

GW-001

**Bloomfield Refinery
Groundwater Remediation and
Monitoring**

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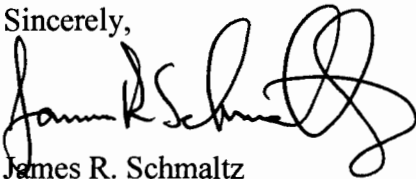
RE: 2012 Groundwater Remediation and Monitoring Annual Report
Western Refining Southwest, Inc. – Bloomfield Refinery
EPA ID #NMD089416416
GW – 001

Dear Mr. Cobrain and Mr. Chavez,

Western Refining Southwest Inc. – Bloomfield Refinery submits the above referenced Annual Report pursuant to Section IV.A.2 of the July 2007 HWB Order, and in compliance with Section 22 of the facility's July 2010 Discharge Permit. This report summarizes the groundwater monitoring, remediation, and inspection activities conducted at the Bloomfield Refinery in 2012.

If you have any questions or would like to discuss any aspect of this report, please contact me at 505-632-4171 or Randy.Schmaltz@wnr.com.

Sincerely,



James R. Schmaltz
Health, Safety, Environmental & Regulatory Director
Western Refining Southwest, Inc. – Bloomfield Refinery

Cc: Brandon Powell, NMOCD
Allen Hains, Western Refining - El Paso

2012 Groundwater Remediation and Monitoring Annual Report

January – December 2012



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

Submitted: April 2013

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 Environment Department Oil Conservation Division (NMOCD)
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 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 Refinery in 2012 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 22 of Discharge Permit GW-001 (NMOCD, 2010) issued to the Bloomfield Refinery by the New Mexico Energy, Mineral, and Natural Resources Department Oil Conservation Division (NMOCD). This report includes a summary of sampling activities, total fluids recovery, below-grade testing, and remediation monitoring activities conducted in 2012.

Groundwater Measurements

Depth-to-groundwater and depth-to-product measurements were collected from the refinery 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 2012 and August 2012, respectively. 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 field measurements were collected 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 the northwest general direction, with groundwater under the process areas flowing towards the north boundary barrier wall and Hammond Ditch collection system.

Groundwater Monitoring

Groundwater monitoring activities conducted in 2012 included the collection of groundwater samples and field data from the following four areas of the Bloomfield Refinery.

- Refinery Complex – includes Refinery, Cross-Gradient, Downgradient, and RCRA Wells
- North Boundary Barrier – includes observation and collection wells
- San Juan River Bluff – includes Outfall and Seep locations
- 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 monitoring activities conducted in April 2012 followed the guidelines outlined in the approved Facility-Wide Groundwater Monitoring Plan dated June 2011. Monitoring activities conducted in August 2012 followed the guidelines outlined in the approved Facility-Wide Groundwater Monitoring Plan dated June 2012.

Groundwater concentrations above respective screening levels are primarily localized near the refinery process units. 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

Bi-monthly visual inspections of Seep 1 through Seep 9 and along the San Juan River Bluff, which includes the East Fork area, were conducted in 2012. Visual inspection results and samples collected along the San Juan River as part of the groundwater monitoring program for the Bloomfield Refinery indicate that there has been no impact to the San Juan River.

Total Fluids Recovery Systems

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

- Groundwater Recovery System using recovery wells within the Refinery 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 Waste Water Treatment Plant for treatment prior to disposal through the on-site injection well. Water from the River Terrace is treated separately and is re-used as Plant Water for facility operations.

For wells located along the river-side of the slurry wall in areas in which groundwater is limited and therefore not suited for pumping, absorbent socks are placed in each individual well where SPH is detected for product recovery. The socks are replaced periodically, and the used socks are managed as Special Waste.

SPH Source Determination

In an effort to identify the source of the SPH at the Bloomfield facility, Western is collecting product samples from selected monitoring wells for distillation analysis. The intent of the samples is to potentially determine the type of hydrocarbons most prevalent at the various locations (i.e. diesel versus gasoline range organics), and determine if the product types are similar or different when comparing the different locations from which the samples were collected. The results of the distillation analysis at these sample locations will help determine if this approach provides useful information in identifying a potential source of the product.

Below-Grade Testing and Tank Inspections

In compliance with the Refinery's Discharge Permit dated July 2010, underground process piping and sumps were inspected in 2012 to determine their integrity for service. All piping and sumps tested in 2012 passed inspections and were returned to normal service following

completion of testing activities. In addition, petroleum storage tanks continue to be inspected at a frequency that is in compliance with API 650 and 653 guidelines.

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 Refinery (physical address)
50 Road 4990
Bloomfield, New Mexico 87413

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

US EPA ID: NMD089416416

SIC Code: 2911

The Bloomfield 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 Bloomfield Refinery had an approximate refining capacity of 18,000 barrels per day. Various process units operated at the facility, including crude distillation, reforming, fluidized catalytic cracking, sulfur recovery, merox treater, catalytic polymerization, and diesel hydrotreating. Products produced at the refinery included gasoline, diesel fuels, jet fuels, kerosene, propane, butane, naphtha, residual fuel, fuel oils, and LPG.

The Bloomfield facility is located on approximately 263 acres south of Bloomfield, New Mexico in San Juan County (Figure 1). The refinery complex is bisected by County Road 4990 (Sullivan Road), which runs east-west. The process units, tank farm, wastewater treatment system, raw water ponds, and fire training area are located north of the county road. The crude oil and product loading racks, LPG storage tanks and loading racks, maintenance buildings/90-day storage area, pipeline offices, transportation truck shop, and Class I injection well are located south of the country road (Figure 2).

The 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).

Refinery offices are located on the western end of the facility, along with warehouse space, maintenance areas, and a storage yard containing used material (e.g., pipes, valves).

Petroleum processing units, located in the northwest portion of the refinery, include the crude unit, fluidized cracking unit, catalytic polymerization unit, and hydrodesulfurization unit. The API Separator and the aeration lagoons are located in the north central section of the refinery.

In the central portion of the site, aboveground storage tanks (AST's) occupy a large percentage of the refinery property. Located on the south side of Sullivan Road are the terminal facilities used for loading product and off-loading crude, as well as gas storage and hazardous waste storage.

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.

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 has 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 Hydrodesulfurization (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 Environment 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, #46 & #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 well 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 chart 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 #1 and #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 2, SWMU 8, SWMU 9, SWMU 11, and SWMU 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 4, SWMU 5, AOC 22, AOC 23, AOC 24, AOC 25, and AOC 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. Guidelines from the *Facility-Wide Groundwater Monitoring Plan December 2007(Revised May 2008)* will continue to be followed.

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.
- Guidelines from the *Facility-Wide Groundwater Monitoring Plan December 2007(Revised May 2008)* were followed through the first six months of 2010.
- In August, Group No. 4 and Group No. 5 investigation field activities were conducted which included the installation of three monitoring wells.
- After receipt of the New Mexico Environmental Department (NMED) letter *Approval with Direction Facility-Wide Groundwater Monitoring* dated July 26, 2010, Western personnel followed guidelines from the *Facility-Wide Groundwater Monitoring Plan (FWGMP)* dated June 2010.

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

- 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 area. Optimization activities conducted in 2012 included the removal of approximately 250 cubic yards of impacted clay-type soil from the river terrace area, 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 Area.
- 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-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.

SECTION 2.0

SCOPE OF ACTIVITIES

This Annual Report includes a summary of activities conducted at the Bloomfield facility in 2012 pursuant to the reporting requirements outlined in Section IV.A.2. of the July 2007 Consent Order issued by the NMED-HWB, and Section 22 of Discharge Permit GW-001 issued to the Bloomfield Refinery by the NMOCD. This report includes a summary of sampling activities, total fluids recovery, below-grade testing, and remediation monitoring activities conducted in 2012.

2.1 Groundwater Monitoring Activities

Groundwater monitoring activities conducted in 2012 included the collection of groundwater samples and field data from the following four areas of the Bloomfield Refinery.

- Refinery Complex
- North Boundary Barrier
- San Juan River Bluff
- San Juan River Terrace

Groundwater monitoring activities conducted in April 2012 follow the guidelines outlined in the approved Facility-Wide Groundwater Monitoring Plan dated June 2011. Monitoring activities conducted in August 2012 follow the guidelines outlined in the approved Facility-Wide Groundwater Monitoring Plan dated June 2012. Any activities conducted contrary to the approved Monitoring Plans are noted in this report.

General groundwater sampling procedures followed during each sampling event are included in Appendix A. Detailed information regarding groundwater monitoring activities conducted in 2012 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 2012 and August 2012, respectively. Additional fluid measurements were collected at the sump wells periodically throughout the year to monitor fluid levels along the north side of the facility. 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, 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. A summary of the field measurements collected and procedures followed is provided in Section 3.1.2 and Appendix A, respectively.

In addition, field parameters were collected at the outfalls and seeps when sufficient water was present. Field parameters were inadvertently not collected in April at Seep 1, East Outfall #2 and East Outfall #3.

2.1.3 Refinery Complex Sampling

Groundwater samples were collected from specified wells located within the Refinery Complex during the Semi-Annual Sampling Event and Annual Sampling Event conducted in April 2012 and August 2012, respectively, with the exception of wells that contained SPH, wells that were dry, or wells that did not contain enough water to collect a sample. Figure 10 and Figure 11 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 2012:

- Refinery Wells: MW-8, MW-30
- Cross-Gradient Wells: MW-1, MW-13, MW-33
- Downgradient Wells: MW-12, MW-35, MW-37, MW-38

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

- VOCs –BTEX, and MTBE by EPA Method 8260B
- TPH – GRO by EPA Modified Method 8015B (MW-1, MW-12, MW-13, MW-37, and MW-38 only)
- TPH DRO by EPA Modified Method 8015B (MW-1, MW-13, MW-33, MW-12, MW-37, and MW-38 only)

Groundwater samples were not collected from MW-20 due to the presence of SPH. In addition, groundwater samples were not collected from MW-6 due to insufficient groundwater for sample collection.

Annual Sampling Event

Groundwater samples were collected from the following wells during the Annual Sampling Event conducted in August 2012:

- Refinery Wells: MW-4, MW-8, RW-9, RW-15, MW-29, MW-30, MW-31, and MW-44
- Cross-Gradient Wells: MW-1, MW-13, MW-26, MW-27 and MW-32.
- Downgradient Wells: MW-11, MW-12, MW-34, MW-35, MW-37, and MW-38
- RCRA Investigation Wells: MW-50, MW-51, MW-52, MW-53, MW-59, MW-62, MW-63, MW-64, MW-65, MW-67, and MW-68

Groundwater samples were not collected from RW-1, RW-18, MW-20, MW-21, RW-23, RW-28, MW-40, RW-42, RW-43, MW-54, MW-55, MW-56, MW-57, MW-58, MW-61, and MW-66 due to the presence of SPH. SPH appeared at RW-18 during the bailing process and was not apparent prior to sampling. In addition, groundwater samples were not collected from MW-33, MW-60 and MW-69 due to insufficient groundwater for sample collection. Samples were not collected from MW-70 because the well has not yet been developed.

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

- VOCs by EPA Method 8260B
- SVOCs by EPA Method 8270 (RCRA Wells, MW-11, MW-12, and MW-38 only)
- TPH-DRO by EPA Method 8015B
- TPH-GRO by EPA Method 8015B
- Total RCRA 8 Metals by EPA Method 6010B/7470)
- Total Dissolved Metals by EPA Method 6010B/7470
- Alkalinity by EPA Method 310.1
- Anions by EPA Method 300.0
- Carbon Dioxide by EPA Method 310.1

Samples collected for total dissolved metals were inadvertently not analyzed for dissolved Mercury; however the same samples were analyzed for total mercury.

2.1.4 North Boundary Barrier Sampling

Groundwater samples were collected from observation wells and specified collection wells in April 2012 and August 2012, with the exception of wells that contained SPH, wells that were dry, or wells that did not contain enough water to collect a sample. Figure 10 and Figure 11 shows the location of the North Boundary Barrier wells that were sampled in April 2012 and August 2012, 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 2012:

- Collection Wells: CW 0+60, and CW 25+95
- Observation Wells: OW 16+60, OW 22+00, OW 23+10, OW 23+90, and OW 25+70

Groundwater samples were not collected from OW 1+50, and OW 11+15 due to the presence of SPH. In addition, groundwater samples were not collected from OW 0+60, OW 3+85, OW

5+50, OW 6+70, OW 8+10, OW 14+10, and OW 19+50 due to insufficient groundwater for sample collection.

Groundwater samples collected in April 2012 were submitted to Hall Environmental Analytical Laboratory 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

Annual Sampling Event

Groundwater samples were collected from the following wells during the Annual Sampling Event conducted in August 2012:

- Collection Wells: CW 0+60, and CW 25+95
- Observation Wells: OW 16+60, OW 23+10, OW 23+90, and OW 25+70

Groundwater samples were not collected from OW 1+50, and OW 3+85 and OW 11+15 due to the presence of SPH. In addition, groundwater samples were not collected from OW 0+60, OW 5+50, OW 6+70, OW 8+10, OW 14+10, OW 19+50 and OW 22+00 due to insufficient groundwater for sample collection.

Groundwater samples collected during the Annual Sampling Event were submitted to Hall Environmental Analytical Laboratory 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

2.1.5 San Juan River Bluff Sampling

San Juan River Bluff sampling includes the collection of surface water samples at the outfall location 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 surface water analytical results is provided in Section 3.1.5.

Semi-Annual Sampling Event

Surface water samples were collected from the following locations during the Semi-Annual Sampling Event conducted in April 2012:

- Outfalls: East Outfall 2, and East Outfall 3
- Seeps: Seep 1, Seep 3, Seep 6, and Seep 9

Surface water samples were not collected from Seep 2, Seep 4, Seep 5, Seep 7, and Seep 8 due to insufficient surface water for sample collection.

Surface water samples collected in April 2012 were submitted to Hall Environmental Analytical Laboratory and analyzed for the following:

- VOCs – BTEX and MTBE by EPA Method 8260B
- Total RCRA 8 Metals by EPA Method 6010B/7470 (Outfall locations only)
- Total Dissolved Metals by EPA Method 6010B/7470 (Outfall locations only)
- Alkalinity by EPA Method 310.1
- Anions by EPA Method 300.0
- Carbon Dioxide by EPA Method 310.1

Samples collected for total dissolved metals were inadvertently not analyzed for dissolved Mercury; however the same samples were analyzed for total mercury.

Annual Sampling Event

Surface water samples were collected from the following locations during the Annual Sampling Event conducted in August 2012:

- Outfalls: East Outfall 2, and East Outfall 3
- Seeps: Seep 1

Surface water samples were not collected from Seep 2, Seep 3, Seep 4, Seep 5, Seep 6, Seep 7, Seep 8, and Seep 9 due to insufficient surface water for sample collection.

Surface water samples collected during the Semi-Annual Sampling Event were submitted to Hall Environmental Analytical Laboratory and analyzed for the following:

- VOCs – BTEX and MTBE by EPA Method 8260B
- Total RCRA 8 Metals by EPA Method 6010B/7470 (Outfall locations only)
- Total Dissolved Metals by EPA Method 6010B/7470 (Outfall locations only)
- Alkalinity by EPA Method 310.1
- Anions by EPA Method 300.0
- Carbon Dioxide by EPA Method 310.1

Samples collected for total dissolved metals were inadvertently not analyzed for dissolved Mercury; however the same samples were analyzed for total mercury.

2.1.6 San Juan River Terrace Sampling

San Juan River Bluff sampling includes the collection of surface water samples at the four locations along the San Juan River, and includes the collection of groundwater samples at 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 March 2012. Therefore sampling activities associated with the Bioventing System are not included in this report.

Figure 3 shows the approximate 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 2012:

- 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 Hall Environmental Analytical Laboratory 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
- Total RCRA 8 Metals by EPA Method 6010B/7470
- Total Dissolved Metals by EPA Method 6010B/7470
- Alkalinity by EPA Method 310.1
- Anions by EPA Method 300.0

Samples collected for total dissolved metals were inadvertently not analyzed for dissolved Mercury; however the same samples were analyzed for total mercury.

2.1.7 Outfall and Seep Inspections

Bi-monthly visual inspections of Seeps 1 through 9 and along the San Juan River Bluff, which includes the East Fork area, were conducted in 2012. Figure 3 shows the location of the outfalls and seeps in relation to the Bloomfield Refinery property. 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 Refinery operates a total fluid pumping system used to bring SPH and hydrocarbon impacted groundwater to the surface for treatment and disposal. This is accomplished by actively pumping wells within the groundwater impacted area. Recovered fluids are pumped to the Refinery's API separator for product recovery. The remaining recovered fluid is pumped through the wastewater treatment system prior to disposal. The groundwater recovery system was operational throughout 2012. The wells that operated as active recovery wells in 2012 are RW-1, RW-2, RW-3, RW-9, RW-14, RW-15, RW-16, RW-17, RW-18, RW-22, RW-23, RW-28, RW-42, and RW-43. Figure 2 shows the location of the recovery wells within the Bloomfield Refinery. 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 refinery-side of the barrier wall. For every collection wells there was installed an observation well along the river-side of the barrier wall. Bloomfield Refinery personnel continued to monitor fluid levels on both sides of the barrier wall in 2012 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 refinery-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. Monitoring and remedial actions conducted in associated with this system are performed in compliance with the approved *Voluntary Measures Bioventing Monitoring Plan*. A summary of activities associated with the River Terrace Bioventing System are submitted separately to the agency 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, which is then pumped to the Refinery's Wastewater Treatment System 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 the Hammond Ditch, which is located just south of Tank 38. A summary of the operational data of the East Outfall Recovery System for 2012 is included in Section 3.3.4.

2.3 Below-Grade Testing and Tank Inspections

Pursuant to conditions of approval stated in Discharge Permit GW-001 (regulated by the NMOCD), below-grade sumps, sewer boxes, and underground piping was tested to ensure there exist no indications of leaks. Testing of the sump and sewer boxes was conducted between April 2012 and October 2012.

In addition, approximately 4,452 feet of underground piping was hydrostatically tested at Bloomfield Refinery. The piping was located in the Process Unit area, River Terrace transfer piping, Tank Farm transfer piping, and Terminals. A summary of the testing procedures performed and the testing results is presented in Section 3.4.

2.4 Waste Disposal

Western Refining indefinitely suspended refining operations at the Bloomfield Refinery 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.

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 collected during monitoring and testing performed in 2012. Figure 8 and Figure 9 provide a summary of the BTEX concentrations detected during the April 2012 and August 2012 sampling events, respectively.

3.1 Groundwater Monitoring

A summary of the groundwater analytical results 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 facility 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 sample results are bolded and highlighted in yellow. A copy of the respective analytical reports and Laboratory Quality Assurance Plan is included in Appendix B and Appendix C, respectively.

3.1.1 Groundwater Measurements

Depth-to-groundwater and depth-to-product measurements were collected at all refinery monitoring wells, recovery wells, observation wells, and collection wells in April and August 2012, with the exception of RW-03 and CW 25+95. 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 Refinery Complex 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 2012, groundwater 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 Refinery Complex area. Table 1 provides a summary of the fluid level measurements collected in 2012. Figure 4 and Figure 5 represent the groundwater contours developed from data collected in April 2012 and August 2012, respectively. The groundwater contours show that groundwater flows in the general 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 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 Appendix A. Table 2 provides a summary of the groundwater field parameters collected during the April 2012 and August 2012 sampling events. Field parameters were also collected from water samples collected at the East Outfalls, Seeps, and the San Juan River locations. Field parameters were inadvertently not collected at East Outfall #2, East Outfall #3, and Seep 1 during the Semi-Annual Sampling Event.

The field parameters collected in 2012 appear to be relative stable in comparison to the previous two years, with the exception of the dissolved oxygen concentration at RW-43 and the oxidation reduction potential for several wells. In August 2010, a dissolved oxygen reading of 130.00 was recorded for RW-43. This reading is confirmed when looking at the field notice. There has not been a reading collected subsequent to the August 2010 sampling event to confirm the reading.

The oxidation reduction potential at several well locations sampled in 2012 indicates that the groundwater in those locations has changed from an oxidizing environment to a reducing environment. ORP levels at MW-4, MW-30, MW-26, MW-27, MW-11, MW-34, MW-35, MW-37, CW 25+96, OW 16+60, OW 22+00, OW 23+10, OW 23+90, OW 25+70, RW-9, RW-15, and MW-59 show a negative change in ORP levels when compared to previous year data. As shown on Table 2 in the Field Parameter Summary, the change in ORP appears to correlate to a slight change (i.e. increase) in pH. Reducing environments can indicate the presence of microbial activity for natural attenuation.

3.1.3 Refinery Complex Sampling

Refinery Wells

Volatile organic compounds detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- 1, 2, 4-Trimethylbenzene was detected above the respective screening level of 15 ug/l at MW-4, MW-8, RW-9, RW-15, MW-30, and MW-31. The detected concentrations ranged between 21 ug/l and 3,600 ug/l, with the highest concentration detected at MW-30 in August 2012.
- 1,3,5-trimethylbenzene was detected above the respective screening level of 12 ug/l at MW-4, MW-8, RW-9, RW-15, MW-30, and MW-31. The detected concentrations ranged between 5.2 ug/l and 840 ug/l, with the highest concentration detected at MW-30 in August 2012.
- 1-Methylnaphthalene was detected above the respective screening level of 2.3 ug/l at MW-8 and RW-9. The detected concentrations ranged between 23 ug/l and 130 ug/l, with the highest concentration detected at RW-9 in August 2012.
- 2-Methylnaphthalene was detected above the respective screening level of 150 ug/l at RW-9 with a concentration of 190 ug/l detected in August 2012.

- Benzene was detected above the respective screening level of 5 ug/l at MW-4, MW-8, RW-9, RW-15, MW-30, and MW-31. The detected concentrations ranged between 1.3 ug/l and 5400 ug/l, with the highest concentration detected at MW-30 and MW-9 in August 2012.
- Ethylbenzene was detected above the respective screening level of 700 ug/l at RW-15, MW-30, and MW-31. The detected concentrations ranged between 3.9 ug/l and 4300 ug/l, with the highest concentration detected at MW-30 in August 2012.
- MTBE was detected above the respective screening level of 125 ug/l at RW-9. The detected concentrations ranged between 2.0 ug/L and 6,400 ug/L, with the highest concentration detected at RW-9 in August 2012.
- Naphthalene was detected above the respective screening level of 1.43 ug/l at MW-4, MW-8, RW-9, RW-15, MW-30 and MW-31. The detected concentrations ranged between 8.7 ug/l and 760 ug/l, with the highest concentration detected at MW-30 in August 2012.
- Toluene was detected above the respective screening level of 750 ug/l at MW-30 and MW-31. The detected concentrations ranged between 3.0 ug/l and 8,800 ug/l, with the highest concentration detected at MW-30 in August 2012.
- Xylenes were detected above the respective screening level of 620 ug/l at RW-9, RW-15, MW-30, and MW-31. The detected concentrations ranged between 9.3 ug/l and 16,000 ug/l, with the highest concentration detected at MW-30 in August 2012.

General chemistry parameters detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- Chloride was detected above the respective screening level of 250 mg/l at RW-9, RW-15 and MW-31. The detected concentrations ranged between 44 mg/l and 460 mg/l, with the highest concentration detected at MW-9 in August 2012.
- Nitrates were detected above the respective screening level of 10 mg/L at MW-8. The detected concentrations ranged between 0.59 mg/L and 16.0 mg/L, with the highest concentration detected at MW-8 in August 2012.
- Sulfate was detected above the respective screening level of 600 mg/l at MW-8, and MW-44. The detected concentrations ranged between 21 mg/l and 3,000 mg/l, with the highest concentration detected at RW-44.

Total metals constituents detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- Barium was detected above the respective screening level of 1.0 mg/l at MW-4, RW-9, RW-15, MW-30, and MW-31. The detected concentrations ranged between 0.035 mg/l and 4.5 mg/l, with the highest concentration detected at RW-9 in August 2012.
- Chromium was detected above the respective screening level of 0.05 mg/l at MW-8. Detected concentrations ranged between 0.0097 mg/l and 4.8 mg/l, with the highest concentration detected at MW-8.
- Lead was detected above the respective screening level of 0.015 mg/l at RW-9. The detected concentrations ranged between 0.0077 mg/l and 0.041 mg/l, with the highest concentration detected at MW-9 in August 2012.

- Mercury was detected above the respective screening level of 0.002 mg/l at MW-8 (0.0040 mg/l) in August 2012. Mercury was not detected at other locations above the respective laboratory detection limit.

Dissolved metals constituents detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions

- Barium was detected above the respective screening level of 1.0 mg/l at MW-4, RW-9, RW-15 and MW-31. The detected concentrations ranged between 0.015 mg/l and 3.8 mg/l, with the highest concentration detected at RW-9 in August 2012.
- Chromium was detected above the respective screening level of 0.05 mg/l at MW-8. The detected concentrations ranged between 0.007 mg/l and 4.8 mg/l, with the highest concentration detected at MW-8.
- Iron was detected above the respective screening level of 1.0 mg/l at MW-4, MW-8, RW-9, RW-15 and RW-30. The detected concentrations ranged between 0.19 mg/l and 60 mg/l, with the highest concentration detected at RW-8.
- Manganese was detected above the respective screening level of 0.2 mg/l at MW-4, MW-8, RW-9, RW-15, MW-29, MW-30, and MW-31. The detected concentrations ranged between 0.91 mg/l and 9.6 mg/l, with the highest concentration detected at RW-15 in August 2012.
- Uranium was detected above the respective screening level of 0.03 mg/l at MW-8. The detected concentrations ranged between 0.0015 mg/l and 0.03 mg/l, with the highest concentration detected at MW-8 in August 2012.

Total petroleum hydrocarbons detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- Diesel range organics were detected above the respective screening level of 0.2 mg/l at MW-4, MW-8, RW-9, RW-15, MW-30, MW-31, and MW-44. The detected concentrations ranged between 0.46 mg/l and 14 mg/l, with the highest concentration detected at RW-9.

Dissolved mercury was inadvertently not sampled for in 2012; however it was included in the total metals analysis and the results were compared to the respective total mercury screening level. A summary of the analytical results for samples collected at the refinery wells in 2012 is provided in Table 3.

Cross-Gradient Wells

Volatile organic compounds detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- 1, 2,4-Trimethylbenzene was detected above the respective screening level of 15 ug/l at MW-26, with a detected concentration of 1100 ug/l.
- 1,3,5-Trimethylbenzene was detected above the respective screening level of 12.0 ug/l at MW-26, with a detected concentration of 280 ug/l.
- 1-Methylnaphthalene was detected above the respective screening level of 2.3 ug/l at MW-26, with a detected concentration of 130 ug/l.
- 2-Methylnaphthalene was detected above the respective screening level of 150 ug/l at MW-26, with a detected concentration of 210 ug/l.

- Naphthalene was detected above the respective screening level of 1.43 ug/l at MW-26, with a detected concentration of 290 ug/l.
- Total xylenes were detected above the respective screening level of 620 ug/l at MW-26, with a detected concentration of 1,400 ug/l.
- Benzene was detected above the respective screening level of 5 ug/l at MW-26, with a detected concentration of 29 ug/l.

General chemistry parameters detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- Chloride was detected above the respective screening level of 250 mg/l at MW-26, MW-27, and MW-32. The detected concentrations ranged between 8.5 mg/l and 620 mg/l, with the highest concentration detected at MW-32.
- Nitrate was detected above the respective screening level of 10 mg/l at MW-32. The detected concentrations ranged between 0.49 mg/l and 43 mg/l, with the highest concentration detected at MW-32.
- 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 76 mg/l and 1,800 mg/l, with the highest concentration detected at MW-27.

Total metals constituents detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- Barium was detected above the respective screening level of 1.0 mg/l at MW-26, with a detected concentration of 2.4 mg/l. The detected concentrations ranged between 0.029 mg/l and 2.4 mg/l, with the highest concentration detected at MW-26.

Dissolved metals constituents detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- Barium was detected above the respective screening level of 1.0 mg/l at MW-26, with a detected concentration of 2.3 mg/l.
- Iron was detected above the respective screening level of 1.0 mg/l at MW-26, with a detected concentration of 5.2 mg/l.
- Manganese was detected above the respective screening level of 0.2 mg/l at MW-13, MW-26, and MW-27. The detected concentrations ranged between 0.097 mg/l and 2.6 mg/l, with the highest concentration detected at MW-27.

Total petroleum hydrocarbons detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- Diesel range organics were detected above the respective screening level of 0.2 mg/l at MW-26 with a detected concentration of 1.7 mg/l.

Downgradient Wells

Volatile organic compounds detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- 1,2,4-Trimethylbenzene was detected above the respective screening level of 15 ug/l at MW-11, and MW-35, with the highest concentration detected at MW-11 in August 2012 (350 ug/l).
- Naphthalene was detected above the respective screening level of 1.43 ug/l at MW-11 and MW-35, with the highest concentration detected at MW-11 (63 ug/l).

General chemistry parameters detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- Chloride was detected above the respective screening level of 250 mg/l at MW-11, MW-34, and MW-37, with the highest concentration detected at MW-11 (370 ug/l) in August 2012.

Total metals constituents detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- Arsenic was detected above the respective screening level of 0.01 mg/l at MW-35. The detected concentration was 0.57 mg/l.
- Barium was detected above the respective screening level of 1.0 mg/l at MW-34 and MW-35, with the highest concentration detected at MW-35 (1.9 mg/l).
- Chromium was detected above the respective screening level of 0.05 mg/l at MW-12 at a concentration of 0.29 mg/l in August 2012.
- Lead was detected above the respective screening level of 0.015 mg/l at MW-12 and MW-38, with the highest concentration detected at MW-12 of 0.024 mg/l.

Dissolved metals constituents detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- Iron was detected above the respective screening level of 1.0 mg/l at MW-11, MW-34 and MW-35. The detected concentrations ranged between 0.069 mg/l and 9.3 mg/l, with the highest concentration detected at MW-11.
- Barium was detected above the respective screening level of 1.0 mg/l at MW-34 and MW-35, with the highest concentration detected at MW-35 of 1.7 mg/l.
- 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 ranged between 0.016 mg/l and 5.6 mg/l, with the highest concentration detected at MW-34.

Total petroleum hydrocarbons detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- Diesel range organics were detected above the respective screening level of 0.2 mg/l at MW-11, MW-34 and MW-35. The detected concentrations ranged between 0.44 mg/l and 1.1 mg/l, with the highest concentration detected at MW-11.

Dissolved mercury was inadvertently not sampled for in 2012; however it was included in the total metals analysis and the results were compared to the respective total mercury screening level. A summary of the analytical results for samples collected at the Downgradient Wells in 2012 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 2012, with the following exceptions:

- 1, 2, 4-Trimethylbenzene was detected above the respective screening level of 15 ug/l at MW-65, with a concentration of 1,500 ug/l detected in August 2012.
- 1, 2-Dichloroethane was detected at MW-65, with a detected concentration 170 ug/l.
- 1,3,5-trimethylbenzene was detected above the respective screening level of 12 ug/l at MW-65, with a concentration detected of 90 ug/l.
- 1-Methylnaphthalene was detected above the respective screening level of 2.3 ug/l at MW-65, with a detected concentration of 130 ug/l.
- 2-Methylnaphthalene was detected above the respective screening level of 150 ug/l at MW-65, with a detected concentration of 210 ug/l.
- Benzene was detected above the respective screening level of 5 ug/l at MW-65, with a detected concentrations of 7,200 ug/l.
- Ethylbenzene was detected above the respective screening level of 700 ug/l at MW-65 (1,700 ug/l).
- MTBE was detected above the respective screening level of 125 ug/l at MW-59, and MW-65. The detected concentration ranged between 4.9 ug/l and 790 ug/l, with the highest concentration detected at MW-65.
- Naphthalene was detected above the respective screening level of 1.43 ug/l at MW-59, and MW-65, with the highest concentration detected at MW-65 of 400 ug/l.

Semi-volatile organic compounds detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- 1-Methylnaphthalene was detected above the respective screening level of 2.3 ug/l at MW-65, with a detected concentration of 98 ug/l .
- Naphthalene was detected above the respective screening level of 1.43 ug/l at MW-59 and MW-65. The detected concentrations were 17 ug/l and 260 ug/l, respectively.

General chemistry parameters detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- Chloride was detected above the respective screening level of 250 mg/l at MW-52, MW-53, and MW-64. The detected concentrations ranged between 6.5 mg/l and 960 mg/l, with the highest concentration detected at MW-64.
- Nitrite was detected above the respective screening level of 1.0 mg/l at MW-63, MW-64, and MW-67. The detected concentrations ranged between 5.5 mg/l and 110 mg/l, with the highest concentration detected at MW-63.
- Nitrate was detected above the respective screening level of 10 mg/l at MW-52, MW-53, MW-63, and MW-64. The detected concentrations ranged between 0.25 mg/l and 110 mg/l, with the highest concentration detected at MW-63.

- Sulfate was detected above the respective screening level of 600 mg/l at MW-52, MW-53, MW-62, MW-63, MW-64 and MW-65. The detected concentrations ranged between 26 mg/l and 3,600 mg/l, with the highest concentration detected at MW-62.

Total metals constituents detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- Lead was detected above the respective screening level of 0.015 mg/l at MW-59, with a detected concentration of 0.035 mg/l.

Dissolved metals constituents detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- Iron was detected above the respective screening level of 1.0 mg/l at MW-52, MW-59, and MW-65. The detected concentrations ranged between 0.029 mg/l and 12 mg/l, with the highest concentration detected at MW-65.
- Selenium was detected above the respective screening level of 0.05 ug/l at MW-52, with a detected concentration of 0.053 ug/l.
- Manganese was detected above the respective screening level of 0.2 mg/l at MW-50, MW-51, MW-52, MW-53, MW-59, MW-62, MW-63, and MW-65. The detected concentrations ranged between 0.12 mg/l and 5.3 mg/l, with the highest concentration detected at MW-65.
- Uranium was detected above the respective screening level of 0.03 mg/l at MW-63, with a detected concentration of 0.067 mg/l.

Total petroleum hydrocarbons detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- Diesel range organics were detected above the respective screening level of 0.2 mg/l at MW-59 and MW-65, with a concentration detected at MW-65 of 2.3ug/l.

Dissolved mercury was inadvertently not sampled for in 2012; however it was included in the total metals analysis and the results were compared to the respective total mercury screening level. A summary of the analytical results for samples collected at the RCRA Wells in 2012 is provided in Table 6.

3.1.4 North Boundary Barrier Sampling

Collection Wells

Volatile organic compounds detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- Benzene was detected above the respective screening level of 0.005 mg/l at CW 0+60 and CW 25+95. The detected concentrations ranged between 0.0079 mg/l and 2.2 mg/l, with the highest concentration detected at CW 25-95 in April 2012.

Total petroleum hydrocarbons detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- Diesel range organics were detected above the respective screening level of 0.2 mg/l at CW 0+60 and CW 25+95. The detected concentrations ranged between 0.23 mg/l and 0.76 mg/l, with the highest concentration detected at CW 0+60 in April 2012.

A summary of the analytical results for samples collected at the collection Wells in 2012 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 2012, with the following exceptions:

- Benzene was detected above the respective screening level of 0.005 mg/l at OW 16+60. The detected highest concentrations was 0.022 mg/l in April 2012.
- MTBE was detected above the respective screening level of 0.012 mg/l at OW 16+60 and OW 22+00, with the highest detected concentration at OW 16+60 of 0.610 mg/l in August 2012.

Total petroleum hydrocarbons detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- Diesel range organics were detected above the respective screening level of 0.2 mg/l at OW 16+60. The detected high concentration was 110 mg/l in August 2012.

A summary of the analytical results for samples collected at the observation wells in 2012 is provided in Table 7.

3.1.5 San Juan River Bluff Sampling

Outfalls

Samples were collected from Outfall 2 and Outfall 3 in April and August 2012. Detectable analytes for all Outfall samples were detected at concentrations below their respective screening levels. Dissolved mercury was inadvertently not included in the analysis for samples collected in 2012; however mercury was included in the total metals analysis and was not detected above the laboratory detection limit. A summary of the analytical results for samples collected at Outfall No.2 and Outfall No. 3 in 2012 is provided in Table 8.

Seeps

Samples were collected from Seep 1, Seep 3, Seep 6 and Seep 9 in 2012. The remaining seeps were not sampled due to lack of water for sample collection.

General chemistry parameters detected above the laboratory detection limit were below their respective screening levels in samples collected in 2012, with the following exceptions:

- Chloride was detected above the respective screening level of 250 mg/l at Seep 1, Seep 6, and Seep 9. The detected concentrations ranged between 190 mg/l and 3000 mg/l, with the highest concentration detected at Seep 6 in April 2012.
- Sulfate was detected above the respective screening level of 600 mg/l at Seep 1, Seep 3, Seep 6, and Seep 9. The detected concentrations ranged between 1600 mg/l and 2400 mg/l, with the highest concentration detected at Seep 9 in April 2012.

A summary of the analytical results for samples collected at the Seeps in 2012 is provided in Table 9.

3.1.6 San Juan River Terrace Sampling

Sample locations related to the bioventing system are reporting in a separate report, and therefore are not included in this submittal. However, samples were collected at four locations along the San Juan River in 2012. Samples were collected in April 2012 and August 2012 upstream of the refinery, north of MW-46, North of MW-45, and downstream of the refinery. Figure 3 shows the location of the San Juan River samples in relation to the Bloomfield Refinery. Dissolved mercury was inadvertently not analyzed in 2012. However, it was included in the total metals analysis and the respective results are included in this report. A summary of the analytical results for samples collected along the San Juan River is provided in Table 10.

3.1.7 Outfall and Seep Inspections

Bi-monthly visual inspections of Seeps 1 through 9 and along the San Juan River Bluff, including the East Fork area, were conducted in 2012. 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. Fluids that contain concentrations above drinking water standards at the seep locations are pumped out completely to ensure such water does not impact the river.

Visual inspection of the East Fork area indicates that the flow rate at this seep location has remained constant at approximately 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 Refinery.

3.2 Separate-Phase Hydrocarbons

Field measurements collected in April and August 2012 were also used to determine product thickness in areas where SPH was detected. In April 2012, SPH was identified in 20 wells. The product thickness detected ranged between 0.01 feet and 1.29 feet, with the most product detected at recovery well MW-57. In August 2012, SPH was identified in 24 wells, which includes RW-1- and RW-18 at which SPH was detected after bailing commenced. The product thickness ranged between 0.01 feet and 1.08 feet, with the most product detected at MW-41. Figure 6 and Figure 7 show a summary of the product thickness detected in April 2012 and August 2012, respectively.

Product has been detected in the groundwater prior to suspension of refining operations in November 2009. Review of the past six 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 & Monitoring Reports submitted in April of each year.

Terminals Area

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. Over the past four years, SPH has been detected at MW-61, which is located just east of the Terminal office building. The average SPH thickness at MW-61 has been approximately 0.5 feet. At MW-66, located west of Tank 45, the amount of SPH has fluctuated between 0.05 feet and 0.17 feet.

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). Each well is equipped with a dedicated pneumatic pump that operates on a timer. All fluids pumped from these wells are routed to the on-site WWTP for product recovery and treatment.

Two of the recovery wells located within the Tank Farm area have shown detectable SPH over the past several years. Recovery well RW-14 has shown fluctuating levels of SPH ranging from 0.0 feet to 1.65 feet, with the highest amount of SPH detected in February 2009. As of August 2012, the amount of product detected at RW-14 was 0.05 feet. SPH has been detected on three occasions at RW-16 over the past six years, with the most recent measurements showing 0.16 feet in the well.

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 provides hydraulic relieve 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 2012, MW-54 contained approximately 0.21 feet of SPH. 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, however as of August 2012 SPH has not been detected.

Two active recovery wells are located along the southern property boundary and are equipped with dedicated pneumatic total fluids pumps. SPH has not been detected at RW-2 since August

2010. Recovery well RW-3 was recently placed back into recovery service in 2012 after installation of a new discharge line from the well to the on-site WWTP. This well has shown traces of SPH prior to returning to operation, with SPH detected at 0.05 feet or less.

Monitoring well MW-41, located adjacent to the crude process unit, has shown fluctuating levels of SPH over the years. The range of SPH detected has been between 0.01 feet and 1.18 feet since 2007. As of August 2012, MW-41 contained 1.08 feet of SPH.

The SPH level at RW-42, an active recovery well located upstream of MW-41, has also fluctuated over time. The amount of SPH has ranged between 0.00 feet and 0.90 feet since 2007. In August 2012, the amount of SPH detected was 0.21 feet.

In the area near the WWTP and north of the 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 fluids pumping wells, as well as the existence of the north boundary barrier providing that hydraulic control all groundwater beneath the former process areas. To further enhance the product recovery efforts in this area, work has commenced 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 are in the process of transitioning to recovery wells. These wells are located in the area where SPH is currently most prevalent. The wells are anticipated to be operational in April 2013.

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 amount of groundwater detected in these wells is significantly less than the wells located on the refinery-side of the wall, giving proof that the hydraulic barrier is effective. The intermediate detections of SPH are believed to be the residual effect SPH in the area that existed. Absorbent socks are placed in observation and monitoring wells located along the river-side of the slurry wall to remove the residual SPH in the area.

3.3 Total Fluids Recovery Systems

3.3.1 Groundwater Recovery System

In 2012, 13 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-18, RW-22, RW-23, RW-28, RW-42, and RW-43. The estimated total gallons pumped (SPH and groundwater) from the recovery wells in 2012 was approximately 1,555,200 gallons. 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 is calculated. The calculated total is based on 360 days of operation. This time period takes into account the five days the wells were off when groundwater

measurements were collected prior to each monitoring event, and time when the wells were maintenance.

In 2012, the work to place five existing monitoring wells into fluids recovery service commenced. The five monitoring wells located within the vicinity of the aeration ponds (MW-55, MW-56, MW-57, MW-58, and MW-20) are being equipped with dedicated pneumatic pumps set to operate on a timer system. These wells will operate at total fluid recovery wells. All fluids pumped will discharge into a common pipeline that will be routed to the on-site WWTP for product recovery and treatment. The five additional wells are scheduled to be placed into service in April 2013.

3.3.2 North Boundary Barrier Wall Collection System

Depth-to-groundwater measurements collected in April 2012 and August 2012 indicate that the barrier wall continues to provide a hydraulic barrier for groundwater below the facility. Based on the data collected in 2012, eight of the 14 observation well contain little to no fluid (i.e. measuring less than 0.5 ft of fluid in the well at any one time).

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 Refinery. All recovered water through the Hammond Ditch French drain west of pipeline easement discharges to Tank 37, which is then transferred to the Refinery's API separator for product recovery. The location of Tank 37 is shown on Figure 3. Refinery Operators inspects that operation of Tank 37 daily and records the amount of water recovered by the tank using the flow meter located on the discharge end of the Tank 37 transfer pump. In 2012, the total volume of fluids recovered at Tank 37 was approximately 11,870,600 gallons.

3.3.4 East Outfall Recovery System

Total fluids from Outfall 1 is recovered via Tank 38 and transferred to the Refinery's WWTS for treatment prior to disposal through the on-site injection well. Figure 3 shows the location of Tank 38.

Prior to 2012, the weakened integrity of the canal lining resulted in significant flow increases to Tank 38 during the time that the Hammond Ditch was operational. During such times, the increase in inlet flow to Tank 38 increased to over 100 gpm.

Between October 15th, 2011 and April 15th, 2012, Western initiated extensive efforts to seal the crack in the ditch lining within the vicinity of Tank 38. This effort has resulted in a significant decrease in flow into Tank 38 when the ditch is operational. When the Hammond Ditch is operational in 2012, the flow rate through Tank 38 increases to approximately 30 gpm. When the ditch is not operational, the average flowrate into Tank 38 is approximately 12 gpm.

Tank 38 piping is equipped with a flow meter to measure the total gallons transferred to the WWTP. In 2012, the total fluid volume recovered at Tank 38 was approximately 11,778,396 gallons.

3.4 Below-Grade Testing and Inspections

Pursuant to conditions of approval stated in Discharge Permit GW-001 (regulated by the Oil Conservation Division), Bloomfield Refinery personnel conducted annual below-grade sump testing and underground process/wastewater line testing. Between June 2012 and August 2012, all water-draw sumps located in the Tank Farm and sewer boxes within the facility were cleaned out with a vacuum truck, visually inspected, and hydrostatically tested for a minimum of 90 minutes to insure integrity. Liquid levels that did not change over time were considered acceptable for service. Boxes that passed the hydrostatic testing were emptied using the vacuum truck and returned to normal service. All sumps tested in 2012 passed and were returned to normal service. Double-walled steel (DW Steel) sumps were also inspected through the leak detection port. No evidence of moisture was observed.

In addition, approximately 4,452 feet of underground piping was hydrostatically tested at Bloomfield Refinery in 2012. The piping was located in the Process Unit area, River Terrace transfer piping, Tank Farm transfer piping, and Terminals. Testing of underground process piping includes pressuring-up the piping to a set-point of approximately 150% of the normal operating pressure. The test piping remains pressured for a minimum of 30 minutes, at the end of which the piping pressure is compared to the original set pressure. Piping that did not lose pressure over the testing period was considered acceptable for service. No issues were identified during underground piping testing in 2012. Appendix D summarizes the underground piping testing and up-dated tank inspection schedule.

3.5 Waste Disposal

Western Refining indefinitely suspended refining operations at the Bloomfield Refinery 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 Wastewater Treatment System (WWTS). Treated water is then disposed of through the on-site Class I injection well.

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 summary of such wastes, including a water balance sheet for 2012 is provided in Appendix E.

SECTION 4.0 CONCLUSIONS

The following is a summary of conclusions based on monitoring and inspection data collected in 2012.

4.1 Groundwater Monitoring

Western has in-place a Facility-Wide Groundwater Monitoring Program that is up-dated annually as required under the 2007 Consent Order issued by NMED-HWB. Up-dates to this program include incorporation of additional wells installed as part of on-going completed RCRA Investigation activities. Such up-dates are proposed for agency approval in June of each year. Screening levels used to evaluate the groundwater condition at the Bloomfield refinery are reflective of the same conservative screening levels currently used for evaluation of on-going RCRA Investigation activities. Tables 3 through 10 include the most conservative screening level for each respective analyte. Sample results included in the analytical summary tables that exceed the respective sample results are bolded and highlighted in yellow. Figure 8 and Figure 9 shows a summary of the BTEX and MTBE concentrations detected site-wide during the April 2012 and August 2012 sampling events, respectively.

Depth-to-groundwater and depth-to-product measurements were collected at all refinery monitoring wells, recovery wells, observation wells, collection wells and sump wells in 2012, with the exception of RW-03 and CW 25-95. 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.

Groundwater Quality

Based on the analytical results for groundwater monitoring collected in 2012, the following constituents were detected at concentrations in groundwater above the respective most conservative screening levels.

Volatile Organic Compounds:

1,2,4-trimethylbenzene
1,2-Dichlorethane
1,3,5-trimethylbenzene
1-Methylnaphthalene
2-Methylnaphthalene
Benzene
Ethylbenzene
MTBE
Naphthalene
Toluene
Xylenes

General Chemistry:

Chloride
Sulfate
Nitrate
Nitrite
Total Metals:
Arsenic
Barium
Chromium
lead
Mercury

Dissolved Metals:

Barium
Chromium
Iron
Manganese
Selenium
Uranium

Total Petroleum Hydrocarbons:

Diesel Range Organics

Naturally occurring background concentrations in groundwater are currently being evaluated through the Background Investigation activities conducted as part of the July 2007 Consent Order issued by NMED-HWB.

4.2 Outfall and Seep Inspections

Bi-monthly visual inspections of Seeps 1 through 9, and along the San Juan River Bluff, which includes the East Fork Area, were conducted in 2012. No visual sheens or odors were identified during the inspection. Fluid in the Seeps is most often prevalent during the spring, corresponding with the times of higher precipitation. Fluids containing constituents higher than water quality standards are completely removed using portable pumps to ensure there are no impacts to the river.

4.3 Total Fluids Recovery Systems

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

- Groundwater Recovery System using recovery wells within the Refinery 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 Waste Water Treatment Plant for treatment prior to disposal through the on-site injection well. Water from the River Terrace is treated separately and is re-used as Plant Water for facility operations.

For wells located along the river-side of the slurry wall in areas in which groundwater is limited and therefore not suited for pumping, absorbent socks are placed in each individual well where SPH is detected for product recovery. The socks are replaced periodically, and the used socks are managed as Special Waste.

4.4 SPH Source Determination

In an effort to identify the source of the SPH at the Bloomfield facility, Western is collecting product samples from selected monitoring wells for distillation analysis. The intent of the samples is to potentially determine the type of hydrocarbons most prevalent at the various locations (i.e. diesel versus gasoline range organics), and determine if the product types are similar or different when comparing the different locations from which the samples were collected. The results of the distillation analysis at these sample locations will help determine if this approach provides useful information in identifying a potential source of the product.

4.5 Below-Grade Testing and Tank Inspections

In compliance with the Refinery's Discharge Permit dated July 2010, underground process piping and sumps were inspected in 2012 to determine their integrity for service. All piping and sumps tested in 2012 passed inspections and were returned to normal service following completion of testing activities. In addition, petroleum storage tanks continue to be inspected at a frequency that is in compliance with API 650 and 653 guidelines.

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, 2010, New Mexico Oil Conservation Division, Discharge Permit Renewal (GW-001) Bloomfield Refinery, July 7, 2010.

TABLE 1
Fluid Level Measurements Summary
2012 Groundwater Remediation 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-1	08/06/12	5519.21	21.56	NPP	17.11	5502.10	NPP
	04/02/12	5519.21	21.56	NPP	17.56	5501.65	NPP
	08/16/11	5519.21	21.56	NPP	16.99	5502.22	NPP
	04/11/11	5519.21	21.56	NPP	17.47	5501.74	NPP
MW-03	08/06/12	5539.27	36.75	NPP	36.42	5502.85	NPP
	04/02/12	5539.27	36.75	NPP	NWP	NWP	NPP
	08/16/11	5539.27	36.75	NPP	36.43	5502.84	NPP
	04/11/11	5539.27	36.75	NPP	36.53	5502.74	NPP
MW-04	08/06/12	5527.78	30.48	NPP	27.40	5500.38	NPP
	04/02/12	5527.78	30.48	NPP	27.43	5500.35	NPP
	08/17/11	5527.78	30.48	NPP	27.27	5500.51	NPP
	04/11/11	5527.78	30.48	NPP	27.23	5500.55	NPP
MW-05	08/06/12	5548.56	37.20	NPP	NWP	NWP	NPP
	04/02/12	5548.56	37.20	NPP	NWP	NWP	NPP
	08/17/11	5548.56	37.20	NPP	NWP	NWP	NPP
	04/11/11	5548.56	37.20	NPP	NWP	NWP	NPP
MW-06	08/06/12	5554.61	48.00	NPP	NWP	NWP	NPP
	04/02/12	5554.61	48.00	NPP	NWP	NWP	NPP
	08/17/11	5554.61	48.00	NPP	NWP	NWP	NPP
	04/11/11	5554.61	48.00	NPP	NWP	NWP	NPP
MW-07	08/06/12	5527.66	62.61	NPP	27.87	5499.79	NPP
	04/02/12	5527.66	62.61	NPP	27.40	5500.26	NPP
	08/17/11	5527.66	62.61	NPP	27.65	5500.01	NPP
	04/11/11	5527.66	62.61	NPP	27.25	5500.41	NPP
MW-08	08/06/12	5534.58	35.93	NPP	31.70	5502.88	NPP
	04/02/12	5534.58	35.93	NPP	31.94	5502.64	NPP
	08/17/11	5534.58	35.93	NPP	31.72	5502.86	NPP
	04/11/11	5534.58	35.93	NPP	31.94	5502.64	NPP
MW-11	08/06/12	5510.31	22.94	NPP	11.72	5498.59	NPP
	04/02/12	5510.31	22.94	NPP	11.90	5498.41	NPP
	08/16/11	5510.31	22.94	NPP	11.64	5498.67	NPP
	04/11/11	5510.31	22.94	NPP	11.76	5498.55	NPP
MW-12	08/06/12	5501.61	14.98	NPP	10.53	5491.08	NPP
	04/02/12	5501.61	14.98	NPP	10.54	5491.07	NPP
	08/16/11	5501.61	14.98	NPP	10.92	5490.69	NPP
	04/11/11	5501.61	14.98	NPP	10.48	5491.13	NPP
MW-13	08/06/12	5542.04	52.89	NPP	40.77	5501.27	NPP
	04/02/12	5542.04	52.89	NPP	40.72	5501.32	NPP
	08/16/11	5542.04	52.89	NPP	40.61	5501.43	NPP
	04/11/11	5542.04	52.89	NPP	40.55	5501.49	NPP
MW-20	08/06/12	5519.9	27.13	20.66	21.60	5499.05	0.94
	04/02/12	5519.9	27.13	20.72	21.67	5498.99	0.95
	08/18/11	5519.9	27.13	20.73	21.34	5499.05	0.61
	04/11/11	5519.9	27.13	20.71	21.33	5499.07	0.62
MW-21	08/06/12	5521.99	30.38	21.75	21.80	5500.23	0.05
	04/02/12	5521.99	30.38	21.96	21.98	5500.03	0.02
	08/18/11	5521.99	30.38	21.84	21.87	5500.14	0.03
	04/11/11	5521.99	30.38	21.80	21.86	5500.18	0.06
MW-25	08/06/12	5533.99	41.20	33.12	33.15	5500.86	0.03
	04/02/12	5533.99	41.20	33.11	33.12	5500.88	0.01
	08/17/11	5533.99	41.20	NPP	32.97	5501.02	NPP
	04/11/11	5533.99	41.20	32.85	33.01	5501.11	0.16

TABLE 1
Fluid Level Measurements Summary
2012 Groundwater Remediation 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-26	08/06/12	5517.88	25.11	NPP	17.71	5500.17	NPP
	04/02/12	5517.88	25.11	NPP	17.68	5500.20	NPP
	08/16/11	5517.88	25.11	NPP	17.58	5500.30	NPP
	04/11/11	5517.88	25.11	NPP	17.50	5500.38	NPP
MW-27	08/06/12	5518.67	24.42	NPP	20.89	5497.78	NPP
	04/02/12	5518.67	24.42	NPP	19.61	5499.06	NPP
	08/16/11	5518.67	24.42	NPP	20.26	5498.41	NPP
	04/11/11	5518.67	24.42	NPP	18.89	5499.78	NPP
MW-29	08/06/12	5524.97	28.62	NPP	23.06	5501.91	NPP
	04/02/12	5524.97	28.62	NPP	23.34	5501.63	NPP
	08/17/11	5524.97	28.62	NPP	23.04	5501.93	NPP
	04/11/11	5524.97	28.62	NPP	23.23	5501.74	NPP
MW-30	08/06/12	5536.83	40.13	NPP	34.02	5502.81	NPP
	04/02/12	5536.83	40.13	NPP	34.22	5502.61	NPP
	08/17/11	5536.83	40.13	NPP	34.03	5502.80	NPP
	04/11/11	5536.83	40.13	NPP	34.42	5502.41	NPP
MW-31	08/06/12	5536.24	39.16	NPP	34.40	5501.84	NPP
	04/02/12	5536.24	39.16	NPP	34.35	5501.89	NPP
	08/16/11	5536.24	39.16	NPP	34.30	5501.94	NPP
	04/11/11	5536.24	39.16	NPP	34.24	5502.00	NPP
MW-32	08/06/12	5525.64	27.51	NPP	25.42	5500.22	NPP
	04/02/12	5525.64	27.51	NPP	25.38	5500.26	NPP
	08/16/11	5525.64	27.51	NPP	25.27	5500.37	NPP
	04/11/11	5525.64	27.51	NPP	25.23	5500.41	NPP
MW-33	08/06/12	5521.79	25.51	NPP	23.36	5498.43	NPP
	04/02/12	5521.79	25.51	NPP	22.73	5499.06	NPP
	08/16/11	5521.79	25.51	NPP	22.81	5498.98	NPP
	04/11/11	5521.79	25.51	NPP	22.52	5499.27	NPP
MW-34	08/06/12	5511.63	20.96	NPP	14.33	5497.30	NPP
	04/02/12	5511.63	20.96	NPP	14.37	5497.26	NPP
	08/16/11	5511.63	20.96	NPP	14.43	5497.20	NPP
	04/11/11	5511.63	20.96	NPP	14.47	5497.16	NPP
MW-35	08/06/12	5518.95	26.45	NPP	22.29	5496.66	NPP
	04/02/12	5518.95	26.45	NPP	22.30	5496.65	NPP
	04/11/11	5518.95	26.45	NPP	22.38	5496.57	NPP
	08/16/34	5518.95	26.45	NPP	22.41	5496.54	NPP
MW-36	08/06/12	5516.95	23.26	NPP	20.82	5496.13	NPP
	04/02/12	5516.95	23.26	NPP	21.02	5495.93	NPP
	08/17/11	5516.95	23.26	NPP	20.98	5495.97	NPP
	04/11/11	5516.95	23.26	NPP	21.02	5495.93	NPP
MW-37	08/06/12	5519.62	27.58	NPP	23.51	5496.11	NPP
	04/02/12	5519.62	27.58	NPP	23.58	5496.04	NPP
	08/16/11	5519.62	27.58	NPP	23.63	5495.99	NPP
	04/11/11	5519.62	27.58	NPP	23.60	5496.02	NPP
MW-38	08/06/12	5519.19	26.82	NPP	23.78	5495.41	NPP
	04/02/12	5519.19	26.82	NPP	23.80	5495.39	NPP
	08/16/11	5519.19	26.82	NPP	23.96	5495.23	NPP
	04/11/11	5519.19	26.82	NPP	23.85	5495.34	NPP
MW-39	08/06/12	5520.83	38.34	NPP	26.05	5494.78	NPP
	04/02/12	5520.83	38.34	NPP	25.76	5495.07	NPP
	08/08/11	5520.83	38.34	NPP	25.88	5494.95	NPP
	04/11/11	5520.83	38.34	NPP	25.80	5495.03	NPP

