane	---	---	NC
Carbon disulfide	---	---	NC
Carbon Tetrachloride	---	---	NC
Chlorobenzene	---	---	NC
Chloroethane	---	---	NC
Chloroform	---	---	NC
Chloromethane	---	---	NC
cis-1,2-DCE	---	---	NC
cis-1,3-Dichloropropene	---	---	NC
Dibromochloromethane	---	---	NC
Dibromomethane	---	---	NC
Dichlorodifluoromethane	---	---	NC
Ethylbenzene	< 1.0	< 1.0	NC
Hexachlorobutadiene	---	---	NC
Isopropylbenzene	---	---	NC
Methyl tert-butyl ether (MTBE)	< 1.0	< 1.0	NC
Methylene Chloride	---	---	NC
Naphthalene	---	---	NC
n-Butylbenzene	---	---	NC
n-Propylbenzene	---	---	NC

**Table B-3**  
**Field Duplicate Summary - 2019 Annual Monitoring Report**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

Parameter	OW 25+70	DUPLICATE #3	RPD %
	1908G31-002	1908G31-003	
	8/26/2019	8/26/2019	
	Sample Result	Field Duplicate	
<b>Volatile Organic Compounds (ug/L)</b>			
sec-Butylbenzene	---	---	NC
Styrene	---	---	NC
tert-Butylbenzene	---	---	NC
Tetrachloroethene (PCE)	---	---	NC
Toluene	< 1.0	< 1.0	NC
trans-1,2-DCE	---	---	NC
trans-1,3-Dichloropropene	---	---	NC
Trichloroethene (TCE)	---	---	NC
Trichlorofluoromethane	---	---	NC
Vinyl chloride	---	---	NC
Xylenes, Total	0.49	0.51	4.0
<b>General Chemistry (mg/L)</b>			
Fluoride	---	---	NC
Chloride	---	---	NC
Nitrite	---	---	NC
Bromide	---	---	NC
Nitrate	---	---	NC
Phosphorus	---	---	NC
Sulfate	---	---	NC
Carbon Dioxide (CO <sub>2</sub> )	---	---	NC
Alkalinity (CaCO <sub>3</sub> )	---	---	NC
Bicarbonate (CaCO <sub>3</sub> )	---	---	NC
<b>Total Metals (mg/L)</b>			
Arsenic	---	---	NC
Barium	---	---	NC
Cadmium	---	---	NC
Chromium	---	---	NC
Lead	---	---	NC
Selenium	---	---	NC
Silver	---	---	NC
Mercury	---	---	NC
<b>Dissolved Metals (mg/L)</b>			
Arsenic	---	---	NC
Barium	---	---	NC
Cadmium	---	---	NC
Calcium	---	---	NC
Chromium	---	---	NC
Copper	---	---	NC
Iron	---	---	NC
Lead	---	---	NC
Magnesium	---	---	NC
Manganese	---	---	NC
Potassium	---	---	NC
Selenium	---	---	NC
Silver	---	---	NC
Sodium	---	---	NC
Uranium	---	---	NC
Zinc	---	---	NC
<b>Total Petroleum Hydrocarbons (mg/L)</b>			
Diesel Range Organics	< 0.40	< 0.40	NC
Gasoline Range Organics	0.052	0.073	33.6
Motor Oil Range Organics	<2.5	<2.5	NC

**Notes:**

RPD = Relative percent difference; [(difference)/(average)]\* 100

NC = Not calculated; RPD values were not calculated for non-detects or J-flagged data

ug/L = micrograms per liter

mg/L = milligrams per liter

--- = not analyzed

**Table B-4**  
**Technical Completeness Summary - 2019 Annual Monitoring Report**  
**Western Refining Southwest, Inc. - Bloomfield Terminal**

Parameter		Total Number of Results	Number of Usable Results	Percent Technical Compliance
TPH	Diesel Range Organics (DRO)	55	55	100
	Motor Oil Range Organics (MRO)	53	53	100
	Gasoline Range Organics (GRO)	55	55	100
VOCs	All VOC Analytes	27	27	100
VOCs	BTEX & MTBE only	38	38	100
SVOC	All SVOC Analytes	8	8	100
Total Recoverable Metals	Arsenic	39	39	100
	Barium	39	39	100
	Cadmium	39	39	100
	Chromium	39	39	100
	Lead	39	39	100
	Mercury	39	39	100
	Selenium	39	39	100
	Silver	39	39	100
Dissolved Metals	Arsenic	39	39	100
	Barium	39	39	100
	Cadmium	39	39	100
	Calcium	39	39	100
	Chromium	39	39	100
	Copper	39	39	100
	Iron	39	39	100
	Lead	39	39	100
	Magnesium	39	39	100
	Manganese	39	39	100
	Mercury	39	39	100
	Potassium	39	39	100
	Selenium	39	39	100
	Silver	39	39	100
	Sodium	39	39	100
	Uranium	39	39	100
Zinc	39	39	100	
Other Parameters:	Bicarbonate (As CaCO3)	39	39	100
	Bromide	39	39	100
	Carbonate (As CaCO3)	39	39	100
	Chloride	39	39	100
	Fluoride	39	39	100
	Nitrate+Nitrite as N	30	30	100
	Nitrogen, Nitrate (As N)	8	8	100
	Nitrogen, Nitrite (As N)	8	8	100
	Phosphorus, Orthophosphate (As P)	39	39	100
	Sulfate	39	39	100
	Total Alkalinity (as CaCO3)	39	39	100
	Total Carbon Dioxide	39	39	100

**Notes:**

Number of samples used in completeness calculations includes field duplicates, equipment rinsate, and field blanks.

Percent Technical Compliance = (Number of usable results / Number of reported results) \* 100