TABLE 1
Fluid Level Measurements Summary
2012 Groundwater Remediation 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-40	08/06/12	5527.31	30.07	28.44	28.72	5498.81	0.26
	04/02/12	5527.31	30.07	NPP	28.57	5498.74	NPP
	08/17/11	5527.31	30.07	NPP	28.37	5498.94	NPP
	04/11/11	5527.31	30.07	NPP	28.38	5498.93	NPP
MW-41	08/06/12	5526.41	31.62	26.86	27.94	5499.33	1.08
	04/02/12	5526.41	31.62	26.89	28.07	5499.28	1.18
	08/08/11	5526.41	31.62	26.95	27.55	5499.34	0.60
	04/11/11	5526.41	31.62	26.71	27.30	5499.58	0.59
MW-44	08/06/12	5535.44	50.91	NPP	34.42	5501.02	NPP
	04/02/12	5535.44	50.91	NPP	33.93	5501.51	NPP
	08/17/11	5535.44	50.91	NPP	34.22	5501.22	NPP
	04/11/11	5535.44	50.91	NPP	34.00	5501.44	NPP
MW-45	08/06/12	5506.36	16.92	11.97	12.10	5494.36	0.13
	04/02/12	5506.36	16.92	11.95	12.08	5494.38	0.13
	08/08/11	5506.36	16.92	NPP	11.89	5494.47	NPP
	04/11/11	5506.36	16.92	11.98	12.13	5494.35	0.15
MW-46	08/06/12	5504.65	10.39	NPP	NWP	NWP	NPP
	04/02/12	5504.65	10.39	NPP	NWP	NWP	NPP
	08/08/11	5504.65	10.39	NPP	NWP	NWP	NPP
	04/11/11	5504.65	10.39	NPP	NWP	NWP	NPP
MW-47	08/06/12	5506.77	14.28	13.22	13.27	5493.54	0.05
	04/02/12	5506.77	14.28	12.85	13.17	5493.86	0.32
	08/08/11	5506.77	14.28	13.47	13.48	5493.30	0.01
	04/11/11	5506.77	14.28	12.85	13.28	5493.83	0.43
P-03	08/06/12	5510.77	22.73	NPP	10.91	5499.86	NPP
	04/02/12	5510.77	22.73	NPP	11.80	5498.97	NPP
	08/08/11	5510.77	22.73	NPP	11.26	5499.51	NPP
	04/11/11	5510.77	22.73	NPP	11.25	5499.52	NPP
MW-50	08/06/12	5518.79	20.00	NPP	16.88	5501.91	NPP
	04/02/12	5518.79	20.00	NPP	17.22	5501.57	NPP
	08/22/11	5518.79	20.00	NPP	16.69	5502.10	NPP
	04/11/11	5518.79	20.00	NPP	17.10	5501.69	NPP
MW-51	08/06/12	5515.58	20.00	NPP	14.65	5500.93	NPP
	04/02/12	5515.58	20.00	NPP	15.00	5500.58	NPP
	08/22/11	5515.58	20.00	NPP	14.55	5501.03	NPP
	04/11/11	5515.58	20.00	NPP	14.94	5500.64	NPP
MW-52	08/06/12	5538.63	41.00	NPP	36.28	5502.35	NPP
	04/02/12	5538.63	41.00	NPP	36.50	5502.13	NPP
	08/22/11	5538.63	41.00	NPP	36.31	5502.32	NPP
	04/11/11	5538.63	41.00	NPP	36.47	5502.16	NPP
MW-53	08/06/12	5541.32	41.50	NPP	38.93	5502.39	NPP
	04/02/12	5541.32	41.50	NPP	39.10	5502.22	NPP
	08/22/11	5541.32	41.50	NPP	38.97	5502.35	NPP
	04/11/11	5541.32	41.50	NPP	39.05	5502.27	NPP
MW-54	08/06/12	5530.08	38.00	32.40	32.61	5497.64	0.21
	04/02/12	5530.08	38.00	32.75	33.09	5497.26	0.34
	08/22/11	5530.08	38.00	32.84	33.23	5497.16	0.39
	04/11/11	5530.08	38.00	32.90	33.31	5497.10	0.41
MW-55	08/06/12	5519.84	27.25	21.81	22.53	5497.89	0.72
	04/02/12	5519.84	27.25	NPP	22.07	5497.77	NPP
	08/22/11	5519.84	27.25	NPP	21.27	5498.57	NPP
	04/11/11	5519.84	27.25	NPP	22.04	5497.80	NPP

TABLE 1
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)
MW-56	08/06/12	5519.31	23.75	19.76	20.69	5499.36	0.93
	04/02/12	5519.31	23.75	19.86	21.00	5499.22	1.14
	08/22/11	5519.31	23.75	19.74	20.83	5499.35	1.09
	04/11/11	5519.31	23.75	19.50	20.45	5499.62	0.95
MW-57	08/06/12	5521.17	24.25	21.44	22.37	5499.54	0.93
	04/02/12	5521.17	24.25	21.50	22.79	5499.41	1.29
	08/22/11	5521.17	24.25	21.30	22.78	5499.57	1.48
	04/11/11	5521.17	24.25	21.27	22.85	5499.58	1.58
MW-58	08/06/12	5520.29	27.00	20.98	22.05	5499.10	1.07
	04/02/12	5520.29	27.00	20.98	22.13	5499.08	1.15
	08/22/11	5520.29	27.00	20.90	21.99	5499.17	1.09
	04/11/11	5520.29	27.00	21.03	21.09	5499.25	0.06
MW-59	08/06/12	5545.20	44.25	NPP	43.57	5501.63	NPP
	04/02/12	5545.20	44.25	NPP	43.54	5501.66	NPP
	08/25/11	5545.20	44.25	NPP	43.49	5501.71	NPP
	04/11/11	5545.20	44.25	NPP	43.43	5501.77	NPP
MW-60	08/06/12	5543.71	43.33	NPP	42.84	5500.87	NPP
	04/02/12	5543.71	43.33	NPP	42.79	5500.92	NPP
	08/25/11	5543.71	45.50	NPP	42.67	5501.04	NPP
	04/11/11	5543.71	45.50	NPP	42.58	5501.13	NPP
MW-61	08/06/12	5539.41	10.25	36.67	37.25	5502.62	0.58
	04/02/12	5539.41	10.25	36.72	37.48	5502.54	0.76
	08/08/11	5539.41	10.25	36.67	37.25	5502.62	0.58
	04/11/11	5539.41	10.25	36.65	37.00	5502.69	0.35
MW-62	08/06/12	5561.32	58.25	NPP	56.45	5504.87	NPP
	04/02/12	5561.32	58.25	NPP	55.85	5505.47	NPP
	08/23/11	5561.32	58.25	NPP	56.26	5505.06	NPP
	04/11/11	5561.32	58.25	NPP	55.38	5505.94	NPP
MW-63	08/06/12	5547.26	46.00	NPP	45.07	5502.19	NPP
	04/02/12	5547.26	46.00	NPP	45.07	5502.19	NPP
	08/24/11	5547.26	46.00	NPP	45.00	5502.26	NPP
	04/11/11	5547.26	46.00	NPP	44.93	5502.33	NPP
MW-64	08/06/12	5552.29	52.25	NPP	50.29	5502.00	NPP
	04/02/12	5552.29	52.25	NPP	50.29	5502.00	NPP
	08/24/11	5552.29	52.25	NPP	50.22	5502.07	NPP
	04/11/11	5552.29	52.25	NPP	50.16	5502.13	NPP
MW-65	08/06/12	5539.62	44.25	NPP	37.04	5502.58	NPP
	04/02/12	5539.62	44.25	NPP	37.19	5502.43	NPP
	08/22/11	5539.62	44.25	NPP	37.06	5502.56	NPP
	04/11/11	5539.62	44.25	NPP	37.05	5502.57	NPP
MW-66	08/06/12	5544.62	43.25	41.95	42.13	5502.63	0.18
	04/02/12	5544.62	43.25	42.03	42.20	5502.56	0.17
	08/08/11	5544.62	43.25	41.87	41.92	5502.74	0.05
	04/11/11	5544.62	43.25	41.83	41.92	5502.77	0.09
MW-67	08/06/12	5523.31	25.14	NPP	20.93	5502.38	NPP
	04/02/12	5523.31	25.14	NPP	21.53	5501.78	NPP
	08/22/11	5523.31	25.14	NPP	21.01	5502.30	NPP
	04/11/11	5523.31	25.14	NPP	21.44	5501.87	NPP
MW-68	08/06/12	5517.37	20.58	NPP	16.63	5500.74	NPP
	04/02/12	5517.37	20.58	NPP	16.40	5500.97	NPP
	08/22/11	5517.37	20.58	NPP	16.58	5500.79	NPP
	04/11/11	5517.37	20.58	NPP	16.84	5500.53	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)
MW-69	08/06/12	5508.51	12.08	NPP	11.93	5496.58	NPP
	04/02/12	5508.51	12.08	NPP	11.92	5496.59	NPP
	08/22/11	5508.51	12.08	NPP	11.91	5496.60	NPP
	04/11/11	5508.51	12.08	NPP	NWP	NWP	NPP
RW-01	08/06/12	5529.34	40.80	NPP	31.24	5498.10	NPP
	04/02/12	5529.34	40.80	31.64	31.65	5497.70	0.01
	08/08/11	5529.34	40.80	31.00	31.62	5498.22	0.62
	04/11/11	5529.34	40.80	32.60	32.97	5496.67	0.37
RW-02	08/06/12	5526.94	35.86	NPP	26.65	5500.29	NPP
	04/02/12	5526.94	35.86	NPP	26.70	5500.24	NPP
	08/08/11	5526.94	35.86	NPP	26.59	5500.35	NPP
	04/11/11	5526.94	35.86	NPP	28.10	5498.84	NPP
RW-03	08/06/12	5520.35	34.57	Maintenance Being Conducted			
	04/02/12	5520.35	34.57	22.60	22.65	5497.74	0.05
	08/08/11	5520.35	34.57	21.95	21.97	5498.40	0.02
	04/11/11	5520.35	34.57	NPP	22.43	5497.92	NPP
RW-09	08/06/12	5523.21	34.04	NPP	25.05	5498.16	NPP
	04/02/12	5523.21	34.04	NPP	25.10	5498.11	NPP
	08/08/11	5523.21	34.04	24.00	24.01	5499.21	0.01
	04/11/11	5523.21	34.04	NPP	28.35	5494.86	NPP
RW-14	08/06/12	5537.5	41.94	35.13	35.18	5502.36	0.05
	04/02/12	5537.5	41.94	35.28	36.12	5502.05	0.84
	08/08/11	5537.5	41.94	35.02	36.14	5502.26	1.12
	04/11/11	5537.5	41.94	36.77	36.97	5500.69	0.20
RW-15	08/06/12	5536.83	43.43	NPP	34.98	5501.85	NPP
	04/02/12	5536.83	43.43	NPP	35.17	5501.66	NPP
	08/08/11	5536.83	43.43	NPP	34.95	5501.88	NPP
	04/11/11	5536.83	43.43	NPP	37.23	5499.60	NPP
RW-16	08/06/12	5535.45	41.48	34.02	34.18	5501.40	0.16
	04/02/12	5535.45	41.48	NPP	34.18	5501.27	NPP
	08/08/11	5535.45	41.48	34.01	34.32	5501.38	0.31
	04/11/11	5535.45	41.48	NPP	38.59	5496.86	NPP
RW-17	08/06/12	5533.84	41.89	NPP	33.20	5500.64	NPP
	04/02/12	5533.84	41.89	NPP	33.25	5500.59	NPP
	08/08/11	5533.84	41.89	NPP	33.06	5500.78	NPP
	04/11/11	5533.84	41.89	NPP	32.97	5500.87	NPP
RW-18	08/06/12	5529.38	37.58	NPP	30.69	5498.69	NPP
	04/02/12	5529.38	37.58	NPP	28.05	5501.33	NPP
	08/08/11	5529.38	37.58	NPP	35.43	5493.95	NPP
	04/11/11	5529.38	37.58	NPP	35.41	5493.97	NPP
RW-19	08/06/12	5530.51	36.64	NPP	30.40	5500.11	NPP
	04/02/12	5530.51	36.64	NPP	30.45	5500.06	NPP
	08/08/11	5530.51	36.64	NPP	30.29	5500.22	NPP
	04/11/11	5530.51	36.64	NPP	30.67	5499.84	NPP
RW-22	08/06/12	5524.44	35.60	NPP	26.03	5498.41	NPP
	04/02/12	5524.44	35.60	NPP	26.03	5498.41	NPP
	08/08/11	5524.44	35.60	NPP	26.01	5498.43	NPP
	04/11/11	5524.44	35.60	27.87	29.44	5496.26	1.57

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RW-23	08/06/12	5521.38	35.53	23.17	23.20	5498.20	0.03
	04/02/12	5521.38	35.53	NPP	23.43	5497.95	NPP
	08/08/11	5521.38	35.53	23.34	23.35	5498.04	0.01
	04/11/11	5521.38	35.53	NPP	30.50	5490.88	NPP
RW-28	08/06/12	5527.93	36.99	29.64	30.62	5498.09	0.98
	04/02/12	5527.93	36.99	29.74	29.87	5498.16	0.13
	08/08/11	5527.93	36.99	29.40	29.65	5498.48	0.25
	04/11/11	5527.93	36.99	29.30	29.55	5498.58	0.25
RW-42	08/06/12	5527.48	32.02	27.77	27.98	5499.67	0.21
	04/02/12	5527.48	32.02	27.35	28.20	5499.96	0.85
	08/08/11	5527.48	32.02	27.15	28.05	5500.15	0.90
	04/11/11	5527.48	32.02	27.05	27.70	5500.30	0.65
RW-43	08/06/12	5520.02	24.03	21.72	22.02	5498.24	0.30
	04/02/12	5520.02	24.03	21.00	21.87	5498.85	0.87
	08/08/11	5520.02	24.03	21.65	21.70	5498.36	0.05
	04/11/11	5520.02	24.03	20.61	20.68	5499.40	0.07
OW 0+60	08/06/12	5506.62	12.26	NPP	12.00	5494.62	NPP
	04/02/12	5506.62	12.26	NPP	NWP	NWP	NPP
	08/15/11	5506.62	12.26	NPP	12.03	5494.59	NPP
	04/11/11	5506.62	12.26	NPP	12.25	5494.37	NPP
OW 1+50	08/06/12	5508.03	14.36	14.16	14.36	5493.83	0.20
	04/02/12	5508.03	14.36	14.14	14.36	5493.85	0.22
	08/15/11	5508.03	14.36	14.28	14.36	5493.73	0.08
	04/11/11	5508.03	14.36	14.10	14.32	5493.89	0.22
OW 3+85	08/06/12	5507.31	15.06	13.84	13.85	5493.47	0.01
	04/02/12	5507.31	15.06	NPP	NWP	NWP	NPP
	08/15/11	5507.31	15.06	13.77	13.78	5493.54	0.01
	04/11/11	5507.31	15.06	13.68	13.69	5493.63	0.01
OW 5+50	08/06/12	5507.59	13.67	NPP	13.64	5493.95	NPP
	04/02/12	5507.59	13.67	NPP	13.66	5493.93	NPP
	08/15/11	5507.59	13.67	NPP	13.63	5493.96	NPP
	04/11/11	5507.59	13.67	NPP	13.66	5493.93	NPP
OW 6+70	08/06/12	5504.78	14.67	NPP	NWP	NWP	NPP
	04/02/12	5504.78	14.67	NPP	NWP	NWP	NPP
	08/15/11	5504.78	14.67	NPP	NWP	NWP	NPP
	04/11/11	5504.78	14.67	NPP	NWP	NWP	NPP
OW 8+10	08/06/12	5506.53	15.99	NPP	NWP	NWP	NPP
	04/02/12	5506.53	15.99	NPP	NWP	NWP	NPP
	08/15/11	5506.53	15.99	NPP	NWP	NWP	NPP
	04/11/11	5506.53	15.99	NPP	NWP	NWP	NPP
OW 11+15	08/06/12	5506.70	16.59	12.66	12.67	5494.04	0.01
	04/02/12	5506.70	16.59	12.70	12.71	5494.00	0.01
	08/15/11	5506.70	16.59	NPP	12.55	5494.15	NPP
	04/11/11	5506.70	16.59	12.67	12.68	5494.03	0.01
OW 14+10	08/06/12	5508.14	12.96	NPP	NWP	NWP	NPP
	04/02/12	5508.14	12.96	NPP	NWP	NWP	NPP
	08/15/11	5508.14	12.96	NPP	NWP	NWP	NPP
	04/11/11	5508.14	12.96	NPP	NWP	NWP	NPP

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OW 16+60	08/06/12	5508.43	15.21	NPP	13.12	5495.31	NPP
	04/02/12	5508.43	15.21	NPP	12.99	5495.44	NPP
	08/15/11	5508.43	15.21	NPP	13.14	5495.29	NPP
	04/11/11	5508.43	15.21	NPP	12.92	5495.51	NPP
OW 19+50	08/06/12	5508.03	13.00	NPP	NWP	NWP	NPP
	04/02/12	5508.03	13.00	NPP	NWP	NWP	NPP
	08/15/11	5508.03	13.00	NPP	NWP	NWP	NPP
	04/11/11	5508.03	13.00	NPP	12.66	5495.37	NPP
OW 22+00	08/06/12	5506.91	14.16	NPP	13.41	5493.50	NPP
	04/02/12	5506.91	14.16	NPP	12.26	5494.65	NPP
	08/15/11	5506.91	14.16	NPP	13.06	5493.85	NPP
	04/11/11	5506.91	14.16	NPP	11.92	5494.99	NPP
OW 23+10	08/06/12	5514.12	18.34	NPP	16.58	5497.54	NPP
	04/02/12	5514.12	18.34	NPP	16.43	5497.69	NPP
	08/15/11	5514.12	18.34	NPP	16.41	5497.71	NPP
	04/11/11	5514.12	18.34	NPP	16.37	5497.75	NPP
OW 23+90	08/06/12	5515.18	18.01	NPP	17.41	5497.77	NPP
	04/02/12	5515.18	18.01	NPP	17.23	5497.95	NPP
	08/15/11	5515.18	18.01	NPP	17.21	5497.97	NPP
	04/11/11	5515.18	18.01	NPP	17.18	5498.00	NPP
OW 25+70	08/06/12	5509.00	13.98	NPP	11.03	5497.97	NPP
	04/02/12	5509.00	13.98	NPP	10.93	5498.07	NPP
	08/15/11	5509.00	13.98	NPP	10.87	5498.13	NPP
	04/11/11	5509.00	13.98	NPP	10.84	5498.16	NPP
CW 0+60	08/22/12	5506.68	14.09	NPP	8.57	5498.11	NPP
	04/02/12	5506.68	14.09	NPP	9.27	5497.41	NPP
	08/15/11	5506.68	14.09	NPP	8.54	5498.14	NPP
	04/11/11	5506.68	14.09	NPP	9.09	5497.59	NPP
CW 1+50	08/22/12	5505.13	13.74	NPP	6.88	5498.25	NPP
	04/02/12	5505.13	13.74	NPP	7.58	5497.55	NPP
	08/15/11	5505.13	13.74	NPP	7.08	5498.05	NPP
	04/11/11	5505.13	13.74	NPP	7.54	5497.59	NPP
CW 3+85	08/22/12	5503.87	13.11	NPP	5.75	5498.12	NPP
	04/02/12	5503.87	13.11	NPP	6.21	5497.66	NPP
	08/15/11	5503.87	13.11	NPP	5.95	5497.92	NPP
	04/11/11	5503.87	13.11	NPP	6.13	5497.74	NPP
CW 5+50	08/22/12	5503.76	12.27	NPP	6.47	5497.29	NPP
	04/02/12	5503.76	12.27	NPP	6.67	5497.09	NPP
	08/15/11	5503.76	12.27	NPP	6.53	5497.23	NPP
	04/11/11	5503.76	12.27	NPP	6.61	5497.15	NPP
CW 6+70	08/22/12	5503.84	11.45	NPP	6.85	5496.99	NPP
	04/02/12	5503.84	11.45	NPP	6.96	5496.88	NPP
	08/15/11	5503.84	11.45	NPP	6.90	5496.94	NPP
	04/11/11	5503.84	11.45	NPP	6.83	5497.01	NPP
CW 8+10	08/22/12	5504.02	11.63	NPP	7.68	5496.34	NPP
	04/02/12	5504.02	11.63	NPP	7.83	5496.19	NPP
	08/15/11	5504.02	11.63	NPP	7.68	5496.34	NPP
	04/11/11	5504.02	11.63	NPP	7.84	5496.18	NPP
CW 8+45	08/22/12	5503.80	12.60	NPP	7.76	5496.04	NPP
	04/02/12	5503.80	12.60	NPP	7.90	5495.90	NPP
	08/15/11	5503.80	12.60	NPP	7.80	5496.00	NPP
	04/11/11	5503.80	12.60	NPP	7.97	5495.83	NPP

TABLE 1
Fluid Level Measurements Summary
2012 Groundwater Remediation 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 11+15	08/22/12	5503.95	12.27	NPP	6.30	5497.65	NPP
	04/02/12	5503.95	12.27	NPP	6.24	5497.71	NPP
	08/15/11	5503.95	12.27	NPP	6.18	5497.77	NPP
	04/11/11	5503.95	12.27	NPP	6.14	5497.81	NPP
CW 14+10	08/22/12	5504.39	13.05	NPP	6.30	5498.09	NPP
	04/02/12	5504.39	13.05	NPP	6.57	5497.82	NPP
	08/15/11	5504.39	13.05	NPP	6.32	5498.07	NPP
	04/11/11	5504.39	13.05	NPP	6.60	5497.79	NPP
CW 16+60	08/22/12	5504.32	12.86	NPP	6.18	5498.14	NPP
	04/02/12	5504.32	12.86	NPP	6.43	5497.89	NPP
	08/15/11	5504.32	12.86	NPP	6.12	5498.20	NPP
	04/11/11	5504.32	12.86	NPP	6.35	5497.97	NPP
CW 19+50	08/22/12	5504.52	9.99	NPP	6.12	5498.40	NPP
	04/02/12	5504.52	9.99	NPP	6.50	5498.02	NPP
	08/15/11	5504.52	9.99	NPP	6.51	5498.01	NPP
	04/11/11	5504.52	9.99	NPP	6.60	5497.92	NPP
CW 22+00	08/22/12	5508.04	12.34	NPP	8.89	5499.15	NPP
	04/02/12	5508.04	12.34	NPP	8.98	5499.06	NPP
	08/15/11	5508.04	12.34	NPP	8.90	5499.14	NPP
	04/11/11	5508.04	12.34	NPP	8.95	5499.09	NPP
CW 23+10	08/22/12	5510.04	14.65	NPP	10.52	5499.52	NPP
	04/02/12	5510.04	14.65	NPP	10.62	5499.42	NPP
	08/15/11	5510.04	14.65	NPP	10.55	5499.49	NPP
	04/11/11	5510.04	14.65	NPP	10.60	5499.44	NPP
CW 23+90	08/22/12	5507.32	11.72	NPP	7.93	5499.39	NPP
	04/02/12	5507.32	11.72	NPP	8.05	5499.27	NPP
	08/15/11	5507.32	11.72	NPP	7.97	5499.35	NPP
	04/11/11	5507.32	11.72	NPP	8.10	5499.22	NPP
CW 25+95	08/22/12	5505.90	12.25	Active Recovery Well			
	04/02/12	5505.90	12.25	Active Recovery Well			
	08/15/11	5505.90	12.25	Active Recovery Well			
	04/11/11	5505.90	12.25	Active Recovery Well			
*SW1-0206	08/06/12	5508.27	53.08	NPP	52.59	5455.68	NPP
	06/21/12	5508.27	53.08	NPP	52.59	5455.68	NPP
	11/16/11	5508.27	53.08	NPP	52.58	5455.69	NPP
	09/19/11	5508.27	53.08	NPP	52.68	5455.59	NPP
	08/18/11	5508.27	53.08	NPP	52.61	5455.66	NPP
	02/17/11	5508.27	53.08	NPP	52.58	5455.69	NPP
	01/31/11	5508.27	53.08	NPP	52.57	5455.70	NPP
	01/17/11	5508.27	53.08	NPP	52.56	5455.71	NPP
	01/04/11	5508.27	53.08	NPP	52.57	5455.70	NPP
*SW2-0206	08/06/12	5507.75	27.69	NPP	25.50	5482.25	NPP
	06/21/12	5507.75	27.69	NPP	25.56	5482.19	NPP
	11/16/11	5507.75	27.69	NPP	25.37	5482.38	NPP
	09/19/11	5507.75	27.69	NPP	25.81	5481.94	NPP
	08/18/11	5507.75	27.69	NPP	25.76	5481.99	NPP
	02/17/11	5507.75	27.69	NPP	25.98	5481.77	NPP
	01/31/11	5507.75	27.69	NPP	25.99	5481.76	NPP
	01/17/11	5507.75	27.69	NPP	26.02	5481.73	NPP
	01/04/11	5507.75	27.69	NPP	26.05	5481.70	NPP

TABLE 1
Fluid Level Measurements Summary
2012 Groundwater Remediation 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	08/06/12	5505.29	52.56	NPP	26.65	5478.64	NPP
	06/21/12	5505.29	52.56	NPP	26.80	5478.49	NPP
	11/16/11	5505.29	52.56	NPP	25.90	5479.39	NPP
	09/19/11	5505.29	52.56	NPP	26.15	5479.14	NPP
	08/18/11	5505.29	52.56	NPP	26.46	5478.83	NPP
	02/17/11	5505.29	52.56	NPP	26.20	5479.09	NPP
	01/31/11	5505.29	52.56	NPP	26.09	5479.20	NPP
	01/17/11	5505.29	52.56	NPP	26.02	5479.27	NPP
	01/04/11	5505.29	52.56	NPP	25.97	5479.32	NPP
*SW4-0206	08/06/12	5504.45	42.34	NPP	33.09	5471.36	NPP
	06/21/12	5504.45	42.34	NPP	32.85	5471.60	NPP
	09/19/11	5504.45	42.34	NPP	33.10	5471.35	NPP
	08/18/11	5504.45	42.34	NPP	33.03	5471.42	NPP
	02/17/11	5504.45	42.34	NPP	32.56	5471.89	NPP
	01/31/11	5504.45	42.34	NPP	32.56	5471.89	NPP
	01/17/11	5504.45	42.34	NPP	32.61	5471.84	NPP
	01/04/11	5504.45	42.34	NPP	32.62	5471.83	NPP
*SW5-0206	08/06/12	5514.34	52.24	NPP	35.08	5479.26	NPP
	06/21/12	5514.34	52.24	NPP	35.01	5479.33	NPP
	11/16/11	5514.34	52.24	NPP	34.56	5479.78	NPP
	09/19/11	5514.34	52.24	NPP	35.05	5479.29	NPP
	08/18/11	5514.34	52.24	NPP	35.07	5479.27	NPP
	02/17/11	5514.34	52.24	NPP	34.37	5479.97	NPP
	01/31/11	5514.34	52.24	NPP	34.35	5479.99	NPP
	01/17/11	5514.34	52.24	NPP	34.35	5479.99	NPP
	01/04/11	5514.34	52.24	NPP	34.28	5480.06	NPP
*SW6-0206	08/06/12	5519.72	47.41	NPP	42.37	5477.35	NPP
	06/21/12	5519.72	47.41	NPP	41.97	5477.75	NPP
	11/16/11	5519.72	47.41	NPP	42.23	5477.49	NPP
	09/19/11	5519.72	47.41	NPP	42.83	5476.89	NPP
	08/18/11	5519.72	47.41	NPP	42.53	5477.19	NPP
	02/17/11	5519.72	47.41	NPP	41.20	5478.52	NPP
	01/31/11	5519.72	47.41	NPP	41.26	5478.46	NPP
	01/17/11	5519.72	47.41	NPP	41.36	5478.36	NPP
	01/04/11	5519.72	47.41	NPP	42.15	5477.57	NPP
*SW7-0206	08/06/12	5517.63	32.95	NPP	20.40	5497.23	NPP
	06/21/12	5517.63	32.95	NPP	20.32	5497.31	NPP
	11/16/11	5517.63	32.95	NPP	18.73	5498.90	NPP
	09/19/11	5517.63	32.95	NPP	19.20	5498.43	NPP
	08/18/11	5517.63	32.95	NPP	19.48	5498.15	NPP
	02/17/11	5517.63	32.95	NPP	18.33	5499.30	NPP
	01/31/11	5517.63	32.95	NPP	18.09	5499.54	NPP
	01/17/11	5517.63	32.95	NPP	18.03	5499.60	NPP
	01/04/11	5517.63	32.95	NPP	18.05	5499.58	NPP

Notes:

*SW Wells sampled during significant rain events only

TABLE 2
Groundwater Field Parameter Summary
2012 Groundwater Remediation 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)
Cross-Gradient Wells							
MW-1	08/14/12	717	468	2.93	85.8	7.28	63.4
	04/04/12	687	590	2.47	46.1	7.32	54.1
	08/13/11	762	533	10.80	240.0	6.80	68.6
	04/23/11	766	541	4.08	241.0	6.77	52.2
	08/13/10	841	588	1.83	282.0	7.04	63.6
MW-13	08/14/12	4223	2745	2.27	82.7	7.19	65.1
	04/04/12	3491	2769	3.60	165.4	7.01	60.0
	08/13/11	3312	2590	1.87	252.0	6.80	61.9
	04/23/11	3958	3163	3.92	210.0	6.64	59.7
	08/13/10	3816	2977	1.13	255.0	6.97	62.9
MW-26	08/14/12	3071	1996	1.42	-81.0	7.00	65.7
	04/04/12	ns	ns	ns	ns	ns	ns
	08/13/11	2751	2077	1.55	230.0	6.90	63.3
	04/23/11	ns	ns	ns	ns	ns	ns
	08/13/10	2698	2046	1.32	300.0	6.83	64.4
MW-27	08/14/12	5087	3306	2.79	-23.8	7.27	64.5
	04/04/12	ns	ns	ns	ns	ns	ns
	08/13/11	3741	2908	0.95	289.0	6.90	60.8
	04/23/11	ns	ns	ns	ns	ns	ns
	08/13/10	2890	2211	1.42	262.0	6.95	61.7
MW-32	08/14/12	5245	3426	7.13	138.2	7.65	63.6
	04/04/12	ns	ns	ns	ns	ns	ns
	08/13/11	4901	3930	5.42	189.0	7.10	59.2
	04/23/11	ns	ns	ns	ns	ns	ns
	08/13/10	51	4148	6.43	274.0	6.99	61.3
MW-33	08/14/12	5609	3647	5.87	152.0	7.73	64.0
	04/04/12	4615	3757	3.57	119.8	7.42	58.0
	08/13/11	4336	3468	0.78	244.0	7.00	60.8
	04/23/11	4017	3202	2.22	212.0	6.90	57.4
	08/13/10	3794	2973	4.37	292.0	7.01	60.9
Downgradient Wells							
MW-11	08/14/12	3135	2039	1.46	-93.2	6.99	66.1
	04/04/12	ns	ns	ns	ns	ns	ns
	08/13/11	2645	1986	1.41	209.0	6.90	60.3
	04/23/11	ns	ns	ns	ns	ns	ns
	08/13/10	2545	1906	1.98	254.0	7.03	66.4
MW-12	08/14/12	515	344	4.43	86.3	7.49	64.4
	04/04/12	533	488	4.66	24.4	7.65	49.8
	08/13/11	520	356	0.48	209.0	7.00	62.2
	04/23/11	1476	1077	2.58	245.0	6.94	51.1
	08/13/10	563	390	0.63	286.0	7.03	64.3
MW-34	08/14/12	2574	1672	1.54	-90.2	7.13	66.5
	04/04/12	ns	ns	ns	ns	ns	ns
	08/13/11	2073	1517	0.63	176.0	7.00	59.1
	04/23/11	ns	ns	ns	ns	ns	ns
	08/13/10	1772	1286	2.91	233.0	7.12	63.6

TABLE 2
Groundwater Field Parameter Summary
2012 Groundwater Remediation 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-35	08/14/12	2491	1591	2.08	-87.0	7.19	63.5
	04/04/12	1722	1427	1.80	-89.4	7.08	56.7
	08/13/11	1921	1396	1.09	154.0	7.10	60.4
	04/23/11	1787	1313	3.10	237.0	6.93	57.1
	08/13/10	1742	1268	1.35	246.0	7.05	62.3
MW-37	08/14/12	2703	1760	3.37	-50.2	7.61	63.1
	04/04/12	2043	1677	2.88	-70.5	7.49	57.5
	08/13/11	2405	1785	0.59	209.0	7.10	60.3
	04/23/11	2236	1668	2.37	234.0	7.08	58.3
	08/13/10	2276	1686	0.90	275.0	6.97	63.3
MW-38	08/14/12	1577	1025	2.77	14.3	7.34	63.7
	04/04/12	1332	1097	2.86	-83.8	7.29	57.2
	08/13/11	1335	954	0.56	223.0	7.00	59.9
	04/23/11	1447	1045	1.51	226.0	7.10	58.4
	08/13/10	1317	939	0.60	276.0	6.99	64.7
North Boundary Barrier Wells							
CW 0+60	08/08/12	904	585	2.19	8.9	7.00	69.3
	04/03/12	852	771	1.75	-82.3	7.05	50.5
	08/15/11	1005	708	3.04	155.0	6.60	68.2
	04/13/11	1092	783	4.80	168.0	6.70	52.6
	08/07/10	1067	757	2.58	280.0	6.82	67.2
	04/07/10	1197	842	2.25	289.0	6.97	52.7
CW 25+95	08/08/12	1614	1053	0.92	-254.1	7.43	65.5
	04/03/12	1236	1074	1.34	-200.9	7.21	53.4
	08/15/11	1271	902	1.21	138.0	7.00	69.9
	04/13/11	1559	1127	2.58	63.0	7.06	60.0
	08/07/10	1343	960	1.09	141.0	6.96	66.5
	04/07/10	965	675	1.32	255.0	6.95	52.2
OW 0+60	08/08/12	ns	ns	ns	ns	ns	ns
	04/03/12	ns	ns	ns	ns	ns	ns
	08/15/11	ns	ns	ns	ns	ns	ns
	04/13/11	ns	ns	ns	ns	ns	ns
	08/07/10	1469	1056	2.06	77.0	6.75	67.2
	04/07/10	1573	1122	ns	ns	6.93	54.9
OW 1+50	08/08/12	ns	ns	ns	ns	ns	ns
	04/03/12	ns	ns	ns	ns	ns	ns
	08/15/11	ns	ns	ns	ns	ns	ns
	04/13/11	ns	ns	ns	ns	ns	ns
	08/07/10	ns	ns	ns	ns	ns	ns
	04/07/10	2720	2023	ns	ns	6.94	56.2
OW 3+85	08/08/12	ns	ns	ns	ns	ns	ns
	04/03/12	ns	ns	ns	ns	ns	ns
	08/15/11	ns	ns	ns	ns	ns	ns
	04/13/11	ns	ns	ns	ns	ns	ns
	08/07/10	3224	2486	2.17	78.0	6.71	66.2
	04/07/10	3137	2371	ns	ns	6.94	54.7

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Groundwater Field Parameter Summary
2012 Groundwater Remediation 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 5+50	08/08/12	ns	ns	ns	ns	ns	ns
	04/03/12	ns	ns	ns	ns	ns	ns
	08/15/11	ns	ns	ns	ns	ns	ns
	04/13/11	ns	ns	ns	ns	ns	ns
	08/07/10	3577	2773	1.90	114.0	6.76	69.1
	04/07/10	ns	ns	ns	ns	ns	ns
OW 6+70	08/08/12	ns	ns	ns	ns	ns	ns
	04/03/12	ns	ns	ns	ns	ns	ns
	08/15/11	ns	ns	ns	ns	ns	ns
	04/13/11	ns	ns	ns	ns	ns	ns
	08/07/10	ns	ns	ns	ns	ns	ns
	04/07/10	ns	ns	ns	ns	ns	ns
OW 8+10	08/08/12	ns	ns	ns	ns	ns	ns
	04/03/12	ns	ns	ns	ns	ns	ns
	08/15/11	ns	ns	ns	ns	ns	ns
	04/13/11	ns	ns	ns	ns	ns	ns
	08/07/10	ns	ns	ns	ns	ns	ns
	04/07/10	ns	ns	ns	ns	ns	ns
OW 11+15	08/08/12	ns	ns	ns	ns	ns	ns
	04/03/12	ns	ns	ns	ns	ns	ns
	08/15/11	1857	1346	2.32	202.0	6.80	66.7
	04/13/11	ns	ns	ns	ns	ns	ns
	08/07/10	ns	ns	ns	ns	ns	ns
	04/07/10	1932	1394	ns	ns	6.94	55.8
OW 14+10	08/08/12	ns	ns	ns	ns	ns	ns
	04/03/12	ns	ns	ns	ns	ns	ns
	08/15/11	ns	ns	ns	ns	ns	ns
	04/13/11	ns	ns	ns	ns	ns	ns
	08/07/10	ns	ns	ns	ns	ns	ns
	04/07/10	ns	ns	ns	ns	ns	ns
OW 16+60	08/08/12	3345	2150	2.29	-146.6	7.18	67.7
	04/03/12	2389	1913	1.12	-65.9	7.03	59.2
	08/15/11	2746	2011	1.41	184.0	6.90	70.1
	04/13/11	2567	1943	5.53	200.0	6.78	58.3
	08/07/10	2631	1982	2.86	199.0	6.79	68.5
	04/07/10	2601	1921	ns	ns	6.90	58.3
OW 19+50	08/08/12	ns	ns	ns	ns	ns	ns
	04/03/12	ns	ns	ns	ns	ns	ns
	08/15/11	ns	ns	ns	ns	ns	ns
	04/13/11	ns	ns	ns	ns	ns	ns
	08/07/10	4496	3568	1.73	292.0	6.87	68.9
	04/07/10	4005	3129	ns	ns	6.92	54.7
OW 22+00	08/08/12	4262	2769	2.77	-128.6	7.07	66.6
	04/03/12	3193	2770	3.22	74.1	6.97	53.4
	08/15/11	3739	2888	2.51	149.0	7.00	69.4
	04/13/11	3178	2468	2.81	250.0	6.90	54.3
	08/07/10	3804	2953	1.50	286.0	6.85	68.6
	04/07/10	3075	2326	ns	ns	6.84	52.4

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)
OW 23+10	08/08/12	1995	1296	3.52	-3.2	7.04	68.3
	04/03/12	1134	933	1.74	13.9	7.19	57.3
	08/15/11	1503	1072	1.32	128.0	7.00	69.1
	08/13/11	1304	939	1.89	192.0	6.98	57.6
	08/07/10	1379	982	1.06	272.0	6.90	69.5
	04/07/10	1505	1070	ns	ns	6.85	55.7
OW 23+90	08/08/12	1479	960	4.88	-26.9	7.39	67.5
	04/03/12	882	731	3.64	40.3	7.56	56.6
	08/15/11	1228	869	1.77	151.0	7.00	69.0
	08/13/11	1193	855	2.73	203.0	7.03	58.4
	08/07/10	1159	822	2.05	238.0	6.97	67.8
	04/07/10	1203	845	ns	ns	6.90	56.1
OW 25+70	08/08/12	1349	875	2.16	-116.2	7.48	69.4
	04/03/12	1254	1086	1.03	-56.2	7.44	53.5
	08/15/11	781	544	1.10	171.0	7.00	69.3
	04/13/11	1160	830	1.54	190.0	7.00	56.1
	08/07/10	1199	850	0.97	273.0	6.94	70.4
	04/07/10	1100	773	ns	ns	6.90	51.8
Refinery Wells							
MW-4	08/09/12	2,615	1,701	1.19	-83.6	6.86	68.3
	04/04/12	ns	ns	ns	ns	ns	ns
	08/13/11	2297	1712	1.37	226.0	6.90	58.8
	04/23/11	ns	ns	ns	ns	ns	ns
	08/13/10	2323	1725	1.49	266.0	6.94	64.7
MW-8	08/09/12	3986	2591	2.85	476.8	3.14	60.1
	04/04/12	2782	2219	2.61	424.7	2.97	59.6
	08/13/11	2306	1722	1.37	226.0	6.90	58.8
	04/23/11	2951	2289	5.30	251.0	4.79	55.0
	08/13/10	2258	1712	2.14	276.0	6.60	58.9
MW-20	08/09/12	ns	ns	ns	ns	ns	ns
	04/04/12	ns	ns	ns	ns	ns	ns
	08/13/11	ns	ns	ns	ns	ns	ns
	04/23/11	ns	ns	ns	ns	ns	ns
	08/13/10	ns	ns	ns	ns	ns	ns
MW-21	08/09/12	ns	ns	ns	ns	ns	ns
	04/04/12	ns	ns	ns	ns	ns	ns
	08/13/11	ns	ns	ns	ns	ns	ns
	04/23/11	ns	ns	ns	ns	ns	ns
	08/13/10	ns	ns	ns	ns	ns	ns
MW-29	08/09/12	1027	665	2.11	173.9	7.07	61.3
	04/04/12	ns	ns	ns	ns	ns	ns
	08/13/11	1116	797	2.35	226.0	7.00	60.1
	04/23/11	ns	ns	ns	ns	ns	ns
	08/13/10	1083	772	2.02	289.0	6.78	60.7
MW-30	08/09/12	2694	1751	1.92	-41.5	7.08	64.2
	04/04/12	3108	2395	2.06	-211.8	6.95	62.2
	08/13/11	2986	2293	1.08	151.0	6.90	62.2
	04/23/11	3119	2419	3.65	129.0	6.50	59.8
	08/13/10	3014	2309	1.24	206.0	6.82	62.5

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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-31	08/09/12	3518	2288	2.25	33.5	7.19	66.6
	04/04/12	ns	ns	ns	ns	ns	ns
	08/13/11	3359	2598	1.26	184.0	7.00	62.4
	04/23/11	ns	ns	ns	ns	ns	ns
	08/13/10	3681	2857	0.40	211.0	6.96	63.8
MW-40	08/09/12	ns	ns	ns	ns	ns	ns
	04/04/12	ns	ns	ns	ns	ns	ns
	08/13/11	2837	2129	1.51	167.0	7.10	66.5
	04/23/11	ns	ns	ns	ns	ns	ns
	08/13/10	2790	2106	1.00	281.0	7.00	68.8
MW-44	08/09/12	5946	3865	5.19	29.3	7.26	64.2
	04/04/12	ns	ns	ns	ns	ns	ns
	08/13/11	4626	3682	2.15	231.0	7.00	60.5
	04/23/11	ns	ns	ns	ns	ns	ns
	08/13/10	5296	4306	2.57	320.0	6.78	60.6
RW-1	08/09/12	ns	ns	ns	ns	ns	ns
	04/04/12	ns	ns	ns	ns	ns	ns
	04/04/12	ns	ns	ns	ns	ns	ns
	04/11/11	ns	ns	ns	ns	ns	ns
	08/13/10	ns	ns	ns	ns	ns	ns
RW-9	08/09/12	3760	2442	0.98	-144.6	7.00	62.8
	04/04/12	ns	ns	ns	ns	ns	ns
	08/18/11	ns	ns	ns	ns	ns	ns
	04/11/11	ns	ns	ns	ns	ns	ns
	08/13/10	2925	2234	1.37	241.0	6.91	62.0
RW-15	08/09/12	3489	2269	0.86	-146.2	7.06	64.2
	04/04/12	ns	ns	ns	ns	ns	ns
	08/18/11	3130	2410	4.12	243.0	6.80	60.9
	04/11/11	ns	ns	ns	ns	ns	ns
	08/13/10	3295	2540	0.60	278.0	7.05	61.9
RW-18	08/09/12	ns	ns	ns	ns	ns	ns
	04/04/12	ns	ns	ns	ns	ns	ns
	08/18/11	5074	4098	3.40	229.0	6.80	63.8
	04/11/11	ns	ns	ns	ns	ns	ns
	08/13/10	5434	4451	2.28	132.0	6.94	65.8
RW-23	08/09/12	ns	ns	ns	ns	ns	ns
	04/04/12	ns	ns	ns	ns	ns	ns
	08/18/11	ns	ns	ns	ns	ns	ns
	04/11/11	ns	ns	ns	ns	ns	ns
	08/13/10	1911	1401	2.20	241.0	7.00	64.2
RW-28	08/09/12	ns	ns	ns	ns	ns	ns
	04/04/12	ns	ns	ns	ns	ns	ns
	08/17/11	ns	ns	ns	ns	ns	ns
	04/11/11	ns	ns	ns	ns	ns	ns
	08/13/10	ns	ns	ns	ns	ns	ns
RW-42	08/09/12	ns	ns	ns	ns	ns	ns
	04/04/12	ns	ns	ns	ns	ns	ns
	08/08/11	ns	ns	ns	ns	ns	ns
	04/11/11	ns	ns	ns	ns	ns	ns
	08/13/10	ns	ns	ns	ns	ns	ns

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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)
RW-43	08/09/12	ns	ns	ns	ns	ns	ns
	04/04/12	ns	ns	ns	ns	ns	ns
	08/08/11	ns	ns	ns	ns	ns	ns
	04/11/11	ns	ns	ns	ns	ns	ns
	08/13/10	2647	1993	130 *	124.0	6.75	70.0
San Juan River Bluff							
Outfall No. 2	08/07/12	324	211	4.42	159.9	7.49	69.9
	03/08/12	ns	ns	ns	ns	ns	ns
	08/11/11	299	204	ns	212.0	6.60	62.3
	04/12/11	826	588	ns	218.0	6.69	51.6
	08/13/10	388	271	ns	271.0	6.95	65.8
Outfall No. 3	08/07/12	295	191	6.35	176.5	7.95	64.2
	03/08/12	ns	ns	ns	ns	ns	ns
	08/11/11	301	206	ns	238.0	6.60	60.4
	04/12/11	466	325	ns	197.0	6.66	52.7
	08/13/10	317	219	ns	274.0	6.94	64.9
Seep 1	08/07/12	4503	2925	5.62	164.0	8.03	76.9
	03/18/12	ns	ns	ns	ns	ns	ns
Seep 2	08/07/12	ns	ns	ns	ns	ns	ns
	03/18/12	ns	ns	ns	ns	ns	ns
Seep 3	08/07/12	ns	ns	ns	ns	ns	ns
	03/18/12	3655	3215	7.95	127.0	7.89	52.4
Seep 4	08/07/12	ns	ns	ns	ns	ns	ns
	03/18/12	ns	ns	ns	ns	ns	ns
Seep 5	08/07/12	ns	ns	ns	ns	ns	ns
	03/18/12	ns	ns	ns	ns	ns	ns
Seep 6	08/07/12	ns	ns	ns	ns	ns	ns
	03/18/12	7291	6851	12.60	121.6	7.61	48.0
Seep 7	08/07/12	ns	ns	ns	ns	ns	ns
	03/18/12	ns	ns	ns	ns	ns	ns
Seep 8	08/07/12	ns	ns	ns	ns	ns	ns
	03/18/12	ns	ns	ns	ns	ns	ns
Seep 9	08/07/12	ns	ns	ns	ns	ns	ns
	03/18/12	3004	2841	7.62	139.4	7.64	47.5
Upstream	08/07/12	311	202	7.73	147.4	8.51	57.9
	03/10/12	236	218	10.50	65.4	8.27	49.3
Downstream	08/07/12	347	226	5.71	157.4	8.47	60.0
	03/11/12	323	273	10.12	61.2	8.41	55.4
North of MW-45	08/07/12	313	203	8.17	154.8	8.42	59.1
	03/11/12	243	220	9.85	75.1	8.42	50.5
North of MW-46	08/07/12	324	211	8.02	156.5	8.31	60.1
	03/10/12	242	220	10.20	65.2	8.37	50.2
Background Wells							
MW-3	08/04/12	ns	ns	ns	ns	ns	ns
	04/04/12	ns	ns	ns	ns	ns	ns
	08/13/11	ns	ns	ns	ns	ns	ns
	04/23/11	ns	ns	ns	ns	ns	ns
	08/13/10	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)
MW-5	08/04/12	ns	ns	ns	ns	ns	ns
	04/04/12	ns	ns	ns	ns	ns	ns
	08/13/11	ns	ns	ns	ns	ns	ns
	04/23/11	ns	ns	ns	ns	ns	ns
	08/13/10	ns	ns	ns	ns	ns	ns
MW-6	08/04/12	ns	ns	ns	ns	ns	ns
	04/04/12	ns	ns	ns	ns	ns	ns
	08/13/11	ns	ns	ns	ns	ns	ns
	04/23/11	ns	ns	ns	ns	ns	ns
	08/13/10	ns	ns	ns	ns	ns	ns
RCRA Investigation Wells							
MW-50	08/15/12	558	348	10.37	148.4	7.21	62.2
	08/22/11	650	453	6.12	183.0	6.70	59.5
	08/13/10	612	425	0.66	248.0	7.12	61.4
MW-51	08/15/12	557	362	2.58	116.8	7.57	62.9
	08/22/11	509	351	4.80	181.0	6.90	61.1
	08/13/10	664	459	0.52	273.0	7.12	63.1
MW-52	08/15/12	3518	2286	2.60	4.7	6.61	64.7
	08/22/11	4139	3255	3.12	201.0	6.90	60.7
	08/13/10	3602	2801	0.63	291.0	7.07	62.2
MW-53	08/15/12	5477	3562	3.55	38.0	7.27	61.9
	08/22/11	4574	3658	3.63	215.0	6.90	59.6
	08/13/10	4288	3394	0.59	242.0	7.14	61.6
MW-54	08/15/12	ns	ns	ns	ns	ns	ns
	08/22/11	ns	ns	ns	ns	ns	ns
	08/13/10	ns	ns	ns	ns	ns	ns
MW-55	08/15/12	ns	ns	ns	ns	ns	ns
	08/22/11	3001	2284	1.72	198.0	7.00	60.6
	08/13/10	3160	2440	1.28	277.0	6.85	61.1
MW-56	08/15/12	ns	ns	ns	ns	ns	ns
	08/22/11	ns	ns	ns	ns	ns	ns
	08/13/10	ns	ns	ns	ns	ns	ns
MW-57	08/15/12	ns	ns	ns	ns	ns	ns
	08/22/11	ns	ns	ns	ns	ns	ns
	08/13/10	ns	ns	ns	ns	ns	ns
MW-58	08/15/12	ns	ns	ns	ns	ns	ns
	08/22/11	ns	ns	ns	ns	ns	ns
	08/13/10	2562	1928	1.68	279.0	6.95	65.3
MW-59	08/15/12	2867	1863	1.60	-85.9	7.10	63.1
	08/25/11	2423	1812	2.12	221.0	6.80	62.0
	08/13/10	2067	1523	0.61	287.0	6.90	62.4
MW-60	08/15/12	ns	ns	ns	ns	ns	ns
	08/25/11	3551	2743	1.78	200.0	7.00	62.6
	08/13/10	2567	1939	0.68	284.0	6.88	61.5
MW-61	08/15/12	ns	ns	ns	ns	ns	ns
	08/08/11	ns	ns	ns	ns	ns	ns
	08/13/10	ns	ns	ns	ns	ns	ns
MW-62	08/15/12	7450	4843	4.75	125.4	6.95	61.4
	08/23/11	6247	5203	50' cord -didn't reach	189.0	7.00	60.5
	08/13/10	6458	5330	50' cord -didn't reach	297.0	6.93	62.4

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-63	08/15/12	5374	3479	1.47	137.6	6.91	65.4
	08/24/11	3416	2651	1.71	238.0	6.60	63.9
	08/13/10	4764	3809	0.44	222.0	7.06	68.3
MW-64	08/15/12	6501	4186	4.90	121.2	7.12	65.4
	08/24/11	4989	4026	4.22	235.0	6.70	61.5
	08/13/10	5302	4279	4.59	251.0	7.06	65.5
MW-65	08/15/12	5341	3458	1.09	-93.5	7.09	63.9
	08/22/11	2866	2189	0.55	169.0	7.10	63.0
	08/13/10	2787	2103	0.41	245.0	7.05	65.8
MW-66	08/15/12	ns	ns	ns	ns	ns	ns
	08/08/11	ns	ns	ns	ns	ns	ns
	08/13/10	ns	ns	ns	ns	ns	ns
MW-67	08/15/12	1309	849	2.48	221.9	6.96	59.7
	08/22/11	1017	712	1.17	170.0	7.00	58.7
MW-68	08/15/12	1114	724	7.85	197.6	6.82	61.2
	08/22/11	1150	809	0.91	218.0	7.00	60.9
MW-69	08/15/12	ns	ns	ns	ns	ns	ns
	08/22/11	ns	ns	ns	ns	ns	ns

Notes:

ns = no sample

* = Field result was confirmed with field notes.

TABLE 3
Refinery Wells Analytical Summary
2012 Groundwater Remediation Monitoring Annual Report

Volatile Organic Compounds (ug/L)	RW-1				MW-4				MW-8							
	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Apr-12	Aug-11	Aug-10	Aug-09	Aug-08
1,1,1,2-Tetrachloroethane	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	---	---	---	< 10	< 10	< 20	< 20	< 20	< 40	< 20	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0
1,1,2-Trichloroethane	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichloropropane	---	---	---	< 10	< 10	< 20	< 20	< 20	< 40	< 20	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0
1,2,4-Trichlorobenzene	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	---	---	---	550	520	220	130	310	450	690	21	---	30	56	95	< 1.0
1,2-Dibromo-3-chloropropane	---	---	---	< 10	< 10	< 20	< 20	< 20	< 40	< 20	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0
1,2-Dibromoethane (EDB)	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane (EDC)	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	---	---	---	51	80	11	38	32	120	230	5.2	---	13	18	62	< 1.0
1,3-Dichlorobenzene	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1-Methylnaphthalene	---	---	---	130	130	< 40	< 40	< 40	< 80	61	23	---	25	16	13	< 4.0
2,2-Dichloropropane	---	---	---	< 10	< 10	< 20	< 20	< 20	< 40	< 20	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0
2-Butanone	---	---	---	< 50	< 50	< 100	< 100	< 100	< 200	< 100	< 10	---	< 10	< 10	< 10	< 10
2-Chlorotoluene	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
2-Hexanone	---	---	---	< 50	< 50	< 100	< 100	< 100	< 200	< 100	< 10	---	< 10	< 10	< 10	< 10
2-Methylnaphthalene	---	---	---	190	190	66	49	49	< 80	88	19	---	37	27	22	< 4.0
4-Chlorotoluene	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
4-Isopropyltoluene	---	---	---	17	11	< 10	< 10	< 10	< 20	14	< 1.0	---	< 1.0	1.3	4.7	< 1.0
4-Methyl-2-pentanone	---	---	---	< 50	< 50	< 100	< 100	< 100	< 200	< 100	< 10	---	< 10	< 10	< 10	< 10
Acetone	---	---	---	< 50	< 50	< 100	< 100	< 100	< 200	< 100	< 10	---	< 10	< 10	< 10	< 10
2,18E+04	---	---	---	140	200	190	160	570	220	530	< 1.0	1.3	< 10	< 10	< 10	< 10
5,00E+00	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
2,00E+01	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,17E+00	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
8,50E+00	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
8,66E+00	---	---	---	< 15	< 15	< 30	< 30	< 30	< 60	< 30	< 3.0	---	< 3.0	< 3.0	< 3.0	< 3.0
1,04E+03	---	---	---	< 50	< 50	< 100	< 100	< 100	< 200	< 100	< 10	---	< 10	< 10	< 10	< 10
5,00E+00	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,00E+02	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
-	---	---	---	< 10	< 10	< 20	< 20	< 20	< 40	< 20	< 2.0	---	< 2.0	< 2.0	< 2.0	< 2.0
1,00E+02	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
Chloroform	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,78E+01	---	---	---	< 15	< 15	< 30	< 30	< 30	< 60	< 30	< 3.0	---	< 3.0	< 3.0	< 3.0	< 3.0
cis-1,2-DCE	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
-	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
1,47E+00	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
3,70E+02	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
3,95E+02	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
7,00E+02	---	---	---	140	210	83	69	45	56	110	3.9	16.0	1.9	47	7.7	7.7
8,60E-01	---	---	---	< 5.0	< 5.0	< 10	< 10	< 10	< 20	< 10	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0
6,79E+02	---	---	---	110	110	58	42	57	60	56	1.4	---	2.4	3.5	12	< 1.0
1,25E+02	---	---	---	36	21	< 10	< 10	< 10	< 20	< 10	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
5,00E+00	---	---	---	< 15	< 15	< 30	< 30	< 30	< 60	< 30	< 3.0	---	< 3.0	< 3.0	< 3.0	< 3.0
1,43E+00	---	---	---	230	260	110	100	120	100	170	8.7	---	20	18	19	< 2.0
-	---	---	---	16	16	< 10	< 10	< 10	34	36	1.1	---	2.3	< 1.0	< 1.0	< 1.0
-	---	---	---	120	140	77	37	59	59	60	3.6	---	3.7	6.8	13	< 1.0
-	---	---	---	28	23	14	< 10	10	< 20	12	< 1.0	---	< 1.0	1.4	3.2	< 1.0

TABLE 3
Refinery Wells Analytical Summary
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	RW-1					MW-4					MW-8								
	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Aug-09	Aug-08		
Bis(2-ethylhexyl)phthalate Butyl benzyl phthalate Carbazole Chrysene	(2) (1) - (5)	---	---	31 <10 <10 <10	<10 <10 <10 <10	---	---	---	<10 <10 <10 <10	22 <10 <10 <10	---	---	---	---	---	<10 <10 <10 <10	<10 <10 <10 <10		
	Dibenz(a,h)anthracene Dibenzofuran Diethyl phthalate Dimethyl phthalate Di-n-butyl phthalate Di-n-octyl phthalate	(5) - (5) (5) (5) -	---	---	<10 <10 <10 <10 <10 <10	14 <10 <10 <10 <10 <10	---	---	---	<10 <10 <10 <10 <10 <10	12 <10 <10 <10 <10 <10	---	---	---	---	---	<10 <10 <10 <10 <10 <10	<10 <10 <10 <10 <10 <10	
		Hexachlorobenzene Hexachlorobutadiene Hexachlorocyclopentadiene Hexachloroethane	(5) (5) (2) (5)	---	---	34 <10 <10 <10	58 <10 <10 <10	---	---	---	<10 <10 <10 <10	<10 <10 <10 <10	---	---	---	---	---	<10 <10 <10 <10	<10 <10 <10 <10
			Indeno(1,2,3-cd)pyrene Isophorone Naphthalene Nitrobenzene	(1) (5) (5) (5)	---	---	<10 <10 <10 <10	<10 <10 <10 <10	---	---	---	<10 <10 <10 <10	<10 <10 <10 <10	---	---	---	---	---	<10 <10 <10 <10
N-Nitrosodimethylamine N-Nitrosodi-n-propylamine N-Nitrosodiphenylamine Pentachlorophenol				(5) (1) (5) (2)	---	---	<10 <10 <10 <40	<10 <10 <10 <40	---	---	---	<10 <10 <10 <40	<10 <10 <10 <40	---	---	---	---	---	<10 <10 <10 <40
	Phenanthrene Phenol Pyrene Pyridine			(5) (3) (5) (1)	---	---	56 <10 <10 <10	77 <10 <10 <10	---	---	---	<10 <10 <10 <10	<10 <10 <10 <10	---	---	---	---	---	<10 <10 <10 <10
		General Chemistry (mg/l):																	
		Fluoride	(3)	---	---	<2.0	0.31	<0.50	0.21	0.25	0.29	0.23	0.79	---	0.72	---	1.4	0.33	0.69
Chloride		(3)	---	---	330	250	220	150	180	180	190	240	---	190	---	96	20	180	
Nitrite	(2)	---	---	<2.0	<0.50	<0.50	2.3*	<0.50	<2.0	<0.10	<0.10	---	8.6*	---	<2.0	<0.10	0.12		
Bromide	-	---	---	3.50	2.30	3.0	2.0	2.60	2.70	3.50	1.0	---	1.10	---	0.64	0.23	1.60		
Nitrate	(3)	---	---	<2.0	<0.10	<0.50	<0.50	<0.50	<0.10	<0.10	16	---	--	---	0.21	0.50	24.00		
Phosphorus	-	---	---	<10.0	<0.50	<2.5	<0.50	<2.5	<0.05	<0.50	<10	---	<0.50	---	<0.50	<0.50	<0.50		
Sulfate	(3)	---	---	<10.0	<0.50	<2.5	3.0	3.20	6.50	4.40	1800	---	1000	---	1300	410	790		
Carbon Dioxide (CO ₂)	-	---	---	1100	1100	1000	990	1000	1100	1000	<1.0	---	62	---	<5.0	100	220		
Alkalinity (CaCO ₃)	-	---	---	1100	1100	1100	1100	1000	1100	1000	<20	---	<20	---	<5.0	110	230		
Bicarbonate (CaCO ₃)	-	---	---	1100	1100	1100	1100	1000	1100	1000	<20	---	<20	---	<5.0	110	230		
Total Metals (mg/l):																			
Arsenic	(2)	---	---	<0.02	<0.02	<0.02	0.021	0.046	<0.02	<0.02	<0.04	---	0.18	---	<0.02	<0.02	<0.02		
Barium	(3)	---	---	2.1	1.7	2.3	1.9	2.7	2	1.3	0.035	---	0.13	---	0.1	0.034	<0.020		
Cadmium	(2)	---	---	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.004	---	0.009	---	<0.002	<0.002	<0.002		
Chromium	(3)	---	---	<0.006	<0.006	0.014	0.066	0.14	0.0084	<0.006	4.8	---	0.98	---	3.7	0.021	0.0071		
Lead	(2)	---	---	<0.005	<0.005	0.0077	0.0057	0.016	0.0081	<0.005	<0.01	---	0.0086	---	<0.005	<0.005	<0.005		
Selenium	(2)	---	---	<0.25	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.1	---	<0.05	---	<0.05	<0.05	<0.05		
Silver	(3)	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.01	---	<0.005	---	<0.005	<0.005	<0.005		
Mercury	(3)	---	---	<0.0002	<0.0002	<0.0002	<0.0002	<0.0008	<0.002	<0.0002	0.0040	---	0.074	---	0.0003	<0.0002	<0.0002		

TABLE 3
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	RW-1					MW-4					MW-8					
	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Apr-12	Aug-11	Aug-10	Aug-09	Aug-08
Dissolved Metals (mg/l):																
Arsenic	---	---	---	<0.02	<0.02	0.0095	0.0061	<0.02	<0.02	<0.02	0.011	---	0.0032	<0.02	<0.02	<0.02
Barium	---	---	---	1.9	1.7	2.0	1.8	1.9	1.7	1.3	0.026	---	0.014	0.025	0.025	<0.02
Cadmium	---	---	---	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.01	---	<0.002	<0.002	<0.002	<0.002
Calcium	---	---	---	110	---	160	130	150	130	---	240	---	190	200	150	---
Chromium	---	---	---	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	3.9	---	0.09	3.2	<0.006	0.007
Copper	---	---	---	<0.006	<0.006	<0.006	<0.006	<0.006	0.017	<0.006	0.17	---	<0.006	<0.006	<0.006	<0.006
Iron	---	---	---	3.9	3.7	7.9	12	12	12	9.6	60	---	4.6	34	0.042	0.082
Lead	---	---	---	<0.005	<0.005	0.0014	<0.005	<0.005	<0.005	<0.005	0.0016	---	<0.005	<0.005	<0.005	<0.005
Magnesium	---	---	---	40	---	63	53	57	52	---	48	---	36	30	12	---
Manganese	---	---	---	2.5	2.5	3.5	2.6	3.3	3.2	3.1	9.6	---	2.4	9.9	0.61	0.027
Mercury	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Potassium	---	---	---	4.1	---	4.2	3.9	3.6	5.3	---	5.4	---	3.1	3.1	1.9	---
Selenium	---	---	---	<0.05	<0.25	0.0079	0.0063	<0.05	<0.05	<0.25	0.040	---	0.021	<0.05	<0.05	<0.25
Silver	---	---	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.025	---	<0.005	<0.005	<0.005	<0.005
Sodium	---	---	---	570	---	330	340	310	380	---	330	---	290	260	50	---
Uranium	---	---	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.03	---	0.0016	0.005	0.001	0.01
Zinc	---	---	---	<0.05	0.052	0.042	0.25	<0.05	<0.05	<0.05	0.54	---	0.22	0.17	<0.05	0.096
Total Petroleum Hydrocarbons (mg/l):																
Diesel Range Organics	---	---	---	65	47	0.48	1.1	1.1	9	17	0.27	---	0.48	0.34	<1.0	0.55
Gasoline Range Organics	---	---	---	3.9	<5.0	9.8	6.0	8.6	6.4	<5.0	0.16	---	0.35	0.34	3.3	0.14
Motor Oil Range Organics	---	---	---	5.4	6.7	<2.5	<2.5	<2.5	<5.0	10	<2.5	---	<2.5	<2.5	<5.0	<2.5

Notes:

- (1) EPA - Regional Screening Levels (April 2009) - EPA Screening Levels.Tap Water
- (2) EPA - Regional Screening Levels (April 2009) - MCL
- (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3101 Standards for Ground Water of 10,000 mg/l TDS Concentration or less
- (4) NMED TPH Screening Guidelines Oct. 2006 - "unknown oil" - see report Sections 5 and 7 for use on location specific screening levels
- (5) NMED TAP Water Screening Levels - 2009 Background Document for Development of Soil Screening Levels
- = No screening level available
- * = Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
- = Analyte inadvertently not included in sample analysis.
- = Analysis not required and/or well contains separate phase
- = Analytical result exceeds the respective screening level.

TABLE 3
Refinery Wells Analytical Summary
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Volatile Organic Compounds (ug/L)	RW-9				RW-15				RW-18				MW-20			
	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-08
1,1,1,2-Tetrachloroethane	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
1,1,1-Trichloroethane	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
1,1,2,2-Tetrachloroethane	< 40	---	< 100	< 40	---	< 40	< 40	< 200	< 100	< 40	---	< 40	< 40	---	---	---
1,1,2-Trichloroethane	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
1,1-Dichloroethane	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
1,1-Dichloroethane	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
1,1-Dichloropropene	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
1,2,3-Trichlorobenzene	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
1,2,3-Trichloropropane	< 40	---	< 100	< 40	---	< 40	< 40	< 200	< 100	< 40	---	< 40	< 40	---	---	---
1,2,4-Trichlorobenzene	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
1,2,4-Trimethylbenzene	1200	---	390	710	---	700	1700	2200	1600	2900	---	400	240	---	---	---
1,2-Dibromo-3-chloropropane	< 40	---	< 100	< 40	---	< 40	< 40	< 200	< 100	< 40	---	< 40	< 40	---	---	---
1,2-Dibromoethane (EDB)	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
1,2-Dichlorobenzene	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
1,2-Dichloroethane (EDC)	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	540	< 20	---	---	---
1,2-Dichloropropane	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
1,3,5-Trimethylbenzene	250	---	56	110	---	190	510	670	430	680	---	< 20	25	---	---	---
1,3-Dichlorobenzene	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
1,3-Dichloropropane	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
1,4-Dichlorobenzene	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
1-Methylnaphthalene	130	---	< 200	< 80	---	< 80	110	< 400	< 200	92	---	720	320	---	---	---
2,2-Dichloropropane	< 40	---	< 100	< 40	---	< 40	< 40	< 200	< 100	< 40	---	< 40	< 40	---	---	---
2-Butanone	< 200	---	< 500	< 200	---	< 200	< 200	< 1000	< 500	< 200	---	< 200	< 200	---	---	---
2-Chlorotoluene	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
2-Hexanone	< 200	---	< 500	< 200	---	< 200	< 200	< 1000	< 500	< 200	---	< 200	< 200	---	---	---
2-Methylnaphthalene	190	---	< 200	< 80	---	85	170	< 100	< 200	150	---	< 80	< 80	---	---	---
4-Chlorotoluene	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
4-Isopropyltoluene	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
4-Methyl-2-pentanone	< 200	---	< 500	< 200	---	< 200	< 200	< 1000	< 500	< 200	---	< 200	< 200	---	---	---
Acetone	< 200	---	< 500	< 200	---	< 200	< 200	< 1000	< 500	< 200	---	< 200	< 200	---	---	---
Benzene	5400	---	3900	9500	---	1100	2800	4300	3000	6000	---	42	230	---	---	---
Bromobenzene	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
Bromodichloromethane	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
Bromoform	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
Bromomethane	< 60	---	< 150	< 60	---	< 60	< 60	< 300	< 150	< 60	---	< 60	< 60	---	---	---
Carbon disulfide	< 200	---	< 500	< 200	---	< 200	< 200	< 1000	< 500	< 200	---	< 200	< 200	---	---	---
Carbon Tetrachloride	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
Chlorobenzene	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
Chloroethane	< 40	---	< 100	< 40	---	< 40	< 40	< 200	< 100	< 40	---	< 40	< 40	---	---	---
Chloroform	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
Chloromethane	< 60	---	< 150	< 60	---	< 60	< 60	< 300	< 150	< 60	---	< 60	< 60	---	---	---
cis-1,2-DCE	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
cis-1,3-Dichloropropene	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
Dibromochloromethane	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
Dibromomethane	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
Dichlorodifluoromethane	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
Ethylbenzene	670	---	370	890	---	1000	2500	3600	2500	4100	---	90	48	---	---	---
Hexachlorobutadiene	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	< 20	---	< 20	< 20	---	---	---
Isopropylbenzene	46	---	< 20	67	---	24	80	< 100	64	150	---	29	< 20	---	---	---
Methyl tert-butyl ether (MTBE)	6400	---	< 50	3400	---	93	71	< 100	< 50	30	---	2200	1600	---	---	---
Methylene Chloride	< 60	---	< 150	< 60	---	< 60	< 60	< 300	< 150	< 60	---	< 60	< 60	---	---	---
Naphthalene	250	---	< 100	110	---	160	470	590	380	620	---	< 40	70	---	---	---
n-Butylbenzene	< 20	---	< 50	< 20	---	< 20	25	< 100	< 50	73	---	36	< 20	---	---	---
n-Propylbenzene	99	---	< 50	88	---	97	270	370	230	390	---	52	22	---	---	---
sec-Butylbenzene	< 20	---	< 50	< 20	---	< 20	< 20	< 100	< 50	17	---	< 20	< 20	---	---	---

TABLE 3
Refinery Wells Analytical Summary
2012 Groundwater Remediation Monitoring Annual Report

[illegible]

TABLE 3
Refinery Wells Analytical Summary
2012 Groundwater Remediation Monitoring Annual Report

	RW-9					RW-15					RW-18					MW-20				
	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08
Bis(2-ethylhexyl)phthalate	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Butyl benzyl phthalate	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Carbazole	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Chrysene	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Dibenz(a,h)anthracene	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Dibenzofuran	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Diethyl phthalate	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Dimethyl phthalate	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Di-n-butyl phthalate	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Di-n-octyl phthalate	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Fluoranthene	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Fluorene	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Hexachlorobenzene	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Hexachlorobutadiene	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Hexachlorocyclopentadiene	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Hexachloroethane	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Indeno(1,2,3-cd)pyrene	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Isophorone	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Naphthalene	---	---	---	74	---	---	---	---	310	280	---	---	---	---	---	---	---	---	---	---
Nitrobenzene	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
N-Nitrosodimethylamine	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
N-Nitrosodi-n-propylamine	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
N-Nitrosodiphenylamine	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Pentachlorophenol	---	---	---	<200	---	---	---	---	<40	<40	---	---	---	---	---	---	---	---	---	---
Phenanthrene	---	---	---	<50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Phenol	---	---	---	< 50	---	---	---	---	12	18	---	---	---	---	---	---	---	---	---	---
Pyrene	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
Pyridine	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
3,70E+01 (1)	---	---	---	< 50	---	---	---	---	< 10	< 10	---	---	---	---	---	---	---	---	---	---
General Chemistry (mg/l):																				
Fluoride	1.6	(3)	< 1.0	<1.0	---	< 0.50	<0.5	0.25	<0.10	0.29	---	<2.0	<2.0	---	---	---	---	---	---	---
Chloride	250	(3)	460	160	---	440	380	470	460	420	---	310	380	---	---	---	---	---	---	---
Nitrite	1	(2)	< 2.0 *	<1.0	---	< 0.50	<0.50	<2.0	<0.10	<2.0	---	<2.0	<2.0	---	---	---	---	---	---	---
Bromide	-	(3)	5.6	4.50	---	7.4	7.70	7.80	1.60	7.80	---	3.20	4.30	---	---	---	---	---	---	---
Nitrate	10	(3)	< 2.0 *	<1.0	---	< 0.50	<0.50	0.33	<0.10	<0.10	---	<2.0	<2.0	---	---	---	---	---	---	---
Phosphorus	-	(3)	< 5.0	<5.0	---	< 2.5	<2.5	<0.50	<0.50	<0.50	---	<10	<10	---	---	---	---	---	---	---
Sulfate	600	(3)	21	6.30	---	< 2.5	2.90	<0.50	1.30	0.76	---	3300	1700	---	---	---	---	---	---	---
Carbon Dioxide (CO ₂)	-	-	1200	1300	---	1000	1100	1200	980	1200	---	480	950	---	---	---	---	---	---	---
Alkalinity (CaCO ₃)	-	-	1200	1300	---	1100	1200	1200	1100	1200	---	520	950	---	---	---	---	---	---	---
Bicarbonate (CaCO ₃)	-	-	1200	1300	---	1100	1200	1200	1100	1200	---	520	950	---	---	---	---	---	---	---
Total Metals (mg/l):																				
Arsenic	0.01	(2)	<0.02	<0.02	---	<0.02	<0.02	<0.02	<0.02	<0.02	---	0.1	<0.02	---	---	---	---	---	---	---
Barium	1	(3)	4.5	3.3	---	1.2	1.8	1.6	1.7	1.2	---	4.2	1.3	---	---	---	---	---	---	---
Cadmium	0.005	(2)	<0.002	<0.002	---	<0.002	<0.002	<0.002	<0.002	<0.002	---	0.013	0.0025	---	---	---	---	---	---	---
Chromium	0.05	(3)	0.0097	0.007	---	<0.006	<0.006	<0.006	<0.006	<0.006	---	0.17	0.075	---	---	---	---	---	---	---
Lead	0.015	(2)	0.041	0.012	---	<0.005	<0.005	<0.005	<0.005	<0.005	---	0.055	<0.025	---	---	---	---	---	---	---
Selenium	0.05	(2)	<0.05	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	---	<0.10	<0.25	---	---	---	---	---	---	---
Silver	0.05	(3)	<0.005	<0.005	---	<0.005	<0.005	<0.005	<0.005	<0.005	---	<0.010	<0.005	---	---	---	---	---	---	---
Mercury	0.002	(3)	<0.0002	<0.0008	---	<0.0002	<0.0002	<0.0002	<0.0002	<0.001	---	0.0059	0.0025	---	---	---	---	---	---	---

TABLE 3
Refinery Wells Analytical Summary
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			RW-9				RW-15				RW-18				MW-20			
			Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	
Dissolved Metals (mg/l):																		
Arsenic	0.1	(3)	0.02	---	<0.02	<0.02	---	0.0074	0.011	<0.02	<0.02	<0.02	---	0.0034	<0.02	---	---	---
Barium	1	(3)	3.8	---	3.2	0.25	---	1.1	1.3	1.5	1.5	1.2	---	0.035	0.048	---	---	---
Cadmium	0.01	(3)	<0.002	---	<0.002	<0.002	---	<0.002	<0.002	<0.002	<0.002	<0.002	---	<0.002	<0.002	---	---	---
Calcium	-	-	230	---	160	140	---	130	79	160	150	130	---	420	110	---	---	---
Chromium	0.05	(3)	0.007	---	<0.006	<0.006	---	<0.006	<0.006	<0.006	<0.006	<0.006	---	<0.006	<0.006	---	---	---
Copper	1	(3)	<0.006	---	<0.006	<0.006	---	<0.006	<0.006	<0.006	<0.006	<0.006	---	<0.006	<0.006	---	---	---
Iron	1	(3)	43	---	1.5	2.3	---	11	18	14	7.2	5.3	---	11	3	---	---	---
Lead	0.05	(3)	0.014	---	<0.005	0.007	---	<0.001	<0.005	<0.005	<0.005	<0.005	---	<0.005	<0.005	---	---	---
Magnesium	-	-	71	---	54	39	---	46	48	54	51	44	---	120	98	---	---	---
Manganese	0.2	(3)	5.6	---	2.1	2.2	---	1.4	1.2	2.3	4	2.8	---	6.2	0.56	---	---	---
Mercury	-	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Potassium	-	-	4.9	---	4.6	2.9	---	4.9	6.5	4.6	3.6	3.7	---	6.9	7	---	---	---
Selenium	0.05	(3)	0.013	---	<0.05	<0.05	---	0.015	0.024	<0.05	<0.05	<0.25	---	0.013	<0.05	---	---	---
Silver	0.05	(3)	<0.005	---	<0.005	<0.005	---	<0.005	<0.005	<0.005	<0.005	<0.005	---	<0.005	<0.005	---	---	---
Sodium	-	-	450	---	520	450	---	550	600	590	580	550	---	1000	1000	---	---	---
Uranium	0.03	(3)	<0.001	---	<0.001	<0.001	---	<0.001	<0.001	<0.001	<0.001	<0.001	---	<0.001	<0.001	---	---	---
Zinc	10	(3)	0.14	---	<0.05	<0.05	---	0.076	0.052	<0.05	<0.05	0.054	---	0.063	<0.05	---	---	---
Total Petroleum Hydrocarbons (mg/l):																		
Diesel Range Organics	0.2	(4)	14.0	---	8.8	14	---	2.1	1.8	5.7	9.4	48	---	470	910	---	---	---
Gasoline Range Organics	-	-	23	---	21	47	---	10	47	69	90	70	---	18	11	---	---	---
Motor Oil Range Organics	-	-	<2.5	---	<2.5	<5.0	---	<2.5	<2.5	<2.5	<5.0	<50	---	<2.5	<250	---	---	---

Notes:

- (1) EPA - Regional Screening Levels (April 2009) - EPA Screening Levels. Tap Water
- (2) EPA - Regional Screening Levels (April 2009) - MCL
- (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3101 Standards for Ground Water of 10,000 mg/l TDS Concentration or less
- (4) NMED TPH Screening Guidelines Oct. 2006 - "unknown oil" - see report Sections 5 and 7 for use on location specific screening levels
- (5) NMED TAP Water Screening Levels - 2009 Background Document for Development of Soil Screening Levels
 - = No screening level available
 - * = Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
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TABLE 3
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	MW-21				RW-23				RW-28						
	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08
Volatile Organic Compounds (ug/L)															
1,1,1,2-Tetrachloroethane	5.24E+00	(5)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
1,1,1-Trichloroethane	6.00E+01	(3)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
1,1,2,2-Tetrachloroethane	1.00E+01	(3)	---	---	---	---	---	< 100	< 100	< 200	---	---	---	---	---
1,1,2-Trichloroethane	5.00E+00	(2)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
1,1-Dichloroethane	2.50E+01	(3)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
1,1-Dichloroethene	5.00E+00	(3)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
1,1-Dichloropropene	-	-	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
1,2,3-Trichlorobenzene	-	-	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
1,2,3-Trichloropropane	9.60E-02	(5)	---	---	---	---	---	< 100	< 100	< 200	---	---	---	---	---
1,2,4-Trichlorobenzene	7.00E+01	(2)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
1,2,4-Trimethylbenzene	1.50E+01	(1)	---	---	---	---	---	2400	1900	3600	---	---	---	---	---
1,2-Dibromo-3-chloropropane	2.00E-01	(2)	---	---	---	---	---	< 100	< 100	< 200	---	---	---	---	---
1,2-Dibromoethane (EDB)	5.00E-02	(2)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
1,2-Dichlorobenzene	6.00E+02	(2)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
1,2-Dichloroethane (EDC)	5.00E+00	(2)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
1,2-Dichloropropane	5.00E+00	(2)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
1,3,5-Trimethylbenzene	1.20E+01	(1)	---	---	---	---	---	520	270	790	---	---	---	---	---
1,3-Dichlorobenzene	-	-	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
1,3-Dichloropropane	7.30E+02	(1)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
1,4-Dichlorobenzene	7.50E+01	(2)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
1-Methylnaphthalene	2.30E+00	(1)	---	---	---	---	---	460	290	< 400	---	---	---	---	---
2,2-Dichloropropane	-	-	---	---	---	---	---	< 100	< 100	< 200	---	---	---	---	---
2-Butanone	7.06E+03	(5)	---	---	---	---	---	< 500	< 500	< 1000	---	---	---	---	---
2-Chlorotoluene	7.30E+02	(1)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
2-Hexanone	-	-	---	---	---	---	---	< 500	< 500	< 1000	---	---	---	---	---
2-Methylnaphthalene	1.50E+02	(1)	---	---	---	---	---	460	350	500	---	---	---	---	---
4-Chlorotoluene	2.60E+03	(1)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
4-Isopropyltoluene	-	-	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
4-Methyl-2-pentanone	-	-	---	---	---	---	---	< 500	< 500	< 1000	---	---	---	---	---
Acetone	2.18E+04	(5)	---	---	---	---	---	< 500	< 500	< 1000	---	---	---	---	---
Benzene	5.00E+00	(2)	---	---	---	---	---	4500	6200	9800	---	---	---	---	---
Bromobenzene	2.00E+01	(1)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
Bromodichloromethane	1.17E+00	(5)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
Bromoform	8.50E+00	(1)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
Bromomethane	8.66E+00	(5)	---	---	---	---	---	< 150	< 150	< 300	---	---	---	---	---
Carbon disulfide	1.04E+03	(5)	---	---	---	---	---	< 500	< 500	< 1000	---	---	---	---	---
Carbon Tetrachloride	5.00E+00	(2)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
Chlorobenzene	1.00E+02	(2)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
Chloroethane	-	-	---	---	---	---	---	< 100	< 100	< 200	---	---	---	---	---
Chloroform	1.00E+02	(3)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
Chloromethane	1.78E+01	(5)	---	---	---	---	---	< 150	< 150	< 300	---	---	---	---	---
cis-1,2-DCE	7.00E+01	(2)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
cis-1,3-Dichloropropene	-	-	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
Dibromochloromethane	1.47E+00	(5)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
Dibromomethane	3.70E+02	(1)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
Dichlorodifluoromethane	3.95E+02	(5)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
Ethylbenzene	7.00E+02	(2)	---	---	---	---	---	1100	1500	1600	---	---	---	---	---
Hexachlorobutadiene	8.60E-01	(1)	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
Isopropylbenzene	6.79E+02	(5)	---	---	---	---	---	86	75	110	---	---	---	---	---
Methyl tert-butyl ether (MTBE)	1.25E+02	(5)	---	---	---	---	---	1300	1200	1500	---	---	---	---	---
Methylene Chloride	5.00E+00	(2)	---	---	---	---	---	< 150	< 150	< 300	---	---	---	---	---
Naphthalene	1.43E+00	(5)	---	---	---	---	---	790	570	870	---	---	---	---	---
n-Butylbenzene	-	-	---	---	---	---	---	96	81	130	---	---	---	---	---
n-Propylbenzene	-	-	---	---	---	---	---	210	140	210	---	---	---	---	---
sec-Butylbenzene	-	-	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---

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	MW-21					RW-23					RW-28				
	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08
Styrene	---	---	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
tert-Butylbenzene	---	---	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
Tetrachloroethene (PCE)	---	---	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
Toluene	---	---	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
trans-1,2-DCE	---	---	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
trans-1,3-Dichloropropene	---	---	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
Trichloroethene (TCE)	---	---	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
Trichlorofluoromethane	---	---	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
Vinyl chloride	---	---	---	---	---	---	---	< 50	< 50	< 100	---	---	---	---	---
Xylenes, Total	---	---	---	---	---	---	---	2700	2200	9700	---	---	---	---	---
Semi Volatile Organic Compounds (ug/l):															
1,2,4-Trichlorobenzene	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
1,2-Dichlorobenzene	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
1,3-Dichlorobenzene	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
1,4-Dichlorobenzene	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
1-Methylnaphthalene	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
2,4,5-Trichlorophenol	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
2,4,6-Trichlorophenol	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
2,4-Dichlorophenol	---	---	---	---	---	---	---	---	< 100	< 100	---	---	---	---	---
2,4-Dimethylphenol	---	---	---	---	---	---	---	---	78	< 50	---	---	---	---	---
2,4-Dinitrophenol	---	---	---	---	---	---	---	---	< 100	< 100	---	---	---	---	---
2,4-Dinitrotoluene	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
2,6-Dinitrotoluene	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
2-Chloronaphthalene	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
2-Chlorophenol	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
2-Methylnaphthalene	---	---	---	---	---	---	---	---	620	2600	---	---	---	---	---
2-Methylphenol	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
2-Nitroaniline	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
2-Nitrophenol	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
3,3'-Dichlorobenzidine	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
3+4-Methylphenol	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
3-Nitroaniline	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
4,6-Dinitro-2-methylphenol	---	---	---	---	---	---	---	---	< 100	< 100	---	---	---	---	---
4-Bromophenyl phenyl ether	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
4-Chloro-3-methylphenol	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
4-Chloroaniline	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
4-Chlorophenyl phenyl ether	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
4-Nitroaniline	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
4-Nitrophenol	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Acenaphthene	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Acenaphthylene	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Aniline	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Anthracene	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Azobenzene	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Benz(a)anthracene	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Benzo(a)pyrene	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Benzo(b)fluoranthene	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Benzo(g,h,i)perylene	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Benzo(k)fluoranthene	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Benzoic acid	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Benzyl alcohol	---	---	---	---	---	---	---	---	< 100	< 100	---	---	---	---	---
Bis(2-chloroethoxy)methane	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Bis(2-chloroethyl)ether	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Bis(2-chloroisopropyl)ether	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---

TABLE 3
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		MW-21					RW-23					RW-28				
		Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08
Bis(2-ethylhexyl)phthalate	6.00E+00 (2)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Butyl benzyl phthalate	3.50E+01 (1)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Carbazole	-	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Chrysene	9.21E+01 (5)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Dibenz(a,h)anthracene	9.21E-02 (5)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Dibenzofuran	-	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Diethyl phthalate	2.92E+04 (5)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Dimethyl phthalate	3.65E+05 (5)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Di-n-butyl phthalate	3.65E+03 (5)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Di-n-octyl phthalate	-	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Fluoranthene	1.46E+03 (5)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Fluorene	1.46E+03 (5)	---	---	---	---	---	---	---	---	<50	83	---	---	---	---	---
Hexachlorobenzene	1.00E+00 (2)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Hexachlorobutadiene	8.60E-01 (1)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Hexachlorocyclopentadiene	5.00E+01 (2)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Hexachloroethane	3.65E+01 (5)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Indeno(1,2,3-cd)pyrene	2.90E-02 (1)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Isophorone	7.07E+02 (5)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Naphthalene	1.43E+00 (5)	---	---	---	---	---	---	---	---	530	1500	---	---	---	---	---
Nitrobenzene	1.49E+01 (5)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
N-Nitrosodimethylamine	1.32E-02 (5)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
N-Nitrosodi-n-propylamine	9.60E-03 (1)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
N-Nitrosodiphenylamine	1.37E+02 (5)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Pentachlorophenol	1.00E+00 (2)	---	---	---	---	---	---	---	---	<200	<200	---	---	---	---	---
Phenanthrene	1.10E+03 (5)	---	---	---	---	---	---	---	---	53	150	---	---	---	---	---
Phenol	5.00E+00 (3)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Pyrene	1.10E+03 (5)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
Pyridine	3.70E+01 (1)	---	---	---	---	---	---	---	---	< 50	< 50	---	---	---	---	---
General Chemistry (mg/l):																
Fluoride	1.6 (3)	---	---	---	---	---	---	---	---	<1.0	<1.0	---	---	---	---	---
Chloride	250 (3)	---	---	---	---	---	---	---	---	87	76	---	---	---	---	---
Nitrite	1 (2)	---	---	---	---	---	---	---	---	<1.0	<0.10	---	---	---	---	---
Bromide	-	---	---	---	---	---	---	---	---	1.10	<1.0	---	---	---	---	---
Nitrate	10 (3)	---	---	---	---	---	---	---	---	<1.0	<0.10	---	---	---	---	---
Phosphorus	-	---	---	---	---	---	---	---	---	<5.0	<0.50	---	---	---	---	---
Sulfate	600 (3)	---	---	---	---	---	---	---	---	<5.0	3.20	---	---	---	---	---
Carbon Dioxide (CO ₂)	-	---	---	---	---	---	---	---	---	900	860	---	---	---	---	---
Alkalinity (CaCO ₃)	-	---	---	---	---	---	---	---	---	900	780	---	---	---	---	---
Bicarbonate (CaCO ₃)	-	---	---	---	---	---	---	---	---	900	780	---	---	---	---	---
Total Metals (mg/l):																
Arsenic	0.01 (2)	---	---	---	---	---	---	---	---	<0.02	<0.02	---	---	---	---	---
Barium	1 (3)	---	---	---	---	---	---	---	---	2.5	1.4	---	---	---	---	---
Cadmium	0.005 (2)	---	---	---	---	---	---	---	---	<0.002	<0.002	---	---	---	---	---
Chromium	0.05 (3)	---	---	---	---	---	---	---	---	<0.006	<0.006	---	---	---	---	---
Lead	0.015 (2)	---	---	---	---	---	---	---	---	0.067	0.0096	---	---	---	---	---
Selenium	0.05 (2)	---	---	---	---	---	---	---	---	<0.05	<0.25	---	---	---	---	---
Silver	0.05 (3)	---	---	---	---	---	---	---	---	<0.005	<0.005	---	---	---	---	---
Mercury	0.002 (3)	---	---	---	---	---	---	---	---	<0.0002	<0.0002	---	---	---	---	---

TABLE 3
Refinery Wells Analytical Summary
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	MW-21				RW-23				RW-28						
	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08
Dissolved Metals (mg/l):															
Arsenic	0.1	(3)													
Barium	1	(3)													
Cadmium	0.01	(3)													
Calcium	-														
Chromium	0.05	(3)													
Copper	1	(3)													
Iron	1	(3)													
Lead	0.05	(3)													
Magnesium	-														
Manganese	0.2	(3)													
Mercury	-														
Potassium	-														
Selenium	0.05	(3)													
Silver	0.05	(3)													
Sodium	-														
Uranium	0.03	(3)													
Zinc	10	(3)													
Total Petroleum Hydrocarbons (mg/l):															
Diesel Range Organics	0.2	(4)													
Gasoline Range Organics	-														
Motor Oil Range Organics	-														

Notes:

- (1) EPA - Regional Screening Levels (April 2009) - EPA Screening Levels. Tap Water
- (2) EPA - Regional Screening Levels (April 2009) - MCL
- (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3101 Standards for Ground Water of 10,000 mg/l TDS Concentration or less
- (4) NMED TPH Screening Guidelines Oct. 2006 - "unknown oil" - see report Sections 5 and 7 for use on location specific screening levels
- (5) NMED TAP Water Screening Levels - 2009 Background Document for Development of Soil Screening Levels
 - = No screening level available
 - * = Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
 - = Analyte inadvertently not included in sample analysis.
 - = Analysis not required and/or well contains separate phase
 - = Analytical result exceeds the respective screening level.

TABLE 3
Refinery Wells Analytical Summary
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Volatile Organic Compounds (ug/L)		MW-29					MW-30					MW-31						
		Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08
Methyl tert-butyl ether (MTBE)	1,1,1,2-Tetrachloroethane	5.24E+00	(5)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20
	1,1,1-Trichloroethane	6.00E+01	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20
	1,1,2,2-Tetrachloroethane	1.00E+01	(3)	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 200	< 200	< 200	< 100	< 100	< 200	< 40	< 40	< 40
	1,1,2-Trichloroethane	5.00E+00	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20
	1,1-Dichloroethane	2.50E+01	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20
	1,1-Dichloroethene	5.00E+00	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20
	1,1-Dichloropropene	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20
	1,2,3-Trichlorobenzene	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20
	1,2,3-Trichloropropane	9.60E-02	(5)	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 200	< 200	< 200	< 100	< 100	< 200	< 40	< 40	< 40
	1,2,4-Trichlorobenzene	7.00E+01	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20
	1,2,4-Trimethylbenzene	1.50E+01	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	3900	5900	4500	1800	1400	2900	1200	1200	1200
	1,2-Dibromo-3-chloropropane	2.00E-01	(2)	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 200	< 200	< 200	< 100	< 100	< 200	< 40	< 40	< 40
	1,2-Dibromoethane (EDB)	5.00E-02	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20
	1,2-Dichlorobenzene	6.00E+02	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20
	1,2-Dichloroethane (EDC)	5.00E+00	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20
	1,2-Dichloropropane	5.00E+00	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20
	1,3,5-Trimethylbenzene	1.20E+01	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	840	1500	950	270	230	220	69	69	69
	1,3-Dichlorobenzene	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20
	1,3-Dichloropropane	7.30E+02	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20
	1,4-Dichlorobenzene	7.50E+01	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20
	1-Methylnaphthalene	2.30E+00	(1)	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 400	< 400	< 400	< 200	< 200	< 400	< 80	< 80	< 80
	2,2-Dichloropropane	-	-	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 200	< 200	< 200	< 100	< 100	< 200	< 40	< 40	< 40
	2-Butanone	7.06E+03	(5)	< 10	< 10	< 10	< 10	< 10	< 10	< 1000	< 1000	< 1000	< 500	< 500	< 1000	< 200	< 200	< 200
	2-Chlorotoluene	7.30E+02	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20
	2-Hexanone	-	-	< 10	< 10	< 10	< 10	< 10	< 10	< 1000	< 1000	< 1000	< 500	< 500	< 1000	< 200	< 200	< 200
	2-Methylnaphthalene	1.50E+02	(1)	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 400	< 400	< 400	< 200	< 200	< 400	< 84	< 84	< 84
	4-Chlorotoluene	2.60E+03	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20
	4-Isopropyltoluene	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20
	4-Methyl-2-pentanone	-	-	< 10	< 10	< 10	< 10	< 10	< 10	< 1000	< 1000	< 1000	< 500	< 500	< 1000	< 200	< 200	< 200
	Acetone	2.18E+04	(5)	< 10	< 10	< 10	14	< 10	< 10	< 1000	< 1000	< 1000	< 500	< 500	< 1000	< 200	< 200	< 200
	Benzene	5.00E+00	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	5400	4700	6300	4200	2900	3800	3300	3300	3300
Bromobenzene	2.00E+01	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20	
Bromodichloromethane	1.17E+00	(5)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20	
Bromoform	8.50E+00	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20	
Bromomethane	8.66E+00	(5)	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 300	< 300	< 300	< 150	< 150	< 300	< 60	< 60	< 60	
Carbon disulfide	1.04E+03	(5)	< 10	< 10	< 10	< 10	< 10	< 10	< 1000	< 1000	< 1000	< 500	< 500	< 1000	< 200	< 200	< 200	
Carbon Tetrachloride	5.00E+00	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20	
Chlorobenzene	1.00E+02	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20	
Chloroethane	-	-	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 200	< 200	< 200	< 100	< 100	< 200	< 40	< 40	< 40	
Chloroform	1.00E+02	(3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20	
Chloromethane	1.78E+01	(5)	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 300	< 300	< 300	< 150	< 150	< 300	< 60	< 60	< 60	
cis-1,2-DCE	7.00E+01	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20	
cis-1,3-Dichloropropene	-	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20	
Dibromochloromethane	1.47E+00	(5)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20	
Dibromomethane	3.70E+02	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20	
Dichlorodifluoromethane	3.95E+02	(5)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 100	< 50	< 50	< 100	< 20	< 20	< 20	
Ethylbenzene	7.00E+02	(2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	4300	3700	4400	1400	1200	1600	830	830	830	
Hexachlorobutadiene	8.60E-01	(1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 100	< 100	< 1							

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		MW-29						MW-30						MW-31							
		Aug-12	Aug-11	Aug-10	Aug-09	Aug-08		Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Aug-09	Aug-08		Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	
Styrene	1.00E+02 (2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 100	---	< 100	---	< 100	< 100	< 100	< 50	< 50	< 100	< 20	---		
	-	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 100	---	< 100	---	< 100	< 100	< 100	< 50	< 50	< 100	< 20	---		
	Tetrachloroethene (PCE)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 100	---	< 100	---	< 100	< 100	< 100	< 50	< 50	< 100	< 20	---		
Toluene	5.00E+00 (2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	8800	1600	5600	5000	3600	8000	6700	2000	460	< 100	24	---		
	7.50E+02 (3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 100	---	< 100	---	< 100	< 100	< 100	< 50	< 50	< 100	< 20	---		
	trans-1,2-DCE	1.00E+02 (2)	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 100	---	< 100	---	< 100	< 100	< 100	< 50	< 50	< 100	< 20	---		
trans-1,3-Dichloropropene	4.30E-01 (1)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 100	---	< 100	---	< 100	< 100	< 100	< 50	< 50	< 100	< 20	---		
	5.00E+00 (2)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 100	---	< 100	---	< 100	< 100	< 100	< 50	< 50	< 100	< 20	---		
	Trichloroethene (TCE)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 100	---	< 100	---	< 100	< 100	< 100	< 50	< 50	< 100	< 20	---		
Trichlorofluoromethane	1.29E+03 (5)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 100	---	< 100	---	< 100	< 100	< 100	< 50	< 50	< 100	< 20	---		
	1.00E+00 (3)	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10	< 100	---	< 100	---	< 100	< 100	< 100	< 50	< 50	< 100	< 20	---		
	Xylenes, Total	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 10	16000	9400	15000	14000	14000	14000	24000	18000	5100	4200	3800	1600	---	
Semi Volatile Organic Compounds (ug/l):																					
1,2,4-Trichlorobenzene	7.00E+01 (2)	---	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	1,2-Dichlorobenzene	---	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	1,3-Dichlorobenzene	---	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
1,4-Dichlorobenzene	7.50E+01 (2)	---	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	1-Methylnaphthalene	2.30E+00 (1)	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	2,4,5-Trichlorophenol	3.65E+03 (5)	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
2,4,6-Trichlorophenol	3.65E+01 (5)	---	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	2,4-Dichlorophenol	1.10E+02 (5)	---	---	< 20	< 20	< 20	---	---	< 100	---	---	< 100	< 20	---	---	< 100	< 100	< 100	---	
	2,4-Dimethylphenol	7.30E+02 (5)	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	19	---	---	< 50	< 50	< 50	---	
2,4-Dinitrophenol	7.30E+01 (5)	---	---	---	< 20	< 20	< 20	---	---	< 100	---	---	< 100	< 20	---	---	< 100	< 100	< 100	---	
	2,4-Dinitrotoluene	2.17E+00 (5)	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	2,6-Dinitrotoluene	3.70E+01 (1)	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
2-Chloronaphthalene	2.90E+03 (1)	---	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	2-Chlorophenol	1.83E+02 (5)	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	2-Methylnaphthalene	1.50E+02 (1)	---	---	< 10	< 10	< 10	---	---	200	---	---	200	210	---	---	85	< 50	< 50	< 50	---
2-Methylphenol	1.80E+03 (1)	---	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	2-Nitroaniline	1.10E+02 (1)	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	2-Nitrophenol	-	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
3,3'-Dichlorobenzidine	1.50E-01 (1)	---	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	3+4-Methylphenol	1.80E+02 (1)	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	25	---	---	< 50	< 50	< 50	---	
	3-Nitroaniline	-	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
4,6-Dinitro-2-methylphenol	-	---	---	< 20	< 20	< 20	< 20	---	---	< 100	---	---	< 100	< 20	---	---	< 100	< 100	< 100	---	
	4-Bromophenyl phenyl ether	-	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	4-Chloro-3-methylphenol	-	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
4-Chloroaniline	3.40E-01 (1)	---	---	< 10	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	4-Chlorophenyl phenyl ether	-	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	4-Nitroaniline	3.40E+00 (1)	---	---	< 20	< 20	< 20	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
4-Nitrophenol	-	---	---	< 10	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	Acenaphthene	2.19E+03 (5)	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	Acenaphthylene	-	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
Aniline	1.20E+01 (1)	---	---	< 10	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	Anthracene	1.10E+04 (5)	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	Azobenzene	1.20E-01 (1)	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
Benz(a)anthracene	9.21E-01 (5)	---	---	< 10	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	Benzo(a)pyrene	2.00E-01 (2)	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	Benzo(b)fluoranthene	9.21E-01 (5)	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
Benzo(g,h,i)perylene	-	---	---	< 10	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	Benzo(k)fluoranthene	9.21E+00 (5)	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	Benzoic acid	1.50E+05 (1)	---	---	< 20	< 20	< 20	---	---	< 100	---	---	< 100	< 20	---	---	< 50	< 50	< 50	---	
Benzyl alcohol	1.80E+04 (1)	---	---	< 10	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	Bis(2-chloroethoxy)methane	1.10E+02 (1)	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
	Bis(2-chloroethyl)ether	1.19E-01 (5)	---	---	< 10	< 10	< 10	---	---	< 50	---	---	< 50	< 10	---	---	< 50	< 50	< 50	---	
Bis(2-chloroisopropyl)ether	9.60E+00 (5)	---	---	< 10	< 10																

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	MW-29						MW-30						MW-31					
	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08		Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08
Bis(2-ethylhexyl)phthalate	6.00E+00	(2)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Butyl benzyl phthalate	3.50E+01	(1)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Carbazole	-			< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Chrysene	9.21E+01	(5)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Dibenz(a,h)anthracene	9.21E-02	(5)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Dibenzofuran	-			< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Diethyl phthalate	2.92E+04	(5)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Dimethyl phthalate	3.65E+05	(5)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Di-n-butyl phthalate	3.65E+03	(5)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Di-n-octyl phthalate	-			< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Fluoranthene	1.46E+03	(5)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Fluorene	1.46E+03	(5)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Hexachlorobenzene	1.00E+00	(2)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Hexachlorobutadiene	8.60E-01	(1)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Hexachlorocyclopentadiene	5.00E+01	(2)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Hexachloroethane	3.65E+01	(5)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Indeno(1,2,3-cd)pyrene	2.90E-02	(1)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Isophorone	7.07E+02	(5)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Naphthalene	1.43E+00	(5)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Nitrobenzene	1.49E+01	(5)		< 10	< 10		---	---	---	---	---	390	< 10	---	---	---	140	---
N-Nitrosodimethylamine	1.32E-02	(5)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
N-Nitrosodi-n-propylamine	9.60E-03	(1)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
N-Nitrosodiphenylamine	1.37E+02	(5)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Pentachlorophenol	1.00E+00	(2)		< 40	< 40		---	---	---	---	---	< 200	< 40	---	---	---	< 200	---
Phenanthrene	1.10E+03	(5)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Phenol	5.00E+00	(3)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Pyrene	1.10E+03	(5)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
Pyridine	3.70E+01	(1)		< 10	< 10		---	---	---	---	---	< 50	< 10	---	---	---	< 50	---
General Chemistry (mg/l):																		
Fluoride	1.6	(3)		0.32	< 0.5	0.33	69	< 0.5	79	< 0.5	0.33	52	0.4	0.36	< 0.5	230	< 0.5	210
Chloride	250	(3)		44	< 0.10	< 0.10	69	< 0.10	*2.5	< 0.10	< 0.10	57	< 0.10	< 0.10	< 0.5	230	< 0.5	210
Nitrite	1	(2)		< 0.10	< 0.10	< 0.10	69	< 0.10	*9.5	< 0.10	< 0.10	---	< 0.10	< 0.10	< 0.5	< 2.0	< 2.0	< 2.0
Bromide	-			0.28	< 0.5	0.43	69	< 0.5	---	< 0.5	0.45	4.60	4.90	5.60	2.1	< 2.0	3.00	12.00
Nitrate	10	(3)		0.59	---	0.93	69	< 0.5	---	< 0.5	0.99	< 2.0	< 0.10	< 0.10	0.73	< 0.5	0.14	15.00
Phosphorus	-			< 0.50	< 0.50	< 0.50	69	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0	< 0.50	< 0.50	< 0.5	< 0.50	< 0.50	< 0.50
Sulfate	600	(3)		160	210	160	210	210	210	210	160	24	12	88	9	4.8	22.0	6.4
Carbon Dioxide (CO ₂)	-			230	230	240	240	240	240	240	200	1300	1300	1100	1000	1100	1000	1100
Alkalinity (CaCO ₃)	-			250	260	240	240	240	240	240	210	1300	1400	1200	1100	1100	1100	1100
Bicarbonate (CaCO ₃)	-			250	260	240	240	240	240	240	210	1300	1400	1200	1100	1100	1100	1100
Total Metals (mg/l):																		
Arsenic	0.01	(2)		< 0.020	< 0.02	< 0.02	0.054	< 0.02	0.034	< 0.02	< 0.02	< 0.02	< 0.02	< 0.020	< 0.02	< 0.02	< 0.02	< 0.02
Barium	1	(3)		0.070	0.028	0.028	0.054	0.028	0.034	0.028	0.028	0.028	0.028	1.1	0.8	0.79	0.81	1.1
Cadmium	0.005	(2)		< 0.0020	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Chromium	0.05	(3)		< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Lead	0.015	(2)		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Selenium	0.05	(2)		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.25	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Silver	0.05	(3)		< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Mercury	0.002	(3)		< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002

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			MW-29						MW-30						MW-31					
			Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	
Dissolved Metals (mg/l):																				
Arsenic	0.1	(3)	0.0013	0.0015	<0.02	<0.02	<0.02	0.0039	---	0.0036	---	<0.02	<0.02	<0.02	0.0042	0.0063	<0.02	<0.02	<0.02	
Barium	1	(3)	0.02	0.026	0.027	<0.02	<0.02	0.93	---	0.83	---	0.74	0.7	0.72	1.3	0.76	0.72	0.81	1.1	
Cadmium	0.01	(3)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	---	<0.002	---	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	
Calcium	-	-	69	82	90	53	---	150	---	150	---	150	190	---	140	110	140	150	---	
Chromium	0.05	(3)	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	---	<0.006	---	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	
Copper	1	(3)	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	---	<0.006	---	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	
Iron	1	(3)	<0.02	<0.02	<0.02	<0.02	<0.02	2.7	---	0.14	---	0.1	0.4	0.37	0.19	0.14	0.1	0.12	0.21	
Lead	0.05	(3)	<0.001	<0.005	<0.005	<0.005	<0.005	<0.001	---	<0.005	---	<0.005	<0.005	<0.005	<0.001	<0.005	<0.005	<0.005	<0.005	
Magnesium	-	-	16	20	23	14	---	48	---	36	---	35	42	---	53	53	67	63	NS ³	
Manganese	0.2	(3)	1.2	1.4	1.6	0.87	0.97	2.8	---	1.5	---	1.4	1.7	1.7	1.1	0.44	0.47	0.51	0.71	
Mercury	-	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Potassium	-	-	2.8	2.7	2.5	2.2	NS ³	4.1	---	3.6	---	3.3	4	NS ³	5.7	4.2	4.4	4.7	NS ³	
Selenium	0.05	(3)	0.0023	0.0026	<0.05	<0.05	<0.25	0.0098	---	0.015	---	<0.05	<0.05	<0.25	0.015	0.029	<0.05	<0.05	<0.05	
Silver	0.05	(3)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	---	<0.005	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	
Sodium	-	-	120	130	120	110	---	590	---	580	---	570	600	---	570	610	630	690	---	
Uranium	0.03	(3)	0.0022	0.0026	0.002	0.0017	0.002	0.0024	---	<0.001	---	<0.001	<0.001	<0.001	0.008	<0.001	<0.001	<0.001	<0.001	
Zinc	10	(3)	0.08	0.15	<0.05	<0.05	0.059	0.040	---	0.026	---	<0.05	<0.05	<0.05	0.085	0.029	<0.05	<0.05	<0.05	
Total Petroleum Hydrocarbons (mg/l):																				
Diesel Range Organics	0.2	(4)	<0.20	<0.20	<0.20	<0.20	<0.20	4.4	---	4.5	---	7.0	24	6.2	1.8	1.1	1.8	5.1	5.1	
Gasoline Range Organics	-	-	<0.050	<0.05	<0.05	<0.05	<0.05	77	---	90	---	63	84	65	26	25	30	19	19	
Motor Oil Range Organics	-	-	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	---	<2.5	---	<2.5	<5.0	<2.5	<2.5	<2.5	<2.5	<0.50	<5.0	

Notes:

- (1) EPA - Regional Screening Levels (April 2009) - EPA Screening Levels. Tap Water
- (2) EPA - Regional Screening Levels (April 2009) - MCL
- (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3101 Standards for Ground Water of 10,000 mg/l TDS Concentration or less
- (4) NMED TPH Screening Guidelines Oct. 2006 - "unknown oil" - see report Sections 5 and 7 for use on location specific screening levels
- (5) NMED Tap Water Screening Levels - 2009 Background Document for Development of Soil Screening Levels

- = No screening level available

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

--- = Analyte inadvertently not included in sample analysis.

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

--- = Analytical result exceeds the respective screening level.

TABLE 3
Refinery Wells Analytical Summary
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Volatile Organic Compounds (ug/L)	MW-40					RW-42					RW-43					MW-44				
	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08
1,1,1,2-Tetrachloroethane	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,1-Trichloroethane	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1,2,2-Tetrachloroethane	---	< 10	< 10	< 10	< 2.0	---	---	---	---	---	---	---	< 100	---	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,1,2-Trichloroethane	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethane	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloroethene	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,1-Dichloropropene	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichlorobenzene	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,3-Trichloropropane	---	< 10	< 10	< 10	< 2.0	---	---	---	---	---	---	---	< 100	---	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,2,4-Trichlorobenzene	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2,4-Trimethylbenzene	---	< 5.0	< 5.0	7.2	120	---	---	---	---	---	---	---	1100	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dibromo-3-chloropropane	---	< 10	< 10	< 10	< 2.0	---	---	---	---	---	---	---	< 100	---	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
1,2-Dibromomethane (EDB)	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichlorobenzene	---	< 5.0	< 5.0	< 5.0	1.4	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloroethane (EDC)	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,2-Dichloropropane	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3,5-Trimethylbenzene	---	< 5.0	< 5.0	< 5.0	19	---	---	---	---	---	---	---	580	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichlorobenzene	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,3-Dichloropropane	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,4-Dichlorobenzene	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1-Methylnaphthalene	---	71	68	93	110	---	---	---	---	---	---	---	< 200	---	---	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
2,2-Dichloropropane	---	< 10	< 10	< 10	< 2.0	---	---	---	---	---	---	---	< 100	---	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
2-Butanone	---	< 50	< 50	< 50	< 10	---	---	---	---	---	---	---	< 500	---	---	< 10	< 10	< 10	< 10	< 10
2-Chlorotoluene	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
2-Hexanone	---	< 50	< 50	< 50	< 10	---	---	---	---	---	---	---	< 500	---	---	< 10	< 10	< 10	< 10	< 10
2-Methylnaphthalene	---	130	120	140	150	---	---	---	---	---	---	---	< 51	---	---	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
4-Chlorotoluene	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Isopropyltoluene	---	< 5.0	< 5.0	< 5.0	3.9	---	---	---	---	---	---	---	55	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
4-Methyl-2-pentanone	---	< 50	< 50	< 50	< 10	---	---	---	---	---	---	---	< 500	---	---	< 10	< 10	< 10	< 10	< 10
Acetone	---	< 50	< 50	< 50	< 10	---	---	---	---	---	---	---	< 500	---	---	< 10	< 10	< 10	< 10	< 10
Benzene	---	23	40	19	34	---	---	---	---	---	---	---	8900	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromobenzene	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromodichloromethane	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromoform	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Bromomethane	---	< 15	< 15	< 15	< 3.0	---	---	---	---	---	---	---	< 150	---	---	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Carbon disulfide	---	< 50	< 50	< 50	< 10	---	---	---	---	---	---	---	< 500	---	---	< 10	< 10	< 10	< 10	< 10
Carbon Tetrachloride	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chlorobenzene	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloroethane	---	< 10	< 10	< 10	< 2.0	---	---	---	---	---	---	---	< 100	---	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Chloroform	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Chloromethane	---	< 15	< 15	< 15	< 3.0	---	---	---	---	---	---	---	< 150	---	---	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
cis-1,2-DCE	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
cis-1,3-Dichloropropene	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromochloromethane	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dibromomethane	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Dichlorodifluoromethane	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Ethylbenzene	---	53	< 5.0	< 5.0	5.6	---	---	---	---	---	---	---	810	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	---	< 5.0	< 5.0	< 5.0	< 1.0	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Isopropylbenzene	---	98	93	78	59	---	---	---	---	---	---	---	150	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Methyl tert-butyl ether (MTBE)	---	< 5.0	11	13	16	---	---	---	---	---	---	---	3600	---	---	1.3	1.1	1.5	1.8	1.8
Methylene Chloride	---	< 15	< 15	< 15	< 3.0	---	---	---	---	---	---	---	< 150	---	---	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0
Naphthalene	---	140	150	130	150	---	---	---	---	---	---	---	150	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Butylbenzene	---	< 5.0	< 5.0	< 5.0	6.2	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
n-Propylbenzene	---	99	100	84	66	---	---	---	---	---	---	---	160	---	---	< 2.0	< 1.0	< 1.0	< 1.0	< 1.0
sec-Butylbenzene	---	10	12	11	11	---	---	---	---	---	---	---	< 50	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0

TABLE 3
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	MW-40						RW-42						RW-43						MW-44					
	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08		Aug-12	Aug-11	Aug-10	Aug-09	Aug-08		Aug-12	Aug-11	Aug-10	Aug-09	Aug-08		Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	
Styrene	---	< 5.0	< 5.0	< 5.0	< 1.0	1.00E+02 (2)	---	---	---	---	---	---	---	---	< 50	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
tert-Butylbenzene	---	< 5.0	< 5.0	< 5.0	1.9	-	---	---	---	---	---	---	---	---	< 50	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Tetrachloroethene (PCE)	---	< 5.0	< 5.0	< 5.0	< 1.0	5.00E+00 (2)	---	---	---	---	---	---	---	---	< 50	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Toluene	---	< 5.0	< 5.0	< 5.0	< 1.0	7.50E+02 (3)	---	---	---	---	---	---	---	---	620	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
trans-1,2-DCE	---	< 5.0	< 5.0	< 5.0	< 1.0	1.00E+02 (2)	---	---	---	---	---	---	---	---	< 50	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
trans-1,3-Dichloropropene	---	< 5.0	< 5.0	< 5.0	< 1.0	4.30E-01 (1)	---	---	---	---	---	---	---	---	< 50	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Trichloroethene (TCE)	---	< 5.0	< 5.0	< 5.0	< 1.0	5.00E+00 (2)	---	---	---	---	---	---	---	---	< 50	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Trichlorofluoromethane	---	< 5.0	< 5.0	< 5.0	< 1.0	1.29E+03 (5)	---	---	---	---	---	---	---	---	< 50	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Vinyl chloride	---	< 5.0	< 5.0	< 5.0	< 1.0	1.00E+00 (3)	---	---	---	---	---	---	---	---	< 50	---	---	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	
Xylenes, Total	---	< 7.5	< 7.5	< 7.5	1.8	6.20E+02 (3)	---	---	---	---	---	---	---	---	5100	---	---	---	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	
Semi Volatile Organic Compounds (ug/l):																								
1,2,4-Trichlorobenzene	---	---	---	< 50	< 10	7.00E+01 (2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	
1,2-Dichlorobenzene	---	---	---	< 50	< 10	6.00E+02 (2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	
1,3-Dichlorobenzene	---	---	---	< 50	< 10	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	
1,4-Dichlorobenzene	---	---	---	< 50	< 10	7.50E+01 (2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	
1-Methylnaphthalene	---	---	---	< 50	< 10	2.30E+00 (1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	
2,4,5-Trichlorophenol	---	---	---	< 50	< 10	3.65E+03 (5)	---	---	---	< 50	---	---	---	---	---	---	---	---	---	---	---	---	< 10	
2,4,6-Trichlorophenol	---	---	---	< 100	< 20	3.65E+01 (5)	---	---	---	< 100	---	---	---	---	---	---	---	---	---	---	---	---	< 20	
2,4-Dichlorophenol	---	---	---	< 50	< 10	1.10E+02 (5)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
2,4-Dimethylphenol	---	---	---	< 100	< 20	7.30E+02 (5)	---	---	---	< 100	< 20	---	---	---	---	---	---	---	---	---	---	---	< 20	
2,4-Dinitrophenol	---	---	---	< 50	< 10	7.30E+01 (5)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
2,4-Dinitrotoluene	---	---	---	< 50	< 10	2.17E+00 (5)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
2,6-Dinitrotoluene	---	---	---	< 50	< 10	3.70E+01 (1)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
2-Chloronaphthalene	---	---	---	< 50	< 10	2.90E+03 (1)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
2-Chlorophenol	---	---	---	< 50	< 10	1.83E+02 (5)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
2-Methylnaphthalene	---	---	---	290	< 10	1.50E+02 (1)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
2-Methylphenol	---	---	---	< 50	< 10	1.80E+03 (1)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
2-Nitroaniline	---	---	---	< 50	< 10	1.10E+02 (1)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
2-Nitrophenol	---	---	---	< 50	< 10	-	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
3,3'-Dichlorobenzidine	---	---	---	< 50	< 10	1.50E-01 (1)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
3+4-Methylphenol	---	---	---	< 50	< 10	1.80E+02 (1)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
3-Nitroaniline	---	---	---	< 50	< 10	-	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
4,6-Dinitro-2-methylphenol	---	---	---	< 100	< 20	-	---	---	---	< 100	< 20	---	---	---	---	---	---	---	---	---	---	---	< 20	
4-Bromophenyl phenyl ether	---	---	---	< 50	< 10	-	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
4-Chloro-3-methylphenol	---	---	---	< 50	< 10	-	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
4-Chloroaniline	---	---	---	< 50	< 10	3.40E-01 (1)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
4-Chlorophenyl phenyl ether	---	---	---	< 50	< 10	-	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
4-Nitroaniline	---	---	---	< 50	< 20	3.40E+00 (1)	---	---	---	< 50	< 20	---	---	---	---	---	---	---	---	---	---	---	< 10	
4-Nitrophenol	---	---	---	< 50	< 10	-	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
Acenaphthene	---	---	---	< 50	< 10	2.19E+03 (5)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
Acenaphthylene	---	---	---	< 50	< 10	-	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
Aniline	---	---	---	< 50	< 10	1.20E+01 (1)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
Anthracene	---	---	---	< 50	< 10	1.10E+04 (5)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
Azobenzene	---	---	---	< 50	< 10	1.20E-01 (1)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
Benz(a)anthracene	---	---	---	< 50	< 10	9.21E-01 (5)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
Benzo(a)pyrene	---	---	---	< 50	< 10	2.00E-01 (2)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
Benzo(b)fluoranthene	---	---	---	< 50	< 10	9.21E-01 (5)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
Benzo(g,h,i)perylene	---	---	---	< 50	< 10	-	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
Benzo(k)fluoranthene	---	---	---	< 50	< 10	9.21E+00 (5)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
Benzoic acid	---	---	---	< 100	< 20	1.50E+05 (1)	---	---	---	< 100	< 20	---	---	---	---	---	---	---	---	---	---	---	< 10	
Benzyl alcohol	---	---	---	< 50	< 10	1.80E+04 (1)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
Bis(2-chloroethoxy)methane	---	---	---	< 50	< 10	1.10E+02 (1)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
Bis(2-chloroethyl)ether	---	---	---	< 50	< 10	1.19E-01 (5)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	
Bis(2-chloroisopropyl)ether	---	---	---	< 50	< 10	9.60E+00 (5)	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	< 10	

TABLE 3
Refinery Wells Analytical Summary
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	MW-40					RW-42					RW-43					MW-44				
	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08
Bis(2-ethylhexyl)phthalate	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Butyl benzyl phthalate	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Carbazole	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Chrysene	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Dibenz(a,h)anthracene	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Dibenzofuran	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Diethyl phthalate	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Dimethyl phthalate	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Di-n-butyl phthalate	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Di-n-octyl phthalate	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Fluoranthene	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Fluorene	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Hexachlorobenzene	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Hexachlorobutadiene	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Hexachlorocyclopentadiene	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Hexachloroethane	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Indeno(1,2,3-cd)pyrene	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Isophorone	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Naphthalene	---	---	---	79	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Nitrobenzene	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
N-Nitrosodimethylamine	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
N-Nitrosodi-n-propylamine	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
N-Nitrosodiphenylamine	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Pentachlorophenol	---	---	---	< 200	< 40	---	---	---	---	---	---	---	---	---	---	---	---	---	< 40	< 40
Phenanthrene	---	---	---	52	56	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Phenol	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Pyrene	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
Pyridine	---	---	---	< 50	< 10	---	---	---	---	---	---	---	---	---	---	---	---	---	< 10	< 10
General Chemistry (mg/l):																				
Fluoride	---	< 0.50	0.24	0.28	0.33	---	---	---	---	---	---	---	---	< 1.0	---	0.16	0.25	0.13	0.19	0.62
Chloride	---	320	320	310	310	---	---	---	---	---	---	---	---	280	---	68	59	65	69	72
Nitrite	---	*16	*15	< 2.0	< 2.0	---	---	---	---	---	---	---	---	< 1.0	---	< 1.0	*< 1.0	< 0.10	*< 1.0	< 0.10
Bromide	---	4.40	4.10	4.00	4.40	---	---	---	---	---	---	---	---	3.70	---	0.22	0.20	0.23	0.27	0.28
Nitrate	---	*16	*15	< 0.10	< 2.0	---	---	---	---	---	---	---	---	< 1.0	---	< 0.1	---	0.19	*< 1.0	< 0.10
Phosphorus	---	< 2.5	< 0.0025	< 0.50	< 0.50	---	---	---	---	---	---	---	---	6.00	---	< 10	< 10	< 10	< 0.50	< 0.50
Sulfate	---	< 2.5	< 0.50	< 0.50	< 0.50	---	---	---	---	---	---	---	---	15.00	---	3000	3200	3200	2900	3000
Carbon Dioxide (CO ₂)	---	1100	1100	1100	1200	---	---	---	---	---	---	---	---	1000	---	360	340	340	330	360
Alkalinity (CaCO ₃)	---	1200	1100	1100	1200	---	---	---	---	---	---	---	---	1000	---	380	360	340	350	350
Bicarbonate (CaCO ₃)	---	1200	1100	1100	1200	---	---	---	---	---	---	---	---	1000	---	380	360	340	350	350
Total Metals (mg/l):																				
Arsenic	---	< 0.02	< 0.02	< 0.02	< 0.02	---	---	---	---	---	---	---	---	< 0.02	---	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Barium	---	2	2.3	2.8	1.8	---	---	---	---	---	---	---	---	7.5	---	0.22	< 0.02	< 0.02	< 0.02	< 0.02
Cadmium	---	< 0.002	< 0.002	< 0.002	< 0.002	---	---	---	---	---	---	---	---	< 0.002	---	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Chromium	---	< 0.006	0.012	< 0.006	< 0.006	---	---	---	---	---	---	---	---	0.14	---	0.037	< 0.006	< 0.006	< 0.006	< 0.006
Lead	---	< 0.005	0.006	0.0075	< 0.005	---	---	---	---	---	---	---	---	0.03	---	0.010	< 0.005	< 0.005	< 0.005	< 0.005
Selenium	---	< 0.05	< 0.05	< 0.25	< 0.25	---	---	---	---	---	---	---	---	< 0.05	---	< 0.05	< 0.05	< 0.05	< 0.05	< 0.25
Silver	---	< 0.005	< 0.005	< 0.005	< 0.005	---	---	---	---	---	---	---	---	< 0.005	---	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Mercury	---	< 0.0002	< 0.0002	< 0.0002	< 0.0002	---	---	---	---	---	---	---	---	0.0009	---	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002

TABLE 3
Refinery Wells Analytical Summary
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			MW-40				RW-42				RW-43				MW-44			
			Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	
Dissolved Metals (mg/l):																		
Arsenic	0.1	(3)	---	0.0055	<0.02	<0.02	<0.02	<0.02	---	---	---	---	---	<0.002	<0.02	<0.02	<0.02	
Barium	1	(3)	---	1.8	1.7	1.7	1.8	---	---	---	---	---	---	0.015	0.014	0.7	<0.02	
Cadmium	0.01	(3)	---	<0.002	<0.002	<0.002	<0.002	---	---	<0.002	---	---	---	<0.002	<0.002	<0.002	<0.002	
Calcium	-	-	---	95	100	86	91	---	---	120	---	---	---	490	480	190	470	
Chromium	0.05	(3)	---	<0.006	<0.006	<0.006	<0.006	---	---	<0.006	---	---	---	<0.006	<0.006	<0.006	<0.006	
Copper	1	(3)	---	<0.006	<0.006	<0.006	<0.006	---	---	<0.006	---	---	---	<0.006	<0.006	<0.006	<0.006	
Iron	1	(3)	---	5	4.6	6.2	5.5	---	---	0.85	---	---	---	0.35	<0.02	0.4	0.083	
Lead	0.05	(3)	---	<0.005	<0.005	<0.005	<0.005	---	---	<0.005	---	---	---	<0.001	<0.005	<0.005	<0.005	
Magnesium	-	-	---	44	47	41	42	---	---	61	---	---	---	58	68	42	64	
Manganese	0.2	(3)	---	2.3	2.2	2.3	2.5	---	---	2.8	---	---	---	0.91	0.0029	1.7	1.7	
Mercury	-	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
Potassium	-	-	---	3.8	3.8	3.8	3.5	---	---	40	---	---	---	8.8	8.2	8.1	8	
Selenium	0.05	(3)	---	0.014	<0.05	<0.05	<0.25	---	---	<0.05	---	---	---	0.0022	<0.002	<0.05	<0.25	
Silver	0.05	(3)	---	<0.005	<0.005	<0.005	<0.005	---	---	<0.005	---	---	---	<0.005	<0.005	<0.005	<0.005	
Sodium	-	-	---	540	500	540	520	---	---	410	---	---	---	950	920	940	900	
Uranium	0.03	(3)	---	<0.001	<0.001	<0.001	<0.001	---	---	<0.001	---	---	---	0.0015	<0.002	<0.001	0.001	
Zinc	10	(3)	---	0.14	<0.05	0.057	0.063	---	---	<0.05	---	---	---	0.22	0.086	<0.05	<0.05	
Total Petroleum Hydrocarbons (mg/l):																		
Diesel Range Organics	0.2	(4)	---	9.7	26	17	41	---	---	89	---	---	---	0.46	<0.20	0.22	<1.0	
Gasoline Range Organics	-	-	---	8	5.8	5.4	5.1	---	---	48	---	---	---	<0.05	<0.05	<0.05	<0.05	
Motor Oil Range Organics	-	-	---	<2.5	3.4	<5.0	<5.0	---	---	<25	---	---	---	<2.5	<2.5	<5.0	<5.0	

Notes:

- (1) EPA - Regional Screening Levels (April 2009) - EPA Screening Levels.Tap Water
- (2) EPA - Regional Screening Levels (April 2009) - MCL
- (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3101 Standards for Ground Water of 10,000 mg/l TDS Concentration or less
- (4) NMED TPH Screening Guidelines Oct. 2006 - "unknown oil" - see report Sections 5 and 7 for use on location specific screening levels
- (5) NMED TAP Water Screening Levels - 2009 Background Document for Development of Soil Screening Levels

- = No screening level available
- * = Analyte inadvertently not included in sample analysis.
-
-
- = Analysis not required and/or well contains separate phase
- = Analytical result exceeds the respective screening level.

TABLE 4
Cross-Gradient Wells Analytical Summary
2012 Groundwater Remediation Monitoring Annual Report

[illegible]

TABLE 4
Cross-Gradient Wells Analytical Summary
2012 Groundwater Remediation Monitoring Annual Report

Semi Volatile Organic Compounds (ug/l):	MW-1				MW-13				MW-26				MW-27				MW-32				MW-33			
	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Aug-09	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Aug-09	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Aug-09	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Aug-09
1,2,4-Trichlorobenzene	7.00E+01	(2)				<10						<10												<10
1,2-Dichlorobenzene	6.00E+02	(2)				<10						<10												<10
1,3-Dichlorobenzene	-	-				<10						<10												<10
1,4-Dichlorobenzene	7.50E+01	(2)				<10						<10												<10
1-Methylnaphthalene	2.30E+00	(1)				<10						<10												<10
2,4,5-Trichlorophenol	3.65E+03	(5)				<10						<10												<10
2,4,6-Trichlorophenol	3.65E+01	(5)				<10						<10												<10
2,4-Dichlorophenol	1.10E+02	(5)				<10						<10												<10
2,4-Dimethylphenol	7.30E+02	(5)				<10						<10												<10
2,4-Dinitrophenol	7.30E+01	(5)				<20						<20												<20
2,4-Dinitrotoluene	2.17E+00	(5)				<10						<10												<10
2,6-Dinitrotoluene	3.70E+01	(1)				<10						<10												<10
2-Chloronaphthalene	2.90E+03	(1)				<10						<10												<10
2-Chlorophenol	1.83E+02	(5)				<10						<10												<10
2-Methylnaphthalene	1.50E+02	(1)				<10						<10												<10
2-Methylphenol	1.80E+03	(1)				<10						<10												<10
2-Nitroaniline	1.10E+02	(1)				<10						<10												<10
2-Nitrophenol	-	-				<10						<10												<10
3,3'-Dichlorobenzidine	1.50E-01	(1)				<10						<10												<10
3+4-Methylphenol	1.80E+02	(1)				<10						<10												<10
3-Nitroaniline	-	-				<10						<10												<10
4,6-Dinitro-2-methylphenol	-	-				<20						<20												<20
4-Bromophenyl phenyl ether	-	-				<10						<10												<10
4-Chloro-3-methylphenol	-	-				<10						<10												<10
4-Chloroaniline	3.40E-01	(1)				<10						<10												<10
4-Chlorophenyl phenyl ether	-	-				<10						<10												<10
4-Nitroaniline	3.40E+00	(1)				<10						<10												<10
4-Nitrophenol	-	-				<10						<10												<10
Acenaphthene	2.19E+03	(5)				<10						<10												<10
Acenaphthylene	-	-				<10						<10												<10
Aniline	1.20E+01	(1)				<10						<10												<10
Anthracene	1.10E+04	(5)				<10						<10												<10
Azobenzene	1.20E-01	(1)				<10						<10												<10
Benz(a)anthracene	9.21E-01	(5)				<10						<10												<10
Benzo(a)pyrene	2.00E-01	(2)				<10						<10												<10
Benzo(b)fluoranthene	9.21E-01	(5)				<10						<10												<10
Benzo(g,h,i)perylene	-	-				<10						<10												<10
Benzo(k)fluoranthene	9.21E+00	(5)				<10						<10												<10
Benzoic acid	1.50E+05	(1)				<20						<20												<20
Benzyl alcohol	1.80E+04	(1)				<10						<10												<10
Bis(2-chloroethoxy)methane	1.10E+02	(1)				<10						<10												<10
Bis(2-chloroisopropyl)ether	1.19E-01	(5)				<10						<10												<10
Bis(2-chloroisopropyl)ether	9.60E+00	(5)				<10						<10												<10
Bis(2-ethylhexyl)phthalate	6.00E+00	(2)				<10						<10												<10
Butyl benzyl phthalate	3.50E+01	(1)				<10						<10												<10
Carbazole	-	-				<10						<10												<10
Chrysene	9.21E+01	(5)				<10						<10												<10
Dibenz(a,h)anthracene	9.21E-02	(5)				<10						<10												<10
Dibenzofuran	-	-				<10						<10												<10
Diethyl phthalate	2.92E+04	(5)				<10						<10												<10
Dimethyl phthalate	3.65E+05	(5)				<10						<10												<10
Di-n-butyl phthalate	3.65E+03	(5)				<10						<10												<10
Di-n-octyl phthalate	-	-				<10						<10												<10
Fluoranthene	1.46E+03	(5)				<10						<10												<10
Fluorene	1.46E+03	(5)				<10						<10												<10
Hexachlorobenzene	1.00E+00	(2)				<10						<10												<10
Hexachlorobutadiene	8.60E-01	(1)				<10						<10												<10
Hexachlorocyclopentadiene	5.00E+01	(2)				<10						<10												<10
Hexachloroethane	3.65E+01	(5)				<10						<10												<10
Indeno(1,2,3-cd)pyrene	2.90E-02	(1)				<10						<10												<10
Isophorone	7.07E+02	(5)				<10						<10												<10
Naphthalene	1.43E+00	(5)				<10						<10												<10
Nitrobenzene	1.49E+01	(5)				<10						<10												<10
N-Nitrosodimethylamine	1.32E-02	(5)				<10						<10												<10
N-Nitrosodi-n-propylamine	9.60E-03	(1)				<10						<10												

TABLE 4
Cross-Gradient Wells Analytical Summary
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		MW-1					MW-13					MW-26					MW-27					MW-32					MW-33						
		Aug-12	Apr-11	Aug-11	Aug-10	Aug-09	Aug-12	Apr-11	Aug-11	Aug-10	Aug-09	Aug-12	Aug-11	Aug-10	Aug-09	Aug-12	Aug-11	Aug-10	Aug-09	Aug-12	Apr-11	Aug-11	Aug-10	Aug-09									
General Chemistry (mg/l):																																	
Fluoride	1.6	(3)	0.48	---	0.54	---	0.56	0.53	< 0.10	---	0.15	---	0.11	0.16	< 1.0	< 0.50	0.34	0.32	0.38	0.39	0.4	0.14	< 0.10	0.22	0.2	0.21	---	---	0.3	---	0.36	0.32	
Chloride	250	(3)	8.5	---	11	---	15	16	190	---	230	---	230	200	250	300	320	400	180	240	380	480	620	690	900	840	---	---	530	---	400	600	
Nitrite	1	(2)	< 0.10	---	< 0.10	---	< 0.12	< 0.10	< 2.0	---	< 2.0	---	< 2.0	< 2.0	< 1.0	< 0.50	< 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		
Bromide	-	-	< 0.10	---	0.10	---	0.12	0.30	1.7	---	2.70	---	2.80	2.60	4.1	4.30	4.40	5.20	1.30	1.80	3.10	4.3	4.10	4.60	4.80	7.90	---	---	2.40	---	1.90	5.40	
Nitrate	10	(3)	0.49	---	0.99	---	1.40	0.69	4.0	---	5.80	---	5.40	5.80	< 1.0	< 0.50	1.90	< 0.10	< 0.1	< 0.1	< 0.1	< 0.10	43	48	34	37	---	0.29	28	23	---		
Phosphorus	-	-	< 0.50	---	< 0.50	---	< 0.50	< 0.50	< 0.50	---	< 0.50	---	< 0.50	< 0.50	< 5.0	< 2.5	< 0.50	< 0.50	< 0.5	< 0.50	< 0.50	< 10	< 10	< 0.50	< 0.50	< 0.50	---	< 0.50	< 0.50	< 0.50	< 0.50		
Sulfate	600	(6)	76	---	110	---	150	70	1100	---	1100	---	1100	1000	< 5.0	< 2.5	0.99	< 0.50	960	1000	1500	1800	1500	1600	1700	1500	---	---	2100	1300	1000	1000	
Carbon Dioxide (CO ₂)	-	-	250	---	270	---	280	250	870	---	880	---	900	840	1100	1100	1100	1100	280	380	380	280	160	170	160	150	---	---	200	130	120	120	
Alkalinity (CaCO ₃)	-	-	270	---	290	---	280	270	940	---	940	---	900	890	1200	1200	1100	1100	290	290	410	310	180	180	160	170	---	---	210	130	130	130	
Bicarbonate (CaCO ₃)	-	-	270	---	290	---	280	270	940	---	940	---	900	890	1200	1200	1100	1100	290	290	410	310	180	180	160	170	---	---	210	130	130	130	
Total Metals (mg/l):																																	
Arsenic	0.01	(2)	< 0.02	---	< 0.02	---	< 0.02	< 0.02	< 0.001	---	< 0.02	---	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.020	< 0.0002	< 0.02	< 0.02	---	< 0.02	< 0.02	< 0.02	< 0.02		
Barium	1	(3)	0.11	---	0.038	---	0.099	0.18	0.030	---	0.027	---	0.027	0.023	2.4	2.3	2.3	2.4	0.03	0.088	0.084	0.091	0.029	0.031	0.06	0.033	---	---	0.023	< 0.02	< 0.02	< 0.02	
Cadmium	0.005	(2)	< 0.002	---	< 0.002	---	< 0.002	< 0.002	< 0.002	---	< 0.002	---	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	---	< 0.002	< 0.002	< 0.002	< 0.002		
Chromium	0.05	(3)	< 0.006	---	< 0.006	---	< 0.006	< 0.006	0.010	---	< 0.006	---	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	---	< 0.006	< 0.006	< 0.006	< 0.006		
Lead	0.015	(2)	< 0.005	---	< 0.005	---	< 0.005	< 0.005	< 0.0050	---	< 0.005	---	< 0.005	0.005	< 0.005	< 0.005	< 0.005	0.008	0.007	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.0074	---	< 0.005	< 0.005	< 0.005	< 0.005		
Selenium	0.05	(2)	< 0.05	---	< 0.05	---	< 0.05	< 0.05	< 0.050	---	< 0.05	---	< 0.05	< 0.25	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	---	< 0.05	< 0.05	< 0.05	< 0.05		
Silver	0.05	(3)	< 0.005	---	< 0.005	---	< 0.005	< 0.005	< 0.005	---	< 0.005	---	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	---	< 0.005	< 0.005	< 0.005	< 0.005		
Mercury	0.002	(3)	< 0.0002	---	< 0.0002	---	< 0.0002	< 0.0002	< 0.0002	---	< 0.001	---	0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	---	< 0.0002	< 0.0002	< 0.0002	< 0.0002		
Dissolved Metals (mg/l):																																	
Arsenic	0.1	(3)	< 0.001	---	< 0.001	---	< 0.02	< 0.02	< 0.0021	---	0.0028	---	< 0.02	< 0.02	0.099	0.009	< 0.02	< 0.02	< 0.02	0.0025	< 0.02	0.0030	0.0034	0.0044	< 0.02	< 0.02	---	0.0025	< 0.02	< 0.02	< 0.02		
Barium	1	(3)	0.025	---	0.026	---	0.025	< 0.02	0.025	---	0.024	---	0.024	0.022	2.3	2.3	2.1	2.2	0.03	0.046	0.03	0.020	0.019	0.022	0.022	0.022	---	0.02	0.02	< 0.02	< 0.02		
Cadmium	0.01	(3)	< 0.002	---	< 0.002	---	< 0.002	< 0.002	< 0.0020	---	< 0.002	---	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.0020	< 0.0020	< 0.0020	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	---	< 0.002	< 0.002	< 0.002	< 0.002		
Calcium	-	-	71	---	77	---	77	63	290	---	300	---	270	240	120	130	120	120	230	260	380	470	340	360	330	260	230	---	410	260	230	230	
Chromium	0.05	(3)	< 0.006	---	< 0.006	---	< 0.006	< 0.006	< 0.0060	---	< 0.006	---	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	---	< 0.006	< 0.006	< 0.006	< 0.006		
Copper	1	(3)	< 0.006	---	< 0.006	---	< 0.006	< 0.006	< 0.006	---	< 0.006	---	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	---	< 0.006	< 0.006	< 0.006	< 0.006		
Iron	1	(3)	< 0.020	---	0.023	---	0.039	0.041	< 0.02	---	< 0.02	---	< 0.02	< 0.02	5.2	6	6	7.2	0.4	0.2	0.35	< 0.010	< 0.020	< 0.02	< 0.02	< 0.02	< 0.02	---	< 0.02	< 0.02	< 0.02	< 0.02	
Lead	0.05	(3)	< 0.001	---	< 0.005	---	< 0.005	< 0.005	< 0.0010	---	0.005	---	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.005	< 0.005	< 0.005	---	< 0.005	< 0.005	< 0.005	< 0.005		
Magnesium	-	-	17	---	19	---	20	16	89	---	88	---	94	76	43	45	41	41	33	39	54	68	47	50	57	52	---	55	39	33	33	33	
Manganese	0.2	(3)	0.097	---	0.039	---	0.027	0.031	0.97	---	1.4	---	1.4	1.3	2.6	2.7	2.8	2.9	2.1	2.6	3	0.95	< 0.020	< 0.002	< 0.002	< 0.002	< 0.002	---	0.083	< 0.002	< 0.002	< 0.002	
Mercury	-	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Potassium	-	-	1.9	---	2.4	---	2.3	2.6	4.9	---	4.4	---	4.3	4	4.1	3.9	3.7	3.7	2.7	2.6	2.6	3.4	4.4	4.4	4.4	4.8	---	1.9	4.5	5.5	5.5	5.5	
Selenium	0.05	(3)	< 0.001	---	0.0014	---	< 0.05	< 0.05	< 0.010	---	0.012	---	< 0.05	< 0.05	< 0.010	0.014	< 0.05	< 0.05	< 0.05	< 0.0095	< 0.05	< 0.050	0.031	< 0.05	< 0.05	< 0.05	---	0.024	< 0.05	< 0.05	< 0.05		
Silver	0.05	(3)	< 0.005	---	< 0.005	---	< 0.005	< 0.005	< 0.005	---	< 0.005	---	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	---	< 0.005	< 0.005	< 0.005	< 0.005		
Sodium	-	-	62	---	78	---	77	85	610	---	600	---	600	540	480	500	470	460	350	390	530	630	790	910	780	600	550	---	780	600	550	550	
Uranium	0.03	(3)	0.0026	---	0.0029	---	0.0022	0.002	0.0087	---	0.01	---	0.0078	0.008	< 0.001	< 0.001	< 0.001	< 0.001	0.0014	0.0015	0.0021	0.012	0.013	0.0083	0.01	---	---	0.017	0.0064	0.006	0.006		
Zinc	10	(3)	0.029	---	0.057	---	< 0.05	< 0.05	0.066	---	0.068	---	< 0.05	< 0.05	0.056	0.072	< 0.05	< 0.05	< 0.005	0.053	< 0.05	0.11	0.12	0.099	< 0.05	< 0.05	---	0.052	< 0.05	< 0.05	< 0.05		
Total Petroleum Hydrocarbons (mg/l):																																	
Diesel Range Organics	0.2	(4)	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	---	< 0.20	---	< 0.20	0.34	1.7	1.3	< 0.2	2.4	0.47	< 0.20	0.45	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20		
Gasoline Range Organics	-	-	< 0.05	< 0.050	< 0.05	< 0.05	0.067	< 0.05	< 0.05	---	< 0.05	---	< 0.05	< 0.05	12	4.0	< 0.05	4.3	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05		
Motor Oil Range Organics	-	-	< 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	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5		

TABLE 5
Downgradient Wells
Analytical Summary
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Volatile Organic Compounds (ug/L)	MW-11					MW-12					MW-34						
	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08
1,1,1,2-Tetrachloroethane	< 5.0	< 5.0	< 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	< 5.0	< 5.0	< 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	< 10	< 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	< 5.0	< 5.0	< 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	< 5.0	< 5.0	< 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	< 5.0	< 5.0	< 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	-	-	-	-	-	-	---	-	---	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	< 5.0	< 5.0	< 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	< 10	< 10	< 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	< 5.0	< 5.0	< 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	350	0.43	630	670	860	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	6.1	65	44	180	210
1,2-Dibromo-3-chloropropane	< 10	< 10	< 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)	< 5.0	< 5.0	< 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	< 5.0	< 5.0	< 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	< 5.0	< 5.0	< 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	< 5.0	< 5.0	< 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	< 5.0	< 5.0	< 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	< 5.0	< 5.0	< 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	< 5.0	< 5.0	< 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	< 20	< 20	17	20	18	< 4.0	---	< 4.0	---	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	4.6	4.7
2,2-Dichloropropane	< 10	< 10	< 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	< 5.0	< 5.0	< 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-Chlorotoluene	< 5.0	< 5.0	< 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	< 5.0	< 5.0	< 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-Methylnaphthalene	< 20	0.028	36	37	28	< 4.0	---	< 4.0	---	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0	< 4.0
4-Chlorotoluene	< 5.0	< 5.0	< 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	< 5.0	0.0054	8.3	5.9	5.2	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	2.9	1.7	4.5	5.2
4-Methyl-2-pentanone	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10.0	< 10.0
Acetone	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 10.0	< 10.0
Benzene	< 5.0	56	1.4	99	3.8	< 1.0	< 1	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	20	< 1.0	32	3.3
2,18E+04	< 5.0	< 5.0	< 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
5,00E+00	< 5.0	< 5.0	< 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
2,00E+01	< 5.0	0.0054	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
1,17E+00	< 5.0	< 5.0	< 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
8,50E+00	< 5.0	< 5.0	< 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
Bromochloromethane	< 15	< 15	< 1.0	< 3.0	< 3.0	< 3.0	---	< 3.0	---	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 1.0	< 1.0
Bromomethane	< 5.0	< 5.0	< 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
Carbon disulfide	< 5.0	< 5.0	< 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
Carbon Tetrachloride	< 5.0	< 5.0	< 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	< 5.0	< 5.0	< 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
1,00E+02	< 10	< 10	< 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
Chloroethane	< 5.0	< 5.0	< 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
Chloroform	< 15	< 15	< 1.0	< 3.0	< 3.0	< 3.0	---	< 3.0	---	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 1.0	< 1.0
Chloromethane	< 5.0	< 5.0	< 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-1,2-DCE	< 5.0	< 5.0	< 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	< 5.0	< 5.0	< 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	< 5.0	< 5.0	< 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	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
3,95E+02	< 5.0	< 5.0	< 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	< 5.0	< 5.0	< 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	< 5.0	< 5.0	3.8	4.0	2.2	< 1.0	< 1	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Hexachlorobutadiene	< 5.0	< 5.0	< 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
8,60E-01	< 5.0	< 5.0	< 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
Methyl tert-butyl ether (MTBE)	51	0.074	71	77	61	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	7.6	20	19	23	25
Isopropylbenzene	8	0.012	11	14	19	< 1.0	< 1	< 1.0	---	< 1.0	< 1.0	< 1.0	2.3	3.1	2.1	4.1	2.6
5,00E+00	< 15	< 15	< 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
Methylene Chloride	63	0.097	110	100	97	< 3.0	---	< 3.0	---	< 3.0	< 3.0	< 3.0	< 3.0	6.2	5	9.8	9.4
Naphthalene	< 15	< 15	< 3.0	25	3.1	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	< 1.0	1.4	< 1.0	< 1.0	< 1.0
n-Butylbenzene	56	0.075	73	76	60	< 2.0	---	< 2.0	---	< 2.0	< 2.0	< 2.0	7.2	15	11	17	20
n-Propylbenzene	9	0.012	13	13	12	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	4.7	7.2	6.5	8.5	9.7
sec-Butylbenzene	< 5.0	< 5.0	< 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
Styrene	< 5.0	< 5.0	2.9	2.6	2.7	< 1.0	---	< 1.0	---	< 1.0	< 1.0	< 1.0	1.9	2.3	2.1	2.4	2.4
tert-Butylbenzene	< 5.0	< 5.0	< 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
Tetrachloroethene (PCE)	< 5.0	< 5.0	< 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
7,50E+02	< 5.0	< 5.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1	< 1.0	---	< 1.							

TABLE 5
Downgradient Wells
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		MW-11					MW-12					MW-34				
		Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Apr-11	Aug-11	Aug-10	Aug-09	Aug-10	Aug-11	Aug-10	Aug-09	Aug-08
Trichloroethene (TCE)	5.00E+00	(2)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Trichlorofluoromethane	1.29E+03	(5)	< 5.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0
Vinyl chloride	1.00E+00	(3)	< 5.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0	< 1.0	< 1.0	---	---	< 1.0	< 1.0
Xylenes, Total	6.20E+02	(3)	< 7.5	< 2.0	< 2.0	< 1.5	< 2	---	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	< 1.5	1.7
Semi Volatile Organic Compounds (ug/l):																
1,2,4-Trichlorobenzene	7.00E+01	(2)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
1,2-Dichlorobenzene	6.00E+02	(2)	---	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
1,3-Dichlorobenzene	-	-	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
1,4-Dichlorobenzene	7.50E+01	(2)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
1-Methylnaphthalene	2.30E+00	(1)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
2,4,5-Trichlorophenol	3.65E+03	(5)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
2,4,6-Trichlorophenol	3.65E+01	(5)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
2,4-Dichlorophenol	1.10E+02	(5)	< 20	< 20	< 20	< 20	---	---	< 20	< 20	< 20	< 20	---	---	< 20	< 20
2,4-Dimethylphenol	7.30E+01	(5)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
2,4-Dinitrophenol	7.30E+01	(5)	< 20	< 20	< 20	< 20	---	---	< 20	< 20	< 20	< 20	---	---	< 10	< 10
2,4-Dinitrotoluene	2.17E+00	(5)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
2,6-Dinitrotoluene	3.70E+01	(1)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
2-Chloronaphthalene	2.90E+03	(1)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
2-Chlorophenol	1.83E+02	(5)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
2-Methylnaphthalene	1.50E+02	(1)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
2-Methylphenol	1.80E+03	(1)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
2-Nitroaniline	1.10E+02	(1)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
2-Nitrophenol	-	-	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
3,3'-Dichlorobenzidine	1.50E-01	(1)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
3+4-Methylphenol	1.80E+02	(1)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
3-Nitroaniline	-	-	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
4,6-Dinitro-2-methylphenol	-	-	< 20	< 20	< 20	< 20	---	---	< 20	< 20	< 20	< 20	---	---	< 20	< 20
4-Bromophenyl phenyl ether	-	-	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
4-Chloro-3-methylphenol	-	-	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
4-Chloroaniline	3.40E-01	(1)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
4-Chlorophenyl phenyl ether	-	-	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
4-Nitroaniline	3.40E+00	(1)	< 20	< 20	< 20	< 20	---	---	< 20	< 20	< 20	< 20	---	---	< 10	< 10
4-Nitrophenol	-	-	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Acenaphthene	2.19E+03	(5)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Acenaphthylene	-	-	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Aniline	1.20E+01	(1)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Anthracene	1.10E+04	(5)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Azobenzene	1.20E-01	(1)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Benz(a)anthracene	9.21E-01	(5)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Benzo(a)pyrene	2.00E-01	(2)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Benzo(b)fluoranthene	9.21E-01	(5)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Benzo(g,h,i)perylene	-	-	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Benzo(k)fluoranthene	9.21E+00	(5)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Benzoic acid	1.50E+05	(1)	< 20	< 20	< 20	< 20	---	---	< 20	< 20	< 20	< 20	---	---	< 20	< 20
Benzyl alcohol	1.80E+04	(1)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Bis(2-chloroethoxy)methane	1.10E+02	(1)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Bis(2-chloroethyl)ether	1.19E-01	(5)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Bis(2-chloroisopropyl)ether	9.60E+00	(5)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Bis(2-ethylhexyl)phthalate	6.00E+00	(2)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Butyl benzyl phthalate	3.50E+01	(1)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Carbazole	-	-	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Chrysene	9.21E+01	(5)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Dibenz(a,h)anthracene	9.21E-02	(5)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Dibenzofuran	-	-	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Diethyl phthalate	2.92E+04	(5)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Dimethyl phthalate	3.65E+05	(5)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Di-n-butyl phthalate	3.65E+03	(5)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Di-n-octyl phthalate	-	-	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Fluoranthene	1.46E+03	(5)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Fluorene	1.46E+03	(5)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Hexachlorobenzene	1.00E+00	(2)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Hexachlorobutadiene	8.60E-01	(1)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Hexachlorocyclopentadiene	5.00E+01	(2)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Hexachloroethane	3.65E+01	(5)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10
Indeno(1,2,3-cd)pyrene	2.90E-02	(1)	< 10	< 10	< 10	< 10	---	---	< 10	< 10	< 10	< 10	---	---	< 10	< 10

TABLE 5
Downgradient Wells
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		MW-11					MW-12					MW-34					
		Aug-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Apr-12	Aug-11	Aug-10	Aug-09	Aug-08	Aug-12	Aug-11	Aug-10	Aug-09	Aug-08
General Chemistry (mg/l):	Isophorone	7.07E+02	(5)	<10	<10	<10	---	---	<10	---	<10	<10	---	---	---	<10	<10
	Naphthalene	1.43E+00	(5)	<10	32	51	---	---	<10	---	<10	<10	---	---	---	<10	<10
	Nitrobenzene	1.49E+01	(5)	<10	<10	<10	---	---	<10	---	<10	<10	---	---	---	<10	<10
	N-Nitrosodimethylamine	1.32E-02	(5)	<10	<10	<10	---	---	<10	---	<10	<10	---	---	---	<10	<10
	N-Nitrosodi-n-propylamine	9.60E-03	(1)	<10	<10	<10	---	---	<10	---	<10	<10	---	---	---	<10	<10
	N-Nitrosodiphenylamine	1.37E+02	(5)	<10	<10	<10	---	---	<10	---	<10	<10	---	---	---	<10	<10
	Pentachlorophenol	1.00E+00	(2)	<40	<40	<40	---	---	<40	---	<40	<40	---	---	---	<40	<40
	Phenanthrene	1.10E+03	(5)	<10	<10	<10	---	---	<10	---	<10	<10	---	---	---	<10	<10
	Phenol	5.00E+00	(3)	<10	<10	<10	---	---	<10	---	<10	<10	---	---	---	<10	<10
	Pyrene	1.10E+03	(5)	<10	<10	<10	---	---	<10	---	<10	<10	---	---	---	<10	<10
Pyridine	3.70E+01	(1)	<10	<10	<10	---	---	<10	---	<10	<10	---	---	---	<10	<10	
Total Metals (mg/l):	Fluoride	1.6	(3)	0.52	0.59	0.38	0.46	---	0.49	0.55	0.44	0.5	0.92	0.84	0.65	0.61	0.83
	Chloride	250	(3)	370	340	330	53	---	4	6	15	8	270	240	200	180	110
	Nitrite	1	(2)	<0.50	<0.50	<0.20	<0.1	---	<0.10	<0.10	<0.10	<0.10	<0.50	<0.50	<2.0	<2.0	<0.10
	Bromide	-	-	4.4	4.30	4.00	0.25	---	<0.10	<0.10	0.25	<0.10	2.9	2.80	2.10	2.20	1.30
	Nitrite	10	(3)	<0.5	<0.5	<0.10	0.78	---	<0.10	0.22	<0.10	<0.10	<0.50	<0.50	1.20	<0.10	<0.10
	Phosphorus	-	-	<2.5	<2.5	<0.50	<0.5	---	<0.50	<0.50	<0.50	<0.50	<2.5	<2.5	<0.50	<0.50	<0.50
	Sulfate	600	(6)	13	5.10	4	240	---	63	69	600	130	83	22	320	18	9.90
	Carbon Dioxide (CO ₂)	-	-	1000	960	1100	170	---	190	210	300	270	980	840	760	850	740
	Alkalinity (CaCO ₃)	-	-	1100	1000	980	190	---	220	210	320	280	1000	910	760	880	750
	Bicarbonate (CaCO ₃)	-	-	1100	1000	980	190	---	220	210	320	280	1000	910	760	880	750
Dissolved Metals (mg/l):	Arsenic	0.01	(2)	<0.02	<0.02	<0.02	<0.02	---	<0.02	0.021	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
	Barium	1	(3)	0.84	0.98	0.92	0.090	---	0.064	0.21	0.17	0.06	1.10	0.76	0.38	0.71	0.57
	Cadmium	0.005	(2)	<0.002	<0.002	<0.002	<0.002	---	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
	Chromium	0.05	(3)	<0.006	<0.006	0.009	0.29	---	0.38	2.1	0.69	0.011	<0.006	<0.006	<0.006	<0.006	<0.006
	Lead	0.015	(2)	0.013	0.016	0.011	0.024	---	0.018	0.044	0.081	<0.005	<0.005	<0.005	<0.005	0.0073	<0.005
	Selenium	0.05	(2)	<0.05	<0.05	<0.25	<0.25	---	<0.05	<0.05	<0.050	<0.050	<0.05	<0.05	<0.05	<0.050	<0.25
	Silver	0.05	(3)	<0.005	<0.005	<0.005	<0.005	---	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
	Mercury	0.002	(3)	<0.0002	<0.0002	<0.0002	<0.0002	---	<0.0002	0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
	Arsenic	0.1	(3)	0.015	0.0061	<0.02	<0.001	---	<0.001	<0.02	<0.02	<0.02	0.01	0.0041	<0.02	<0.02	<0.02
	Barium	1	(3)	0.93	0.85	0.87	0.7	---	0.033	0.043	0.066	0.06	1.2	0.71	0.52	0.65	0.57
Total Petroleum Hydrocarbons (mg/l):	Cadmium	0.01	(3)	<0.0020	<0.002	<0.002	<0.002	---	<0.002	<0.002	<0.002	<0.002	<0.0020	<0.002	<0.002	<0.002	<0.002
	Calcium	-	-	140	140	130	50	---	50	50	100	---	140	120	78	99	---
	Chromium	0.05	(3)	<0.0060	<0.006	<0.006	0.0099	---	0.0064	<0.006	0.013	0.011	<0.0060	<0.006	<0.006	<0.006	<0.006
	Copper	1	(3)	<0.0060	<0.006	<0.006	<0.006	---	<0.006	<0.006	<0.006	<0.006	<0.0060	<0.006	<0.006	<0.006	<0.006
	Iron	1	(3)	9.3	12	12	0.069	---	0.095	0.061	0.26	0.021	6	4	3.1	3.6	4.1
	Lead	0.05	(3)	0.0015	<0.005	0.0054	0.007	---	<0.005	<0.005	<0.005	<0.005	<0.0010	<0.005	<0.005	<0.005	<0.005
	Magnesium	-	-	31	31	27	8.2	---	8.9	8.9	21	---	26	23	15	19	---
	Manganese	0.2	(3)	2.2	2.2	2.3	0.016	---	0.031	0.15	0.34	0.065	5.6	4.4	3.2	3.6	3.1
	Mercury	-	-	---	---	---	<1	---	<1.0	<1.0	<1.0	---	---	---	---	---	---
	Potassium	-	-	2.4	2.0	1.6	<1	---	<1.0	<1.0	<1.0	---	1.9	1.5	1.2	1.3	---

Notes:
(1) EPA - Regional Screening Levels (April 2009) - EPA Screening Levels Tap Water.
(2) EPA - Regional Screening Levels (April 2009) - MCL
(3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3101 Standards for Ground Water of 10,000 mg/l TDS Concentration or less
(4) NMED TPH Screening Guidelines Oct. 2006 - "unknown oil" - see report Sections 5 and 7 for use on location specific screening levels
(5) NMED TAP Water Screening Levels - 2009 Background Document for Development of Soil Screening Levels
- = No screening level available
* = Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
--- = Analyte inadvertently not included in sample analysis.
--- = Analysis not required and/or well contains separate phase
= Organic Analysis

TABLE 5
Downgradient Wells
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Volatile Organic Compounds (ug/L)	MW-35					MW-37					MW-38				
	Aug-12	Apr-12	Aug-11	Apr-11	Aug-08	Aug-12	Apr-12	Aug-11	Apr-11	Aug-08	Aug-12	Apr-12	Aug-11	Apr-11	Aug-08
1,1,1,2-Tetrachloroethane	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
1,1,1-Trichloroethane	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
1,1,2,2-Tetrachloroethane	<2.0	---	<20	---	<4.0	<4.0	---	<20	---	<2.0	<2.0	---	<2.0	---	<2.0
1,1,2-Trichloroethane	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
1,1-Dichloroethane	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
1,1-Dichloroethane	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
1,1-Dichloropropene	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
1,2,3-Trichlorobenzene	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
1,2,3-Trichloropropane	<2.0	---	<20	---	<4.0	<4.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
1,2,4-Trichlorobenzene	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
1,2,4-Trimethylbenzene	48	---	37	---	100	100	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
1,2-Dibromo-3-chloropropane	<2.0	---	<20	---	<4.0	<4.0	---	<20	---	<2.0	<2.0	---	<2.0	---	<2.0
1,2-Dibromomethane (EDB)	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
1,2-Dichlorobenzene	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
1,2-Dichloroethane (EDC)	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
1,2-Dichloropropane	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
1,3,5-Trimethylbenzene	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
1,3-Dichlorobenzene	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
1,3-Dichloropropane	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
1,4-Dichlorobenzene	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
1-Methylnaphthalene	<4.0	---	<40	---	<8.0	<8.0	---	<40	---	<4.0	<4.0	---	<4.0	---	<4.0
2,2-Dichloropropane	<2.0	---	<20	---	<4.0	<4.0	---	<20	---	<2.0	<2.0	---	<2.0	---	<2.0
2-Butanone	<1.0	---	<100	---	<20.0	<20.0	---	<100	---	<10	<10	---	<10	---	<10
2-Chlorotoluene	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
2-Hexanone	<1.0	---	<100	---	<20.0	<20.0	---	<100	---	<10	<10	---	<10	---	<10
2-Methylnaphthalene	<4.0	---	<40	---	<8.0	<8.0	---	<40	---	<4.0	<4.0	---	<4.0	---	<4.0
4-Chlorotoluene	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
4-Isopropyltoluene	1.8	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
4-Methyl-2-pentanone	<1.0	---	<100	---	<20.0	<20.0	---	<100	---	<10	<10	---	<10	---	<10
Acetone	10	---	<100	---	<20.0	<20.0	---	<100	---	<10	<10	---	<10	---	<10
Benzene	<1.0	<10	<10	<10	<2.0	<2.0	<10	<10	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Bromobenzene	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
Bromodichloromethane	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
Bromoform	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
Bromomethane	<3.0	---	<30	---	<6.0	<6.0	---	<30	---	<3.0	<3.0	---	<3.0	---	<3.0
Carbon disulfide	<1.0	---	<100	---	<20.0	<20.0	---	<100	---	<10	<10	---	<10	---	<10
Carbon tetrachloride	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
Chlorobenzene	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
Chloroethane	<2.0	---	<20	---	<4.0	<4.0	---	<20	---	<2.0	<2.0	---	<2.0	---	<2.0
Chloroform	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
Chloromethane	<3.0	---	<30	---	<6.0	<6.0	---	<30	---	<3.0	<3.0	---	<3.0	---	<3.0
cis-1,2-DCE	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
cis-1,3-Dichloropropene	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
Dibromochloromethane	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
Dibromomethane	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
Dichlorodifluoromethane	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
Ethylbenzene	<1.0	<10	<10	<10	<2.0	<2.0	<10	<10	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Hexachlorobutadiene	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
Isopropylbenzene	2.2	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
Methyl tert-butyl ether (MTBE)	1.5	<10	<10	<10	<6.0	<6.0	<10	<10	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Methylene Chloride	<3.0	---	<30	---	<6.0	<6.0	---	<30	---	<3.0	<3.0	---	<3.0	---	<3.0
Naphthalene	2.6	---	<20	---	<4.0	<4.0	---	<20	---	<2.0	<2.0	---	<2.0	---	<2.0
n-Butylbenzene	<3.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
n-Propylbenzene	1.4	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
sec-Butylbenzene	1.2	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
Styrene	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
tert-Butylbenzene	1.4	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
tert-Butylbenzene (PCE)	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
Tetrachloroethene (PCE)	<1.0	<10	<10	<10	<2.0	<2.0	<10	<10	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Toluene	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
trans-1,2-DCE	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0
trans-1,3-Dichloropropene	<1.0	---	<10	---	<2.0	<2.0	---	<10	---	<1.0	<1.0	---	<1.0	---	<1.0

TABLE 5
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		MW-35						MW-37						MW-38								
		Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Aug-09	Aug-08	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Aug-09	Aug-08	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Aug-09	Aug-08
Trichloroethene (TCE)	5.00E+00	(2)																				
Trichlorofluoromethane	1.29E+03	(5)																				
Vinyl chloride	1.00E+00	(3)																				
Xylenes, Total	6.20E+02	(3)																				
Semi Volatile Organic Compounds (ug/l):																						
1,2,4-Trichlorobenzene	7.00E+01	(2)																				
1,2-Dichlorobenzene	6.00E+02	(2)																				
1,3-Dichlorobenzene	-																					
1,4-Dichlorobenzene	7.50E+01	(2)																				
1-Methylnaphthalene	2.30E+00	(1)																				
2,4,5-Trichlorophenol	3.65E+03	(5)																				
2,4,6-Trichlorophenol	3.65E+01	(5)																				
2,4-Dichlorophenol	1.10E+02	(5)																				
2,4-Dimethylphenol	7.30E+02	(5)																				
2,4-Dinitrophenol	7.30E+01	(5)																				
2,4-Dinitrotoluene	2.17E+00	(5)																				
2,6-Dinitrotoluene	3.70E+01	(1)																				
2-Chloronaphthalene	2.90E+03	(1)																				
2-Chlorophenol	1.83E+02	(5)																				
2-Methylnaphthalene	1.50E+02	(1)																				
2-Methylphenol	1.80E+03	(1)																				
2-Nitroaniline	1.10E+02	(1)																				
2-Nitrophenol	-																					
3,3'-Dichlorobenzidine	1.50E-01	(1)																				
3+4-Methylphenol	1.80E+02	(1)																				
3-Nitroaniline	-																					
4,6-Dinitro-2-methylphenol	-																					
4-Bromophenyl phenyl ether	-																					
4-Chloro-3-methylphenol	-																					
4-Chloroaniline	3.40E-01	(1)																				
4-Chlorophenyl phenyl ether	-																					
4-Nitroaniline	3.40E+00	(1)																				
4-Nitrophenol	-																					
Acenaphthene	2.19E+03	(5)																				
Acenaphthylene	-																					
Aniline	1.20E+01	(1)																				
Anthracene	1.10E+04	(5)																				
Azobenzene	1.20E-01	(1)																				
Benz(a)anthracene	9.21E-01	(5)																				
Benzo(a)pyrene	2.00E-01	(2)																				
Benzo(b)fluoranthene	9.21E-01	(5)																				
Benzo(g,h,i)perylene	-																					
Benzo(k)fluoranthene	9.21E+00	(5)																				
Benzoic acid	1.50E+05	(1)																				
Benzyl alcohol	1.80E+04	(1)																				
Bis(2-chloroethoxy)methane	1.10E+02	(1)																				
Bis(2-chloroethyl)ether	1.19E-01	(5)																				
Bis(2-chloroisopropyl)ether	9.60E+00	(5)																				
Bis(2-ethylhexyl)phthalate	6.00E+00	(2)																				
Butyl benzyl phthalate	3.50E+01	(1)																				
Carbazole	-																					
Chrysene	9.21E+01	(5)																				
Dibenz(a,h)anthracene	9.21E-02	(5)																				
Dibenzofuran	-																					
Diethyl phthalate	2.92E+04	(5)																				
Dimethyl phthalate	3.65E+05	(5)																				
Di-n-butyl phthalate	3.65E+03	(5)																				
Di-n-octyl phthalate	-																					
Fluoranthene	1.46E+03	(5)																				
Fluorene	1.46E+03	(5)																				
Hexachlorobenzene	1.00E+00	(2)																				
Hexachlorobutadiene	8.60E-01	(1)																				
Hexachlorocyclopentadiene	5.00E+01	(2)																				
Hexachloroethane	3.65E+01	(5)																				
Indeno(1,2,3-cd)pyrene	2.90E-02	(1)																				

TABLE 5
Downgradient Wells
Analytical Summary
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					MW-35										MW-37										MW-38									
					Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Aug-09	Aug-08	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Aug-09	Aug-08	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Aug-09	Aug-08	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Aug-09	Aug-08		
General Chemistry (mg/l):	Isophorone	7.07E+02	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
	Naphthalene	1.43E+00	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
	Nitrobenzene	1.49E+01	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
	N-Nitrosodimethylamine	1.32E-02	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
	N-Nitrosodi-n-propylamine	9.60E-03	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---				
	N-Nitrosodiphenylamine	1.37E+02	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
	Pentachlorophenol	1.00E+00	(2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
	Phenanthrene	1.10E+03	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
	Phenol	5.00E+00	(3)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
	Pyrene	1.10E+03	(5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
Pyridine	3.70E+01	(1)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---			
General Chemistry (mg/l):																																		
Fluoride	1.6	(3)	0.77	---	0.61	---	0.54	0.64	0.76	0.66	---	0.71	---	0.73	0.77	0.79	0.65	---	0.72	---	0.77	---	0.84	---	---	---	0.77	0.84	---	0.78				
Chloride	250	(3)	240	---	180	---	170	98	110	280	---	310	---	320	280	230	110	---	86	---	79	---	64	---	---	---	79	64	---	60				
Nitrite	1	(2)	< 0.5	---	<0.50	---	1	*<1.0	<0.1	<0.5	---	<2.0	---	<2.0	*<1.0	<0.10	<0.5	---	<0.10	---	<0.10	---	*<1.0	---	---	<0.10	*<1.0	<0.10	<0.10	<0.10				
Bromide	-	(3)	3.0	---	2.10	---	1.90	1.10	1.30	3.5	---	3.50	---	3.40	2.50	2.90	1.4	---	0.73	---	0.91	---	0.70	---	---	0.91	0.70	<0.10	0.67					
Nitrite	10	(3)	< 0.5	---	<0.50	---	<0.50	*<1.0	<0.10	<0.5	---	7.30	---	0.40	*<1.0	<0.10	<0.5	---	<0.10	---	0.12	---	*<1.0	---	---	<0.10	*<1.0	<0.10	<0.10	<0.10				
Phosphorus	-	(6)	< 2.5	---	<2.5	---	<2.5	<0.50	<0.50	<2.5	---	<0.50	---	<0.50	<0.50	<0.50	<2.5	---	<0.50	---	<0.50	---	<0.50	---	---	<0.50	<0.50	<0.50	<0.50	<0.50				
Sulfate	600	(3)	11	---	3.50	---	3.1	10.0	3.6	69	---	29.0	---	16	37	34	19	---	49	---	33	---	68	---	---	33	68	<0.50	150					
Carbon Dioxide (CO ₂)	-	(3)	850	---	760	---	760	670	830	830	---	770	---	800	740	760	570	---	530	---	590	---	530	---	---	590	530	570	600					
Alkalinity (CaCO ₃)	-	(3)	900	---	820	---	760	710	870	920	---	860	---	800	810	820	630	---	590	---	590	---	580	---	---	590	580	600	600					
Bicarbonate (CaCO ₃)	-	(3)	900	---	820	---	760	710	870	920	---	860	---	800	810	820	630	---	590	---	590	---	580	---	---	590	580	600	600					
Total Metals (mg/l):																																		
Arsenic	0.01	(2)	0.57	---	<0.02	---	0.075	<0.02	<0.02	<0.02	---	<0.02	---	<0.02	<0.02	<0.02	<0.02	---	<0.02	---	<0.02	---	<0.02	---	---	<0.02	<0.02	<0.02	<0.02	<0.02				
Barium	1	(3)	1.9	---	0.92	---	0.99	0.54	0.65	0.600	---	0.44	---	0.9	0.7	0.43	0.62	---	0.27	---	0.42	---	0.18	---	---	0.42	0.18	0.17	0.17					
Cadmium	0.005	(2)	<0.002	---	<0.002	---	<0.002	<0.002	<0.002	<0.002	---	<0.002	---	<0.002	<0.002	<0.002	<0.002	---	<0.002	---	<0.002	---	<0.002	---	---	<0.002	<0.002	<0.002	<0.002	<0.002				
Chromium	0.05	(3)	0.0072	---	<0.006	---	<0.006	<0.006	<0.006	<0.006	---	0.0073	---	<0.006	<0.006	<0.006	0.023	---	0.0089	---	<0.006	---	<0.006	---	---	<0.006	<0.006	<0.006	<0.006	<0.006				
Lead	0.015	(2)	0.0072	---	0.008	---	0.0062	0.011	<0.005	<0.005	---	<0.005	---	<0.005	0.0065	<0.005	0.020	---	0.0054	---	<0.005	---	0.009	---	---	<0.005	0.009	<0.005	<0.005	<0.005				
Selenium	0.05	(2)	<0.05	---	<0.05	---	<0.05	<0.05	<0.25	<0.05	---	<0.05	---	<0.05	<0.25	<0.25	<0.05	---	<0.05	---	<0.05	---	<0.25	---	---	<0.05	<0.25	<0.050	<0.050	<0.050				
Silver	0.05	(3)	<0.005	---	<0.005	---	<0.005	<0.005	<0.005	<0.005	---	<0.005	---	<0.005	<0.005	<0.005	<0.025	---	<0.005	---	<0.005	---	<0.005	---	---	<0.005	<0.005	<0.005	<0.005	<0.005				
Mercury	0.002	(3)	<0.0002	---	<0.0002	---	<0.0002	<0.0002	<0.0002	<0.0002	---	<0.0002	---	0.00056	<0.0002	<0.0002	<0.0002	---	<0.0002	---	0.0004	---	<0.0002	---	---	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002				
Dissolved Metals (mg/l):																																		
Arsenic	0.1	(3)	0.043	---	0.0063	---	<0.10	<0.2	<0.02	0.0033	---	0.0042	---	<0.02	<0.02	<0.02	0.001	---	0.0023	---	<0.02	---	<0.10	---	---	<0.02	<0.10	<0.02	<0.02	<0.02				
Barium	1	(3)	1.7	---	0.84	---	0.75	0.39	0.65	0.45	---	0.34	---	0.45	0.43	0.43	0.21	---	0.23	---	0.25	---	0.11	---	---	0.25	0.11	0.17	0.17					
Cadmium	0.01	(3)	<0.002	---	<0.002	---	<0.002	<0.002	<0.002	<0.002	---	<0.002	---	<0.002	<0.002	<0.002	<0.002	---	<0.002	---	<0.002	---	<0.002	---	---	<0.002	<0.002	<0.002	<0.002	<0.002				
Calcium	-	(3)	130	---	110	---	95	73	---	100	---	110	---	99	82	---	100	---	90	---	88	---	91	---	---	88	91	---	---	---				
Chromium	0.05	(3)	<0.006	---	<0.006	---	<0.006	<0.006	<0.006	<0.006	---	<0.006	---	<0.006	<0.006	<0.006	<0.006	---	<0.006	---	<0.006	---	<0.006	---	---	<0.006	<0.006	<0.006	<0.006	<0.006				
Copper	1	(3)	<0.006	---	<0.006	---	<0.006	<0.006	<0.006	<0.006	---	<0.006	---	<0.006	<0.006	<0.006	<0.006	---	<0.006	---	<0.006	---	<0.006	---	---	<0.006	<0.006	<0.006	<0.006	<0.006				
Iron	1	(3)	3.6	---	4.1	---	3.9	3.1	2.6	0.77	---	2.6	---	1.9	1.1	0.95	0.75	---	3	---	2.1	---	2.5	---	---	2.1	2.5	2.2	2.2	2.2				
Lead	0.05	(3)	< 0.001	---	<0.005	---	<0.005	<0.005	<0.005	<0.001	---	<0.005	---	<0.005	<0.005	<0.005	<0.001	---	<0.005	---	<0.005	---	<0.005	---	---	<0.005	<0.005	<0.005	<0.005	<0.005				
Magnesium	-	(3)	23	---	19	---	17	13	---	20	---	21	---	20	18	---	17	---	15	---	14	---	16	---	---	14	16	---	---	---				
Manganese	0.2	(3)	3.10	---	2.5	---	2.7	1.6	1.4	0.970	---	1.1	---	1.3	1.4	1.2	1.5	---	2.3	---	2.3	---	1.6	---	---	2.3	1.6	2.6	2.6	2				

Notes:

TABLE 6
RCRA Wells Analytical Summary
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	MW-50		MW-51		MW-52		MW-53		MW-54		MW-55		MW-57		MW-58	
	Aug-12	Aug-11	Aug-10	Aug-11	Aug-10	Aug-11	Aug-10	Aug-11	Aug-10	Aug-11	Aug-10	Aug-11	Aug-10	Aug-11	Aug-10	Aug-11
Pentachlorophenol	1.00E+00	(2)	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Phenanthrene	1.10E+03	(5)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Phenol	5.00E+00	(3)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Pyrene	1.10E+03	(5)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Pyridine	3.70E+01	(1)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
General Chemistry (mg/l):																
Fluoride	1.6	(3)	0.37	0.39	0.4	0.51	0.59	0.52	0.85	0.89	0.76	0.4	0.22	0.29	< 0.10	0.35
Chloride	250	(3)	6.6	8	12	7.6	12	14	720	690	600	960	920	840	420	470
Nitrite	1	(2)	< 0.10	< 0.10	0.10	< 0.10	< 0.10	< 0.10	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 0.10	*6.1
Bromide	-	(3)	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	1.5	1.70	1.70	1.7	1.80	1.80	4.20	4.40
Nitrate	10	(3)	< 0.10	0.21	0.14	0.25	0.70	0.14	19	15	3	12	11	8.10	< 0.10	*6.1
Phosphorus	-	(3)	< 0.50	< 0.50	< 0.50	< 0.5	< 0.50	< 0.50	< 10	< 0.50	< 0.50	< 0.5	< 0.50	< 0.50	< 0.50	< 0.50
Sulfate	600	(3)	26	38.0	66	35	67	61	1300	1200	1700	1000	1000	990	< 0.50	1
Carbon Dioxide (CO ₂)	-	(3)	220	200	210	210	210	250	240	250	190	340	370	350	1000	1000
Alkalinity (CaCO ₃)	-	(3)	240	230	210	230	240	250	220	270	190	340	370	350	1100	1100
Bicarbonate (CaCO ₃)	-	(3)	240	230	210	230	240	250	220	270	190	340	370	350	1100	1100
Total Metals (mg/l):																
Arsenic	0.01	(2)	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.020	< 0.02	< 0.02	< 0.02	< 0.02
Barium	1	(3)	0.096	0.11	0.13	0.076	0.13	0.12	0.22	0.087	0.11	0.038	0.15	0.078	2.6	5.9
Cadmium	0.005	(2)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Chromium	0.05	(3)	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Lead	0.015	(2)	< 0.005	< 0.005	< 0.005	< 0.005	0.0086	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	0.023	0.3
Selenium	0.05	(2)	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Silver	0.05	(3)	< 0.005	< 0.005	< 0.005	< 0.05	< 0.005	< 0.05	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Mercury	0.002	(3)	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.001
Dissolved Metals (mg/l):																
Arsenic	0.1	(3)	0.004	0.0033	< 0.02	0.0032	0.003	< 0.02	0.0031	0.0031	< 0.02	0.0027	0.0034	< 0.02	0.0068	< 0.02
Barium	1	(3)	0.071	0.055	0.059	0.053	0.06	0.076	0.020	0.021	0.038	0.018	0.024	0.025	2.6	2.5
Cadmium	0.01	(3)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Calcium	-	(3)	54	51	68	58	68	71	320	300	250	340	310	290	170	180
Chromium	0.05	(3)	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Copper	1	(3)	< 0.02	< 0.02	0.035	< 0.02	< 0.02	0.2	2.3	0.12	0.7	< 0.02	0.036	0.13	< 0.006	< 0.006
Iron	1	(3)	< 0.05	< 0.05	< 0.05	< 0.001	< 0.005	< 0.005	< 0.001	< 0.005	< 0.005	< 0.001	< 0.005	< 0.005	9.8	12
Lead	0.05	(3)	< 0.005	< 0.005	< 0.005	< 0.001	< 0.005	< 0.005	< 0.001	< 0.005	< 0.005	< 0.001	< 0.005	< 0.005	0.0061	< 0.005
Magnesium	-	(3)	13	12	14	12	14	15	82	76	70	54	51	48	55	64
Manganese	0.2	(3)	2.2	2.3	3.7	0.99	1.3	2	2.9	3.1	3.6	0.520	0.5	0.96	5.6	6.8
Mercury	-	(3)	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Potassium	-	(3)	1.6	1.8	1.9	1.8	2	2	5.1	4.4	4.4	4.7	4.8	5.3	10	11
Selenium	0.05	(3)	0.001	0.001	< 0.05	< 0.001	0.001	< 0.05	0.053	0.036	< 0.05	0.010	0.02	< 0.05	0.016	< 0.05
Silver	0.05	(3)	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Sodium	-	(3)	39	40	42	43	51	48	630	600	560	780	750	700	500	400
Uranium	0.03	(3)	< 0.001	< 0.001	< 0.001	0.0013	0.0023	0.0018	0.0093	0.0094	0.0072	0.016	0.015	0.0108	< 0.001	< 0.001
Zinc	10	(3)	0.07	0.25	< 0.05	0.043	0.16	< 0.05	0.11	0.099	< 0.05	0.073	0.17	< 0.05	0.18	< 0.05
Total Petroleum Hydrocarbons (mg/l):																
Diesel Range Organics	0.2	(4)	< 0.2	< 0.20	< 0.20	< 0.2	< 0.20	< 0.2	< 0.2	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	5.5	13
Gasoline Range Organics	-	(4)	< 0.05	< 0.05	0.48	< 0.05	< 0.05	1.8	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	40.0	59
Motor Oil Range Organics	-	(4)	< 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 (April 2009) - EPA Screening Levels.Tap Water
- (2) EPA - Regional Screening Levels (April 2009) - MCL
- (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3101 Standards for Ground Water of 10,000 mg/l
- (4) NMED TPH Screening Guidelines Oct. 2006 - "unknown oil" - see report Sections 5 and 7 for use on location
- (5) NMED TAP Water Screening Levels - 2009 Background Document for Development of Soil Screening Levels

- = No screening level available
* = Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
— = Analyte inadvertently not included in sample analysis.
--- = Analysis not required and/or well contains separate phase

TABLE 6
RCRA Wells Analytical Summary
2012 Groundwater Remediation Monitoring Annual Report

[illegible]

TABLE 6
RCRA Wells Analytical Summary
2012 Groundwater Remediation Monitoring Annual Report

[illegible]

TABLE 6
RCRA Wells Analytical Summary
2012 Groundwater Remediation Monitoring Annual Report

	MW-59		MW-60		MW-61		MW-62		MW-63		MW-64		MW-65		MW-66		MW-67		MW-68		MW-69	
	Aug-12	Aug-11	Aug-12	Aug-11	Aug-12	Aug-11	Aug-12	Aug-11	Aug-12	Aug-11	Aug-12	Aug-11	Aug-12	Aug-11	Aug-12	Aug-11	Aug-12	Aug-11	Aug-12	Aug-11	Aug-12	Aug-11
Pentachlorophenol	1.00E+00	(2)	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20	< 20
Phenanthrene	1.10E+03	(5)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Phenol	5.00E+00	(3)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Pyrene	1.10E+03	(5)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
Pyridine	3.70E+01	(1)	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10	< 10
General Chemistry (mg/l):																						
Fluoride	1.6	(3)	< 0.5	0.33	0.34	< 0.5	0.14	< 0.10	< 0.5	0.2	0.16	< 0.50	0.27	0.18	< 0.5	0.26	< 0.50	< 0.5	0.77	0.82	< 0.5	0.41
Chloride	250	(3)	150	140	120	< 0.5	15.00	16	250	180	290	940	830	840	160	180	220	62	6.5	22	62	72
Nitrite	1	(2)	< 0.5	< 0.10	*1.3	*< 1	< 0.10	< 0.10	110*	< 2.0	*52	*43	< 2.0	*52	*< 1	< 1.0	*< 1.0	*6	*5.5	< 0.10	*6	< 0.10
Bromide	-	-	2.5	0.31	1.40	< 0.5	< 0.10	< 0.10	5.2	2.90	4.60	5.7	3.80	2.90	4.3	4.00	3.70	< 0.5	< 0.5	0.16	< 0.5	0.25
Nitrate	10	(3)	< 0.5	0.26	*1.3	*< 1	*< 1.0	0.29	*110	67	110	*43	60	*52	*< 1	< 1.0	*< 1.0	*6	*5.5	4.30	*6	6.70
Phosphorus	-	-	< 2.5	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 2.5	< 0.50	< 0.50	< 2.5	< 0.50	< 2.5	< 2.5	< 2.5	< 0.50	< 2.5	< 0.50
Sulfate	600	(3)	310	320	210	3600	3700	5100	1800	1400	2200	1600	1600	1600	1600	460	620	200.0	460	360	280	470
Carbon Dioxide (CO ₂)	-	-	960	940	860	580	530	550	530	540	580	300	310	340	1100	1100	1100	460	360	190	190	190
Alkalinity (CaCO ₃)	-	-	990	940	860	610	550	550	520	560	580	300	330	340	1200	1200	1100	470	390	200	210	210
Bicarbonate (CaCO ₃)	-	-	990	940	860	610	550	550	520	560	580	300	330	340	1200	1200	1100	470	390	200	210	210
Total Metals (mg/l):																						
Arsenic	0.01	(2)	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.024	< 0.02	< 0.02	< 0.02	< 0.020	< 0.02	< 0.02	< 0.02	< 0.02	0.03	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Barium	1	(3)	0.640	0.087	0.095	0.021	0.048	0.032	0.110	0.05	0.029	0.056	0.26	0.6	0.058	0.062	0.076	0.052	0.051	0.065	0.065	0.065
Cadmium	0.005	(2)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.0020	< 0.0020	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Chromium	0.05	(3)	0.017	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.0060	0.0094	0.029	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Lead	0.015	(2)	0.035	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0050	< 0.005	0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Selenium	0.05	(2)	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.050	< 0.05	0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05
Silver	0.05	(3)	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0050	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Mercury	0.002	(3)	< 0.0002	< 0.0002	< 0.001	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.00020	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002
Dissolved Metals (mg/l):																						
Arsenic	0.1	(3)	0.014	0.019	< 0.02	< 0.001	0.001	< 0.02	0.0068	0.0034	< 0.02	0.0029	0.0046	< 0.02	0.020	0.024	< 0.02	< 0.001	< 0.0010	< 0.001	< 0.0010	< 0.0010
Barium	1	(3)	0.085	0.076	0.073	0.015	0.017	< 0.02	0.017	0.013	< 0.02	0.012	0.012	< 0.02	0.053	0.069	0.069	0.040	0.034	0.022	0.026	0.026
Cadmium	0.01	(3)	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.0020	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002	< 0.002
Calcium	-	-	200	190	150	450	430	430	460	350	430	490	450	430	410	170	180	160	120	88	100	100
Chromium	0.05	(3)	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.0060	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Copper	1	(3)	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.0060	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006	< 0.006
Iron	1	(3)	6.1	4.9	2.7	0.089	0.97	0.87	< 0.02	< 0.02	< 0.02	0.029	< 0.02	0.03	12	4.1	6.2	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
Lead	0.05	(3)	< 0.001	< 0.005	< 0.005	< 0.001	< 0.002	< 0.005	< 0.001	< 0.005	< 0.005	< 0.0010	< 0.005	< 0.005	< 0.001	< 0.005	< 0.005	< 0.001	< 0.005	< 0.001	< 0.005	< 0.005
Magnesium	-	-	51	43	32	39	39	37	180	91	150	75	72	67	110	52	56	33	27	22	25	25
Manganese	0.2	(3)	3.3	3.4	2.9	1.8	1.8	1.2	2.20	1.7	3.7	< 0.0020	< 0.002	0.013	5.3	3.2	3.5	0.170	0.45	0.120	0.21	0.21
Mercury	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Potassium	-	-	3.0	2.7	3.2	10	11	10	4.7	4.4	5	4.9	5	4.9	4.3	3.6	3.8	3.3	3.4	3.0	3.1	3.1
Selenium	0.05	(3)	0.0061	0.0084	< 0.25	< 0.005	< 0.006	< 0.05	< 0.05	0.031	< 0.05	< 0.050	0.041	< 0.05	< 0.01	0.016	< 0.05	0.0018	0.0035	0.0035	0.0048	0.0048
Silver	0.05	(3)	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.0050	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
Sodium	-	-	390	370	340	1500	1400	1400	580	570	660	890	750	780	860	530	490	90	100	110	130	130
Uranium	0.03	(3)	0.0024	0.0023	0.0023	0.008	0.0077	0.0066	0.067	0.041	0.056	0.016	0.017	0.0143	0.010	0.0077	0.0067	0.0077	0.0083	0.0039	0.0052	0.0052
Zinc	10	(3)	0.10	0.046	< 0.05	0.066	0.075	< 0.05	0.17	0.15	< 0.05	0.096	0.062	< 0.05	0.052	0.026	< 0.05	0.062	0.074	0.011	0.27	0.27
Total Petroleum Hydrocarbons (mg/l):																						
Diesel Range Organics	0.2	(4)	0.55	0.84	0.61	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	2.3	9.8	9.8	< 0.2	0.26	< 0.20	< 0.20	< 0.20
Gasoline Range Organics	-	-	1.2	1.6	1.3	< 0.05	< 0.050	< 0.05	< 0.05	0.13	< 0.05	< 0.05	< 0.05	< 0.05	22	40.0	40	0.053	< 0.05	< 0.05	< 0.05	< 0.05
Motor Oil Range Organics	-	-	< 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 (April 2009) - EPA Screening Levels, Tap Water
- (2) EPA - Regional Screening Levels (April 2009) - MCL
- (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3101 Standards for Ground Water of 10,000 mg/l TDS Concentration or less
- (4) NMED TPH Screening Guidelines Oct. 2006 - "unknown oil" - see report Sections 5 and 7 for use on location specific screening levels
- (5) NMED TAP Water Screening Levels - 2009 Background Document for Development of Soil Screening Levels

-- No screening level or analytical result available

* - Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet holdtime

--- = Analyte inadvertently not included in analysis.

TABLE 7
Collection and Observation Wells Analytical Summary
2012 Groundwater Remediation Monitoring Annual Report

		CW 0+60					CW 25+95					OW 0+60							
		Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Apr-10	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Apr-10	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Apr-10
Volatile Organic Compounds (mg/l)																			
	Benzene 0.005 (2)	0.0079	0.014	<0.001	0.019	0.25	0.036	2.000	2.2	3.6	6.7	14	22	---	---	---	---	<0.005	<0.005
	Toluene 0.750 (3)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.013	0.022	0.16	0.16	5.7	9	---	---	---	---	<0.020	<0.005
	Ethylbenzene 0.700 (2)	0.0043	0.0028	0.003	0.0016	0.0039	0.0069	0.120	0.41	0.58	0.8	1.8	2	---	---	---	---	<0.020	<0.005
	Xylene 0.620 (3)	<0.002	<0.002	<0.002	<0.003	<0.003	0.003	0.023	0.042	0.33	0.32	4.2	7.4	---	---	---	---	<0.060	<0.015
	MTBE 0.012 (5)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.010	<0.010	<0.002	<0.005	<0.096	<0.001	---	---	---	---	<0.020	<0.005
Total Petroleum Hydrocarbons (mg/l):																			
	Diesel Range Organics 0.2 (4)	0.34	0.76	0.77	2.8	1.2	2.8	<0.2	0.23	0.31	0.31	0.6	2.5	---	---	---	---	160	38
	Gasoline Range Organics -	1.1	1.90	---	---	---	---	6.1	16	---	---	---	---	---	---	---	---	3.5	2.3
	Motor Oil Range Organics -	<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
Volatile Organic Compounds (mg/l)																			
	Benzene 0.005 (2)	---	---	---	---	---	0.029	---	---	---	---	0.007	0.018	---	---	---	---	<0.005	---
	Toluene 0.750 (3)	---	---	---	---	---	0.014	---	---	---	---	<0.005	<0.01	---	---	---	---	<0.01	---
	Ethylbenzene 0.700 (2)	---	---	---	---	---	0.31	---	---	---	---	0.16	0.32	---	---	---	---	<0.01	---
	Xylene 0.620 (3)	---	---	---	---	---	5.7	---	---	---	---	0.23	0.47	---	---	---	---	<0.030	---
	MTBE 0.012 (5)	---	---	---	---	---	<0.01	---	---	---	---	<0.005	<0.01	---	---	---	---	<0.01	---
Total Petroleum Hydrocarbons (mg/l):																			
	Diesel Range Organics 0.2 (4)	---	---	---	---	---	1100	---	---	---	---	120	860	---	---	---	---	150	---
	Gasoline Range Organics -	---	---	---	---	---	43	---	---	---	---	7.4	7.4	---	---	---	---	1.9	---
	Motor Oil Range Organics -	---	---	---	---	---	<2.5	---	---	---	---	<2.5	<2.5	---	---	---	---	<2.5	---
Volatile Organic Compounds (mg/l)																			
	Benzene 0.005 (2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.22	---	---	0.15
	Toluene 0.750 (3)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<0.01	---	---	<0.01
	Ethylbenzene 0.700 (2)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<0.01	---	---	0.23
	Xylene 0.620 (3)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<0.03	---	---	<0.03
	MTBE 0.012 (5)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.69	---	---	1.3
Total Petroleum Hydrocarbons (mg/l):																			
	Diesel Range Organics 0.2 (4)	---	---	---	---	---	---	---	---	---	---	---	---	---	---	33	---	---	1500
	Gasoline Range Organics -	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2.8	---	---	2.5
	Motor Oil Range Organics -	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<2.5	---	---	<2.5
Volatile Organic Compounds (mg/l)																			
	Benzene 0.005 (2)	---	---	---	---	---	---	0.017	0.022	0.082	0.079	0.27	0.49	---	---	---	---	<0.001	<0.001
	Toluene 0.750 (3)	---	---	---	---	---	---	<0.01	<0.010	<0.01	<0.010	<0.01	<0.005	---	---	---	---	<0.001	<0.001
	Ethylbenzene 0.700 (2)	---	---	---	---	---	---	0.027	0.026	0.045	0.044	0.15	0.43	---	---	---	---	<0.001	<0.001
	Xylene 0.620 (3)	---	---	---	---	---	---	<0.020	<0.020	0.058	<0.003	0.066	0.14	---	---	---	---	<0.003	<0.003
	MTBE 0.012 (5)	---	---	---	---	---	---	0.610	0.530	0.81	1.1	0.84	1.5	---	---	---	---	0.055	0.057
Total Petroleum Hydrocarbons (mg/l):																			
	Diesel Range Organics 0.2 (4)	---	---	---	---	---	---	110	22.0	20	65	11	280	---	---	---	---	2.2	1.2
	Gasoline Range Organics -	---	---	---	---	---	---	4.1	3.8	4.8	7.8	5.8	12	---	---	---	---	0.065	0.076
	Motor Oil Range Organics -	---	---	---	---	---	---	<25	<2.5	<2.5	<2.5	<2.5	<2.5	---	---	---	<2.5	<2.5	<2.5

TABLE 7
Collection and Observation Wells Analytical Summary
2012 Groundwater Remediation Monitoring Annual Report

Volatile Organic Compounds (mg/l)		OW 22+00					OW 23+10					OW 23+90							
		Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Apr-10	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Apr-10	12-Aug	Apr-12	Aug-11	Apr-11	Aug-10	Apr-10
		---	<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
Benzene	0.005 (2)	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	2.5	0.081	<0.001	<0.001	<0.001	0.003	3.1	0.76
Toluene	0.750 (3)	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	0.009
Ethylbenzene	0.700 (2)	---	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.028	<0.005	<0.001	<0.001	<0.001	<0.001	0.071	0.0082
Xylene	0.620 (3)	---	<0.002	<0.002	<0.003	<0.003	<0.003	<0.002	<0.002	<0.002	<0.003	<0.015	<0.015	<0.002	<0.002	<0.002	<0.003	<0.003	0.011
MTBE	0.012 (5)	---	0.051	0.17	0.061	0.34	<0.001	0.002	<0.001	0.0032	0.0015	<0.005	<0.005	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Total Petroleum Hydrocarbons (mg/l):																			
Diesel Range Organics	0.2 (4)	---	<0.2	0.36	<0.20	0.41	0.28	<0.2	<0.2	<0.20	0.63	1.8	2.5	<0.2	<0.2	<0.20	<0.20	1.0	0.31
Gasoline Range Organics	-	---	0.09	0.25	0.11	0.37	<0.05	0.35	0.17	0.25	0.31	5.7	0.45	0.31	<0.05	0.34	0.11	7.4	2.3
Motor Oil Range Organics	-	---	<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

		OW 25+70						
		Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Apr-10	
Volatile Organic Compounds (mg/l)								
Benzene	0.005 (2)	<0.001	<0.001	0.11	4.4	6.6	15	
Toluene	0.750 (3)	<0.001	<0.001	<0.020	<0.1	0.12	0.11	
Ethylbenzene	0.700 (2)	<0.001	<0.001	<0.020	0.3	0.71	0.75	
Xylene	0.620 (3)	<0.002	<0.002	<0.040	<0.3	<0.060	1.4	
MTBE	0.012 (5)	<0.001	<0.001	<0.020	<0.1	<0.020	<0.02	
Total Petroleum Hydrocarbons (mg/l):								
Diesel Range Organics	0.2 (4)	<0.2	<0.2	<0.20	0.4	0.83	1.2	
Gasoline Range Organics	-	0.21	0.24	0.85	12	20	50	
Motor Oil Range Organics	-	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	

Notes:

- (1) EPA - Regional Screening Levels (April 2009) - EPA Screening Levels.Tap Water
- (2) EPA - Regional Screening Levels (April 2009) - MCL
- (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3101 Standards for Ground Water of 10,000 mg/l TDS Concentration or less
- (4) NMED TPH Screening Guidelines Oct. 2006 - "unknown oil" - see report Sections 5 and 7 for use on location specific screening levels
- (5) NMED TAP Water Screening Levels - 2009 Background Document for Development of Soil Screening Levels

- = No screening level available
* = Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
--- = Analyte inadvertently not included in sample analysis.
--- = Analysis not required and/or well contains separate phase
= Analytical result exceeds the respective screening level.

TABLE 8
Outfalls Analytical Summary
2012 Groundwater Remediation Monitoring Annual Report

	Outfall #2						Outfall #3					
	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Apr-10	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Apr-10
Volatile Organic Compounds (mg/L)												
Benzene	0.005	(2)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Toluene	0.75	(3)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Ethylbenzene	0.7	(2)	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Xylene	0.62	(3)	<0.002	<0.003	<0.002	<0.003	<0.002	<0.002	<0.003	<0.002	<0.003	<0.003
MTBE	0.125	(5)	<0.001	<0.0015	<0.001	<0.0015	<0.001	<0.001	<0.0015	<0.001	<0.0015	<0.0015
General Chemistry (mg/l):												
Fluoride	1.6	(3)	0.22	0.55	<0.50	0.57	0.58	0.2	0.41	0.22	0.42	0.26
Chloride	250	(3)	2.5	8.7	3.80	11.00	11.0	2.8	16.0	3.10	21.00	21.00
Nitrite	1	(2)	<0.10	<0.1	<0.10	<0.10	<0.10	<0.1	<0.1	<0.10	<0.10	<0.10
Bromide	-	-	<0.10	<0.1	<0.10	0.21	<0.10	<0.1	0.14	<0.10	0.15	<0.10
Nitrate	10	(3)	<0.10	0.54	<0.50	1.40	1.40	0.13	2.8	<0.10	3.20	0.57
Phosphorus	-	-	<0.5	<0.5	<0.50	<0.50	<0.50	<0.5	<0.5	<0.50	<0.50	<0.50
Sulfate	600	(3)	46	71	46.00	76.00	110.00	46	120	51	170	110
Carbon Dioxide (CO ₂)	-	-	91	330	93	350	240	80	310	86	300	110
Alkalinity (CaCO ₃)	-	-	100	360	100	390	270	89	340	96	330	120
Bicarbonate (CaCO ₃)	-	-	100	360	100	390	270	89	340	96	330	120
Total Metals (mg/l):												
Arsenic	0.01	(2)	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02
Barium	1	(3)	0.05	0.15	0.012	0.085	0.058	0.062	0.057	0.069	0.058	0.064
Cadmium	0.005	(2)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0020	<0.002	<0.002	<0.002	<0.002
Chromium	0.05	(3)	<0.006	0.0061	<0.006	<0.006	<0.006	<0.0060	<0.006	<0.006	<0.006	<0.006
Lead	0.015	(2)	<0.005	0.0056	<0.005	<0.005	<0.005	<0.0050	<0.005	<0.005	<0.005	<0.005
Selenium	0.05	(2)	<0.05	<0.05	<0.05	<0.05	<0.05	<0.050	<0.05	<0.05	<0.05	<0.05
Silver	0.05	(3)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.005	<0.005	<0.005	<0.005
Mercury	0.002	(3)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.00020	<0.0002	<0.0002	<0.0002	<0.0002
Dissolved Metals (mg/l):												
Arsenic	0.1	(3)	<0.001	<0.001	<0.02	<0.02	<0.02	<0.0010	<0.0010	<0.02	<0.0010	<0.02
Barium	1	(3)	0.047	0.100	0.064	0.085	0.056	0.053	0.060	0.066	0.059	0.063
Cadmium	0.01	(3)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.0020	<0.002	<0.002	<0.002	<0.002
Calcium	-	-	34	84	36	100	86	32	90	37	110	59
Chromium	0.05	(3)	<0.006	<0.006	<0.006	<0.006	<0.006	<0.0060	<0.006	<0.006	<0.006	<0.006
Copper	1	(3)	<0.006	<0.006	<0.006	<0.006	<0.006	<0.0060	<0.006	<0.006	<0.006	<0.006
Iron	1	(3)	0.082	0.17	<0.02	<0.02	<0.02	<0.020	<0.02	<0.02	<0.02	<0.02
Lead	0.05	(3)	<0.005	<0.001	<0.005	<0.005	<0.005	<0.0050	<0.001	<0.005	<0.005	<0.005
Magnesium	-	-	6.1	18	6.8	22	18	5.7	18	6.8	23	11
Manganese	0.2	(3)	0.029	0.045	0.014	0.0032	<0.002	<0.0020	<0.002	0.0025	<0.002	<0.002
Mercury	-	-	---	---	---	---	---	---	---	---	---	---
Potassium	-	-	1.2	1.6	1.5	1.9	1.7	1.5	1.6	1.7	2.1	1.8
Selenium	0.05	(3)	<0.001	0.0013	<0.05	0.0031	<0.05	<0.0010	0.0035	<0.05	0.0054	<0.05
Silver	0.05	(3)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.0050	<0.005	<0.005	<0.005	<0.005
Sodium	-	-	16	66	17	62	55	15.0	64	17	82	30
Uranium	0.03	(3)	<0.001	0.0045	0.001	0.0049	0.0049	<0.0010	0.0046	<0.001	0.0045	0.0045
Zinc	10	(3)	0.012	0.13	0.18	<0.05	<0.05	0.024	0.02	0.075	<0.10	<0.05

Notes: (1) EPA - Regional Screening Levels (April 2009) - EPA Screening Levels: Tap Water
(2) EPA - Regional Screening Levels (April 2009) - MCL
(3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3101 Standards for Ground Water of 10,000 mg/l TDS Concentration or less
(4) NMED TPH Screening Guidelines Oct. 2006 - "unknown oil" - see report Sections 5 and 7 for use on location specific screening levels
(5) NMED TAP Water Screening Levels - 2009 Background Document for Development of Soil Screening Levels
- = No screening level available
* = Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
--- = Analyte inadvertently not included in sample analysis.
--- = Analysis not required and/or well contains separate phase

TABLE 9
Seeps Analytical Summary
2012 Groundwater Remediation Monitoring Annual Report

Volatile Organic Compounds (mg/l):	Seep #1				Seep #2				Seep #3				Seep #6				Seep #9						
	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Apr-10	Aug-12	Aug-11	Apr-11	Aug-10	Apr-10	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Apr-10	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Apr-10
Benzene	0.005	(2)	<0.001	<0.001	<0.005	<0.001	<0.001	---	<0.005	---	<0.001	<0.001	---	<0.005	<0.001	<0.001	<0.001	---	<0.001	---	<0.005	---	<0.001
Toluene	0.750	(3)	<0.001	<0.001	<0.005	<0.001	<0.001	---	<0.005	---	<0.001	<0.001	---	<0.005	<0.001	<0.001	<0.001	---	<0.001	---	<0.005	---	<0.001
Ethylbenzene	0.700	(2)	<0.001	<0.001	<0.005	<0.001	<0.001	---	<0.005	---	<0.001	<0.001	---	<0.005	<0.001	<0.001	<0.001	---	<0.001	---	<0.005	---	<0.001
Xylene	0.620	(3)	<0.002	<0.002	<0.01	<0.002	<0.003	---	<0.01	---	<0.002	<0.003	---	<0.01	<0.002	<0.003	<0.003	---	<0.002	---	<0.01	---	<0.003
MTBE	0.125	(5)	<0.001	<0.001	0.062	<0.001	0.073	---	<0.005	---	0.0037	0.0077	---	<0.005	---	0.0077	0.006	---	0.071	---	0.039	---	0.027
Semi Volatile Organic Compounds (ug/l):																							
1,2,4-Trichlorobenzene	7.00E+01	(2)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
1,2-Dichlorobenzene	6.00E+02	(2)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
1,3-Dichlorobenzene	-	-	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
1,4-Dichlorobenzene	7.50E+01	(2)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
1-Methylnaphthalene	2.30E+00	(1)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
2,4,5-Trichlorophenol	3.65E+03	(5)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
2,4,6-Trichlorophenol	3.65E+01	(5)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
2,4-Dichlorophenol	1.10E+02	(5)	---	---	---	< 10	< 10	---	---	---	< 21	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 20
2,4-Dimethylphenol	7.30E+02	(5)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
2,4-Dinitrophenol	7.30E+01	(5)	---	---	---	< 20	< 20	---	---	---	< 21	< 10	---	---	---	< 20	< 20	---	---	---	---	---	< 20
2,6-Dinitrotoluene	2.17E+00	(5)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
2-Chloronaphthalene	2.90E+03	(1)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
2-Chlorophenol	1.83E+02	(5)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
2-Methylnaphthalene	1.50E+02	(1)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
2-Methylphenol	1.80E+03	(1)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
2-Nitroaniline	1.10E+02	(1)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
2-Nitrophenol	-	-	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
3,3'-Dichlorobenzidine	1.50E-01	(1)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
3+4-Methylphenol	1.80E+02	(1)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
3-Nitroaniline	-	-	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
4,6-Dinitro-2-methylphenol	-	-	---	---	---	< 20	< 20	---	---	---	< 21	< 10	---	---	---	< 20	< 20	---	---	---	---	---	< 20
Bromophenyl phenyl ether	-	-	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
4-Chloro-3-methylphenol	-	-	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
4-Chloroaniline	3.40E-01	(1)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
4-Chlorophenyl phenyl ether	-	-	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
4-Nitroaniline	3.40E+00	(1)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
4-Nitrophenol	-	-	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
Acenaphthene	2.19E+03	(5)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
Acenaphthylene	-	-	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
Aniline	1.20E+01	(1)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
Anthracene	1.10E+04	(5)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
Azobenzene	1.20E-01	(1)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
Benz(a)anthracene	9.21E-01	(5)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
Benzo(a)pyrene	2.00E-01	(2)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
Benzo(b)fluoranthene	9.21E-01	(5)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
Benzo(g,h,i)perylene	-	-	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
Benzo(k)fluoranthene	9.21E+00	(5)	---	---	---	< 10	< 10	---	---	---	< 11	< 10	---	---	---	< 10	< 10	---	---	---	---	---	< 10
Benzoic acid	1.50E+05	(1)	---	---	---	< 20	< 20	---	---	---	< 21	< 10	---	---	---	< 20	< 20	---	---	---	---	---	< 20
Benzyl alcohol	1.80E+04	(1)	---	---	---	< 10	< 10	---	---	---	< 11	< 10</											

TABLE 9
Seeps Analytical Summary
2012 Groundwater Remediation Monitoring Annual Report

	Seep #1				Seep #2				Seep #3				Seep #6				Seep #9			
	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Apr-10	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Apr-10	Aug-12	Apr-12	Aug-11	Apr-11	Aug-12	Apr-12	Aug-11	Apr-11
Hexachlorocyclopentadiene	5.00E+01	(2)	---	---	---	< 10	---	---	---	---	---	< 11	---	---	---	---	---	---	---	---
Hexachloroethane	3.65E+01	(5)	---	---	---	< 10	---	---	---	---	---	< 11	---	---	---	---	---	---	---	---
Indeno(1,2,3-cd)pyrene	2.90E-02	(1)	---	---	---	< 10	---	---	---	---	---	< 11	---	---	---	---	---	---	---	---
Isophorone	7.07E+02	(5)	---	---	---	< 10	---	---	---	---	---	< 11	---	---	---	---	---	---	---	---
Naphthalene	1.43E+00	(5)	---	---	---	< 10	---	---	---	---	---	< 11	---	---	---	---	---	---	---	---
Nitrobenzene	1.49E+01	(5)	---	---	---	< 10	---	---	---	---	---	< 11	---	---	---	---	---	---	---	---
N-Nitrosodimethylamine	1.32E-02	(5)	---	---	---	< 10	---	---	---	---	---	< 11	---	---	---	---	---	---	---	---
N-Nitrosodi-n-propylamine	9.60E-03	(1)	---	---	---	< 10	---	---	---	---	---	< 11	---	---	---	---	---	---	---	---
N-Nitrosodiphenylamine	1.37E+02	(5)	---	---	---	< 10	---	---	---	---	---	< 11	---	---	---	---	---	---	---	---
Pentachlorophenol	1.00E+00	(2)	---	---	---	< 20	---	---	---	---	---	< 21	---	---	---	---	---	---	---	---
Phenanthrene	1.10E+03	(5)	---	---	---	< 10	---	---	---	---	---	< 11	---	---	---	---	---	---	---	---
Phenol	5.00E+00	(3)	---	---	---	< 10	---	---	---	---	---	< 11	---	---	---	---	---	---	---	---
Pyrene	1.10E+03	(5)	---	---	---	< 10	---	---	---	---	---	< 11	---	---	---	---	---	---	---	---
Pyridine	3.70E+01	(1)	---	---	---	< 10	---	---	---	---	---	< 11	---	---	---	---	---	---	---	---
General Chemistry (mg/l):																				
Fluoride	1.6	(3)	0.22	0.17	0.43	0.32	0.19	---	---	---	---	0.21	---	< 2.0	---	< 0.50	---	0.26	---	---
Chloride	250	(3)	310	190	380	380	220	---	---	---	---	370	---	3000	---	2800	---	680	---	660
Nitrite	1.0	(2)	< 0.10	< 0.1	< 2.0	< 0.10	< 0.10	---	---	< 2.0	< 0.50	< 0.10	---	< 0.1	---	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
Bromide	-	-	2.8	1.7	2.70	1.70	2.3	---	---	9.40	9.9	2.1	---	< 2.0	---	1.4	---	1.6	---	1.40
Nitrate	10	(3)	< 0.10	< 0.1	< 2.0	< 2.0	< 2.0	---	---	2.60	< 2.0	< 2.0	---	< 0.1	---	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Phosphorus	-	-	< 10	< 0.5	< 0.50	< 0.50	< 0.50	---	---	< 0.50	< 0.50	< 0.50	---	< 10.0	---	< 0.50	< 10	< 10	< 0.50	< 0.50
Sulfate	600	(6)	1600	1700	1900	1700	1800	---	---	7300	1800	2500	---	2100	---	1400	---	2400	---	2100
Carbon Dioxide (CO ₂)	-	-	220	360	250	400	260	---	---	150	240	330	---	320	---	320	---	320	---	360
Alkalinity (CaCO ₃)	-	-	250	400	280	440	260	---	---	170	240	330	---	350	---	350	---	320	---	390
Bicarbonate (CaCO ₃)	-	-	250	400	280	440	260	---	---	170	240	330	---	350	---	350	---	320	---	390

Notes:

- (1) EPA - Regional Screening Levels (April 2009) - EPA Screening Levels.Tap Water
- (2) EPA - Regional Screening Levels (April 2009) - MCL
- (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3101 Standards for Ground Water of 10,000 mg/l TDS Concentration or less
- (4) NMED TPH Screening Guidelines Oct. 2006 - "unknown oil" - see report Sections 5 and 7 for use on location specific screening levels
- (5) NMED TAP Water Screening Levels - 2009 Background Document for Development of Soil Screening Levels
 - * = Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
 - = No screening level available
 - = Analysis not required and/or well contains separate phase

TABLE 10
San Juan River Terrace: San Juan River Analytical Summary
2012 Groundwater Remediation Monitoring Annual Report

		North of MW-46										North of MW-45									
		Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Apr-10	Aug-09	Apr-09	Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Apr-10	Aug-09	Apr-09				
Volatile Organic Compounds (mg/l)																					
Benzene	0.005	(2)	<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	0.750	(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				
Ethylbenzene	0.700	(2)	<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)	<0.002	<0.002	<0.003	<0.003	<0.003	<0.002	<0.002	<0.002	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002				
MTBE	0.012	(5)	<0.001	<0.001	<0.0015	<0.0015	<0.0015	<0.0015	<0.0025	<0.001	<0.001	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0025				
Total Petroleum Hydrocarbons (mg/l):																					
Diesel Range Organics	0.2	(4)	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<1.0	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0				
Gasoline Range Organics	-	-	<0.05	<0.050	<5.0	<5.0	<5.0	<5.0	<5.0	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<5.0	<5.0				
Motor Oil Range Organics	-	-	<2.5	<2.5	<0.050	<0.050	<0.050	<0.050	<0.050	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	<0.050	<0.050				
General Chemistry (mg/l):																					
Fluoride	1.6	(3)	0.16	0.17	0.16	0.19	0.14	0.22	0.15	0.16	0.19	0.17	0.19	0.17	0.16	0.1	0.14				
Chloride	250	(3)	2.5	2.7	2.60	3.00	3.70	3.2	3.10	2.5	2.70	2.80	2.90	3.00	3.60	3.10	3.10				
Nitrite	1.0	(2)	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10				
Bromide	-	-	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10				
Nitrate	10	(3)	<0.1	<0.10	<0.10	0.14	<0.10	<0.10	<0.10	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10				
Phosphorus	-	-	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50				
Sulfate	600	-3	47	60	49	66	72	49	72	46	61	51	65	60	72	50	72				
Carbon Dioxide (CO ₂)	-	-	74	76	--	87	84	82	78	74	76	--	84	88	84	83	78				
Alkalinity (CaCO ₃)	-	-	83	86	--	87	84	82	87	83	85	--	88	84	84	83	87				
Total Dissolved Solids	1000	(3)	189	187	--	198	221	180	250	197	187	--	186	211	220	193	240				
Electric Conductivity	-	-	280	320	--	330	340	310	330	280	320	--	330	320	340	280	340				
Total Metals (mg/l):																					
Arsenic	0.01	(2)	<0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020				
Barium	1.0	(3)	0.087	0.063	0.17	0.076	0.065	0.07	0.07	0.11	0.06	0.12	0.076	0.069	0.065	0.07	0.07				
Cadmium	0.005	(2)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				
Chromium	0.05	(3)	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006				
Lead	0.015	(2)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005				
Selenium	0.05	(2)	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050				
Silver	0.05	(3)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005				
Mercury	0.002	(3)	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002				
Dissolved Metals (mg/l):																					
Arsenic	0.1	(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				
Barium	1	(3)	0.049	0.058	0.06	0.58	0.065	0.06	0.064	0.049	0.057	0.06	0.058	0.069	0.065	0.041	0.068				
Cadmium	0.01	(3)	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002				
Calcium	-	-	31	34	32	33	35	30	36	31	34	33	33	35	35	22	35				
Chromium	0.05	(3)	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006				
Copper	1.0	(3)	<0.006	<0.0065	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	0.0071	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006				
Iron	1.0	(3)	<0.02	<0.02	<0.02	<0.02	0.027	<0.02	0.03	<0.02	<0.02	<0.02	<0.02	0.036	0.026	<0.02	0.032				
Lead	0.05	(3)	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005				
Magnesium	-	-	5	5.8	5.8	6.1	6	5.6	6.1	5.2	5.9	5.8	6.1	6	6.5	4.1	6.1				
Manganese	0.2	(3)	0.0045	0.016	0.0087	0.015	0.025	0.0035	0.017	0.0047	0.016	0.0079	0.015	0.0099	0.025	0.004	0.18				
Mercury	-	-	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--				
Potassium	-	-	1.6	1.5	1.6	1.6	1.8	1.7	1.7	1.6	1.6	1.6	1.8	1.8	1.8	1.1	1.6				
Selenium	0.05	(3)	<0.001	<0.001	<0.001	<0.001	<0.050	<0.050	<0.050	<0.001	<0.001	<0.001	<0.001	<0.050	<0.050	<0.050	<0.050				
Silver	0.05	(3)	<0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.005	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050				
Sodium	-	-	17	21	16	21	19	16	23	17	22	16	21	19	25	11	22				
Uranium	0.03	(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				
Zinc	10.0	(3)	0.013	0.011	0.068	<0.01	<0.05	<0.05	0.066	0.018	0.011	0.035	<0.01	<0.05	<0.05	<0.05	0.052				

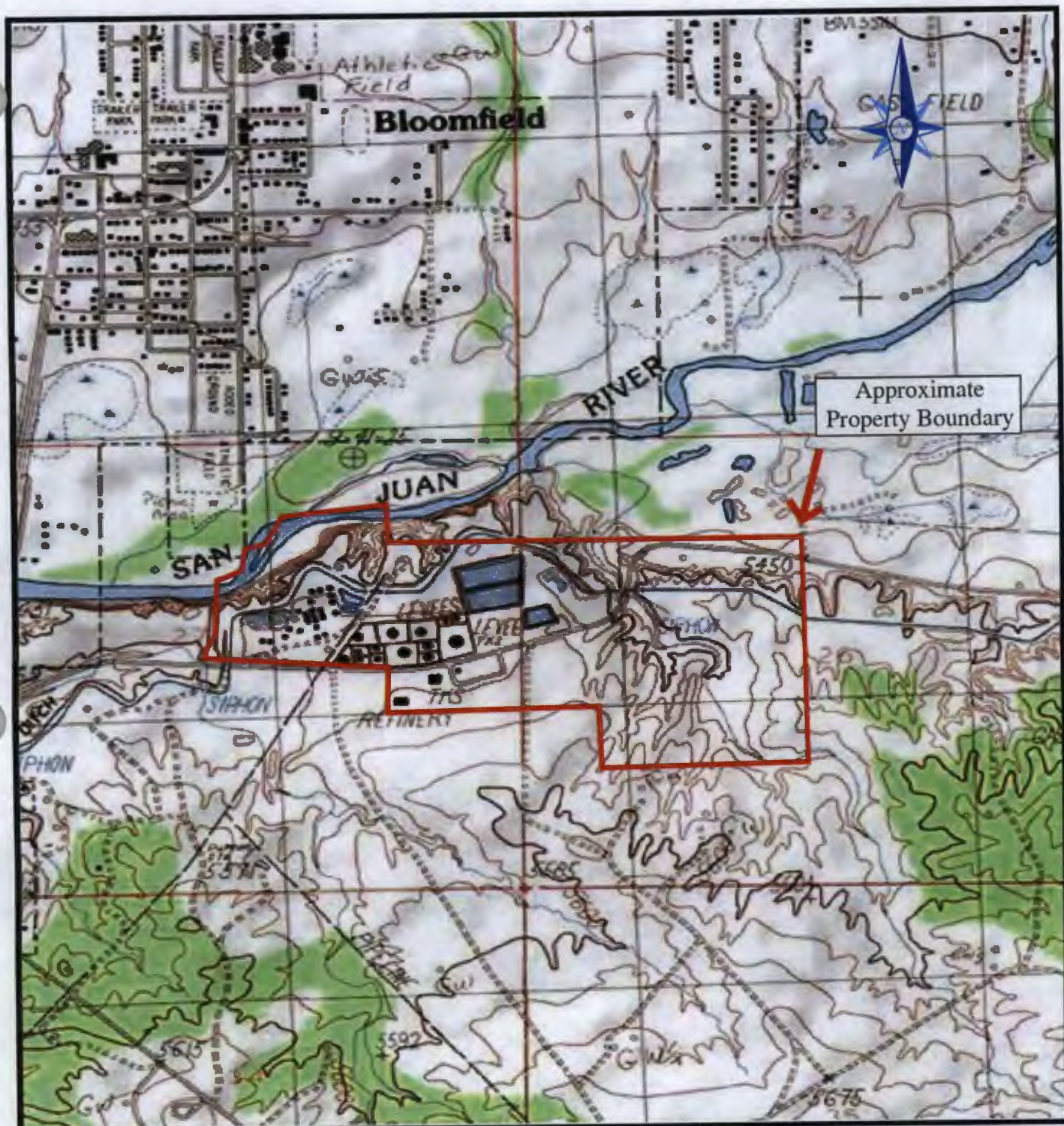
TABLE 10
San Juan River Terrace: San Juan River Analytical Summary
2012 Groundwater Remediation Monitoring Annual Report

Upstream of Refinery										Downstream of Refinery									
		Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Apr-10	Aug-09	Apr-09			Aug-12	Apr-12	Aug-11	Apr-11	Aug-10	Apr-10	Aug-09	Apr-09
Volatile Organic Compounds (mg/l)																			
Benzene	0.005	<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	0.750	<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	<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	<0.002	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002	<0.002	<0.002	<0.003	<0.003	<0.003	<0.003	<0.003	<0.002	<0.002
MTBE	0.012	<0.001	<0.001	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0025	<0.001	<0.001	<0.002	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0015	<0.0025
Total Petroleum Hydrocarbons (mg/l):																			
Diesel Range Organics	0.2	<0.20	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0	<0.20	<0.20	<0.2	<0.2	<0.2	<0.2	<1.0	<1.0	<1.0	<1.0
Gasoline Range Organics	-	<0.050	<0.050	<2.5	<2.5	<5.0	<5.0	<5.0	<5.0	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<5.0	<5.0	<5.0	<5.0
Motor Oil Range Organics	-	<2.5	<2.5	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<2.5	<2.5	<2.5	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
General Chemistry (mg/l):																			
Fluoride	1.6	0.17	0.10	0.17	0.19	0.18	0.15	0.23	0.15	0.16	0.16	0.1	0.17	0.2	0.16	0.16	0.22	0.18	0.18
Chloride	250	2.70	2.70	2.60	2.90	3.20	3.60	3.50	3.30	2.6	2.6	3.2	2.60	3.30	3.10	3.80	2.80	3.10	3.10
Nitrite	1.0	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	*<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Bromide	-	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Nitrate	10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	*<0.1	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Phosphorus	-	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.5	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Sulfate	600	53	62	47	66	60	74	62	73	51	51	90	50	87	65	77	44	75	75
Carbon Dioxide (CO ₂)	-	74	76	---	87	85	84	83	76	74	74	83	---	90	86	87	280	78	78
Alkalinity (CaCO ₃)	-	83	85	---	87	85	84	83	85	83	83	92	---	90	86	87	84	87	87
Total Dissolved Solids	1000	201	190	---	200	203	220	184	250	201	201	232	---	234	206	231	196	280	280
Electric Conductivity	-	290	320	---	320	310	340	270	340	300	300	390.00	---	380	320	350	280	350	350
Total Metals (mg/l):																			
Arsenic	0.01	<0.020	<0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.02	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Barium	1.0	0.099	0.064	0.11	0.071	0.068	0.065	0.07	0.07	0.08	0.08	0.065	0.1	0.073	0.067	0.65	0.07	0.08	0.08
Cadmium	0.005	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Chromium	0.05	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Lead	0.015	<0.005	<0.0050	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Selenium	0.05	<0.050	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.005	<0.005	<0.05	<0.005	<0.005	<0.050	<0.050	<0.050	<0.050	<0.050
Silver	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Mercury	0.002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
Dissolved Metals (mg/l):																			
Arsenic	0.1	<0.001	<0.001	<0.001	<0.001	<0.020	<0.020	<0.020	<0.020	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.020	<0.020	<0.020	<0.020
Barium	1	0.049	0.058	0.059	0.058	0.068	0.065	0.06	0.065	0.049	0.049	0.059	0.061	0.057	0.067	0.65	0.063	0.064	0.064
Cadmium	0.01	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002	<0.002
Calcium	-	31	32	32	33	34	34	28	35	32	32	41	34	39	36	36	31	38	38
Chromium	0.05	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Copper	1.0	<0.006	0.0072	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006	<0.006
Iron	1.0	<0.02	<0.02	<0.02	<0.02	<0.02	0.022	<0.02	0.021	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	<0.02	0.04	0.04
Lead	0.05	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Magnesium	-	5.2	5.8	5.9	6	6	6.7	5.4	6.2	5.2	5.2	6	6.00	6.7	6.1	6.6	5.7	6.4	6.4
Manganese	0.2	0.0093	0.020	0.011	0.019	0.007	0.033	0.003	0.023	0.016	0.016	0.100	0.013	0.044	0.016	0.054	0.006	0.046	0.046
Mercury	-	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
Potassium	-	1.6	1.5	1.6	1.7	1.8	1.8	1.6	1.7	1.6	1.6	1	1.7	1.8	1.8	1.6	1.6	1.8	1.8
Selenium	0.05	<0.001	<0.001	<0.001	<0.001	<0.050	<0.050	<0.050	<0.050	<0.001	<0.001	<0.001	<0.001	<0.001	<0.050	<0.050	<0.050	<0.050	<0.050
Silver	0.05	<0.0050	<0.005	<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	-	19	23	16	22	19	29	14	25	18	18	30	17	26	20	26	16	24	24
Uranium	0.03	<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
Zinc	10.0	0.064	0.011	0.045	<0.01	<0.05	<0.05	<0.05	0.12	0.03	0.03	0.01	0.06	<0.01	<0.05	<0.05	<0.05	<0.05	0.082

Notes:

- (1) EPA - Regional Screening Levels (April 2009) - EPA Screening Levels.Tap Water
- (2) EPA - Regional Screening Levels (April 2009) - MCL
- (3) NMED WQCC standards - Title 20 Chapter 6, Part 2, - 20.6.2.3101 Standards for Ground Water of 10,000 mg/l TDS Concentration or less
- (4) NMED TPH Screening Guidelines Oct. 2006 - "unknown oil" - see report Sections 5 and 7 for use on location specific screening levels
- (5) NMED TAP Water Screening Levels - 2009 Background Document for Development of Soil Screening Levels

* = Laboratory analyzed for combined Nitrate (As N) + Nitrite (As N) to meet hold time
- = No screening level available
--- = Analyte inadvertently not included in sample analysis.
--- = Analysis not required and/or well contains separate phase



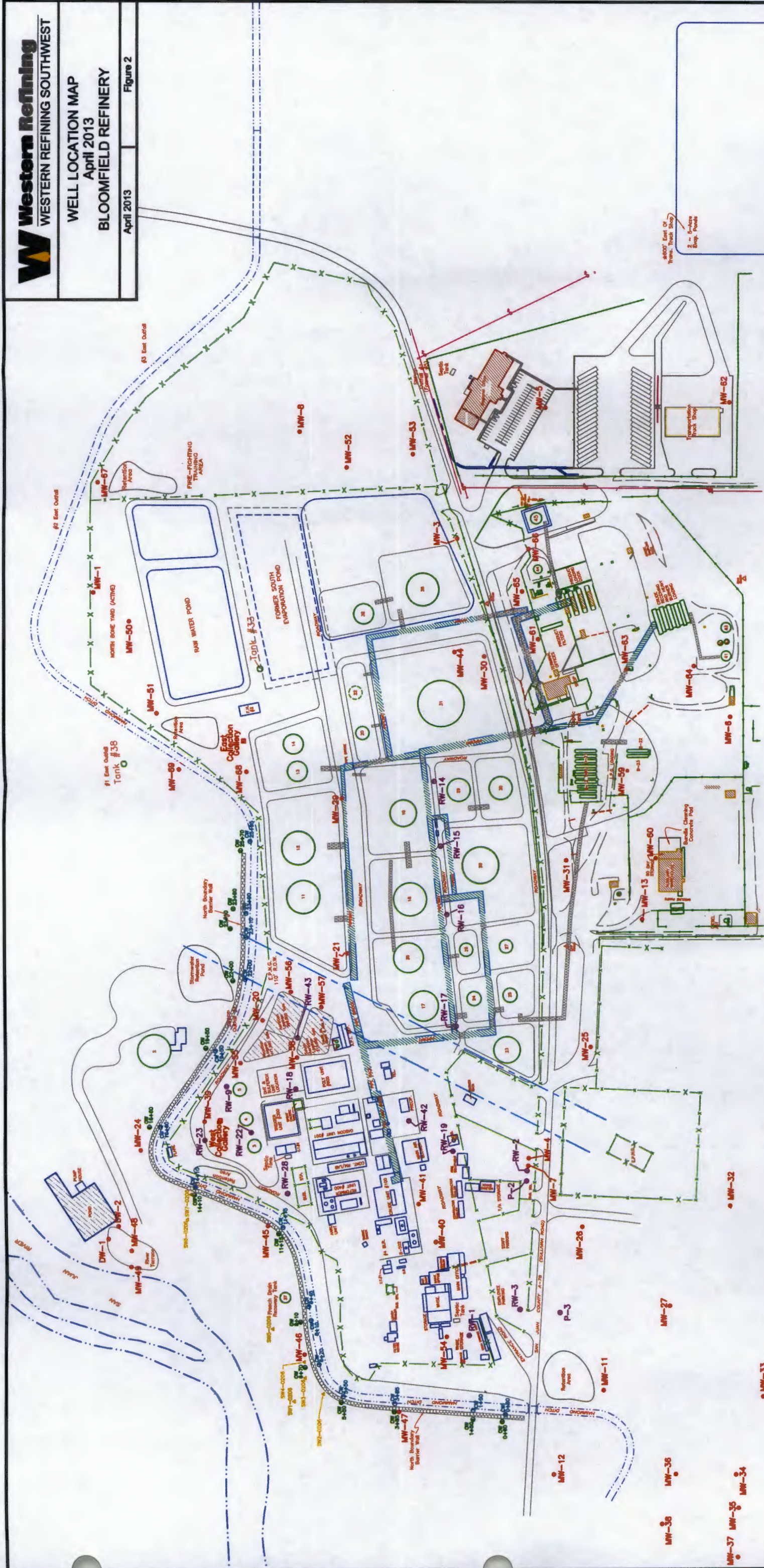
0 500 1000 1500 2000
Feet

W Western Refining

Bloomfield Refinery
Site Location Map

April 2013

Figure 1



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



April 2013 Figure 3

Legend



- Monitoring Well
- Observation Well
- Recovery Well
- Collection Well
- Piezometer
- Seep
- Site

- Approximate Property Line
- Groundwater Elevation Contours
- Inferred Groundwater Elevation
- Groundwater Flow Direction - Dashed where inferred

- Well ID
MW-47
5493.86

Notes:

- * Formation ; data not used to contour.
- 1. CW 25+95 is being pumped.
- 2. Well converted to an active recovery well.

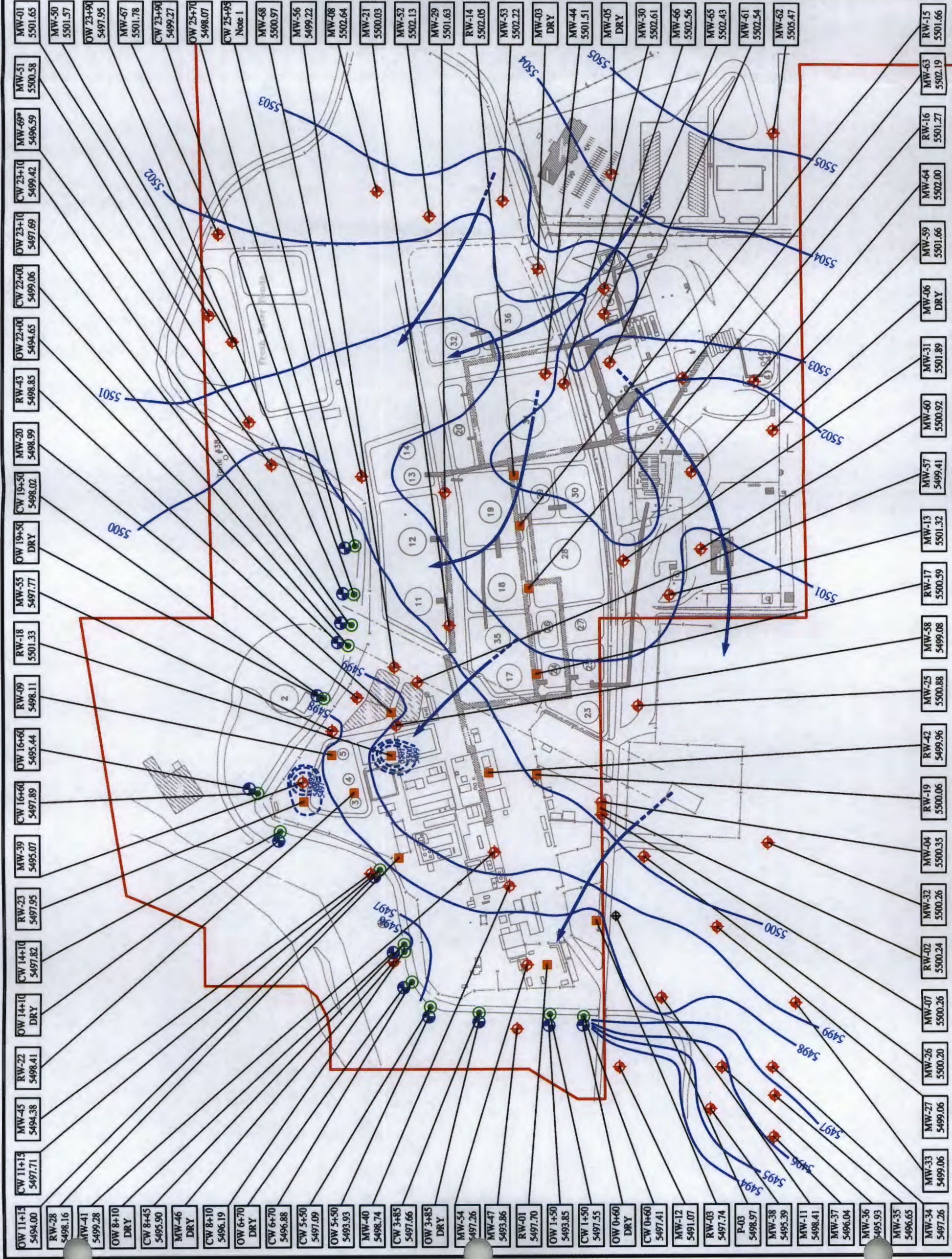
April 2012



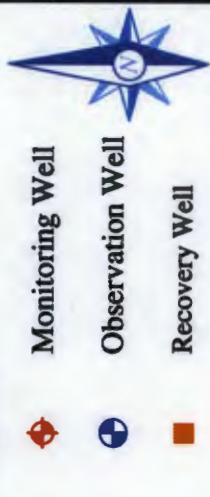
Groundwater Elevation and
Flow Direction - April 2012
Bloomfield Refinery

April 2013

Figure 4



Legend



- Monitoring Well
- Observation Well
- Recovery Well
- Collection Well
- Piezometer
- Seep
- Site

- Approximate Property Line
- Groundwater Elevation Contours
- Inferred Groundwater Elevation
- Groundwater Flow Direction - Dashed where inferred

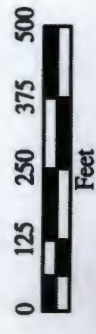
-Well ID
MW-47
5493.54

-Groundwater Elevation
(ft amsl)

Notes:

- * Deeper Well; data not used to contour.
- 1. CW 25+95 is being pumped.
- 2. Well converted to active recovery well

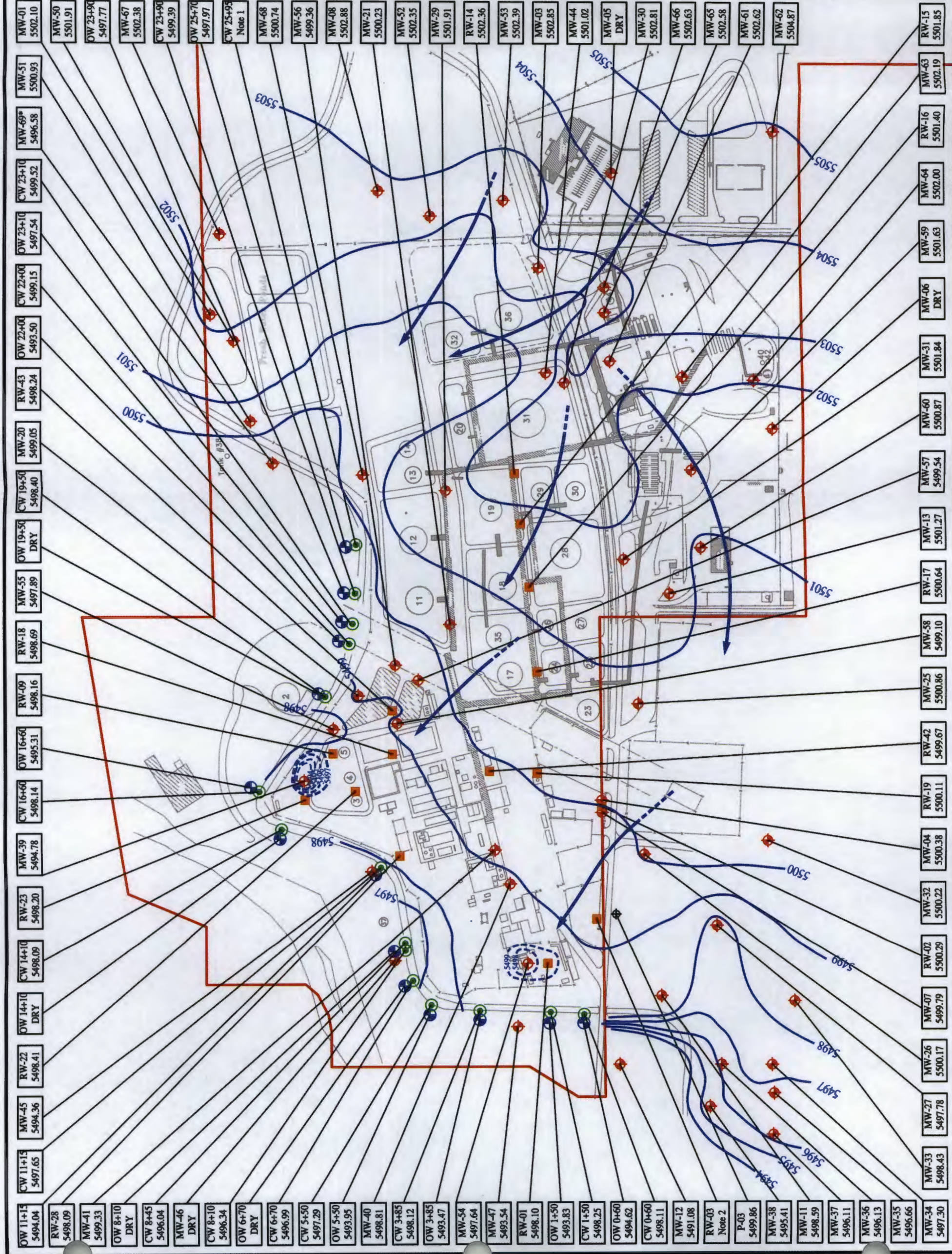
August 2012



Groundwater Elevation and
Flow Direction - August 2012
Bloomfield Refinery

April 2013

Figure 5



Legend

- Monitoring Well
- Observation Well
- Recovery Well
- Collection Well

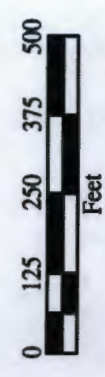
Site

Approximate Property Line

-Well ID
-Product Thickness (feet)

RW-14
0.84

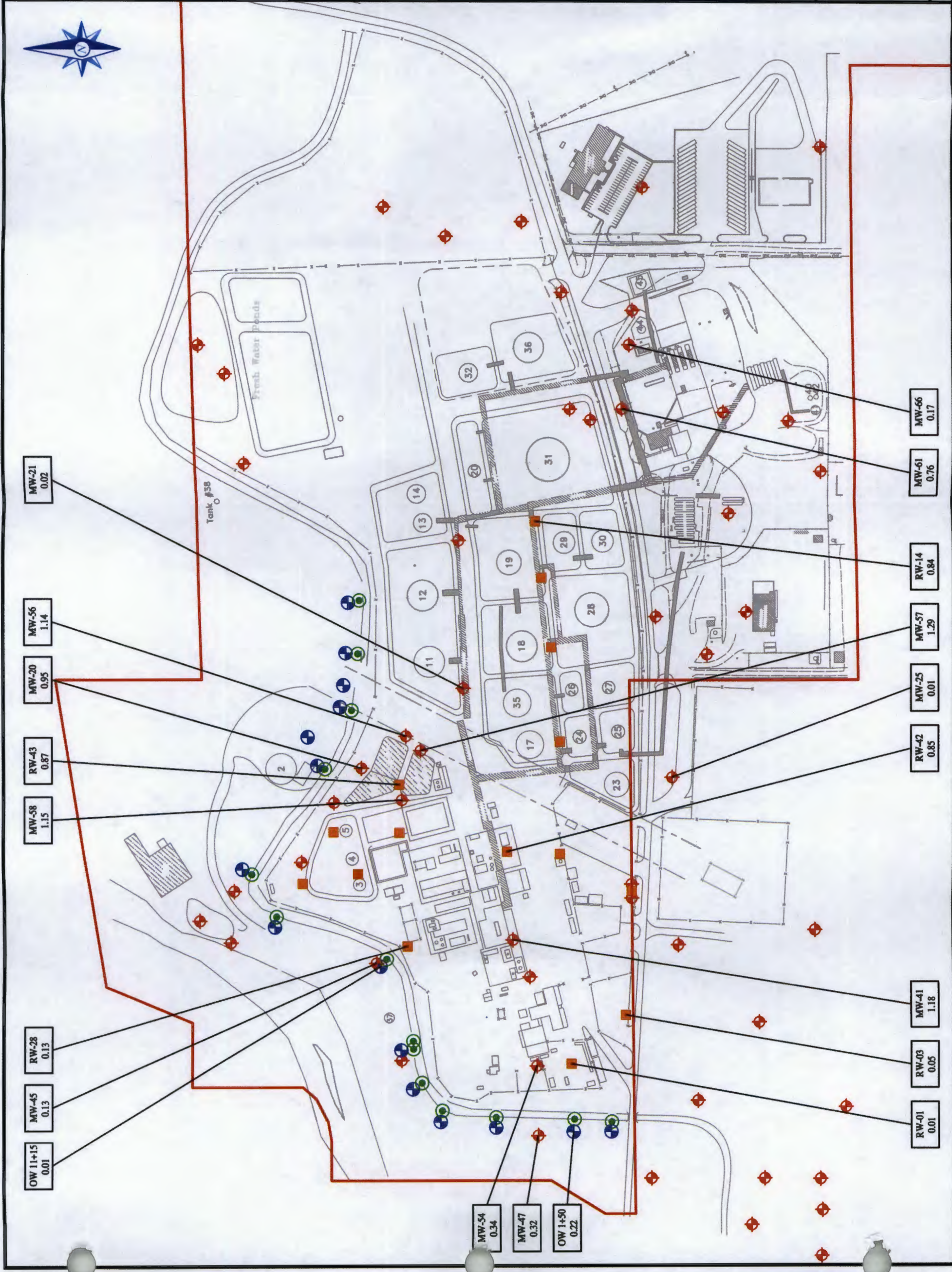
April
2012



Product Thickness Map
April 2012
Bloomfield Refinery

April 2013

Figure 6



Legend

- Monitoring Well
- Observation Well
- Recovery Well
- Collection Well

Site

Approximate Property Line

-Well ID
-Product Thickness (feet)

RW-14
0.05

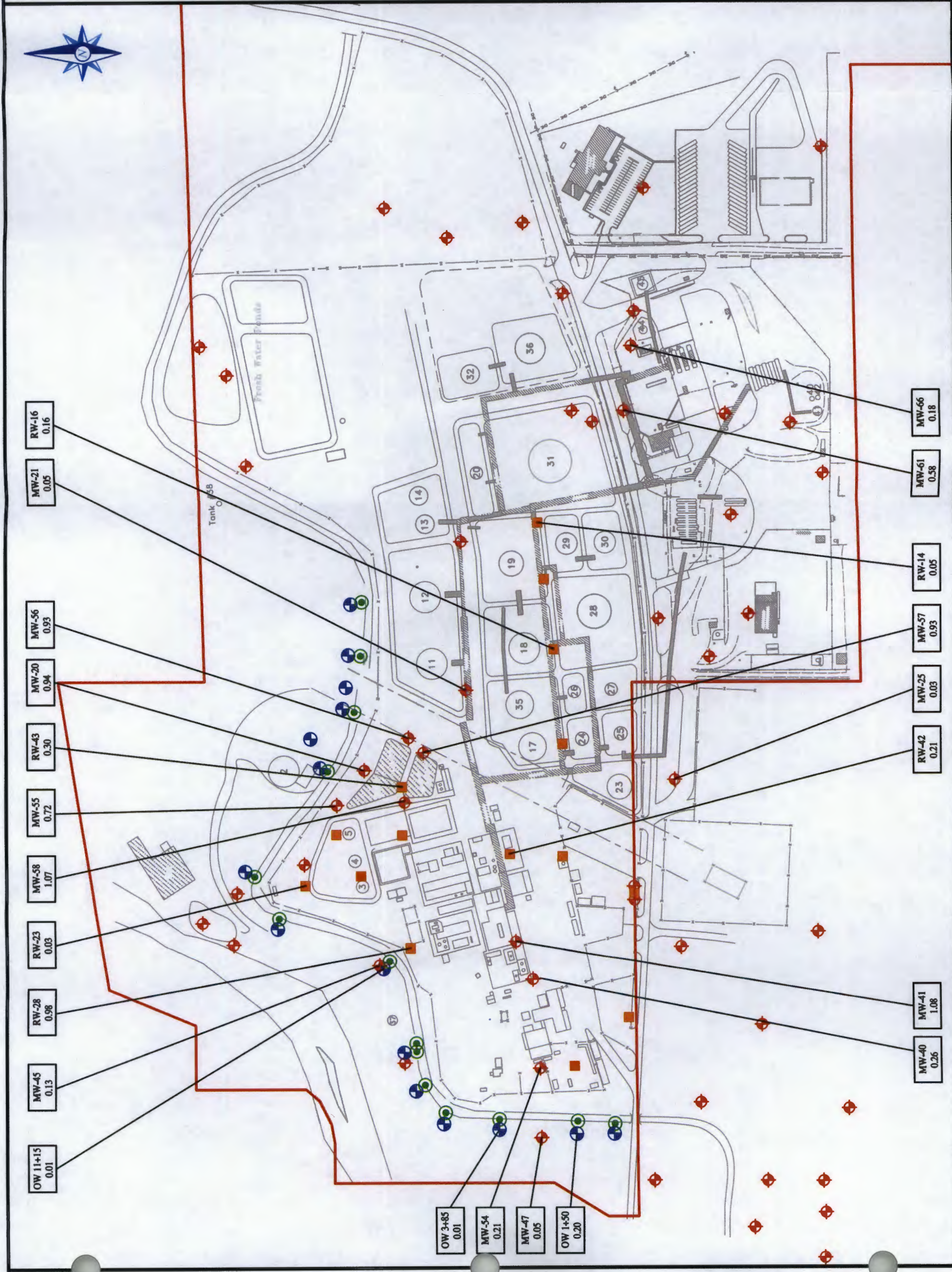
August
2012



Product Thickness Map
August 2012
Bloomfield Refinery

April 2013

Figure 7



Legend

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

-Well ID	-Benzene	-Toluene	-Ethylbenzene	-Xylenes, Total	-MTBE
MW-38	<0.001	<0.001	<0.001	<0.002	0.0012

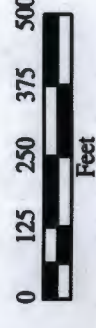
Notes:

All concentrations in milligrams per liter (mg/L)

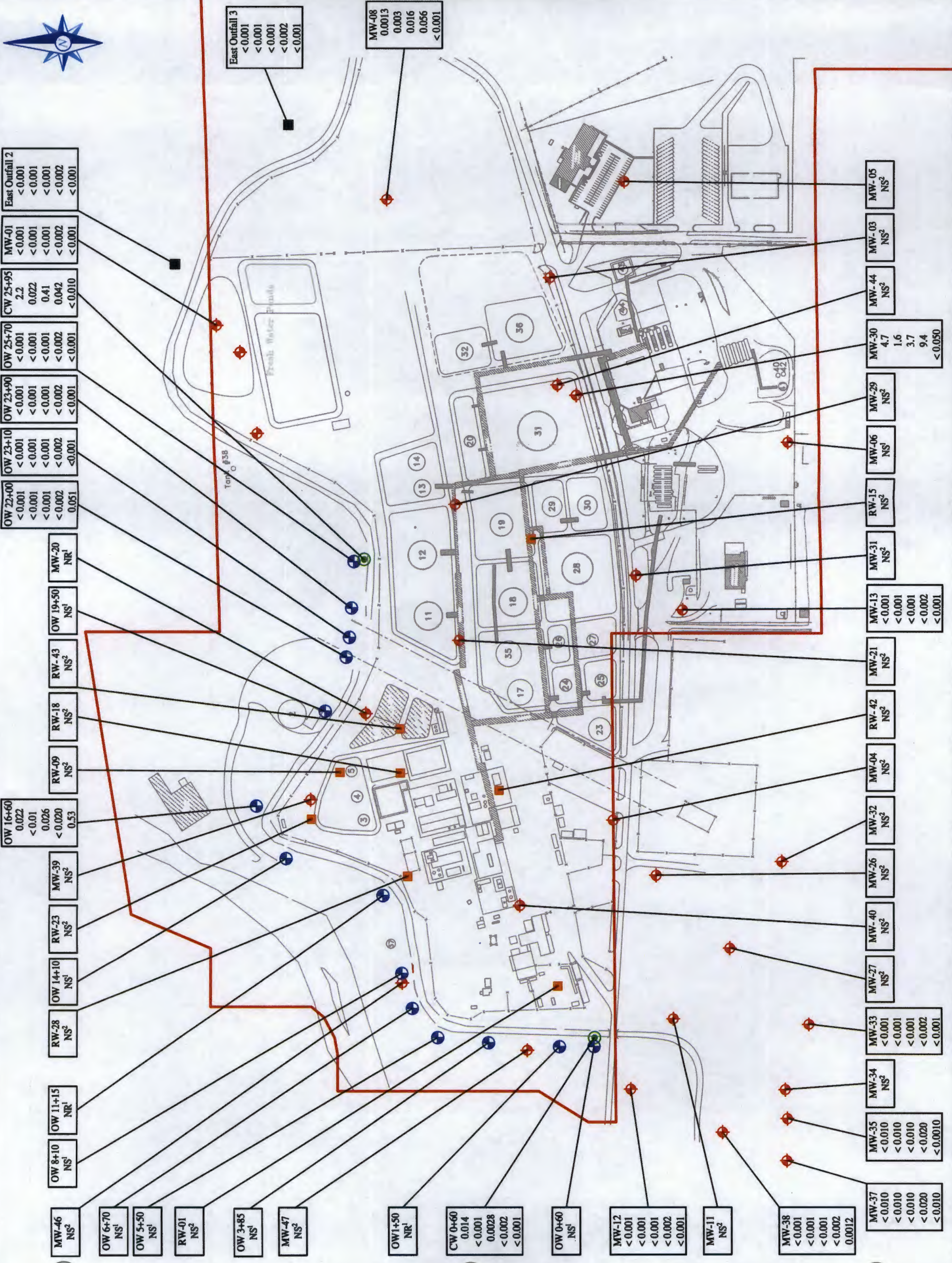
NS¹ = Well is Dry or Not Enough Water to Sample- No sample

NS² = Not sampled due to approved Facility-wide Monitoring Plan.

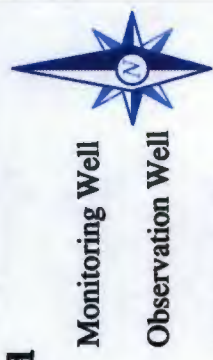
NR¹ = No Sample Required - Well Contains Separate Phase Hydrocarbon



BTEX and MTBE
Concentration Map - April 2012
Bloomfield Refinery



Legend



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

-Well ID
MW-38
-Benzene
<0.005
-Toluene
<0.005
-Ethylbenzene
<0.005
-Xylenes, Total
<0.0075
-MTBE
0.0016

Notes:

All concentrations in milligrams per liter (mg/L)

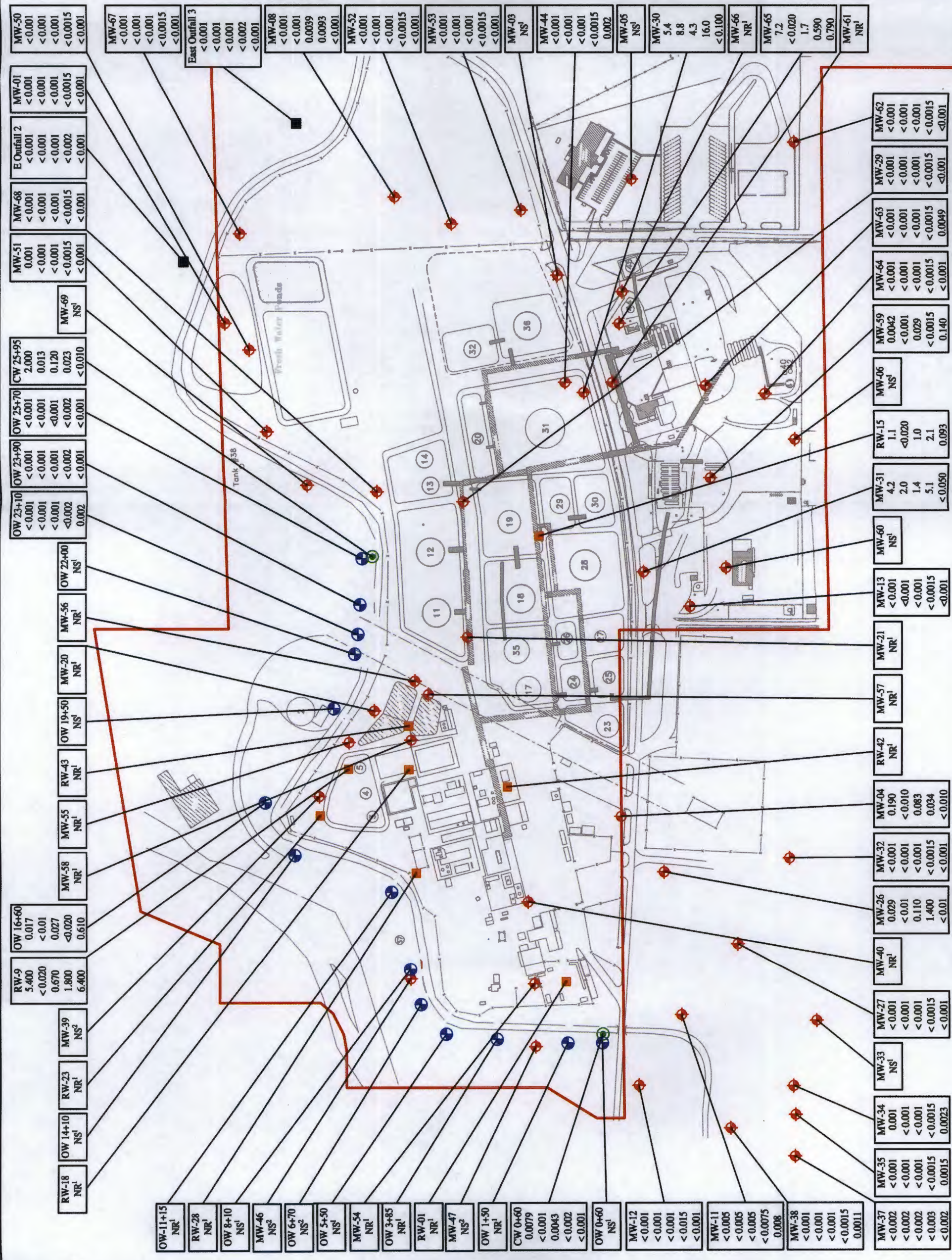
NS¹ = Well is Dry or Not Enough Water to Sample - No sample

NS² = Not sampled due to approved Facility-wide Monitoring Plan

NR¹ = No Sample Required - Well Contains Separate Phase Hydrocarbon



BTEX and MTBE
Concentration Map - August 2012
Bloomfield Refinery



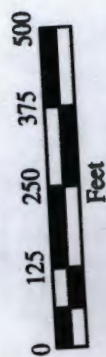


Legend

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

Note:
All identified wells were
sampled in April 2012

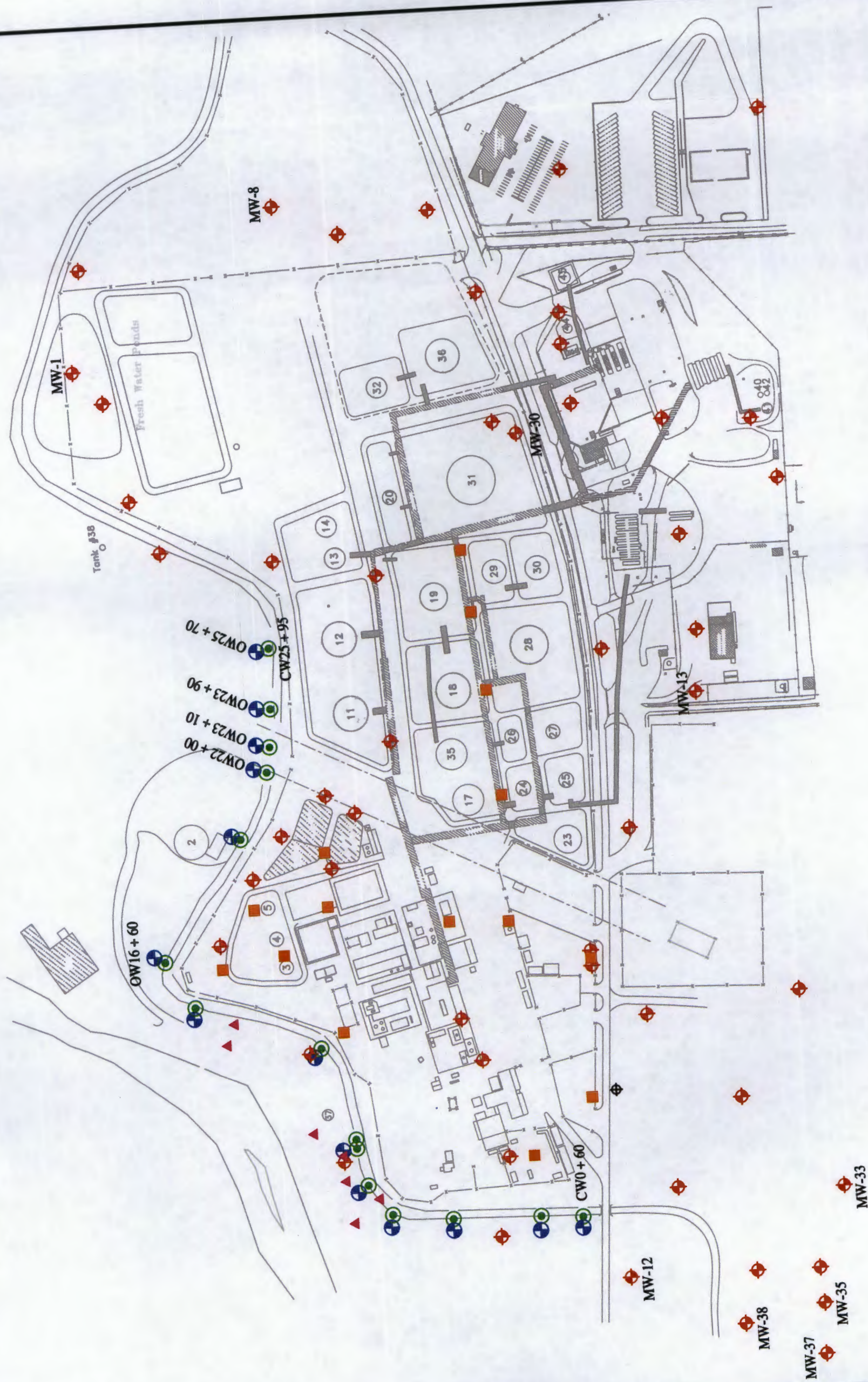
April 2012

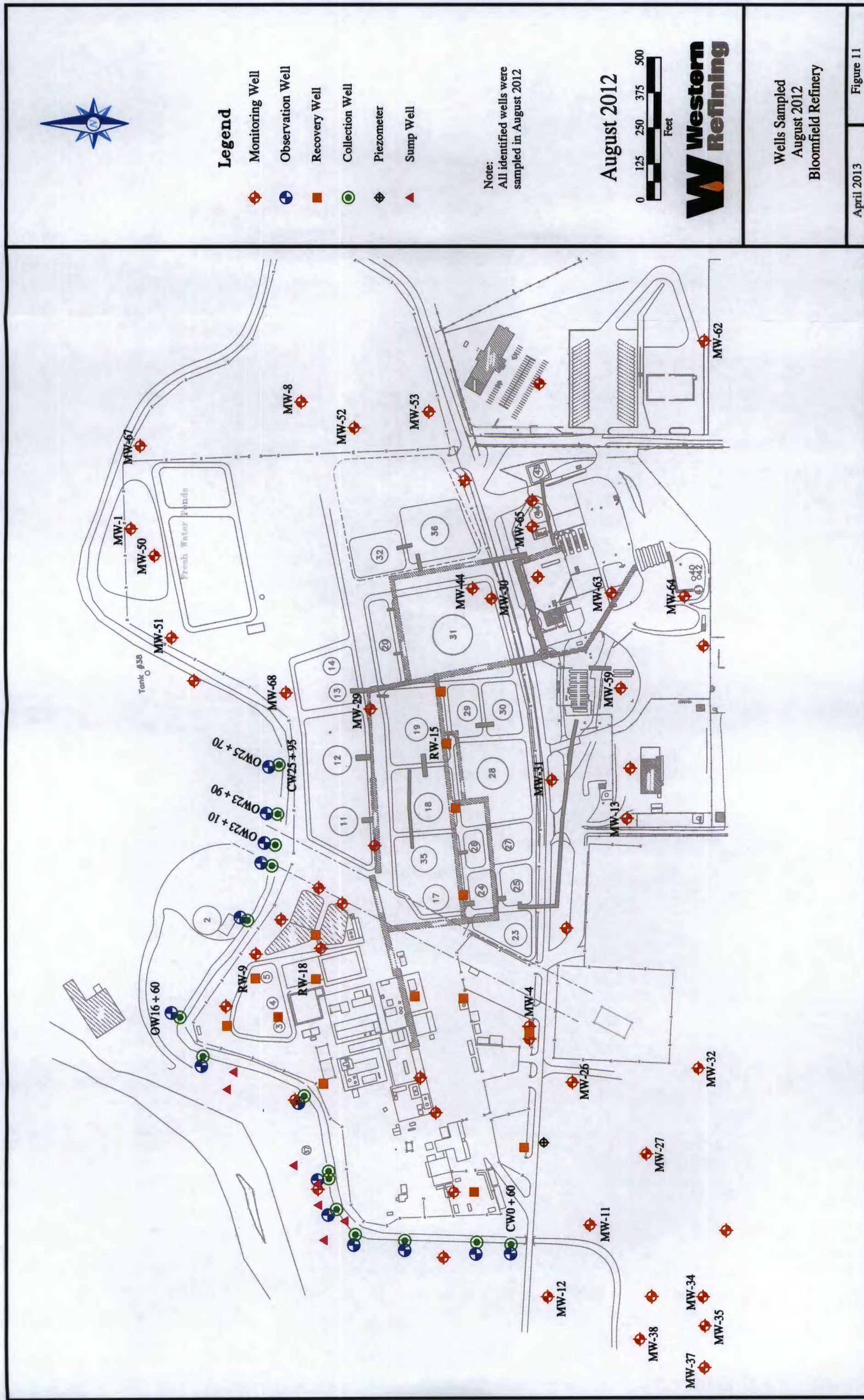


Wells Sampled
April 2012
Bloomfield Refinery

April 2013

Figure 10





Appendix A

Field Methods

Appendix A

Groundwater Elevation

All facility monitoring wells, recovery wells, observation and collection wells were measured for groundwater elevation in March, April, and August. Refinery personnel followed the guidelines of the *Facility-Wide Groundwater Monitoring Plan December 2007 (Revised May 2008)* to collect groundwater levels and SPH thickness measurements in March and April. Water elevation measurements were collected in all wells while the recovery wells were in operation and again after the pumps were removed and water levels had stabilized (5 or more days later). After receipt of the New Mexico Environmental Department (NMED) letter *Approval With Direction Facility-Wide Groundwater Monitoring* dated July 26, 2010, Western personnel followed guidelines from the *Facility-Wide Groundwater Monitoring Plan (FWGMP)* dated June 2010. In August, prior to groundwater sampling activities, groundwater levels and SPH thickness measurements were collected at all wells after the pumps had been removed and water levels had stabilized.

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

Water Quality/Groundwater Sampling

Prior to purging, a YSI 550A Dissolved Oxygen Probe is used to determine dissolved oxygen (DO) levels. Water quality parameters are measured using an Ultrameter 6P by the Myron L Company. Electrical conductance, oxidation-reduction potential (ORP), Total Dissolved Solids (TDS), pH, and temperature are monitored during purging.

Well Purging Technique

After determining water levels and measuring DO, initial well volumes are calculated. Total purge volume is determined by monitoring electrical conductance, pH, temperature, ORP, and TDS after every two gallons or each well volume, whichever is less, has been purged from the well. The wells were considered satisfactorily purged when the field parameter values did not vary by more than 10 percent for at least three measurements.

Well volumes are determined using the following equation:

Well Depth – Casing Height – Depth to Liquid X Conversion Factor X Three.

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

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

Typically disposable bailers are used for purging and sampling. Each bailer holds one liter of liquid. Three well volumes can be calculated by counting the number of times a well is bailed.

On occasion, the submersible pump is used for purging wells that have a large volume of water. All purged water is poured/pumped into a 55-gallon drum designated for sampling events.

Well Sampling and Sample Handling Procedure

Equipment and supplies needed for collecting representative groundwater samples include:

- Interface Meter
- YSI 550A Dissolved Oxygen Probe
- Ultrameter 6P
- Distilled Water
- Disposable Latex Gloves
- Disposable Bailers
- Submersible pump and Generator (if needed)
- String/Twine
- Cooler with Ice
- Bottle kits with Preservatives (provided by the contract laboratory)
- Disposable 0.45 micron Field Filters and Syringes
- Glass Jar (usually 4 oz.)
- Sharpie Permanent Marker
- Field Paperwork/Logsheet
- Two 5-gallon buckets
- Trash container (plastic garbage bag)
- Ziploc Bags
- Paper towels

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

For dissolved metals, sample water is poured into a jar and then extracted with a syringe. The syringe is then used to push water through a field filter into the proper sample bottle to collect the dissolved metals sample. Volatile organic analysis samples are collected as to allow no head space in the container.

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

Purge and Decontamination Water Disposal

The Ultrameter 6P, YSI 550A Dissolved Oxygen Probe, and the interface probe are rinsed with distilled water after every well. The rinse procedure takes place over a bucket to insure that spills are contained.

All rinse and purge water is contained and then disposed of through the refinery wastewater system.

The submersible pump is decontaminated by placing it in a 55-gallon barrel filled with plant water and some Alconox. The pump is activated and will pump down the barrel twice. External areas are washed down and rinsed, also. All wash and rinse water is on containment and runs to the refinery wastewater system.

Any glassware used is taken to the refinery laboratory and washed with Alconox and water and rinsed with reverse osmosis water. Laboratory wastewater runs through the refinery system.

Instrument Calibration

Calibration of the YSI 550A Dissolved Oxygen Instrument occurs at the beginning of each day of sampling. The probe is powered on and allowed to stabilize, which usually takes 15 minutes. Enter the calibration menu. The LCD will prompt you to enter the local altitude in hundreds of feet. When the proper altitude appears on the LCD, press the **ENTER** key.

The LCD will then prompt you to enter the salinity of the water you are about to analyze. After entering the correct salinity, the instrument will return to normal operation.

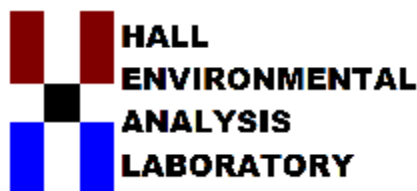
The Ultrameter 6P instrument calibration occurs at the beginning of each day of sampling. For Conductivity and TDS calibration, the cell is rinsed three times with a 3000 umhos/cm NaCl Standard. The cell cup is refilled with the standard. Either the **COND** or the **TDS** button is pressed and then the **CAL** button is pushed. Press the up or down arrow until the display agrees with the standard. The **CAL** button is pressed to accept the value.

The Ultrameter 6P has an electronic ORP calibration which is automatically calibrated with the 7 pH. The pH sensor well is rinsed three times with 7.0 buffer solution and then refilled again with that buffer. The **pH** button is pressed then the **CAL** button. The up or down arrow is adjusted until the display agrees with the buffer value. The **CAL** button is pushed to accept that value. Repeat the calibration steps using an acid buffer solution and then again with a base buffer solution.

Remediation System Measurement

Recovery well flows are measured using a 1000 ml graduated cylinder. The sample port on the discharge line of the pump is opened and effluent flows into the graduated cylinder. During a pump cycle, a measurement is taken over time and then calculated to a gallon per day rate.

Recovery rates at Tk #37 (Hammond Ditch French Drain) and Tk #38 (#1 East Outfall) are determined through flow meters installed in those systems. Refinery personnel record the rates periodically.



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

September 28, 2012

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: Background Wells 8-21-12

OrderNo.: 1208983

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 8/22/2012 for the analyses presented in the following report.

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



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

Workorder Sample Summary

WO#: 1208983

28-Sep-12

CLIENT: Western Refining Southwest, Inc.

Project: Background Wells 8-21-12

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1208983-001	MW-Bck-1		8/21/2012 10:30:00 AM	8/22/2012 10:00:00 AM	Aqueous
1208983-001	MW-Bck-1		8/21/2012 10:30:00 AM	8/22/2012 10:00:00 AM	Aqueous
1208983-001	MW-Bck-1		8/21/2012 10:30:00 AM	8/22/2012 10:00:00 AM	Aqueous
1208983-002	MW-Bck-2		8/21/2012 11:00:00 AM	8/22/2012 10:00:00 AM	Aqueous
1208983-002	MW-Bck-2		8/21/2012 11:00:00 AM	8/22/2012 10:00:00 AM	Aqueous
1208983-002	MW-Bck-2		8/21/2012 11:00:00 AM	8/22/2012 10:00:00 AM	Aqueous
1208983-003	MW-Bck-1 Filtered		8/21/2012 10:30:00 AM	8/22/2012 10:00:00 AM	Aqueous
1208983-004	MW-Bck-2 Filtered		8/21/2012 11:00:00 AM	8/22/2012 10:00:00 AM	Aqueous

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208983

Date Reported: 9/28/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-Bck-1

Project: Background Wells 8-21-12

Collection Date: 8/21/2012 10:30:00 AM

Lab ID: 1208983-001

Matrix: AQUEOUS

Received Date: 8/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	ND	0.10		mg/L	1	8/22/2012 6:05:39 PM
Chloride	32	10		mg/L	20	8/22/2012 6:18:04 PM
Sulfate	3200	50		mg/L	100	8/24/2012 5:10:50 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Aluminum	0.028	0.020		mg/L	1	9/6/2012 3:55:32 PM
Barium	0.019	0.0020		mg/L	1	9/6/2012 3:55:32 PM
Beryllium	ND	0.0020		mg/L	1	9/6/2012 3:55:32 PM
Boron	0.23	0.040		mg/L	1	9/6/2012 3:55:32 PM
Cadmium	ND	0.0020		mg/L	1	9/6/2012 3:55:32 PM
Calcium	410	5.0		mg/L	5	9/6/2012 3:59:46 PM
Chromium	ND	0.0060		mg/L	1	9/6/2012 3:55:32 PM
Cobalt	ND	0.0060		mg/L	1	9/6/2012 3:55:32 PM
Copper	ND	0.0060		mg/L	1	9/6/2012 3:55:32 PM
Iron	0.038	0.020		mg/L	1	9/6/2012 3:55:32 PM
Magnesium	62	1.0		mg/L	1	9/6/2012 3:55:32 PM
Manganese	0.17	0.0020	*	mg/L	1	9/6/2012 3:55:32 PM
Molybdenum	0.010	0.0080		mg/L	1	9/6/2012 3:55:32 PM
Nickel	ND	0.010		mg/L	1	9/6/2012 3:55:32 PM
Potassium	5.2	1.0		mg/L	1	9/6/2012 3:55:32 PM
Silver	ND	0.0050		mg/L	1	9/6/2012 3:55:32 PM
Sodium	900	10		mg/L	10	9/6/2012 4:44:12 PM
Vanadium	ND	0.050		mg/L	1	9/6/2012 3:55:32 PM
Zinc	0.20	0.010		mg/L	1	9/6/2012 3:55:32 PM
EPA METHOD 200.7: TOTAL METALS						Analyst: ELS
Aluminum	3.2	0.10	*	mg/L	5	8/31/2012 4:13:33 PM
Barium	0.051	0.0020		mg/L	1	8/31/2012 4:10:00 PM
Beryllium	ND	0.0020		mg/L	1	8/31/2012 4:10:00 PM
Boron	0.22	0.040		mg/L	1	8/31/2012 4:10:00 PM
Cadmium	ND	0.0020		mg/L	1	8/31/2012 4:10:00 PM
Chromium	ND	0.0060		mg/L	1	8/31/2012 4:10:00 PM
Cobalt	ND	0.0060		mg/L	1	8/31/2012 4:10:00 PM
Copper	ND	0.0060		mg/L	1	9/6/2012 8:05:30 AM
Iron	4.9	0.10	*	mg/L	5	8/31/2012 4:13:33 PM
Magnesium	59	1.0		mg/L	1	8/31/2012 4:10:00 PM
Manganese	0.18	0.0020	*	mg/L	1	8/31/2012 4:10:00 PM
Molybdenum	0.0080	0.0080		mg/L	1	8/31/2012 4:10:00 PM
Nickel	ND	0.010		mg/L	1	8/31/2012 4:10:00 PM
Silver	ND	0.0050		mg/L	1	8/31/2012 4:10:00 PM
Vanadium	ND	0.050		mg/L	1	8/31/2012 4:10:00 PM
Zinc	0.018	0.010		mg/L	1	8/31/2012 4:10:00 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208983

Date Reported: 9/28/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-Bck-1

Project: Background Wells 8-21-12

Collection Date: 8/21/2012 10:30:00 AM

Lab ID: 1208983-001

Matrix: AQUEOUS

Received Date: 8/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Antimony	ND	0.0010		mg/L	1	9/4/2012 12:28:11 PM
Arsenic	ND	0.0010		mg/L	1	9/4/2012 12:28:11 PM
Lead	ND	0.0010		mg/L	1	9/4/2012 12:28:11 PM
Selenium	0.0085	0.0010		mg/L	1	9/4/2012 12:28:11 PM
Thallium	ND	0.0010		mg/L	1	9/4/2012 12:28:11 PM
Uranium	0.0073	0.0010		mg/L	1	9/4/2012 12:28:11 PM
200.8 ICPMS METALS:TOTAL						Analyst: DBD
Antimony	ND	0.0025		mg/L	2.5	8/30/2012 2:02:17 PM
Arsenic	ND	0.0025		mg/L	2.5	8/30/2012 2:02:17 PM
Lead	0.0038	0.0025		mg/L	2.5	8/30/2012 2:02:17 PM
Selenium	0.0091	0.0025		mg/L	2.5	8/30/2012 2:02:17 PM
Thallium	ND	0.0025		mg/L	2.5	8/30/2012 2:02:17 PM
Uranium	0.0071	0.0025		mg/L	2.5	8/30/2012 2:02:17 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	9/11/2012 12:40:09 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	4580	20.0		mg/L	1	8/24/2012 9:28:00 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208983

Date Reported: 9/28/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-Bck-2

Project: Background Wells 8-21-12

Collection Date: 8/21/2012 11:00:00 AM

Lab ID: 1208983-002

Matrix: AQUEOUS

Received Date: 8/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	ND	2.0		mg/L	20	8/22/2012 6:42:53 PM
Chloride	21	10		mg/L	20	8/22/2012 6:42:53 PM
Sulfate	8800	250		mg/L	500	8/24/2012 5:23:15 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Aluminum	ND	0.020		mg/L	1	9/6/2012 4:03:36 PM
Barium	0.026	0.0020		mg/L	1	9/6/2012 4:03:36 PM
Beryllium	ND	0.0020		mg/L	1	9/6/2012 4:03:36 PM
Boron	0.72	0.040		mg/L	1	9/6/2012 4:03:36 PM
Cadmium	ND	0.0020		mg/L	1	9/6/2012 4:03:36 PM
Calcium	410	5.0		mg/L	5	9/6/2012 4:07:26 PM
Chromium	ND	0.0060		mg/L	1	9/6/2012 4:03:36 PM
Cobalt	ND	0.0060		mg/L	1	9/6/2012 4:03:36 PM
Copper	ND	0.0060		mg/L	1	9/6/2012 4:03:36 PM
Iron	ND	0.020		mg/L	1	9/6/2012 4:03:36 PM
Magnesium	49	1.0		mg/L	1	9/6/2012 4:03:36 PM
Manganese	1.0	0.010	*	mg/L	5	9/6/2012 4:07:26 PM
Molybdenum	0.027	0.0080		mg/L	1	9/6/2012 4:03:36 PM
Nickel	ND	0.010		mg/L	1	9/6/2012 4:03:36 PM
Potassium	20	1.0		mg/L	1	9/6/2012 4:03:36 PM
Silver	ND	0.0050		mg/L	1	9/6/2012 4:03:36 PM
Sodium	3500	50		mg/L	50	9/6/2012 4:47:56 PM
Vanadium	ND	0.050		mg/L	1	9/6/2012 4:03:36 PM
Zinc	0.10	0.010		mg/L	1	9/6/2012 4:03:36 PM
EPA METHOD 200.7: TOTAL METALS						Analyst: ELS
Aluminum	0.38	0.020	*	mg/L	1	8/31/2012 4:18:16 PM
Barium	0.028	0.0020		mg/L	1	8/31/2012 4:18:16 PM
Beryllium	ND	0.0020		mg/L	1	8/31/2012 4:18:16 PM
Boron	0.74	0.040		mg/L	1	8/31/2012 4:18:16 PM
Cadmium	ND	0.0020		mg/L	1	8/31/2012 4:18:16 PM
Chromium	ND	0.0060		mg/L	1	8/31/2012 4:18:16 PM
Cobalt	ND	0.0060		mg/L	1	8/31/2012 4:18:16 PM
Copper	ND	0.0060		mg/L	1	9/6/2012 8:08:42 AM
Iron	0.51	0.020	*	mg/L	1	8/31/2012 4:18:16 PM
Magnesium	48	1.0		mg/L	1	8/31/2012 4:18:16 PM
Manganese	1.1	0.010	*	mg/L	5	8/31/2012 4:21:58 PM
Molybdenum	0.022	0.0080		mg/L	1	8/31/2012 4:18:16 PM
Nickel	ND	0.010		mg/L	1	8/31/2012 4:18:16 PM
Silver	ND	0.0050		mg/L	1	8/31/2012 4:18:16 PM
Vanadium	ND	0.050		mg/L	1	8/31/2012 4:18:16 PM
Zinc	ND	0.010		mg/L	1	8/31/2012 4:18:16 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208983

Date Reported: 9/28/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-Bck-2

Project: Background Wells 8-21-12

Collection Date: 8/21/2012 11:00:00 AM

Lab ID: 1208983-002

Matrix: AQUEOUS

Received Date: 8/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Antimony	ND	0.0010		mg/L	1	9/4/2012 12:32:07 PM
Arsenic	0.0016	0.0010		mg/L	1	9/4/2012 12:32:07 PM
Lead	ND	0.0050		mg/L	5	9/4/2012 3:53:00 PM
Selenium	0.0042	0.0010		mg/L	1	9/4/2012 12:32:07 PM
Thallium	ND	0.0050		mg/L	5	9/4/2012 3:53:00 PM
Uranium	ND	0.0050		mg/L	5	9/4/2012 3:53:00 PM
200.8 ICPMS METALS:TOTAL						Analyst: DBD
Antimony	ND	0.0025		mg/L	2.5	8/30/2012 2:06:13 PM
Arsenic	ND	0.0025		mg/L	2.5	8/30/2012 2:06:13 PM
Lead	ND	0.0025		mg/L	2.5	8/30/2012 2:06:13 PM
Selenium	0.0067	0.0025		mg/L	2.5	8/30/2012 2:06:13 PM
Thallium	ND	0.0025		mg/L	2.5	8/30/2012 2:06:13 PM
Uranium	ND	0.0025		mg/L	2.5	8/30/2012 2:06:13 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	9/11/2012 12:41:54 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	13200	200		mg/L	1	8/30/2012 12:25:00 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208983

Date Reported: 9/28/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-Bck-1 Filtered

Project: Background Wells 8-21-12

Collection Date: 8/21/2012 10:30:00 AM

Lab ID: 1208983-003

Matrix: AQUEOUS

Received Date: 8/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	ND	0.10		mg/L	1	8/22/2012 5:40:49 PM
Chloride	32	10		mg/L	20	8/22/2012 5:53:14 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/22/2012 5:40:49 PM
Nitrogen, Nitrate (As N)	ND	2.0		mg/L	20	8/22/2012 5:53:14 PM
Sulfate	3500	10	E	mg/L	20	8/22/2012 5:53:14 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	130	20		mg/L CaCO3	1	8/24/2012 8:34:15 PM

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2
RL Reporting Detection Limit

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208983

Date Reported: 9/28/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-Bck-2 Filtered

Project: Background Wells 8-21-12

Collection Date: 8/21/2012 11:00:00 AM

Lab ID: 1208983-004

Matrix: AQUEOUS

Received Date: 8/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	ND	2.0		mg/L	20	8/22/2012 5:28:24 PM
Chloride	21	10		mg/L	20	8/22/2012 5:28:24 PM
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	8/22/2012 5:28:24 PM
Nitrogen, Nitrate (As N)	ND	2.0		mg/L	20	8/22/2012 5:28:24 PM
Sulfate	10000	25	E	mg/L	50	8/24/2012 5:35:40 AM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	120	20		mg/L CaCO3	1	8/24/2012 8:43:13 PM

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2
RL Reporting Detection Limit

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208983

28-Sep-12

Client: Western Refining Southwest, Inc.

Project: Background Wells 8-21-12

Sample ID	MB-3525	SampType: MBLK			TestCode: EPA Method 200.7: Metals					
Client ID:	PBW	Batch ID: 3525			RunNo: 5189					
Prep Date:	8/29/2012	Analysis Date: 8/29/2012			SeqNo: 147585		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Beryllium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 200.7: Metals					
Client ID:	PBW	Batch ID: R5356			RunNo: 5356					
Prep Date:		Analysis Date: 9/6/2012			SeqNo: 152485		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Beryllium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Potassium	ND	1.0								
Silver	ND	0.0050								
Sodium	ND	1.0								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208983

28-Sep-12

Client: Western Refining Southwest, Inc.**Project:** Background Wells 8-21-12

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID: R5356			RunNo: 5356					
Prep Date:		Analysis Date: 9/6/2012			SeqNo: 152487		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Beryllium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Potassium	ND	1.0								
Silver	ND	0.0050								
Sodium	ND	1.0								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208983

28-Sep-12

Client: Western Refining Southwest, Inc.

Project: Background Wells 8-21-12

Sample ID	MB-3525	SampType: MBLK			TestCode: EPA Method 200.7: Total Metals					
Client ID:	PBW	Batch ID: 3525			RunNo: 5189					
Prep Date:	8/29/2012	Analysis Date: 8/29/2012			SeqNo: 147561		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Beryllium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208983

28-Sep-12

Client: Western Refining Southwest, Inc.

Project: Background Wells 8-21-12

Sample ID	MB-3525		SampType: MBLK		TestCode: EPA 200.8: Metals					
Client ID:	PBW		Batch ID: 3525		RunNo: 5235					
Prep Date:	8/29/2012		Analysis Date: 8/30/2012		SeqNo: 148846		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0025								
Arsenic	ND	0.0025								
Lead	ND	0.0025								
Selenium	ND	0.0025								
Thallium	ND	0.0025								
Uranium	ND	0.0025								

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Metals					
Client ID:	PBW	Batch ID: R5291			RunNo: 5291					
Prep Date:		Analysis Date: 9/4/2012			SeqNo: 150650		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
Thallium	ND	0.0010								
Uranium	ND	0.0010								

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Metals					
Client ID:	PBW	Batch ID: R5291			RunNo: 5291					
Prep Date:		Analysis Date: 9/4/2012			SeqNo: 150651		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
Thallium	ND	0.0010								
Uranium	ND	0.0010								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208983

28-Sep-12

Client: Western Refining Southwest, Inc.**Project:** Background Wells 8-21-12

Sample ID MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals						
Client ID: PBW	Batch ID: R5291			RunNo: 5291						
Prep Date:	Analysis Date: 9/4/2012			SeqNo: 150689		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
Thallium	ND	0.0010								
Uranium	ND	0.0010								

Sample ID MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals						
Client ID: PBW	Batch ID: R5291			RunNo: 5291						
Prep Date:	Analysis Date: 9/4/2012			SeqNo: 150690		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
Thallium	ND	0.0010								
Uranium	ND	0.0010								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208983

28-Sep-12

Client: Western Refining Southwest, Inc.**Project:** Background Wells 8-21-12

Sample ID	MB-3525		SampType:	MBLK		TestCode:	200.8 ICPMS Metals:Total			
Client ID:	PBW		Batch ID:	3525		RunNo:	5235			
Prep Date:	8/29/2012		Analysis Date:	8/30/2012		SeqNo:	148879		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0025								
Arsenic	ND	0.0025								
Lead	ND	0.0025								
Selenium	ND	0.0025								
Thallium	ND	0.0025								
Uranium	ND	0.0025								

Qualifiers:

* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH greater than 2

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208983

28-Sep-12

Client: Western Refining Southwest, Inc.**Project:** Background Wells 8-21-12

Sample ID	MB-3670	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	3670	RunNo:	5432					
Prep Date:	9/10/2012	Analysis Date:	9/11/2012	SeqNo:	155009	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208983

28-Sep-12

Client: Western Refining Southwest, Inc.

Project: Background Wells 8-21-12

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R5064	RunNo:	5064					
Prep Date:		Analysis Date:	8/22/2012	SeqNo:	143390	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R5064	RunNo:	5064					
Prep Date:		Analysis Date:	8/23/2012	SeqNo:	143470	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R5083	RunNo:	5083					
Prep Date:		Analysis Date:	8/23/2012	SeqNo:	143987	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208983

28-Sep-12

Client: Western Refining Southwest, Inc.

Project: Background Wells 8-21-12

Sample ID	MB-3465	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	3465	RunNo:	5096					
Prep Date:	8/23/2012	Analysis Date:	8/24/2012	SeqNo:	144377	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	MB-3484	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	3484	RunNo:	5207					
Prep Date:	8/24/2012	Analysis Date:	8/30/2012	SeqNo:	148176	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

Sample Log-In Check List

Client Name: **Western Refining Southwest, Inc Bloomfield** Work Order Number: **1208983**

Received by/date: *[Signature]* **08/22/12**
Logged By: **Ashley Gallegos** **8/22/2012 10:00:00 AM**

Completed By: **Ashley Gallegos** **8/22/2012 1:43:11 PM**

Reviewed By: *[Signature]* **08/22/12**

Chain of Custody

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

Log In

4. Coolers are present? (see 19. for cooler specific information) Yes ☒ No ☐ NA ☐
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
6. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☐ No ☒
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
10. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
11. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒
12. Were any sample containers received broken? Yes ☐ No ☒
13. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐ # of preserved bottles checked for pH: ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐ (<2 or >12 unless noted)
15. Is it clear what analyses were requested? Yes ☒ No ☐ Adjusted? ☐
16. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐ Checked by: ☐

Special Handling (if applicable)

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

Person Notified: Bob K Date: 8/22/2012
By Whom: Ashley Gallegos Via: ☐ eMail ☒ Phone ☐ Fax ☐ In Person
Regarding: Sample Analysis
Client Instructions: Filter for dissolved Cl, SO₄, F and Bicarbonate **NO₃ NO₂**

18. Additional remarks:

Cancel Cn did not receive bottle client will sample Cn.

19. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.9	Good	Yes			

4.7 Documentation of Field Activities

Daily field activities, including observations and field procedures, will be recorded in a field log book. The original field forms will be maintained at the Facility. Copies of the completed forms will be maintained in a bound and sequentially numbered field file for reference during field activities. Indelible ink will be used to record all field activities. Photographic documentation of field activities will be performed, as appropriate. The daily record of field activities will include the following:

1. Site or unit designation;
2. Date;
3. Time of arrival and departure;
4. Field investigation team members including subcontractors and visitors;
5. Weather conditions;
6. Daily activities and times conducted;
7. Observations;
8. Record of samples collected with sample designations and locations specified;
9. Photographic log, as appropriate;
10. Field monitoring data, including health and safety monitoring;
11. Equipment used and calibration records, if appropriate;
12. List of additional data sheets and maps completed;
13. An inventory of the waste generated and the method of storage or disposal; and
14. Signature of personnel completing the field record.

4.8 Chemical Analyses

All samples collected for laboratory analysis will be submitted to an accredited laboratory. The laboratory will use the most recent standard EPA and industry-accepted analytical methods for target analytes as the testing methods for each medium sampled. Chemical analyses will be performed in accordance with the most recent EPA standard analytical methodologies and extraction methods.

Ground water and soil samples will also be analyzed for the following metals using the indicated analytical methods. The ground water analyses will be reported for dissolved and total metals.

Analyte	Analytical Method
Antimony	SW-846 method 6010/6020
Arsenic	SW-846 method 6010/6020
Barium	SW-846 method 6010/6020
Beryllium	SW-846 method 6010/6020
Cadmium	SW-846 method 6010/6020
Chromium	SW-846 method 6010/6020
Cobalt	SW-846 method 6010/6020

*dissolved
+
total*

7

per Bob 8/22/12

Analyte	Analytical Method
~~Cyanide~~	SW-846 method 335.4/335.2 mod
Lead	SW-846 method 6010/6020
Mercury	SW-846 method 7470/7471
Nickel	SW-846 method 6010/6020
Selenium	SW-846 method 6010/6020
Silver	SW-846 method 6010/6020
Thallium	SW-846 method 6010/6020
Vanadium	SW-846 method 6010/6020
Zinc	SW-846 method 6010/6020

Soil & GW
dissolved
& totals

Ground water samples will also be analyzed for the following additional general chemistry parameters.

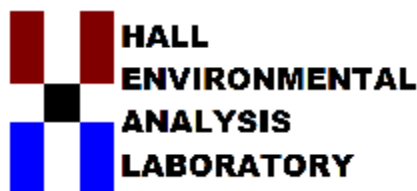
Analyte	Analytical Method
Total Dissolved Solids	SM-2540C
Bicarbonate	SM-2320B (dissolved)
Chloride	EPA method 300.0 (dissolved & total)
Sulfate	EPA method 300.0 (dissolved & total)
Calcium	EPA method 6010/6020 (dissolved)
Magnesium	EPA method 6010/6020 (dissolved & total)
Sodium	EPA method 6010/6020 (dissolved)
Potassium	EPA method 6010/6020 (dissolved)
Manganese	SW-846 method 6010/6020 (dissolved & total)
Nitrate/nitrite	EPA method 300.0 (dissolved)
Iron	SW-846 method 6010/6020 (dissolved & total)

gw only

Soil samples and ground water samples will be analyzed for the following constituents in addition to those listed above to support possible development of background for SWMU No. 16 (Active Landfill). The ground water analyses will be reported as both total and dissolved phase.

Analyte	Analytical Method
Aluminum	SW-846 method 6010/6020
Boron	SW-846 method 6010/6020
Copper	SW-846 method 6010/6020
Molybdenum	SW-846 method 6010/6020
Uranium	SW-846 method 6020
Fluoride	SW-846 method 300

Soil & gw



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

January 31, 2013

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: Background Wells 1-10-13

OrderNo.: 1301427

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 1/11/2013 for the analyses presented in the following report.

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



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

Workorder Sample Summary

WO#: 1301427
31-Jan-13

CLIENT: Western Refining Southwest, Inc.
Project: Background Wells 1-10-13

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1301427-001	MW-BCK-1		1/10/2013 10:00:00 AM	1/11/2013 9:45:00 AM	Aqueous
1301427-001	MW-BCK-1		1/10/2013 10:00:00 AM	1/11/2013 9:45:00 AM	Aqueous
1301427-001	MW-BCK-1		1/10/2013 10:00:00 AM	1/11/2013 9:45:00 AM	Aqueous
1301427-001	MW-BCK-1		1/10/2013 10:00:00 AM	1/11/2013 9:45:00 AM	Aqueous
1301427-002	MW-BCK-2		1/10/2013 2:00:00 PM	1/11/2013 9:45:00 AM	Aqueous
1301427-002	MW-BCK-2		1/10/2013 2:00:00 PM	1/11/2013 9:45:00 AM	Aqueous
1301427-002	MW-BCK-2		1/10/2013 2:00:00 PM	1/11/2013 9:45:00 AM	Aqueous
1301427-002	MW-BCK-2		1/10/2013 2:00:00 PM	1/11/2013 9:45:00 AM	Aqueous
1301427-003	MW-BCK-1 Filtered		1/10/2013 10:00:00 AM	1/11/2013 9:45:00 AM	Aqueous
1301427-004	MW-BCK-2 Filtered		1/10/2013 2:00:00 PM	1/11/2013 9:45:00 AM	Aqueous

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1301427

Date Reported: 1/31/2013

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-BCK-1

Project: Background Wells 1-10-13

Collection Date: 1/10/2013 10:00:00 AM

Lab ID: 1301427-001

Matrix: AQUEOUS

Received Date: 1/11/2013 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: JRR
Fluoride	0.37	0.10		mg/L	1	1/23/2013 4:11:41 AM
Chloride	32	10		mg/L	20	1/16/2013 3:32:33 PM
Sulfate	3000	50	*	mg/L	100	1/16/2013 3:44:58 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Aluminum	ND	0.10		mg/L	5	1/17/2013 5:26:15 PM
Barium	0.018	0.010		mg/L	5	1/17/2013 5:26:15 PM
Beryllium	ND	0.010		mg/L	5	1/17/2013 5:26:15 PM
Boron	0.24	0.20		mg/L	5	1/17/2013 5:26:15 PM
Cadmium	ND	0.010		mg/L	5	1/17/2013 5:26:15 PM
Calcium	400	5.0		mg/L	5	1/18/2013 10:16:49 AM
Chromium	ND	0.030		mg/L	5	1/17/2013 5:26:15 PM
Cobalt	ND	0.030		mg/L	5	1/17/2013 5:26:15 PM
Copper	ND	0.030		mg/L	5	1/17/2013 5:26:15 PM
Iron	0.11	0.10		mg/L	5	1/18/2013 10:16:49 AM
Magnesium	68	5.0		mg/L	5	1/18/2013 10:16:49 AM
Manganese	0.089	0.010	*	mg/L	5	1/17/2013 5:26:15 PM
Molybdenum	ND	0.040		mg/L	5	1/17/2013 5:26:15 PM
Nickel	ND	0.050		mg/L	5	1/17/2013 5:26:15 PM
Potassium	ND	5.0		mg/L	5	1/18/2013 10:16:49 AM
Silver	ND	0.025		mg/L	5	1/17/2013 5:26:15 PM
Sodium	900	20		mg/L	20	1/18/2013 10:19:38 AM
Vanadium	ND	0.25		mg/L	5	1/17/2013 5:26:15 PM
Zinc	0.34	0.050		mg/L	5	1/17/2013 5:26:15 PM
EPA METHOD 200.7: TOTAL METALS						Analyst: ELS
Aluminum	26	1.0	*	mg/L	50	1/18/2013 7:34:40 AM
Barium	0.34	0.0020		mg/L	1	1/17/2013 5:59:40 PM
Beryllium	0.0025	0.0020		mg/L	1	1/17/2013 5:59:40 PM
Boron	0.23	0.040		mg/L	1	1/17/2013 5:59:40 PM
Cadmium	ND	0.0020		mg/L	1	1/17/2013 5:59:40 PM
Chromium	0.035	0.0060		mg/L	1	1/17/2013 5:59:40 PM
Cobalt	0.020	0.0060		mg/L	1	1/17/2013 5:59:40 PM
Copper	0.033	0.0060		mg/L	1	1/17/2013 5:59:40 PM
Iron	42	1.0	*	mg/L	50	1/18/2013 7:34:40 AM
Magnesium	72	1.0		mg/L	1	1/17/2013 5:59:40 PM
Manganese	0.56	0.0020	*	mg/L	1	1/17/2013 5:59:40 PM
Molybdenum	ND	0.0080		mg/L	1	1/17/2013 5:59:40 PM
Nickel	0.021	0.010		mg/L	1	1/17/2013 5:59:40 PM
Silver	ND	0.0050		mg/L	1	1/17/2013 5:59:40 PM
Vanadium	ND	0.050		mg/L	1	1/17/2013 5:59:40 PM
Zinc	0.11	0.010		mg/L	1	1/17/2013 5:59:40 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1301427

Date Reported: 1/31/2013

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-BCK-1

Project: Background Wells 1-10-13

Collection Date: 1/10/2013 10:00:00 AM

Lab ID: 1301427-001

Matrix: AQUEOUS

Received Date: 1/11/2013 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Antimony	ND	0.0010		mg/L	1	1/17/2013 10:22:23 AM
Arsenic	ND	0.0010		mg/L	1	1/17/2013 10:22:23 AM
Lead	ND	0.0010		mg/L	1	1/17/2013 10:22:23 AM
Selenium	0.0068	0.0010		mg/L	1	1/17/2013 10:22:23 AM
Thallium	ND	0.0010		mg/L	1	1/17/2013 10:22:23 AM
Uranium	0.0047	0.0010		mg/L	1	1/17/2013 10:22:23 AM
200.8 ICPMS METALS:TOTAL						Analyst: DBD
Antimony	ND	0.0025		mg/L	2.5	1/17/2013 1:28:15 PM
Arsenic	0.0077	0.0025		mg/L	2.5	1/17/2013 1:28:15 PM
Lead	0.026	0.0025	*	mg/L	2.5	1/17/2013 1:28:15 PM
Selenium	0.0074	0.0025		mg/L	2.5	1/17/2013 1:28:15 PM
Thallium	ND	0.0025		mg/L	2.5	1/17/2013 1:28:15 PM
Uranium	0.0072	0.0025		mg/L	2.5	1/17/2013 1:28:15 PM
EPA METHOD 245.1: MERCURY						Analyst: TMG
Mercury	ND	0.00020		mg/L	1	1/16/2013 9:45:17 AM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	4700	200		mg/L	1	1/18/2013 9:17:00 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1301427

Date Reported: 1/31/2013

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-BCK-2

Project: Background Wells 1-10-13

Collection Date: 1/10/2013 2:00:00 PM

Lab ID: 1301427-002

Matrix: AQUEOUS

Received Date: 1/11/2013 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: JRR
Fluoride	ND	2.0		mg/L	20	1/16/2013 4:09:47 PM
Chloride	21	10		mg/L	20	1/16/2013 4:09:47 PM
Sulfate	7600	250	*	mg/L	500	1/23/2013 4:24:05 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Aluminum	ND	0.10		mg/L	5	1/17/2013 5:33:54 PM
Barium	0.020	0.010		mg/L	5	1/17/2013 5:33:54 PM
Beryllium	ND	0.010		mg/L	5	1/17/2013 5:33:54 PM
Boron	0.70	0.20		mg/L	5	1/17/2013 5:33:54 PM
Cadmium	ND	0.010		mg/L	5	1/17/2013 5:33:54 PM
Calcium	390	5.0		mg/L	5	1/18/2013 10:22:13 AM
Chromium	ND	0.030		mg/L	5	1/17/2013 5:33:54 PM
Cobalt	ND	0.030		mg/L	5	1/17/2013 5:33:54 PM
Copper	ND	0.030		mg/L	5	1/17/2013 5:33:54 PM
Iron	0.15	0.10		mg/L	5	1/18/2013 10:22:13 AM
Magnesium	52	5.0		mg/L	5	1/18/2013 10:22:13 AM
Manganese	1.1	0.010	*	mg/L	5	1/17/2013 5:33:54 PM
Molybdenum	ND	0.040		mg/L	5	1/17/2013 5:33:54 PM
Nickel	ND	0.050		mg/L	5	1/17/2013 5:33:54 PM
Potassium	15	5.0		mg/L	5	1/18/2013 10:22:13 AM
Silver	ND	0.025		mg/L	5	1/17/2013 5:33:54 PM
Sodium	3400	50		mg/L	50	1/18/2013 10:39:42 AM
Vanadium	ND	0.25		mg/L	5	1/17/2013 5:33:54 PM
Zinc	ND	0.050		mg/L	5	1/17/2013 5:33:54 PM
EPA METHOD 200.7: TOTAL METALS						Analyst: ELS
Aluminum	0.026	0.020		mg/L	1	1/18/2013 7:51:59 AM
Barium	0.020	0.0020		mg/L	1	1/18/2013 7:51:59 AM
Beryllium	ND	0.0020		mg/L	1	1/18/2013 7:51:59 AM
Boron	0.68	0.040		mg/L	1	1/18/2013 7:51:59 AM
Cadmium	ND	0.0020		mg/L	1	1/18/2013 7:51:59 AM
Chromium	ND	0.0060		mg/L	1	1/18/2013 7:51:59 AM
Cobalt	ND	0.0060		mg/L	1	1/18/2013 7:51:59 AM
Copper	ND	0.0060		mg/L	1	1/18/2013 7:51:59 AM
Iron	0.61	0.020	*	mg/L	1	1/17/2013 6:06:32 PM
Magnesium	53	1.0		mg/L	1	1/17/2013 6:06:32 PM
Manganese	1.0	0.010	*	mg/L	5	1/18/2013 7:38:28 AM
Molybdenum	0.018	0.0080		mg/L	1	1/18/2013 7:51:59 AM
Nickel	ND	0.010		mg/L	1	1/18/2013 7:51:59 AM
Silver	ND	0.0050		mg/L	1	1/18/2013 7:51:59 AM
Vanadium	ND	0.050		mg/L	1	1/18/2013 7:51:59 AM
Zinc	ND	0.010		mg/L	1	1/18/2013 7:51:59 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1301427

Date Reported: 1/31/2013

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-BCK-2

Project: Background Wells 1-10-13

Collection Date: 1/10/2013 2:00:00 PM

Lab ID: 1301427-002

Matrix: AQUEOUS

Received Date: 1/11/2013 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Antimony	ND	0.0010		mg/L	1	1/17/2013 10:30:15 AM
Arsenic	0.0027	0.0010		mg/L	1	1/17/2013 10:30:15 AM
Lead	ND	0.0010		mg/L	1	1/17/2013 10:30:15 AM
Selenium	0.0077	0.0010		mg/L	1	1/17/2013 10:30:15 AM
Thallium	ND	0.0010		mg/L	1	1/17/2013 10:30:15 AM
Uranium	0.0012	0.0010		mg/L	1	1/17/2013 10:30:15 AM
200.8 ICPMS METALS:TOTAL						Analyst: DBD
Antimony	ND	0.0025		mg/L	2.5	1/17/2013 1:36:07 PM
Arsenic	ND	0.0025		mg/L	2.5	1/17/2013 1:36:07 PM
Lead	ND	0.0025		mg/L	2.5	1/17/2013 1:36:07 PM
Selenium	0.0036	0.0025		mg/L	2.5	1/17/2013 1:36:07 PM
Thallium	ND	0.0025		mg/L	2.5	1/17/2013 1:36:07 PM
Uranium	ND	0.0025		mg/L	2.5	1/17/2013 1:36:07 PM
EPA METHOD 245.1: MERCURY						Analyst: TMG
Mercury	ND	0.00020		mg/L	1	1/16/2013 9:47:02 AM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	12300	200		mg/L	1	1/18/2013 9:17:00 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1301427**

Date Reported: **1/31/2013**

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-BCK-1 Filtered

Project: Background Wells 1-10-13

Collection Date: 1/10/2013 10:00:00 AM

Lab ID: 1301427-003

Matrix: AQUEOUS

Received Date: 1/11/2013 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: JRR
Fluoride	0.23	0.10		mg/L	1	1/17/2013 4:13:58 PM
Chloride	32	10		mg/L	20	1/17/2013 4:26:22 PM
Sulfate	3000	50	*	mg/L	100	1/18/2013 10:57:18 AM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	1/17/2013 5:28:26 PM
SM2320B: ALKALINITY						Analyst: JML
Bicarbonate (As CaCO3)	140	20		mg/L CaCO3	1	1/21/2013 11:20:36 AM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	1/21/2013 11:20:36 AM
Total Alkalinity (as CaCO3)	140	20		mg/L CaCO3	1	1/21/2013 11:20:36 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1301427**

Date Reported: **1/31/2013**

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-BCK-2 Filtered

Project: Background Wells 1-10-13

Collection Date: 1/10/2013 2:00:00 PM

Lab ID: 1301427-004

Matrix: AQUEOUS

Received Date: 1/11/2013 9:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: JRR
Fluoride	0.38	0.10		mg/L	1	1/17/2013 5:03:37 PM
Chloride	21	10		mg/L	20	1/17/2013 5:16:01 PM
Sulfate	7500	250	*	mg/L	500	1/18/2013 11:09:43 AM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	1/17/2013 5:40:51 PM
SM2320B: ALKALINITY						Analyst: JML
Bicarbonate (As CaCO3)	130	20		mg/L CaCO3	1	1/21/2013 11:31:21 AM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	1/21/2013 11:31:21 AM
Total Alkalinity (as CaCO3)	130	20		mg/L CaCO3	1	1/21/2013 11:31:21 AM

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2
RL Reporting Detection Limit

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 130116018
Project Name: 1301427

Analytical Results Report

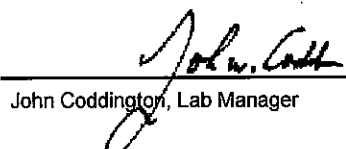
Sample Number	130116018-001	Sampling Date	1/10/2013	Date/Time Received	1/16/2013 12:30 PM
Client Sample ID	1301427-001D / MW-BCK-1	Sampling Time	10:00 AM		
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	1/23/2013	CRW	EPA 335.4	

Sample Number	130116018-002	Sampling Date	1/10/2013	Date/Time Received	1/16/2013 12:30 PM
Client Sample ID	1301427-002D / MW-BCK-2	Sampling Time	2:00 PM		
Matrix	Water				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/L	0.01	1/23/2013	CRW	EPA 335.4	

Authorized Signature


John Coddington, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095

Friday, January 25, 2013

Page 1 of 1

Anatek Labs, Inc.

1282 Alturas Drive • Moscow, ID 83843 • (208) 883-2839 • Fax (208) 882-9246 • email moscow@anateklabs.com
504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 130116018
Project Name: 1301427

Analytical Results Report Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Cyanide	0.467	mg/L	0.5	93.4	90-110	1/23/2013	1/23/2013

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
130115019-001	Cyanide	0.136	0.609	mg/L	0.5	94.6	80-120	1/23/2013	1/23/2013

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Cyanide	0.605	mg/L	0.5	93.8	0.7	0-25	1/23/2013	1/23/2013

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide	ND	mg/L	0.01	1/23/2013	1/23/2013

AR Acceptable Range
ND Not Detected
PQL Practical Quantitation Limit
RPD Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA-ID00013; AZ:0701; CO-ID00013; FL(NELAP):E87893; ID-ID00013; IN:C-ID-01; KY:90142; MT:CERT0028; NM:ID00013; OR-ID200001-002; WA:C585
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095

Total Cyanide by Semi-Automated Colorimetry
Method: EPA 335.4/SM-4500-CN-E
Distillation Bench Sheet

Weak Acid Dissociable Cyanide by
 SM 4500-CN-I (check WAD column)

Total Cyanide MS/MSD/LCS Soln: M897-04 Exp: 1/15/14
 Free Cyanide MS/MSD/LCS Soln: M893-03 Exp: 12/26/13

Method requirements: All QC +/- 10%

Equipment: Midi-vap

Instrument: ALPCHEM FIA 3000

Absorbance: 570nm

	Sample ID	Matrix	Preserved	Sample Amount (mL)**	Initial Multiplier*	Final Multiplier	Spike Amount (mL)	WAD? (check if yes)
1	130115019-1	WW EPA	NaOH	50mL	1x			
2	-1ms						1mL	
3	-1msD							
4	-1S							
5	-BL							
6	-Z							
7	-3							
8	-4							
9	-5							
10	-6							
11	130115019-7	WW EPA	NaOH	50mL	1x			
12	-8							
13	-9							
14	130116018-1							
15	-2							
16	130116016-3							
17	130116022-1							
18	-2							
19	-3							
20	-4							

* If soils this calculation is taken from cyanide extraction bench sheet.

** If soils, mLs of extract used for distillation.

Extraction Reagents: Reagent #:

methy red indicator A054-08
 18 N H₂SO₄ A056-06
 sulfamic acid R009-12
 0.025N NaOH R014-16
 51% MgCl₂ A054-06

Analytical Reagents:

Barbituric Acid R038-13
 Sodium Phosphate R026-23
 Chloramine-t R048-09
 Pyridine R043-03

Distillation Initials/Date Distilled: MMW 1/21/13

Analyst Initials/Date Analyzed: _____

File name: T:\DATA1\FLOW4\2013\EPA335.4\012313CN.RST
 Date: January 23, 2013
 Operator: CRW

CMW 1/24/13

130123FIACNW

Cup	Name	Type	Dil	Wt	Area	Calc. (ppm)
2	Sync	SYNC		1	6724044	0.968110
0	Carryover	CO		1	18688	0.003237
0	Carryover	CO		1	2867	0.000961
0	Baseline	RB		1	4312	0.001169
2	Cal 1.00 ppm	C		1	6733494	0.969470
2	Cal 1.00 ppm	C		1	6811220	0.980654
2	Cal 1.00 ppm	C		1	6793245	0.978068
0	Baseline	RB		1	3710	0.001082
3	Cal 0.80 ppm	C		1	5616854	0.808790
3	Cal 0.80 ppm	C		1	5628662	0.810489
3	Cal 0.80 ppm	C		1	5665712	0.815821
0	Baseline	RB		1	2988	0.000978
4	Cal 0.50 ppm	C		1	3556296	0.512284
4	Cal 0.50 ppm	C		1	3477974	0.501014
4	Cal 0.50 ppm	C		1	3464190	0.499031
0	Baseline	RB		1	2342	0.000885
5	Cal 0.05 ppm	C		1	291663	0.042517
5	Cal 0.05 ppm	C		1	309149	0.045034
5	Cal 0.05 ppm	C		1	324980	0.047312
0	Baseline	RB		1	1585	0.000776
6	Cal 0.01 ppm	C		1	63532	0.009690
6	Cal 0.01 ppm	C		1	67831	0.010309
6	Cal 0.01 ppm	C		1	67127	0.010208
0	Baseline	RB		1	2636	0.000928
1	Blank	BLNK		1	3689	0.001079
7	ICV 0.25 ppm	CCV		1	1822076	0.262737
1	Blank	BLNK		1	6110	0.001428
0	Baseline	RB		1	9651	0.001937
8	130115019-BL WW	U		1	16425	0.002912
9	130115019-001	U		1	942885	0.136225
10	130115019-001MS	U		1	4225666	0.608604
11	130115019-001MSD	U	1	1	4204066	0.605496
12	130115019-LCS	U		1	3240262	0.466808
13	130115019-002	U		1	279929	0.040829
14	130115019-003	U		1	195882	0.028735
15	130115019-004	U		1	123785	0.018360
16	130115019-005	U		1	160640	0.023664
17	130115019-006	U		1	1229609	0.177484
0	Baseline	RB		1	2151	0.000858
1	Blank	BLNK		1	-3314	0.000071
4	CCV 0.5 ppm	CCV		1	3502928	0.504605
1	Blank	BLNK		1	-2447	0.000196
0	Read Baseline	RB		1	1020	0.000695
18	130115019-007	U		1	127821	0.018941
19	130115019-008	U		1	187735	0.027563
20	130115019-009	U		1	566917	0.082125
21	130116018-001	U		1	14332	0.002611
22	130116018-002	U		1	12006	0.002276
23	130116016-003	U		1	10740	0.002094
24	130116022-001	U		1	166742	0.024542
25	130116022-002	U		1	140613	0.020782
26	130116022-003	U		1	235560	0.034444
27	130116022-004	U		1	132194	0.019570
0	Baseline	RB		1	2900	0.000966
1	Blank	BLNK		1	1297	0.000735
4	CCV 0.5 ppm	CCV		1	3563134	0.513268
1	Blank	BLNK		1	6383	0.001467
0	Read Baseline	RB		1	1272	0.000731
28	130115023-BL WW	U		1	8996	0.001843
29	130115023-001	U		1	32562	0.005234
30	130115023-001MS	U		1	2912929	0.419707
31	130115023-001MSD	U	1	1	2870668	0.413625
32	130115023-LCS	U		1	3021691	0.435357
33	130116022-005	U		1	8179	0.001725
34	130116022-007	U		1	13951	0.002556
35	130116022-008	U		1	157653	0.023234

run @ end

MZ

Scan	Off	Name	Type	Wt	Area	Calc. (ppm)
7	36	130118026-010	U	1	25289	0.004187
8	37	130118026-011	U	1	11136	0.002151
	0	Baseline	RB	1	855	0.000671
	1	Blank	BLNK	1	-299	0.000505
1	4	CCV 0.5 ppm	CCV	1	3604232	0.519182
2	1	Blank	BLNK	1	1779	0.000804
	0	Read Baseline	RB	1	1674	0.000789
4	38	130122005-BL WAD U	U	1	922	0.000681
5	39	130122005-001	U	1	468	0.000616
6	40	130122005-001MS	U	1	3571544	0.514478
7	41	130122005-001MSD	U	1	3526365	0.507977
8	42	130122005-LCS	U	1	3509799	0.505594
9	43	130122005-002	U	1	591	0.000633
0	44	130122005-003	U	1	4889	0.001252
1	45	130122005-004	U	1	13225	0.002451
2	46	130122005-005	U	1	-1369	0.000351
3	47	130116016-003	U	1	8888	0.001827
	0	Baseline	RB	1	232	0.000582
5	1	Blank	BLNK	1	-3671	0.000020
6	4	CCV 0.5 ppm	CCV	1	3585584	0.516499
7	1	Blank	BLNK	1	-1497	0.000333
	0	Read Baseline	RB	1	2174	0.000861
9	48	130115026-BL RS	U	1	3756	0.001089
0	49	130115026-001	U	25.5	9470	0.048731
1	50	130115026-001MS	U	25.5	3228236	11.859485
2	51	130115026-001MSD	U	25.5	3246445	11.926302
3	52	130115026-LCS	U	1	3212428	0.462803
4	53	X	U	1	1905	0.000822
5	54	CRW MDL4	U	1	135082	0.019986
6	55	CRW MDL5	U	1	106115	0.015818
7	56	X	U	1	341	0.000597
8	57	X	U	1	-2725	0.000156
	0	Baseline	RB	1	-1814	0.000287
	1	Blank	BLNK	1	-6619	-0.000404
01	4	CCV 0.5 ppm	CCV	1	3528852	0.508335
02	1	Blank	BLNK	1	-2402	0.000203
	0	Read Baseline	RB	1	28	0.000552
04	58	130115023-001	U	1	-2234	0.000227
05	59	130115023-001MS	U	1	2867558	0.413178
06	60	130115023-001MSD	U	1	2861319	0.412280
07	61	130115023-LCS	U	1	3156468	0.454751
08	62	R	U	1	1322	0.000739
09	63		U	1	5291	0.001310
10	64		U	1	2879	0.000963
11	65		U	1	85603	0.012866
12	66		U	1	101994	0.015225
13	67		U	1	-5577	-0.000254
	0	Baseline	RB	1	-1081	0.000393
15	1	Blank	BLNK	1	-2196	0.000232
16	4	CCV 0.5 ppm	CCV	1	3682937	0.530507
17	1	Blank	BLNK	1	-2568	0.000179
	0	Read Baseline	RB	1	1146	0.000713

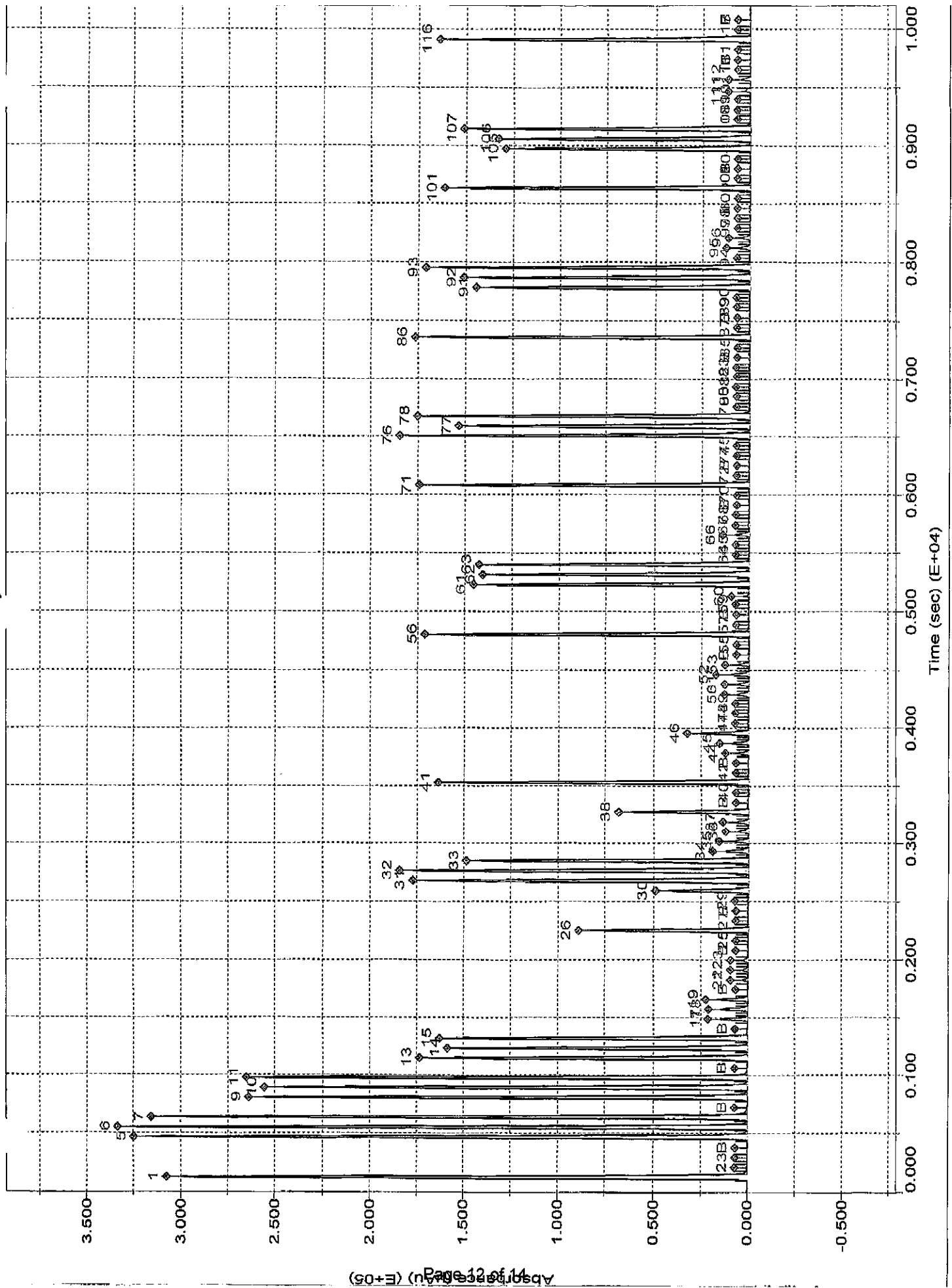
M2

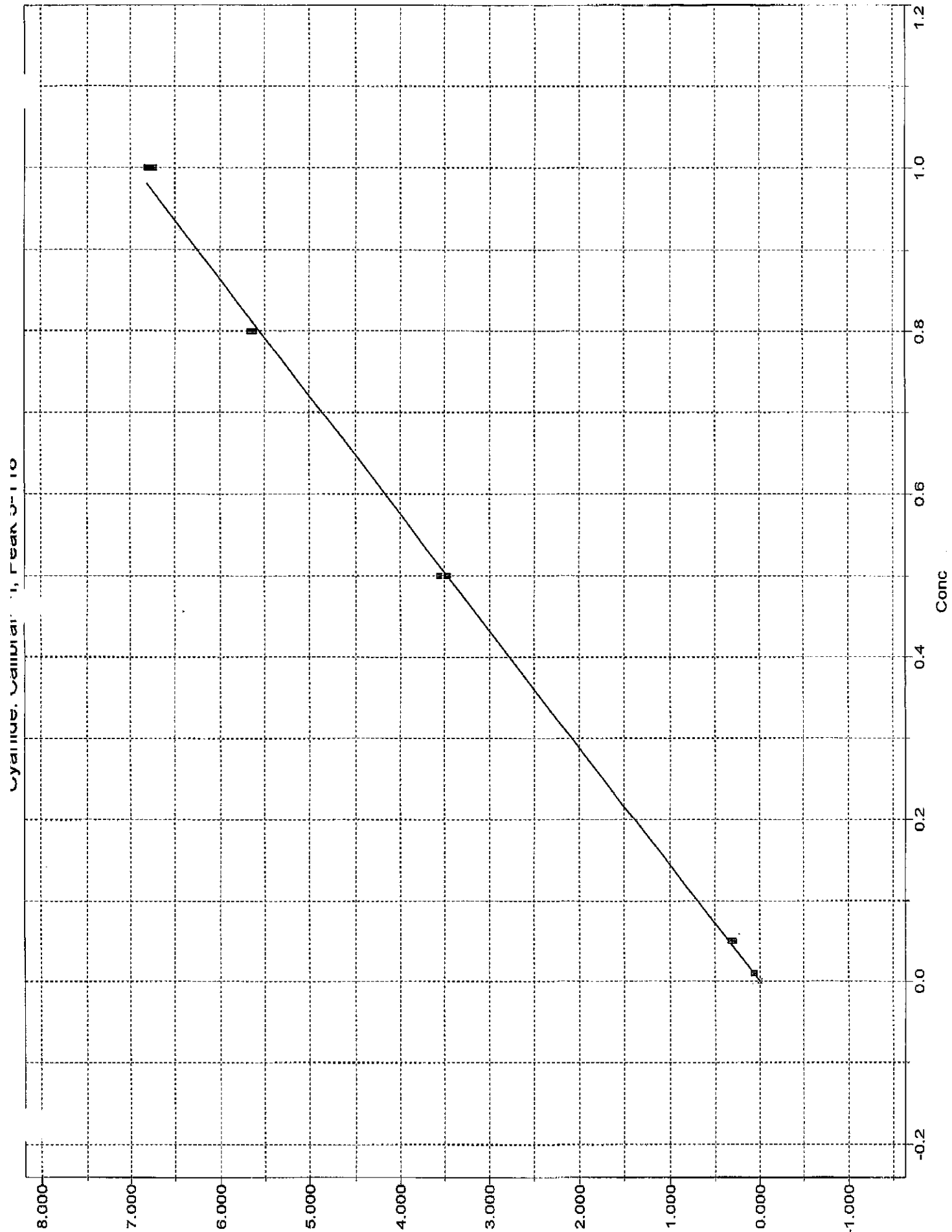
M2

Peak	Cup	Flags
	2	
	0	
	0	
	0	BL
	2	
	2	
	2	
	0	BL
	3	
0	3	
1	3	
	0	BL
3	4	
4	4	

Peak	Cup	Flags
5	4	
	0	BL
7	5	OL
	5	
9	5	
	0	BL
1	6	OL
2	6	
3	6	
	0	BL
5	1	
5	7	
7	1	
	0	BL
9	8	
0	9	
1	10	
2	11	
3	12	
4	13	
5	14	
5	15	
7	16	
8	17	
	0	BL
0	1	
1	4	
2	1	
	0	BL
4	18	
5	19	
6	20	
7	21	
	22	
9	23	
0	24	
1	25	
2	26	
3	27	
	0	BL
5	1	
6	4	
7	1	
	0	BL
9	28	
0	29	
1	30	
2	31	
3	32	
4	33	
5	34	
6	35	
7	36	
8	37	
	0	BL
0	1	
1	4	
2	1	
	0	BL
4	38	
5	39	
6	40	
7	41	
8	42	
9	43	
0	44	
1	45	
2	46	
3	47	
	0	BL
5	1	

car	cup	days
6	4	
7	1	
	0	BL
	48	
6	49	
1	50	
2	51	
3	52	
4	53	
5	54	
6	55	
7	56	
8	57	
	0	BL
00	1	LO
01	4	
02	1	
	0	BL
04	58	
05	59	
06	60	
07	61	
08	62	
09	63	
10	64	
11	65	
12	66	
13	67	LO
	0	BL
15	1	
16	4	
17	1	
	0	BL





File name: T:\DATA1\FLOW4\2013\EPA335.4\012313CN.RST
 Date: January 23, 2013
 Operator: CRW

Conc	Area
Cal 1.00 ppm	6733494.500000
Cal 1.00 ppm	6811219.500000
Cal 1.00 ppm	6793245.000000
Cal 0.80 ppm	5616854.000000
Cal 0.80 ppm	5628662.500000
Cal 0.80 ppm	5665712.500000
Cal 0.50 ppm	3556296.000000
Cal 0.50 ppm	3477973.750000
Cal 0.50 ppm	3464190.500000
Cal 0.05 ppm	291663.406250
Cal 0.05 ppm	309149.156250
Cal 0.05 ppm	324980.312500
Cal 0.01 ppm	63532.085938
Cal 0.01 ppm	67830.835938
Cal 0.01 ppm	67126.625000

Calib Coef:

y=bx+a

a: (intercept) -3.8102e+03

b: 6.9495e+06

Corr Coef: 0.999522

Carryover: 0.278%

No Drift Peaks

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1301427

31-Jan-13

Client: Western Refining Southwest, Inc.

Project: Background Wells 1-10-13

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R8121	RunNo:	8121					
Prep Date:		Analysis Date:	1/17/2013	SeqNo:	234884	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Beryllium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R8137	RunNo:	8137					
Prep Date:		Analysis Date:	1/18/2013	SeqNo:	235375	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Iron	ND	0.020								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1301427

31-Jan-13

Client: Western Refining Southwest, Inc.

Project: Background Wells 1-10-13

Sample ID	MB-5712	SampType: MBLK			TestCode: EPA Method 200.7: Total Metals					
Client ID:	PBW	Batch ID: 5712			RunNo: 8121					
Prep Date:	1/17/2013	Analysis Date: 1/17/2013			SeqNo: 234885		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aluminum	ND	0.020								
Barium	ND	0.0020								
Beryllium	ND	0.0020								
Boron	ND	0.040								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Cobalt	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Molybdenum	ND	0.0080								
Nickel	ND	0.010								
Silver	ND	0.0050								
Vanadium	ND	0.050								
Zinc	ND	0.010								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1301427

31-Jan-13

Client: Western Refining Southwest, Inc.

Project: Background Wells 1-10-13

Sample ID	1301427-001BMS		SampType: MS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	MW-BCK-1		Batch ID: R8110		RunNo: 8110					
Prep Date:			Analysis Date: 1/17/2013		SeqNo: 234696		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	0.025	0.0010	0.02500	0.0007727	96.7	70	130			
Arsenic	0.025	0.0010	0.02500	0.0006201	99.1	70	130			
Lead	0.026	0.0010	0.02500	.00006478	104	70	130			
Selenium	0.034	0.0010	0.02500	0.006773	109	70	130			
Thallium	0.027	0.0010	0.02500	.00005206	106	70	130			
Uranium	0.033	0.0010	0.02500	0.004730	114	70	130			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R8110			RunNo: 8110					
Prep Date:		Analysis Date: 1/17/2013			SeqNo: 234700		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0010								
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
Thallium	ND	0.0010								
Uranium	ND	0.0010								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1301427

31-Jan-13

Client: Western Refining Southwest, Inc.**Project:** Background Wells 1-10-13

Sample ID	MB-5712		SampType:	MBLK		TestCode:	200.8 ICPMS Metals:Total			
Client ID:	PBW		Batch ID:	5712		RunNo:	8117			
Prep Date:	1/17/2013		Analysis Date:	1/17/2013		SeqNo:	234827		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Antimony	ND	0.0025								
Arsenic	ND	0.0025								
Lead	ND	0.0025								
Selenium	ND	0.0025								
Thallium	ND	0.0025								
Uranium	ND	0.0025								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1301427

31-Jan-13

Client: Western Refining Southwest, Inc.**Project:** Background Wells 1-10-13

Sample ID	MB-5699		SampType: MBLK		TestCode: EPA Method 245.1: Mercury					
Client ID:	PBW		Batch ID: 5699		RunNo: 8083					
Prep Date:	1/15/2013		Analysis Date: 1/16/2013		SeqNo: 233980		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1301427

31-Jan-13

Client: Western Refining Southwest, Inc.

Project: Background Wells 1-10-13

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R8095	RunNo:	8095					
Prep Date:		Analysis Date:	1/16/2013	SeqNo:	234152	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R8130	RunNo:	8130					
Prep Date:		Analysis Date:	1/17/2013	SeqNo:	235141	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R8130	RunNo:	8130					
Prep Date:		Analysis Date:	1/18/2013	SeqNo:	235201	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R8153	RunNo:	8153					
Prep Date:		Analysis Date:	1/18/2013	SeqNo:	235738	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R8199	RunNo:	8199					
Prep Date:		Analysis Date:	1/22/2013	SeqNo:	237146	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Sulfate	ND	0.50								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1301427

31-Jan-13

Client: Western Refining Southwest, Inc.**Project:** Background Wells 1-10-13

Sample ID	mb-1	SampType:	MBLK	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R8178	RunNo:	8178					
Prep Date:		Analysis Date:	1/21/2013	SeqNo:	236543	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1301427

31-Jan-13

Client: Western Refining Southwest, Inc.**Project:** Background Wells 1-10-13

Sample ID	MB-5677		SampType:	MBLK		TestCode:	SM2540C MOD: Total Dissolved Solids			
Client ID:	PBW		Batch ID:	5677		RunNo:	8129			
Prep Date:	1/15/2013		Analysis Date:	1/18/2013		SeqNo:	235114		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87105
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Southwest, Inc. Bloomfield Work Order Number: 1301427

Received by/date: *JB* 01/11/13
Logged By: Ashley Gallegos 1/11/2013 9:45:00 AM

Completed By: Ashley Gallegos 1/14/2013 2:51:51 PM

Reviewed By: *mg* 01/15/13

Chain of Custody

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

Log In

4. Coolers are present? (see 19. for cooler specific information) Yes ☒ No ☐ NA ☐
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
6. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☒ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☒
10. Was preservative added to bottles? Yes ☒ No ☒ NA ☐
11. VOA vials have zero headspace? Yes ☐ No ☒ No VOA Vials ☒
12. Were any sample containers received broken? Yes ☐ No ☒
13. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☒ No ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
15. Is it clear what analyses were requested? Yes ☒ No ☐
16. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☒ No ☐

Special Handling (if applicable)

17. 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: _____

Additional remarks:

Filtered from 500 mL unpres. and 125 mL H_2SO_4 to have filtered samples -003 and -004 for dissolved analysis of Cl^- , SO_4 , F^- , Bicarbonate. kms 1/17/13

19. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.7	Good	Not Present			

4.7 Documentation of Field Activities

Daily field activities, including observations and field procedures, will be recorded in a field log book. The original field forms will be maintained at the Facility. Copies of the completed forms will be maintained in a bound and sequentially numbered field file for reference during field activities. Indelible ink will be used to record all field activities. Photographic documentation of field activities will be performed, as appropriate. The daily record of field activities will include the following:

1. Site or unit designation;
2. Date;
3. Time of arrival and departure;
4. Field investigation team members including subcontractors and visitors;
5. Weather conditions;
6. Daily activities and times conducted;
7. Observations;
8. Record of samples collected with sample designations and locations specified;
9. Photographic log, as appropriate;
10. Field monitoring data, including health and safety monitoring;
11. Equipment used and calibration records, if appropriate;
12. List of additional data sheets and maps completed;
13. An inventory of the waste generated and the method of storage or disposal; and
14. Signature of personnel completing the field record.

4.8 Chemical Analyses

All samples collected for laboratory analysis will be submitted to an accredited laboratory. The laboratory will use the most recent standard EPA and industry-accepted analytical methods for target analytes as the testing methods for each medium sampled. Chemical analyses will be performed in accordance with the most recent EPA standard analytical methodologies and extraction methods.

Ground water and soil samples will also be analyzed for the following metals using the indicated analytical methods. The ground water analyses will be reported for dissolved and total metals.

Analyte	Analytical Method
Antimony	SW-846 method 6010/6020
Arsenic	SW-846 method 6010/6020
Barium	SW-846 method 6010/6020
Beryllium	SW-846 method 6010/6020
Cadmium	SW-846 method 6010/6020
Chromium	SW-846 method 6010/6020
Cobalt	SW-846 method 6010/6020

*dissolved
+
total*

Analyte	Analytical Method
Cyanide	SW-846 method 335.4/335.2 mod
Lead	SW-846 method 6010/6020
Mercury	SW-846 method 7470/7471
Nickel	SW-846 method 6010/6020
Selenium	SW-846 method 6010/6020
Silver	SW-846 method 6010/6020
Thallium	SW-846 method 6010/6020
Vanadium	SW-846 method 6010/6020
Zinc	SW-846 method 6010/6020

*Soil & GW
dissolved
& totals*

Ground water samples will also be analyzed for the following additional general chemistry parameters.

Analyte	Analytical Method
Total Dissolved Solids	SM-2540C
Bicarbonate	SM-2320B (dissolved)
Chloride	EPA method 300.0 (dissolved & total)
Sulfate	EPA method 300.0 (dissolved & total)
Calcium	EPA method 6010/6020 (dissolved)
Magnesium	EPA method 6010/6020 (dissolved & total)
Sodium	EPA method 6010/6020 (dissolved)
Potassium	EPA method 6010/6020 (dissolved)
Manganese	SW-846 method 6010/6020 (dissolved & total)
Nitrate/nitrite	EPA method 300.0 (dissolved)
Iron	SW-846 method 6010/6020 (dissolved & total)

gw only

Soil samples and ground water samples will be analyzed for the following constituents in addition to those listed above to support possible development of background for SWMU No. 16 (Active Landfill). The ground water analyses will be reported as both total and dissolved phase.

Analyte	Analytical Method
Aluminum	SW-846 method 6010/6020
Boron	SW-846 method 6010/6020
Copper	SW-846 method 6010/6020
Molybdenum	SW-846 method 6010/6020
Uranium	SW-846 method 6020
Fluoride	SW-846 method 300

Soil & gw



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

April 20, 2012

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: Cross Gradient Wells 4-4-12

OrderNo.: 1204261

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 4/5/2012 for the analyses presented in the following report.

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

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

Sincerely,

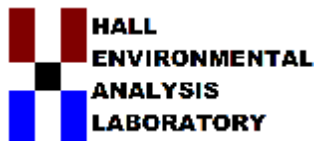
A handwritten signature in black ink, appearing to read "Andy Freeman", with a stylized flourish at the end.

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

Workorder Sample Summary

WO#: 1204261

20-Apr-12

CLIENT: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 4-4-12

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1204261-001	MW-1		4/4/2012 10:50:00 AM	4/5/2012 11:00:00 AM	Aqueous
1204261-001	MW-1		4/4/2012 10:50:00 AM	4/5/2012 11:00:00 AM	Aqueous
1204261-002	MW-13		4/4/2012 8:20:00 AM	4/5/2012 11:00:00 AM	Aqueous
1204261-002	MW-13		4/4/2012 8:20:00 AM	4/5/2012 11:00:00 AM	Aqueous
1204261-003	MW-33		4/4/2012 8:50:00 AM	4/5/2012 11:00:00 AM	Aqueous
1204261-003	MW-33		4/4/2012 8:50:00 AM	4/5/2012 11:00:00 AM	Aqueous

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204261

Date Reported: 4/20/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-1

Project: Cross Gradient Wells 4-4-12

Collection Date: 4/4/2012 10:50:00 AM

Lab ID: 1204261-001

Matrix: AQUEOUS

Received Date: 4/5/2012 11:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/7/2012 9:44:36 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/7/2012 9:44:36 PM
Surr: DNOP	117	69-152		%REC	1	4/7/2012 9:44:36 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/11/2012 3:39:09 AM
Surr: BFB	79.8	69.3-120		%REC	1	4/11/2012 3:39:09 AM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: MMS
Benzene	ND	1.0		µg/L	1	4/7/2012 6:48:30 AM
Toluene	ND	1.0		µg/L	1	4/7/2012 6:48:30 AM
Ethylbenzene	ND	1.0		µg/L	1	4/7/2012 6:48:30 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/7/2012 6:48:30 AM
Xylenes, Total	ND	2.0		µg/L	1	4/7/2012 6:48:30 AM
Surr: 1,2-Dichloroethane-d4	96.1	70-130		%REC	1	4/7/2012 6:48:30 AM
Surr: 4-Bromofluorobenzene	104	70-130		%REC	1	4/7/2012 6:48:30 AM
Surr: Dibromofluoromethane	99.6	69.8-130		%REC	1	4/7/2012 6:48:30 AM
Surr: Toluene-d8	100	70-130		%REC	1	4/7/2012 6:48:30 AM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204261

Date Reported: 4/20/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-13

Project: Cross Gradient Wells 4-4-12

Collection Date: 4/4/2012 8:20:00 AM

Lab ID: 1204261-002

Matrix: AQUEOUS

Received Date: 4/5/2012 11:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/7/2012 10:05:51 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/7/2012 10:05:51 PM
Surr: DNOP	120	69-152		%REC	1	4/7/2012 10:05:51 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/13/2012 1:45:07 PM
Surr: BFB	89.3	69.3-120		%REC	1	4/13/2012 1:45:07 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: MMS
Benzene	ND	1.0		µg/L	1	4/7/2012 7:17:49 AM
Toluene	ND	1.0		µg/L	1	4/7/2012 7:17:49 AM
Ethylbenzene	ND	1.0		µg/L	1	4/7/2012 7:17:49 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/7/2012 7:17:49 AM
Xylenes, Total	ND	2.0		µg/L	1	4/7/2012 7:17:49 AM
Surr: 1,2-Dichloroethane-d4	95.6	70-130		%REC	1	4/7/2012 7:17:49 AM
Surr: 4-Bromofluorobenzene	107	70-130		%REC	1	4/7/2012 7:17:49 AM
Surr: Dibromofluoromethane	105	69.8-130		%REC	1	4/7/2012 7:17:49 AM
Surr: Toluene-d8	100	70-130		%REC	1	4/7/2012 7:17:49 AM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204261

Date Reported: 4/20/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-33

Project: Cross Gradient Wells 4-4-12

Collection Date: 4/4/2012 8:50:00 AM

Lab ID: 1204261-003

Matrix: AQUEOUS

Received Date: 4/5/2012 11:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/7/2012 10:26:56 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/7/2012 10:26:56 PM
Surr: DNOP	124	69-152		%REC	1	4/7/2012 10:26:56 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/13/2012 2:15:50 PM
Surr: BFB	69.8	69.3-120		%REC	1	4/13/2012 2:15:50 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: MMS
Benzene	ND	1.0		µg/L	1	4/7/2012 7:47:16 AM
Toluene	ND	1.0		µg/L	1	4/7/2012 7:47:16 AM
Ethylbenzene	ND	1.0		µg/L	1	4/7/2012 7:47:16 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/7/2012 7:47:16 AM
Xylenes, Total	ND	2.0		µg/L	1	4/7/2012 7:47:16 AM
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	1	4/7/2012 7:47:16 AM
Surr: 4-Bromofluorobenzene	112	70-130		%REC	1	4/7/2012 7:47:16 AM
Surr: Dibromofluoromethane	107	69.8-130		%REC	1	4/7/2012 7:47:16 AM
Surr: Toluene-d8	101	70-130		%REC	1	4/7/2012 7:47:16 AM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204261

20-Apr-12

Client: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 4-4-12

Sample ID	MB-1413		SampType: MBLK		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	PBW		Batch ID: 1413		RunNo: 1976					
Prep Date:	4/6/2012		Analysis Date: 4/7/2012		SeqNo: 55062		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.62		0.5000		123	69	152			

Sample ID	LCS-1413		SampType: LCS		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	LCSW		Batch ID: 1413		RunNo: 1976					
Prep Date:	4/6/2012		Analysis Date: 4/7/2012		SeqNo: 55063		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.4	0.20	2.500	0	97.0	74	157			
Surr: DNOP	0.27		0.2500		109	69	152			

Qualifiers:

*/X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204261

20-Apr-12

Client: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 4-4-12

Sample ID B7	SampType: MBLK		TestCode: EPA Method 8015B: Gasoline Range							
Client ID: PBW	Batch ID: R2020		RunNo: 2020							
Prep Date:	Analysis Date: 4/10/2012		SeqNo: 56923		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		90.3	69.3	120			

Sample ID 2.5UG GRO LCS	SampType: LCS		TestCode: EPA Method 8015B: Gasoline Range							
Client ID: LCSW	Batch ID: R2020		RunNo: 2020							
Prep Date:	Analysis Date: 4/10/2012		SeqNo: 56924		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.53	0.050	0.5000	0	106	101	123			
Surr: BFB	17		20.00		86.9	69.3	120			

Sample ID 5ML RB	SampType: MBLK		TestCode: EPA Method 8015B: Gasoline Range							
Client ID: PBW	Batch ID: R2130		RunNo: 2130							
Prep Date:	Analysis Date: 4/13/2012		SeqNo: 59020		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	14		20.00		71.8	69.3	120			

Sample ID 2.5UG GRO LCS	SampType: LCS		TestCode: EPA Method 8015B: Gasoline Range							
Client ID: LCSW	Batch ID: R2130		RunNo: 2130							
Prep Date:	Analysis Date: 4/13/2012		SeqNo: 59021		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	102	101	123			
Surr: BFB	19		20.00		95.8	69.3	120			

Qualifiers:

* / X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204261

20-Apr-12

Client: Western Refining Southwest, Inc.

Project: Cross Gradient Wells 4-4-12

Sample ID	100ng lcs		SampType: LCS		TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	LCSW		Batch ID: R1986		RunNo: 1986					
Prep Date:			Analysis Date: 4/6/2012		SeqNo: 55511		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	96.1	84.1	126			
Toluene	21	1.0	20.00	0	103	80	120			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		94.5	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		114	70	130			
Surr: Dibromofluoromethane	10		10.00		101	69.8	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID	b5	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID: R1986			RunNo: 1986					
Prep Date:		Analysis Date: 4/6/2012			SeqNo: 55534		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 1,2-Dichloroethane-d4	9.6		10.00		96.2	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.8	69.8	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Qualifiers:

*/X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Sample Log-In Check List

Client Name: **Western Refining Southwest, Inc Bloomfield** Work Order Number: **1204261**

Received by/date: *mg* **04/05/12**

Logged By: **Ashley Gallegos** **4/5/2012 11:00:00 AM** *Ag*

Completed By: **Ashley Gallegos** **4/5/2012 1:56:44 PM** *Ag*

Reviewed By: *[Signature]* **04/05/12**

Chain of Custody

1. Were seals intact?	Yes	No	Not Present ✓
2. Is Chain of Custody complete?	Yes ✓	No	Not Present
3. How was the sample delivered?	UPS		

Log In

4. Coolers are present? (see 19. for cooler specific information)	Yes ✓	No	NA
5. Was an attempt made to cool the samples?	Yes ✓	No	NA
6. Were all samples received at a temperature of >0° C to 6.0°C	Yes ✓	No	NA
7. Sample(s) in proper container(s)?	Yes ✓	No	
8. Sufficient sample volume for indicated test(s)?	Yes ✓	No	
9. Are samples (except VOA and ONG) properly preserved?	Yes ✓	No	
10. Was preservative added to bottles?	Yes	No ✓	NA
11. VOA vials have zero headspace?	Yes	No	No VOA Vials ✓
12. Were any sample containers received broken?	Yes	No ✓	
13. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ✓	No	# of preserved bottles checked for pH:
14. Are matrices correctly identified on Chain of Custody?	Yes ✓	No	(<2 or >12 unless noted)
15. Is it clear what analyses were requested?	Yes ✓	No	Adjusted?
16. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ✓	No	Checked by:

Special Handling (if applicable)

17. 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:

18. Additional remarks:

19. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	6.0	Good	Not Present			



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

September 25, 2012

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: Cross Gradient

OrderNo.: 1208655

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 7 sample(s) on 8/15/2012 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued September 24, 2012.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



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

Workorder Sample Summary

WO#: 1208655

25-Sep-12

CLIENT: Western Refining Southwest, Inc.

Project: Cross Gradient

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1208655-001	MW-1		8/14/2012 9:15:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-001	MW-1		8/14/2012 9:15:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-001	MW-1		8/14/2012 9:15:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-001	MW-1		8/14/2012 9:15:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-001	MW-1		8/14/2012 9:15:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-001	MW-1		8/14/2012 9:15:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-002	MW-1 Dup		8/14/2012 9:15:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-002	MW-1 Dup		8/14/2012 9:15:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-002	MW-1 Dup		8/14/2012 9:15:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-002	MW-1 Dup		8/14/2012 9:15:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-002	MW-1 Dup		8/14/2012 9:15:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-002	MW-1 Dup		8/14/2012 9:15:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-003	MW-13		8/14/2012 9:45:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-003	MW-13		8/14/2012 9:45:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-003	MW-13		8/14/2012 9:45:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-003	MW-13		8/14/2012 9:45:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-003	MW-13		8/14/2012 9:45:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-003	MW-13		8/14/2012 9:45:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-004	MW-26		8/14/2012 10:00:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-004	MW-26		8/14/2012 10:00:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-004	MW-26		8/14/2012 10:00:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-004	MW-26		8/14/2012 10:00:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-004	MW-26		8/14/2012 10:00:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-004	MW-26		8/14/2012 10:00:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-005	MW-27		8/14/2012 11:00:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-005	MW-27		8/14/2012 11:00:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-005	MW-27		8/14/2012 11:00:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-005	MW-27		8/14/2012 11:00:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-005	MW-27		8/14/2012 11:00:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-006	MW-32		8/14/2012 10:30:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-006	MW-32		8/14/2012 10:30:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-006	MW-32		8/14/2012 10:30:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-006	MW-32		8/14/2012 10:30:00 AM	8/15/2012 10:00:00 AM	Aqueous



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

Workorder Sample Summary

WO#: 1208655

25-Sep-12

CLIENT: Western Refining Southwest, Inc.

Project: Cross Gradient

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1208655-006	MW-32		8/14/2012 10:30:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-006	MW-32		8/14/2012 10:30:00 AM	8/15/2012 10:00:00 AM	Aqueous
1208655-007	TRIP BLANK			8/15/2012 10:00:00 AM	Trip Blank

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-1

Project: Cross Gradient

Collection Date: 8/14/2012 9:15:00 AM

Lab ID: 1208655-001

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/16/2012 3:18:57 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/16/2012 3:18:57 PM
Surr: DNOP	137	69-152		%REC	1	8/16/2012 3:18:57 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/15/2012 8:29:27 PM
Surr: BFB	104	69.8-119		%REC	1	8/15/2012 8:29:27 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	0.48	0.10		mg/L	1	8/16/2012 2:31:47 AM
Chloride	8.5	0.50		mg/L	1	8/16/2012 2:31:47 AM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/16/2012 2:31:47 AM
Bromide	ND	0.10		mg/L	1	8/16/2012 2:31:47 AM
Nitrogen, Nitrate (As N)	0.49	0.10		mg/L	1	8/16/2012 2:31:47 AM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/16/2012 2:31:47 AM
Sulfate	76	10		mg/L	20	8/16/2012 2:44:12 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	0.025	0.0020		mg/L	1	9/6/2012 5:49:39 PM
Cadmium	ND	0.0020		mg/L	1	9/6/2012 5:49:39 PM
Calcium	71	1.0		mg/L	1	9/6/2012 5:49:39 PM
Chromium	ND	0.0060		mg/L	1	9/6/2012 5:49:39 PM
Copper	ND	0.0060		mg/L	1	9/6/2012 5:49:39 PM
Iron	ND	0.020		mg/L	1	9/6/2012 5:49:39 PM
Magnesium	17	1.0		mg/L	1	9/6/2012 5:49:39 PM
Manganese	0.097	0.0020	*	mg/L	1	9/6/2012 5:49:39 PM
Potassium	1.9	1.0		mg/L	1	9/6/2012 5:49:39 PM
Silver	ND	0.0050		mg/L	1	9/6/2012 5:49:39 PM
Sodium	62	1.0		mg/L	1	9/6/2012 5:49:39 PM
Zinc	0.029	0.010		mg/L	1	9/6/2012 5:49:39 PM
EPA METHOD 200.7: METALS						Analyst: JLF
Arsenic	ND	0.020		mg/L	1	9/5/2012 2:08:21 PM
Barium	0.11	0.0020		mg/L	1	9/4/2012 8:54:41 PM
Cadmium	ND	0.0020		mg/L	1	9/4/2012 8:54:41 PM
Chromium	ND	0.0060		mg/L	1	9/5/2012 2:08:21 PM
Lead	ND	0.0050		mg/L	1	9/5/2012 2:08:21 PM
Selenium	ND	0.050		mg/L	1	9/5/2012 2:08:21 PM
Silver	ND	0.0050		mg/L	1	9/4/2012 10:06:13 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	ND	0.0010		mg/L	1	9/4/2012 1:15:33 PM
Lead	ND	0.0010		mg/L	1	9/4/2012 1:15:33 PM
Selenium	ND	0.0010		mg/L	1	9/4/2012 1:15:33 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-1

Project: Cross Gradient

Collection Date: 8/14/2012 9:15:00 AM

Lab ID: 1208655-001

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	0.0026	0.0010		mg/L	1	9/4/2012 1:15:33 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	9/6/2012 11:17:08 AM
EPA METHOD 8260B: VOLATILES						Analyst: JDJ
Benzene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
Toluene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
Ethylbenzene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
Naphthalene	ND	2.0		µg/L	1	8/16/2012 4:27:05 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/16/2012 4:27:05 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/16/2012 4:27:05 PM
Acetone	ND	10		µg/L	1	8/16/2012 4:27:05 PM
Bromobenzene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
Bromoform	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
Bromomethane	ND	3.0		µg/L	1	8/16/2012 4:27:05 PM
2-Butanone	ND	10		µg/L	1	8/16/2012 4:27:05 PM
Carbon disulfide	ND	10		µg/L	1	8/16/2012 4:27:05 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
Chlorobenzene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
Chloroethane	ND	2.0		µg/L	1	8/16/2012 4:27:05 PM
Chloroform	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
Chloromethane	ND	3.0		µg/L	1	8/16/2012 4:27:05 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/16/2012 4:27:05 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
Dibromomethane	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-1

Project: Cross Gradient

Collection Date: 8/14/2012 9:15:00 AM

Lab ID: 1208655-001

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: JDJ
1,3-Dichloropropane	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/16/2012 4:27:05 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
2-Hexanone	ND	10		µg/L	1	8/16/2012 4:27:05 PM
Isopropylbenzene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/16/2012 4:27:05 PM
Methylene Chloride	ND	3.0		µg/L	1	8/16/2012 4:27:05 PM
n-Butylbenzene	ND	3.0		µg/L	1	8/16/2012 4:27:05 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
Styrene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/16/2012 4:27:05 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/16/2012 4:27:05 PM
Vinyl chloride	ND	1.0		µg/L	1	8/16/2012 4:27:05 PM
Xylenes, Total	ND	1.5		µg/L	1	8/16/2012 4:27:05 PM
Surr: 1,2-Dichloroethane-d4	96.2	70-130		%REC	1	8/16/2012 4:27:05 PM
Surr: 4-Bromofluorobenzene	107	70-130		%REC	1	8/16/2012 4:27:05 PM
Surr: Dibromofluoromethane	97.5	70-130		%REC	1	8/16/2012 4:27:05 PM
Surr: Toluene-d8	94.1	70-130		%REC	1	8/16/2012 4:27:05 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	250	1.0		mg CO2/L	1	8/21/2012 8:26:07 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	680	0.010		µmhos/cm	1	8/21/2012 8:26:07 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	270	20		mg/L CaCO3	1	8/21/2012 8:26:07 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/21/2012 8:26:07 PM
Total Alkalinity (as CaCO3)	270	20		mg/L CaCO3	1	8/21/2012 8:26:07 PM

Qualifiers:

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- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-1

Project: Cross Gradient

Collection Date: 8/14/2012 9:15:00 AM

Lab ID: 1208655-001

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	430	40.0		mg/L	1	8/20/2012 11:33:00 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-1 Dup

Project: Cross Gradient

Collection Date: 8/14/2012 9:15:00 AM

Lab ID: 1208655-002

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/16/2012 3:41:23 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/16/2012 3:41:23 PM
Surr: DNOP	137	69-152		%REC	1	8/16/2012 3:41:23 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/15/2012 11:00:07 PM
Surr: BFB	116	69.8-119		%REC	1	8/15/2012 11:00:07 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	0.47	0.10		mg/L	1	8/16/2012 3:09:03 AM
Chloride	8.5	0.50		mg/L	1	8/16/2012 3:09:03 AM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/16/2012 3:09:03 AM
Bromide	ND	0.10		mg/L	1	8/16/2012 3:09:03 AM
Nitrogen, Nitrate (As N)	0.50	0.10		mg/L	1	8/16/2012 3:09:03 AM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/16/2012 3:09:03 AM
Sulfate	76	10		mg/L	20	8/16/2012 3:21:29 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	0.025	0.0020		mg/L	1	9/6/2012 5:57:08 PM
Cadmium	ND	0.0020		mg/L	1	9/6/2012 5:57:08 PM
Calcium	70	1.0		mg/L	1	9/6/2012 5:57:08 PM
Chromium	ND	0.0060		mg/L	1	9/6/2012 5:57:08 PM
Copper	ND	0.0060		mg/L	1	9/6/2012 5:57:08 PM
Iron	ND	0.020		mg/L	1	9/6/2012 5:57:08 PM
Magnesium	16	1.0		mg/L	1	9/6/2012 5:57:08 PM
Manganese	0.11	0.0020	*	mg/L	1	9/6/2012 5:57:08 PM
Potassium	1.9	1.0		mg/L	1	9/6/2012 5:57:08 PM
Silver	ND	0.0050		mg/L	1	9/6/2012 5:57:08 PM
Sodium	61	1.0		mg/L	1	9/6/2012 5:57:08 PM
Zinc	0.083	0.010		mg/L	1	9/6/2012 5:57:08 PM
EPA METHOD 200.7: METALS						Analyst: JLF
Arsenic	ND	0.020		mg/L	1	9/5/2012 2:10:56 PM
Barium	0.14	0.0020		mg/L	1	9/4/2012 9:02:46 PM
Cadmium	ND	0.0020		mg/L	1	9/4/2012 9:02:46 PM
Chromium	ND	0.0060		mg/L	1	9/5/2012 2:10:56 PM
Lead	ND	0.0050		mg/L	1	9/5/2012 2:10:56 PM
Selenium	ND	0.050		mg/L	1	9/5/2012 2:10:56 PM
Silver	ND	0.0050		mg/L	1	9/4/2012 10:09:19 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	ND	0.0010		mg/L	1	9/4/2012 1:19:29 PM
Lead	ND	0.0010		mg/L	1	9/4/2012 1:19:29 PM
Selenium	ND	0.0010		mg/L	1	9/4/2012 1:19:29 PM

Qualifiers:

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- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
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- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-1 Dup

Project: Cross Gradient

Collection Date: 8/14/2012 9:15:00 AM

Lab ID: 1208655-002

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	0.0026	0.0010		mg/L	1	9/4/2012 1:19:29 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	9/6/2012 11:18:57 AM
EPA METHOD 8260B: VOLATILES						Analyst: JDJ
Benzene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
Toluene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
Ethylbenzene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
Naphthalene	ND	2.0		µg/L	1	8/16/2012 4:56:37 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/16/2012 4:56:37 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/16/2012 4:56:37 PM
Acetone	ND	10		µg/L	1	8/16/2012 4:56:37 PM
Bromobenzene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
Bromoform	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
Bromomethane	ND	3.0		µg/L	1	8/16/2012 4:56:37 PM
2-Butanone	ND	10		µg/L	1	8/16/2012 4:56:37 PM
Carbon disulfide	ND	10		µg/L	1	8/16/2012 4:56:37 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
Chlorobenzene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
Chloroethane	ND	2.0		µg/L	1	8/16/2012 4:56:37 PM
Chloroform	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
Chloromethane	ND	3.0		µg/L	1	8/16/2012 4:56:37 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/16/2012 4:56:37 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
Dibromomethane	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-1 Dup

Project: Cross Gradient

Collection Date: 8/14/2012 9:15:00 AM

Lab ID: 1208655-002

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: JDJ
1,3-Dichloropropane	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/16/2012 4:56:37 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
2-Hexanone	ND	10		µg/L	1	8/16/2012 4:56:37 PM
Isopropylbenzene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/16/2012 4:56:37 PM
Methylene Chloride	ND	3.0		µg/L	1	8/16/2012 4:56:37 PM
n-Butylbenzene	ND	3.0		µg/L	1	8/16/2012 4:56:37 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
Styrene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/16/2012 4:56:37 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/16/2012 4:56:37 PM
Vinyl chloride	ND	1.0		µg/L	1	8/16/2012 4:56:37 PM
Xylenes, Total	ND	1.5		µg/L	1	8/16/2012 4:56:37 PM
Surr: 1,2-Dichloroethane-d4	91.8	70-130		%REC	1	8/16/2012 4:56:37 PM
Surr: 4-Bromofluorobenzene	95.8	70-130		%REC	1	8/16/2012 4:56:37 PM
Surr: Dibromofluoromethane	96.8	70-130		%REC	1	8/16/2012 4:56:37 PM
Surr: Toluene-d8	96.3	70-130		%REC	1	8/16/2012 4:56:37 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	250	1.0		mg CO2/L	1	8/21/2012 8:38:33 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	680	0.010		µmhos/cm	1	8/21/2012 8:38:33 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	270	20		mg/L CaCO3	1	8/21/2012 8:38:33 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/21/2012 8:38:33 PM
Total Alkalinity (as CaCO3)	270	20		mg/L CaCO3	1	8/21/2012 8:38:33 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-1 Dup

Project: Cross Gradient

Collection Date: 8/14/2012 9:15:00 AM

Lab ID: 1208655-002

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	430	40.0		mg/L	1	8/20/2012 11:33:00 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-13

Project: Cross Gradient

Collection Date: 8/14/2012 9:45:00 AM

Lab ID: 1208655-003

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/16/2012 4:04:00 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/16/2012 4:04:00 PM
Surr: DNOP	139	69-152		%REC	1	8/16/2012 4:04:00 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/15/2012 11:30:08 PM
Surr: BFB	87.4	69.8-119		%REC	1	8/15/2012 11:30:08 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	ND	0.10		mg/L	1	8/16/2012 4:35:58 AM
Chloride	190	10		mg/L	20	8/16/2012 4:48:23 AM
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	8/16/2012 4:48:23 AM
Bromide	1.7	0.10		mg/L	1	8/16/2012 4:35:58 AM
Nitrogen, Nitrate (As N)	4.0	2.0		mg/L	20	8/16/2012 4:48:23 AM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/16/2012 4:35:58 AM
Sulfate	1100	25		mg/L	50	8/16/2012 2:44:07 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	0.025	0.0020		mg/L	1	9/6/2012 6:17:22 PM
Cadmium	ND	0.0020		mg/L	1	9/6/2012 6:17:22 PM
Calcium	290	5.0		mg/L	5	9/6/2012 6:21:23 PM
Chromium	ND	0.0060		mg/L	1	9/6/2012 6:17:22 PM
Copper	ND	0.0060		mg/L	1	9/6/2012 6:17:22 PM
Iron	ND	0.020		mg/L	1	9/6/2012 6:17:22 PM
Magnesium	89	1.0		mg/L	1	9/6/2012 6:17:22 PM
Manganese	0.97	0.0020	*	mg/L	1	9/6/2012 6:17:22 PM
Potassium	4.9	1.0		mg/L	1	9/6/2012 6:17:22 PM
Silver	ND	0.0050		mg/L	1	9/6/2012 6:17:22 PM
Sodium	610	10		mg/L	10	9/6/2012 7:39:08 PM
Zinc	0.066	0.010		mg/L	1	9/6/2012 6:17:22 PM
EPA METHOD 200.7: METALS						Analyst: JLF
Arsenic	ND	0.020		mg/L	1	9/5/2012 2:13:28 PM
Barium	0.030	0.0020		mg/L	1	9/4/2012 9:09:16 PM
Cadmium	ND	0.0020		mg/L	1	9/4/2012 9:09:16 PM
Chromium	0.010	0.0060		mg/L	1	9/5/2012 2:13:28 PM
Lead	ND	0.0050		mg/L	1	9/5/2012 2:13:28 PM
Selenium	ND	0.050		mg/L	1	9/5/2012 2:13:28 PM
Silver	ND	0.0050		mg/L	1	9/5/2012 2:41:53 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	0.0021	0.0010		mg/L	1	9/4/2012 1:35:16 PM
Lead	ND	0.0010		mg/L	1	9/4/2012 1:35:16 PM
Selenium	ND	0.010		mg/L	10	9/14/2012 2:55:49 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-13

Project: Cross Gradient

Collection Date: 8/14/2012 9:45:00 AM

Lab ID: 1208655-003

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	0.0087	0.0010		mg/L	1	9/4/2012 1:35:16 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	9/6/2012 11:20:45 AM
EPA METHOD 8260B: VOLATILES						Analyst: JDJ
Benzene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
Toluene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
Ethylbenzene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
Naphthalene	ND	2.0		µg/L	1	8/16/2012 5:26:07 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/16/2012 5:26:07 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/16/2012 5:26:07 PM
Acetone	ND	10		µg/L	1	8/16/2012 5:26:07 PM
Bromobenzene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
Bromoform	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
Bromomethane	ND	3.0		µg/L	1	8/16/2012 5:26:07 PM
2-Butanone	ND	10		µg/L	1	8/16/2012 5:26:07 PM
Carbon disulfide	ND	10		µg/L	1	8/16/2012 5:26:07 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
Chlorobenzene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
Chloroethane	ND	2.0		µg/L	1	8/16/2012 5:26:07 PM
Chloroform	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
Chloromethane	ND	3.0		µg/L	1	8/16/2012 5:26:07 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/16/2012 5:26:07 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
Dibromomethane	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-13

Project: Cross Gradient

Collection Date: 8/14/2012 9:45:00 AM

Lab ID: 1208655-003

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: JDJ
1,3-Dichloropropane	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/16/2012 5:26:07 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
2-Hexanone	ND	10		µg/L	1	8/16/2012 5:26:07 PM
Isopropylbenzene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/16/2012 5:26:07 PM
Methylene Chloride	ND	3.0		µg/L	1	8/16/2012 5:26:07 PM
n-Butylbenzene	ND	3.0		µg/L	1	8/16/2012 5:26:07 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
Styrene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/16/2012 5:26:07 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/16/2012 5:26:07 PM
Vinyl chloride	ND	1.0		µg/L	1	8/16/2012 5:26:07 PM
Xylenes, Total	ND	1.5		µg/L	1	8/16/2012 5:26:07 PM
Surr: 1,2-Dichloroethane-d4	90.2	70-130		%REC	1	8/16/2012 5:26:07 PM
Surr: 4-Bromofluorobenzene	97.2	70-130		%REC	1	8/16/2012 5:26:07 PM
Surr: Dibromofluoromethane	94.8	70-130		%REC	1	8/16/2012 5:26:07 PM
Surr: Toluene-d8	98.3	70-130		%REC	1	8/16/2012 5:26:07 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	870	1.0		mg CO2/L	1	8/21/2012 8:51:01 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	3800	0.010		µmhos/cm	1	8/21/2012 8:51:01 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	940	20		mg/L CaCO3	1	8/21/2012 8:51:01 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/21/2012 8:51:01 PM
Total Alkalinity (as CaCO3)	940	20		mg/L CaCO3	1	8/21/2012 8:51:01 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-13

Project: Cross Gradient

Collection Date: 8/14/2012 9:45:00 AM

Lab ID: 1208655-003

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	2980	20.0		mg/L	1	8/20/2012 11:33:00 AM

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2
RL Reporting Detection Limit

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-26

Project: Cross Gradient

Collection Date: 8/14/2012 10:00:00 AM

Lab ID: 1208655-004

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	1.7	0.20		mg/L	1	8/16/2012 4:26:21 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/16/2012 4:26:21 PM
Surr: DNOP	136	69-152		%REC	1	8/16/2012 4:26:21 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	12	0.50		mg/L	10	8/16/2012 12:00:20 AM
Surr: BFB	107	69.8-119		%REC	10	8/16/2012 12:00:20 AM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	ND	1.0		mg/L	10	8/16/2012 5:13:13 AM
Chloride	250	50		mg/L	100	8/16/2012 5:25:37 AM
Nitrogen, Nitrite (As N)	ND	1.0		mg/L	10	8/16/2012 5:13:13 AM
Bromide	4.1	1.0		mg/L	10	8/16/2012 5:13:13 AM
Nitrogen, Nitrate (As N)	ND	1.0		mg/L	10	8/16/2012 5:13:13 AM
Phosphorus, Orthophosphate (As P)	ND	5.0		mg/L	10	8/16/2012 5:13:13 AM
Sulfate	ND	5.0		mg/L	10	8/16/2012 5:13:13 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	2.3	0.010	*	mg/L	5	9/6/2012 6:28:28 PM
Cadmium	ND	0.0020		mg/L	1	9/6/2012 6:25:06 PM
Calcium	120	5.0		mg/L	5	9/6/2012 6:28:28 PM
Chromium	ND	0.0060		mg/L	1	9/6/2012 6:25:06 PM
Copper	ND	0.0060		mg/L	1	9/6/2012 6:25:06 PM
Iron	5.2	0.20	*	mg/L	10	9/6/2012 7:42:51 PM
Magnesium	43	1.0		mg/L	1	9/6/2012 6:25:06 PM
Manganese	2.6	0.010	*	mg/L	5	9/6/2012 6:28:28 PM
Potassium	4.1	1.0		mg/L	1	9/6/2012 6:25:06 PM
Silver	ND	0.0050		mg/L	1	9/6/2012 6:25:06 PM
Sodium	480	5.0		mg/L	5	9/6/2012 6:28:28 PM
Zinc	0.056	0.010		mg/L	1	9/6/2012 6:25:06 PM
EPA METHOD 200.7: METALS						Analyst: JLF
Arsenic	ND	0.020		mg/L	1	9/5/2012 2:16:01 PM
Barium	2.4	0.010	*	mg/L	5	9/5/2012 2:18:35 PM
Cadmium	ND	0.0020		mg/L	1	9/4/2012 9:17:03 PM
Chromium	ND	0.0060		mg/L	1	9/5/2012 2:16:01 PM
Lead	ND	0.0050		mg/L	1	9/5/2012 2:16:01 PM
Selenium	ND	0.050		mg/L	1	9/5/2012 2:16:01 PM
Silver	ND	0.0050		mg/L	1	9/5/2012 2:43:56 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	0.0099	0.0010		mg/L	1	9/4/2012 1:51:02 PM
Lead	ND	0.0010		mg/L	1	9/4/2012 1:51:02 PM
Selenium	ND	0.010		mg/L	10	9/14/2012 3:03:41 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-26

Project: Cross Gradient

Collection Date: 8/14/2012 10:00:00 AM

Lab ID: 1208655-004

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	ND	0.0010		mg/L	1	9/4/2012 1:51:02 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	9/6/2012 11:22:34 AM
EPA METHOD 8260B: VOLATILES						Analyst: JDJ
Benzene	29	10		µg/L	10	8/16/2012 6:24:58 PM
Toluene	ND	10		µg/L	10	8/16/2012 6:24:58 PM
Ethylbenzene	110	10		µg/L	10	8/16/2012 6:24:58 PM
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	8/16/2012 6:24:58 PM
1,2,4-Trimethylbenzene	1100	50		µg/L	50	8/16/2012 5:55:35 PM
1,3,5-Trimethylbenzene	280	10		µg/L	10	8/16/2012 6:24:58 PM
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	8/16/2012 6:24:58 PM
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	8/16/2012 6:24:58 PM
Naphthalene	290	20		µg/L	10	8/16/2012 6:24:58 PM
1-Methylnaphthalene	130	40		µg/L	10	8/16/2012 6:24:58 PM
2-Methylnaphthalene	210	40		µg/L	10	8/16/2012 6:24:58 PM
Acetone	ND	100		µg/L	10	8/16/2012 6:24:58 PM
Bromobenzene	ND	10		µg/L	10	8/16/2012 6:24:58 PM
Bromodichloromethane	ND	10		µg/L	10	8/16/2012 6:24:58 PM
Bromoform	ND	10		µg/L	10	8/16/2012 6:24:58 PM
Bromomethane	ND	30		µg/L	10	8/16/2012 6:24:58 PM
2-Butanone	ND	100		µg/L	10	8/16/2012 6:24:58 PM
Carbon disulfide	ND	100		µg/L	10	8/16/2012 6:24:58 PM
Carbon Tetrachloride	ND	10		µg/L	10	8/16/2012 6:24:58 PM
Chlorobenzene	ND	10		µg/L	10	8/16/2012 6:24:58 PM
Chloroethane	ND	20		µg/L	10	8/16/2012 6:24:58 PM
Chloroform	ND	10		µg/L	10	8/16/2012 6:24:58 PM
Chloromethane	ND	30		µg/L	10	8/16/2012 6:24:58 PM
2-Chlorotoluene	ND	10		µg/L	10	8/16/2012 6:24:58 PM
4-Chlorotoluene	ND	10		µg/L	10	8/16/2012 6:24:58 PM
cis-1,2-DCE	ND	10		µg/L	10	8/16/2012 6:24:58 PM
cis-1,3-Dichloropropene	ND	10		µg/L	10	8/16/2012 6:24:58 PM
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	8/16/2012 6:24:58 PM
Dibromochloromethane	ND	10		µg/L	10	8/16/2012 6:24:58 PM
Dibromomethane	ND	10		µg/L	10	8/16/2012 6:24:58 PM
1,2-Dichlorobenzene	ND	10		µg/L	10	8/16/2012 6:24:58 PM
1,3-Dichlorobenzene	ND	10		µg/L	10	8/16/2012 6:24:58 PM
1,4-Dichlorobenzene	ND	10		µg/L	10	8/16/2012 6:24:58 PM
Dichlorodifluoromethane	ND	10		µg/L	10	8/16/2012 6:24:58 PM
1,1-Dichloroethane	ND	10		µg/L	10	8/16/2012 6:24:58 PM
1,1-Dichloroethene	ND	10		µg/L	10	8/16/2012 6:24:58 PM
1,2-Dichloropropane	ND	10		µg/L	10	8/16/2012 6:24:58 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-26

Project: Cross Gradient

Collection Date: 8/14/2012 10:00:00 AM

Lab ID: 1208655-004

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: JDJ
1,3-Dichloropropane	ND	10		µg/L	10	8/16/2012 6:24:58 PM
2,2-Dichloropropane	ND	20		µg/L	10	8/16/2012 6:24:58 PM
1,1-Dichloropropene	ND	10		µg/L	10	8/16/2012 6:24:58 PM
Hexachlorobutadiene	ND	10		µg/L	10	8/16/2012 6:24:58 PM
2-Hexanone	ND	100		µg/L	10	8/16/2012 6:24:58 PM
Isopropylbenzene	68	10		µg/L	10	8/16/2012 6:24:58 PM
4-Isopropyltoluene	33	10		µg/L	10	8/16/2012 6:24:58 PM
4-Methyl-2-pentanone	ND	100		µg/L	10	8/16/2012 6:24:58 PM
Methylene Chloride	ND	30		µg/L	10	8/16/2012 6:24:58 PM
n-Butylbenzene	46	30		µg/L	10	8/16/2012 6:24:58 PM
n-Propylbenzene	110	10		µg/L	10	8/16/2012 6:24:58 PM
sec-Butylbenzene	31	10		µg/L	10	8/16/2012 6:24:58 PM
Styrene	ND	10		µg/L	10	8/16/2012 6:24:58 PM
tert-Butylbenzene	ND	10		µg/L	10	8/16/2012 6:24:58 PM
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	8/16/2012 6:24:58 PM
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	8/16/2012 6:24:58 PM
Tetrachloroethene (PCE)	ND	10		µg/L	10	8/16/2012 6:24:58 PM
trans-1,2-DCE	ND	10		µg/L	10	8/16/2012 6:24:58 PM
trans-1,3-Dichloropropene	ND	10		µg/L	10	8/16/2012 6:24:58 PM
1,2,3-Trichlorobenzene	ND	10		µg/L	10	8/16/2012 6:24:58 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	10	8/16/2012 6:24:58 PM
1,1,1-Trichloroethane	ND	10		µg/L	10	8/16/2012 6:24:58 PM
1,1,2-Trichloroethane	ND	10		µg/L	10	8/16/2012 6:24:58 PM
Trichloroethene (TCE)	ND	10		µg/L	10	8/16/2012 6:24:58 PM
Trichlorofluoromethane	ND	10		µg/L	10	8/16/2012 6:24:58 PM
1,2,3-Trichloropropane	ND	20		µg/L	10	8/16/2012 6:24:58 PM
Vinyl chloride	ND	10		µg/L	10	8/16/2012 6:24:58 PM
Xylenes, Total	1400	15		µg/L	10	8/16/2012 6:24:58 PM
Surr: 1,2-Dichloroethane-d4	95.4	70-130		%REC	10	8/16/2012 6:24:58 PM
Surr: 4-Bromofluorobenzene	101	70-130		%REC	10	8/16/2012 6:24:58 PM
Surr: Dibromofluoromethane	108	70-130		%REC	10	8/16/2012 6:24:58 PM
Surr: Toluene-d8	97.5	70-130		%REC	10	8/16/2012 6:24:58 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	1100	2.5		mg CO2/L	2.5	8/22/2012 2:21:00 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	2800	0.010		µmhos/cm	1	8/21/2012 9:23:24 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	1200	50		mg/L CaCO3	2.5	8/22/2012 2:21:52 PM
Carbonate (As CaCO3)	ND	5.0		mg/L CaCO3	2.5	8/22/2012 2:21:52 PM
Total Alkalinity (as CaCO3)	1200	50		mg/L CaCO3	2.5	8/22/2012 2:21:52 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-26

Project: Cross Gradient

Collection Date: 8/14/2012 10:00:00 AM

Lab ID: 1208655-004

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	1750	40.0		mg/L	1	8/20/2012 11:33:00 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-27

Project: Cross Gradient

Collection Date: 8/14/2012 11:00:00 AM

Lab ID: 1208655-005

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/16/2012 4:48:48 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/16/2012 4:48:48 PM
Surr: DNOP	137	69-152		%REC	1	8/16/2012 4:48:48 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	0.21	0.050		mg/L	1	8/16/2012 1:30:59 AM
Surr: BFB	84.5	69.8-119		%REC	1	8/16/2012 1:30:59 AM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	0.14	0.10		mg/L	1	8/16/2012 5:50:27 AM
Chloride	480	25		mg/L	50	8/16/2012 2:56:33 PM
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	8/16/2012 6:02:52 AM
Bromide	4.3	0.10		mg/L	1	8/16/2012 5:50:27 AM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/16/2012 5:50:27 AM
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	8/16/2012 6:02:52 AM
Sulfate	1800	25		mg/L	50	8/16/2012 2:56:33 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	0.045	0.0020		mg/L	1	9/6/2012 6:31:35 PM
Cadmium	ND	0.0020		mg/L	1	9/6/2012 6:31:35 PM
Calcium	470	5.0		mg/L	5	9/6/2012 6:35:28 PM
Chromium	ND	0.0060		mg/L	1	9/6/2012 6:31:35 PM
Copper	ND	0.0060		mg/L	1	9/6/2012 6:31:35 PM
Iron	0.35	0.020	*	mg/L	1	9/6/2012 6:31:35 PM
Magnesium	68	1.0		mg/L	1	9/6/2012 6:31:35 PM
Manganese	0.95	0.0020	*	mg/L	1	9/6/2012 6:31:35 PM
Potassium	3.4	1.0		mg/L	1	9/6/2012 6:31:35 PM
Silver	ND	0.0050		mg/L	1	9/6/2012 6:31:35 PM
Sodium	630	10		mg/L	10	9/6/2012 7:59:21 PM
Zinc	0.11	0.010		mg/L	1	9/6/2012 6:31:35 PM
EPA METHOD 200.7: METALS						Analyst: JLF
Arsenic	ND	0.020		mg/L	1	9/5/2012 2:28:54 PM
Barium	0.091	0.0020		mg/L	1	9/5/2012 2:28:54 PM
Cadmium	ND	0.0020		mg/L	1	9/5/2012 2:28:54 PM
Chromium	ND	0.0060		mg/L	1	9/5/2012 2:28:54 PM
Lead	ND	0.0050		mg/L	1	9/5/2012 2:28:54 PM
Selenium	ND	0.050		mg/L	1	9/5/2012 2:28:54 PM
Silver	ND	0.0050		mg/L	1	9/5/2012 2:45:58 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	0.0030	0.0010		mg/L	1	9/4/2012 1:54:58 PM
Lead	ND	0.0010		mg/L	1	9/4/2012 1:54:58 PM
Selenium	ND	0.020		mg/L	20	9/14/2012 3:07:37 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-27

Project: Cross Gradient

Collection Date: 8/14/2012 11:00:00 AM

Lab ID: 1208655-005

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	0.0021	0.0010		mg/L	1	9/4/2012 1:54:58 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	9/6/2012 11:24:19 AM
EPA METHOD 8260B: VOLATILES						Analyst: JDJ
Benzene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
Toluene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
Ethylbenzene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
Naphthalene	ND	2.0		µg/L	1	8/16/2012 7:23:45 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/16/2012 7:23:45 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/16/2012 7:23:45 PM
Acetone	ND	10		µg/L	1	8/16/2012 7:23:45 PM
Bromobenzene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
Bromoform	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
Bromomethane	ND	3.0		µg/L	1	8/16/2012 7:23:45 PM
2-Butanone	ND	10		µg/L	1	8/16/2012 7:23:45 PM
Carbon disulfide	ND	10		µg/L	1	8/16/2012 7:23:45 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
Chlorobenzene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
Chloroethane	ND	2.0		µg/L	1	8/16/2012 7:23:45 PM
Chloroform	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
Chloromethane	ND	3.0		µg/L	1	8/16/2012 7:23:45 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/16/2012 7:23:45 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
Dibromomethane	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-27

Project: Cross Gradient

Collection Date: 8/14/2012 11:00:00 AM

Lab ID: 1208655-005

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: JDJ
1,3-Dichloropropane	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/16/2012 7:23:45 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
2-Hexanone	ND	10		µg/L	1	8/16/2012 7:23:45 PM
Isopropylbenzene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/16/2012 7:23:45 PM
Methylene Chloride	ND	3.0		µg/L	1	8/16/2012 7:23:45 PM
n-Butylbenzene	ND	3.0		µg/L	1	8/16/2012 7:23:45 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
Styrene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/16/2012 7:23:45 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/16/2012 7:23:45 PM
Vinyl chloride	ND	1.0		µg/L	1	8/16/2012 7:23:45 PM
Xylenes, Total	ND	1.5		µg/L	1	8/16/2012 7:23:45 PM
Surr: 1,2-Dichloroethane-d4	87.2	70-130		%REC	1	8/16/2012 7:23:45 PM
Surr: 4-Bromofluorobenzene	96.0	70-130		%REC	1	8/16/2012 7:23:45 PM
Surr: Dibromofluoromethane	101	70-130		%REC	1	8/16/2012 7:23:45 PM
Surr: Toluene-d8	93.9	70-130		%REC	1	8/16/2012 7:23:45 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	280	1.0		mg CO2/L	1	8/21/2012 10:01:25 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	4600	0.010		µmhos/cm	1	8/21/2012 10:01:25 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	310	20		mg/L CaCO3	1	8/21/2012 10:01:25 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/21/2012 10:01:25 PM
Total Alkalinity (as CaCO3)	310	20		mg/L CaCO3	1	8/21/2012 10:01:25 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-27

Project: Cross Gradient

Collection Date: 8/14/2012 11:00:00 AM

Lab ID: 1208655-005

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	3760	100		mg/L	1	8/20/2012 11:33:00 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-32

Project: Cross Gradient

Collection Date: 8/14/2012 10:30:00 AM

Lab ID: 1208655-006

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/16/2012 5:11:09 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/16/2012 5:11:09 PM
Surr: DNOP	125	69-152		%REC	1	8/16/2012 5:11:09 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/16/2012 2:31:20 AM
Surr: BFB	105	69.8-119		%REC	1	8/16/2012 2:31:20 AM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	ND	0.10		mg/L	1	8/16/2012 6:52:30 AM
Chloride	620	25		mg/L	50	8/16/2012 3:08:58 PM
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	8/16/2012 7:04:55 AM
Bromide	4.1	0.10		mg/L	1	8/16/2012 6:52:30 AM
Nitrogen, Nitrate (As N)	43	2.0	*	mg/L	20	8/16/2012 7:04:55 AM
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	8/16/2012 7:04:55 AM
Sulfate	1500	25		mg/L	50	8/16/2012 3:08:58 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	0.020	0.0020		mg/L	1	9/6/2012 6:39:10 PM
Cadmium	ND	0.0020		mg/L	1	9/6/2012 6:39:10 PM
Calcium	340	5.0		mg/L	5	9/6/2012 6:43:10 PM
Chromium	ND	0.0060		mg/L	1	9/6/2012 6:39:10 PM
Copper	ND	0.0060		mg/L	1	9/6/2012 6:39:10 PM
Iron	ND	0.020		mg/L	1	9/6/2012 6:39:10 PM
Magnesium	47	1.0		mg/L	1	9/6/2012 6:39:10 PM
Manganese	ND	0.0020		mg/L	1	9/6/2012 6:39:10 PM
Potassium	4.4	1.0		mg/L	1	9/6/2012 6:39:10 PM
Silver	ND	0.0050		mg/L	1	9/6/2012 6:39:10 PM
Sodium	790	10		mg/L	10	9/6/2012 8:03:03 PM
Zinc	0.12	0.010		mg/L	1	9/6/2012 6:39:10 PM
EPA METHOD 200.7: METALS						Analyst: JLF
Arsenic	ND	0.020		mg/L	1	9/5/2012 2:31:25 PM
Barium	0.029	0.0020		mg/L	1	9/5/2012 2:31:25 PM
Cadmium	ND	0.0020		mg/L	1	9/5/2012 2:31:25 PM
Chromium	ND	0.0060		mg/L	1	9/5/2012 2:31:25 PM
Lead	ND	0.0050		mg/L	1	9/5/2012 2:31:25 PM
Selenium	ND	0.050		mg/L	1	9/5/2012 2:31:25 PM
Silver	ND	0.0050		mg/L	1	9/5/2012 2:47:59 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	0.0034	0.0010		mg/L	1	9/4/2012 1:58:54 PM
Lead	ND	0.0010		mg/L	1	9/4/2012 1:58:54 PM
Selenium	ND	0.050		mg/L	50	9/14/2012 3:11:33 PM

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-32

Project: Cross Gradient

Collection Date: 8/14/2012 10:30:00 AM

Lab ID: 1208655-006

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	0.012	0.0010		mg/L	1	9/4/2012 1:58:54 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	9/6/2012 11:26:06 AM
EPA METHOD 8260B: VOLATILES						Analyst: JDJ
Benzene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
Toluene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
Ethylbenzene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
Naphthalene	ND	2.0		µg/L	1	8/16/2012 7:53:09 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/16/2012 7:53:09 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/16/2012 7:53:09 PM
Acetone	ND	10		µg/L	1	8/16/2012 7:53:09 PM
Bromobenzene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
Bromoform	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
Bromomethane	ND	3.0		µg/L	1	8/16/2012 7:53:09 PM
2-Butanone	ND	10		µg/L	1	8/16/2012 7:53:09 PM
Carbon disulfide	ND	10		µg/L	1	8/16/2012 7:53:09 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
Chlorobenzene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
Chloroethane	ND	2.0		µg/L	1	8/16/2012 7:53:09 PM
Chloroform	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
Chloromethane	ND	3.0		µg/L	1	8/16/2012 7:53:09 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/16/2012 7:53:09 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
Dibromomethane	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-32

Project: Cross Gradient

Collection Date: 8/14/2012 10:30:00 AM

Lab ID: 1208655-006

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: JDJ
1,3-Dichloropropane	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/16/2012 7:53:09 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
2-Hexanone	ND	10		µg/L	1	8/16/2012 7:53:09 PM
Isopropylbenzene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/16/2012 7:53:09 PM
Methylene Chloride	ND	3.0		µg/L	1	8/16/2012 7:53:09 PM
n-Butylbenzene	ND	3.0		µg/L	1	8/16/2012 7:53:09 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
Styrene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/16/2012 7:53:09 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/16/2012 7:53:09 PM
Vinyl chloride	ND	1.0		µg/L	1	8/16/2012 7:53:09 PM
Xylenes, Total	ND	1.5		µg/L	1	8/16/2012 7:53:09 PM
Surr: 1,2-Dichloroethane-d4	89.6	70-130		%REC	1	8/16/2012 7:53:09 PM
Surr: 4-Bromofluorobenzene	97.1	70-130		%REC	1	8/16/2012 7:53:09 PM
Surr: Dibromofluoromethane	96.0	70-130		%REC	1	8/16/2012 7:53:09 PM
Surr: Toluene-d8	99.0	70-130		%REC	1	8/16/2012 7:53:09 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	160	1.0		mg CO2/L	1	8/21/2012 10:16:17 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	4800	0.010		µmhos/cm	1	8/21/2012 10:16:17 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	180	20		mg/L CaCO3	1	8/21/2012 10:16:17 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/21/2012 10:16:17 PM
Total Alkalinity (as CaCO3)	180	20		mg/L CaCO3	1	8/21/2012 10:16:17 PM

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-32

Project: Cross Gradient

Collection Date: 8/14/2012 10:30:00 AM

Lab ID: 1208655-006

Matrix: AQUEOUS

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	3720	20.0		mg/L	1	8/20/2012 11:33:00 AM

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2
RL Reporting Detection Limit

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: TRIP BLANK

Project: Cross Gradient

Collection Date:

Lab ID: 1208655-007

Matrix: TRIP BLANK

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: JDJ
Benzene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
Toluene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
Ethylbenzene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
Naphthalene	ND	2.0		µg/L	1	8/16/2012 8:22:50 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/16/2012 8:22:50 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/16/2012 8:22:50 PM
Acetone	ND	10		µg/L	1	8/16/2012 8:22:50 PM
Bromobenzene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
Bromoform	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
Bromomethane	ND	3.0		µg/L	1	8/16/2012 8:22:50 PM
2-Butanone	ND	10		µg/L	1	8/16/2012 8:22:50 PM
Carbon disulfide	ND	10		µg/L	1	8/16/2012 8:22:50 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
Chlorobenzene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
Chloroethane	ND	2.0		µg/L	1	8/16/2012 8:22:50 PM
Chloroform	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
Chloromethane	ND	3.0		µg/L	1	8/16/2012 8:22:50 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/16/2012 8:22:50 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
Dibromomethane	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/16/2012 8:22:50 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
2-Hexanone	ND	10		µg/L	1	8/16/2012 8:22:50 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208655

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: TRIP BLANK

Project: Cross Gradient

Collection Date:

Lab ID: 1208655-007

Matrix: TRIP BLANK

Received Date: 8/15/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: JDJ
Isopropylbenzene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/16/2012 8:22:50 PM
Methylene Chloride	ND	3.0		µg/L	1	8/16/2012 8:22:50 PM
n-Butylbenzene	ND	3.0		µg/L	1	8/16/2012 8:22:50 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
Styrene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/16/2012 8:22:50 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/16/2012 8:22:50 PM
Vinyl chloride	ND	1.0		µg/L	1	8/16/2012 8:22:50 PM
Xylenes, Total	ND	1.5		µg/L	1	8/16/2012 8:22:50 PM
Surr: 1,2-Dichloroethane-d4	89.1	70-130		%REC	1	8/16/2012 8:22:50 PM
Surr: 4-Bromofluorobenzene	99.4	70-130		%REC	1	8/16/2012 8:22:50 PM
Surr: Dibromofluoromethane	94.1	70-130		%REC	1	8/16/2012 8:22:50 PM
Surr: Toluene-d8	96.3	70-130		%REC	1	8/16/2012 8:22:50 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208655

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Cross Gradient

Sample ID	MB-3352		SampType: MBLK		TestCode: EPA Method 200.7: Metals					
Client ID:	PBW		Batch ID: 3352		RunNo: 5075					
Prep Date:	8/16/2012		Analysis Date: 8/23/2012		SeqNo: 143724		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Lead	ND	0.0050								
Selenium	ND	0.050								

Sample ID	MB-3352		SampType: MBLK		TestCode: EPA Method 200.7: Metals					
Client ID:	PBW		Batch ID: 3352		RunNo: 5027					
Prep Date:	8/16/2012		Analysis Date: 8/22/2012		SeqNo: 145624		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								

Sample ID	MB-3491		SampType: MBLK		TestCode: EPA Method 200.7: Metals					
Client ID:	PBW		Batch ID: 3491		RunNo: 5300					
Prep Date:	8/27/2012		Analysis Date: 9/4/2012		SeqNo: 150888		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	0.0050								

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 200.7: Metals					
Client ID:	PBW	Batch ID: R5356			RunNo: 5356					
Prep Date:		Analysis Date: 9/6/2012			SeqNo: 152485		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
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								
Zinc	ND	0.010								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208655

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Cross Gradient

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R5356	RunNo:	5356					
Prep Date:		Analysis Date:	9/6/2012	SeqNo:	152487	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
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								
Zinc	ND	0.010								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208655

25-Sep-12

Client: Western Refining Southwest, Inc.**Project:** Cross Gradient

Sample ID	MB-3352		SampType:	MBLK		TestCode:	EPA Method 200.7: Total Metals			
Client ID:	PBW		Batch ID:	3352		RunNo:	5027			
Prep Date:	8/16/2012		Analysis Date:	8/22/2012		SeqNo:	143182	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208655

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Cross Gradient

Sample ID	MB		SampType: MBLK		TestCode: EPA 200.8: Metals					
Client ID:	PBW		Batch ID: R5291		RunNo: 5291					
Prep Date:			Analysis Date: 9/4/2012		SeqNo: 150650		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Sample ID	MB		SampType: MBLK		TestCode: EPA 200.8: Metals					
Client ID:	PBW		Batch ID: R5291		RunNo: 5291					
Prep Date:			Analysis Date: 9/4/2012		SeqNo: 150651		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Sample ID	MB		SampType: MBLK		TestCode: EPA 200.8: Metals					
Client ID:	PBW		Batch ID: R5552		RunNo: 5552					
Prep Date:			Analysis Date: 9/14/2012		SeqNo: 158709		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Sample ID	MB		SampType: MBLK		TestCode: EPA 200.8: Metals					
Client ID:	PBW		Batch ID: R5552		RunNo: 5552					
Prep Date:			Analysis Date: 9/14/2012		SeqNo: 158710		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208655

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Cross Gradient

Sample ID	1208655-003EMS		SampType: MS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	MW-13		Batch ID: R5291		RunNo: 5291					
Prep Date:			Analysis Date: 9/4/2012		SeqNo: 150661		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.028	0.0010	0.02500	0.002068	102	70	130			
Lead	0.026	0.0010	0.02500	0	105	70	130			
Uranium	0.036	0.0010	0.02500	0.008655	109	70	130			

Sample ID	MB		SampType: MBLK		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW		Batch ID: R5291		RunNo: 5291					
Prep Date:			Analysis Date: 9/4/2012		SeqNo: 150689		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Sample ID	MB		SampType: MBLK		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW		Batch ID: R5291		RunNo: 5291					
Prep Date:			Analysis Date: 9/4/2012		SeqNo: 150690		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Sample ID	1208655-003EMS		SampType: MS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	MW-13		Batch ID: R5552		RunNo: 5552					
Prep Date:			Analysis Date: 9/14/2012		SeqNo: 158717		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	0.26	0.010	0.2500	0.006577	99.8	70	130			

Sample ID	MB		SampType: MBLK		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW		Batch ID: R5552		RunNo: 5552					
Prep Date:			Analysis Date: 9/14/2012		SeqNo: 158750		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208655

25-Sep-12

Client: Western Refining Southwest, Inc.**Project:** Cross Gradient

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID:	R5552	RunNo:	5552					
Prep Date:		Analysis Date:	9/14/2012	SeqNo:	158751	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208655

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Cross Gradient

Sample ID	MB-3618		SampType: MBLK		TestCode: EPA Method 245.1: Mercury					
Client ID:	PBW		Batch ID: 3618		RunNo: 5342					
Prep Date:	9/5/2012		Analysis Date: 9/6/2012		SeqNo: 152067		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercurv	ND	0.00020								

Sample ID	1208655-006FMS		SampType: MS		TestCode: EPA Method 245.1: Mercury					
Client ID:	MW-32		Batch ID: 3618		RunNo: 5342					
Prep Date:	9/5/2012		Analysis Date: 9/6/2012		SeqNo: 152075		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0043	0.00020	0.005000	0	85.9	75	125			

Sample ID	1208655-006FMSD		SampType: MSD		TestCode: EPA Method 245.1: Mercury						
Client ID:	MW-32		Batch ID: 3618		RunNo: 5342						
Prep Date:	9/5/2012		Analysis Date: 9/6/2012		SeqNo: 152076		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	0.0043	0.00020	0.005000	0	86.1	75	125	0.185	20		

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208655

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Cross Gradient

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R4894	RunNo:	4894					
Prep Date:		Analysis Date:	8/15/2012	SeqNo:	138394	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R4894	RunNo:	4894					
Prep Date:		Analysis Date:	8/16/2012	SeqNo:	138456	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R4921	RunNo:	4921					
Prep Date:		Analysis Date:	8/16/2012	SeqNo:	139248	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208655

25-Sep-12

Client: Western Refining Southwest, Inc.**Project:** Cross Gradient

Sample ID	MB-3355		SampType:	MBLK		TestCode:	EPA Method 8015B: Diesel Range			
Client ID:	PBW		Batch ID:	3355		RunNo:	4893			
Prep Date:	8/16/2012		Analysis Date:	8/16/2012		SeqNo:	138384		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.66		0.5000		132	69	152			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208655

25-Sep-12

Client: Western Refining Southwest, Inc.**Project:** Cross Gradient

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015B: Gasoline Range					
Client ID:	PBW	Batch ID:	R4895	RunNo:	4895					
Prep Date:		Analysis Date:	8/15/2012	SeqNo:	138509	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	21		20.00		107	69.8	119			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208655

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Cross Gradient

Sample ID	5ml rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R4923	RunNo:	4923					
Prep Date:		Analysis Date:	8/16/2012	SeqNo:	139298	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208655

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Cross Gradient

Sample ID	5ml rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R4923	RunNo:	4923					
Prep Date:		Analysis Date:	8/16/2012	SeqNo:	139298	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.5		10.00		95.1	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		111	70	130			
Surr: Dibromofluoromethane	9.6		10.00		95.8	70	130			
Surr: Toluene-d8	11		10.00		113	70	130			

Sample ID	b5	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R4923	RunNo:	4923					
Prep Date:		Analysis Date:	8/16/2012	SeqNo:	139397	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								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208655

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Cross Gradient

Sample ID	b5	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R4923	RunNo:	4923					
Prep Date:		Analysis Date:	8/16/2012	SeqNo:	139397	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
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								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208655

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Cross Gradient

Sample ID	b5	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R4923	RunNo:	4923					
Prep Date:		Analysis Date:	8/16/2012	SeqNo:	139397	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	8.8		10.00		87.6	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		95.6	70	130			
Surr: Dibromofluoromethane	9.9		10.00		99.0	70	130			
Surr: Toluene-d8	9.4		10.00		94.1	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208655

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Cross Gradient

Sample ID	mb		SampType: mblk		TestCode: SM2320B: Alkalinity					
Client ID:	PBW		Batch ID: R5024		RunNo: 5024					
Prep Date:			Analysis Date: 8/21/2012		SeqNo: 142342		Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID	mb-2		SampType:	mblk		TestCode:	SM2320B: Alkalinity				
Client ID:	PBW		Batch ID:	R5024		RunNo:	5024				
Prep Date:			Analysis Date:	8/21/2012		SeqNo:	142366		Units:	mg/L CaCO3	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Alkalinity (as CaCO3)	ND	20									

Sample ID	mb-1		SampType:	mblk		TestCode:	SM2320B: Alkalinity				
Client ID:	PBW		Batch ID:	R5065		RunNo:	5065				
Prep Date:			Analysis Date:	8/22/2012		SeqNo:	143511		Units:	mg/L CaCO3	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Total Alkalinity (as CaCO3)	ND	20									

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208655

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Cross Gradient

Sample ID	MB-3387		SampType: MBLK		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW		Batch ID: 3387		RunNo: 4966					
Prep Date:	8/17/2012		Analysis Date: 8/20/2012		SeqNo: 140444		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	1208655-006DMS		SampType: MS		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	MW-32		Batch ID: 3387		RunNo: 4966					
Prep Date:	8/17/2012		Analysis Date: 8/20/2012		SeqNo: 140454		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	4660	20.0	1000	3719	94.1	80	120			

Sample ID	1208655-006DMSD		SampType: MSD		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	MW-32		Batch ID: 3387		RunNo: 4966					
Prep Date:	8/17/2012		Analysis Date: 8/20/2012		SeqNo: 140455		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	4720	20.0	1000	3719	100	80	120	1.32	20	

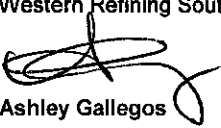
Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

Sample Log-In Check List

Client Name: Western Refining Southwest, Inc Bloomfield Work Order Number: 1208655

Received by/date:  08/15/12

Logged By: Ashley Gallegos 8/15/2012 10:00:00 AM 

Completed By: Ashley Gallegos 8/15/2012 10:42:53 AM 

Reviewed By:  08/15/12

Chain of Custody

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

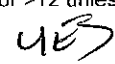
Log In

4. Coolers are present? (see 19. for cooler specific information) Yes ☒ No ☐ NA ☐
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
6. Were all samples received at a temperature of >0° C to 6.0°C Yes ☒ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☒ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
10. Was preservative added to bottles? Yes ☒ No ☒ NA ☐
11. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
12. Were any sample containers received broken? Yes ☐ No ☒
13. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
15. Is it clear what analyses were requested? Yes ☒ No ☐
16. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

ADDED 1mL HNO₃ FOR ACCEPTABLE PH -  08/15/12

of preserved
bottles checked
for pH:

18
(<2 or >12 unless noted)

Adjusted? 

Checked by: 

Special Handling (if applicable)

17. 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: _____

18. Additional remarks:

19. Cooler Information

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

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:

☒ Standard ☒ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☐ EDD (Type)

Sampler: Bob of Dale

On loc: ☒ Yes ☐ No

Sample Temperature: 10

Date Time Matrix Sample Request ID

8-14-12 1100 H2O MW-27

1-500ml amber

1-500ml HNO3

1-250ml HNO3

1-500ml

1-250ml H2SO4

Date: 8/14/12 1500

Date: 8/14/12 1500

Date: 8/14/12 1747

Date: 8/15/12 0000

Relinquished by: Robert Kraker

Relinquished by: Christina Waters

Relinquished by: Christina Waters

Relinquished by: Christina Waters

Turn-Around Time:

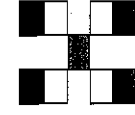
☒ Standard ☐ Rush

Project Name:

Cross Gradient 8-14-12

Project #:

Project Manager:



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 Method 8015B (Gas/

TPH (Method 418.1)

EDB (Method 504.1)

8310 (PNA or PAH)

RCRA 8 Metals

Anions (F, Cl, NO3, NO2, PO4, SO4)

8081 Pesticides / 8082 PCB's

8260B (VOA)

8270 (Semi-VOA)

DRB - 8015B

Dissolved Metals

Cation/Anion Balance

Alkalinity, CO2

Remarks:

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☐ EDD (Type)

Sampler: Bob & DAVID

On loc: ☒ Yes ☐ No

Sample Temperature: ☒ ☐

Date Time Matrix Sample Request ID

8-14-12 10:30 H2O MW-32

1-500ml amber

1-500ml HNO3

1-250ml HNO3

1-500ml

1-250ml H2SO4

34ml HCl

08/15/12

08/15/12

08/15/12

08/15/12

08/15/12

08/15/12

08/15/12

08/15/12

08/15/12

08/15/12

Date: 8-14-12 1500

Date: 8-14-12 1500

Date: 8-14-12 1747

Date: 8-14-12 1747

Date: 8-14-12 1747

Date: 8-14-12 1747

Date: 8-14-12 1747

Date: 8-14-12 1747

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

Cross Gradient 8-14-12

Project #:

Project Manager:

Analysis Request

BTEx + MTBE + TMB's (8021)

BTEx + MTBE + TPH (Gas only)

TPH Method 8015B (Gas/)

TPH (Method 418.1)

EDB (Method 504.1)

8310 (PNA or PAH)

RCRA 8 Metals Total

Anions (F, Cl, NO3, NO2, PO4, SO4)

8081 Pesticides / 8082 PCB's

8260B (VOA)

8270 (Semi-VOA)

DRO-8015B

Dissolved Metals

Cation/Anion Balance

alkalinity, CO2

Air Bubbles (Y or N)

Remarks:

Received by: Date Time

Robert Krakow 8/14/12 1500

Received by: Date Time

Christine Warren 8/15/12 1000

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



www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

[illegible][illegible]

☒ Standard	☐ Rush	
Project Name: <u>Cross Gradient 8-14-12</u>		
Project #: _____		
Project Manager: _____		
Sampler: <u>Bob + Dale</u>		
On Ice: ☒ Yes ☐ No		
Sample Temperature: <u>10</u>		
Container Type and #	Preservative Type	HEAL No.
<u>5-10A</u>	<u>HCl</u>	<u>1208655</u>
<u>1-500ml</u>	<u>amber</u>	<u>-007</u>
<u>1-500ml</u>	<u>HNO3</u>	
<u>1-250ml</u>	<u>HNO3</u>	
<u>-500ml</u>		
<u>-250ml</u>	<u>H2SO4</u>	
		<u>Sample</u>
		<u>NO</u>
		<u>per Bob K</u>
Received by: _____	Date	Time
<u>Christine Walters</u>	<u>8/14/12</u>	<u>1500</u>
Received by: _____	Date	Time
<u>[Signature]</u>	<u>08/15/12</u>	<u>10:00</u>

Analysis Request		Remarks:
BTEX + MTBE + TMB's (8021)		
BTEX + MTBE + TPH (Gas only)	X	
TPH Method 8015B (Gas)		
TPH (Method 418.1)		
EDB (Method 504.1)		
8310 (PNA or PAH)		
RCRA 8 Metals	X	
Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)		
8081 Pesticides / 8082 PCB's	X	
8260B (VOA)		
8270 (Semi-VOA)		
DPO - 8015B	X	
Dissolved Metals		
Cation/Anion Balance		
Alkalinity, CO ₂		
Air Bubbles (Y or N)		

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



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

April 19, 2012

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: North Boundary Barrier 4-3-12

OrderNo.: 1204157

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 9 sample(s) on 4/4/2012 for the analyses presented in the following report.

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

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

Sincerely,

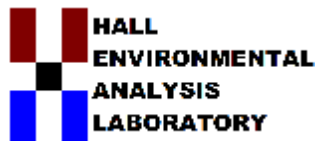
A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized flourish at the end.

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

Workorder Sample Summary

WO#: 1204157

19-Apr-12

CLIENT: Western Refining Southwest, Inc.

Project: North Boundary Barrier 4-3-12

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1204157-001	OW 16+60		4/3/2012 11:10:00 AM	4/4/2012 10:15:00 AM	Aqueous
1204157-001	OW 16+60		4/3/2012 11:10:00 AM	4/4/2012 10:15:00 AM	Aqueous
1204157-002	OW 22+00		4/3/2012	4/4/2012 10:40:00 AM	Aqueous
1204157-002	OW 22+00		4/3/2012	4/4/2012 10:40:00 AM	Aqueous
1204157-003	OW 23+10		4/3/2012 10:20:00 AM	4/4/2012 10:15:00 AM	Aqueous
1204157-003	OW 23+10		4/3/2012 10:20:00 AM	4/4/2012 10:15:00 AM	Aqueous
1204157-004	OW 23+90		4/3/2012 10:00:00 AM	4/4/2012 10:15:00 AM	Aqueous
1204157-004	OW 23+90		4/3/2012 10:00:00 AM	4/4/2012 10:15:00 AM	Aqueous
1204157-005	OW 25+70		4/3/2012 9:40:00 AM	4/4/2012 10:15:00 AM	Aqueous
1204157-005	OW 25+70		4/3/2012 9:40:00 AM	4/4/2012 10:15:00 AM	Aqueous
1204157-006	CW 0+60		4/3/2012 8:50:00 AM	4/4/2012 10:15:00 AM	Aqueous
1204157-006	CW 0+60		4/3/2012 8:50:00 AM	4/4/2012 10:15:00 AM	Aqueous
1204157-007	CW 25+95		4/3/2012 9:15:00 AM	4/4/2012 10:15:00 AM	Aqueous
1204157-007	CW 25+95		4/3/2012 9:15:00 AM	4/4/2012 10:15:00 AM	Aqueous
1204157-008	CW 0+60D		4/3/2012 8:50:00 AM	4/4/2012 10:15:00 AM	Aqueous
1204157-008	CW 0+60D		4/3/2012 8:50:00 AM	4/4/2012 10:15:00 AM	Aqueous
1204157-009	TRIP BLANK			4/4/2012 10:15:00 AM	Trip Blank

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204157

Date Reported: 4/19/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW 16+60

Project: North Boundary Barrier 4-3-12

Collection Date: 4/3/2012 11:10:00 AM

Lab ID: 1204157-001

Matrix: AQUEOUS

Received Date: 4/4/2012 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	22	0.20		mg/L	1	4/4/2012 2:21:16 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/4/2012 2:21:16 PM
Surr: DNOP	110	69-152		%REC	1	4/4/2012 2:21:16 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	3.8	2.5		mg/L	50	4/9/2012 8:15:05 PM
Surr: BFB	79.3	69.3-120		%REC	50	4/9/2012 8:15:05 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: JDJ
Benzene	22	10		µg/L	10	4/4/2012 11:24:03 PM
Toluene	ND	10		µg/L	10	4/4/2012 11:24:03 PM
Ethylbenzene	26	10		µg/L	10	4/4/2012 11:24:03 PM
Methyl tert-butyl ether (MTBE)	530	10		µg/L	10	4/4/2012 11:24:03 PM
Xylenes, Total	ND	20		µg/L	10	4/4/2012 11:24:03 PM
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	10	4/4/2012 11:24:03 PM
Surr: 4-Bromofluorobenzene	106	70-130		%REC	10	4/4/2012 11:24:03 PM
Surr: Dibromofluoromethane	108	69.8-130		%REC	10	4/4/2012 11:24:03 PM
Surr: Toluene-d8	84.0	70-130		%REC	10	4/4/2012 11:24:03 PM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204157

Date Reported: 4/19/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW 22+00

Project: North Boundary Barrier 4-3-12

Collection Date: 4/3/2012

Lab ID: 1204157-002

Matrix: AQUEOUS

Received Date: 4/4/2012 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/4/2012 3:25:37 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/4/2012 3:25:37 PM
Surr: DNOP	108	69-152		%REC	1	4/4/2012 3:25:37 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	0.091	0.050		mg/L	1	4/9/2012 10:48:27 PM
Surr: BFB	71.6	69.3-120		%REC	1	4/9/2012 10:48:27 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: JDJ
Benzene	ND	1.0		µg/L	1	4/5/2012 12:20:32 AM
Toluene	ND	1.0		µg/L	1	4/5/2012 12:20:32 AM
Ethylbenzene	ND	1.0		µg/L	1	4/5/2012 12:20:32 AM
Methyl tert-butyl ether (MTBE)	51	1.0		µg/L	1	4/5/2012 12:20:32 AM
Xylenes, Total	ND	2.0		µg/L	1	4/5/2012 12:20:32 AM
Surr: 1,2-Dichloroethane-d4	92.5	70-130		%REC	1	4/5/2012 12:20:32 AM
Surr: 4-Bromofluorobenzene	111	70-130		%REC	1	4/5/2012 12:20:32 AM
Surr: Dibromofluoromethane	96.2	69.8-130		%REC	1	4/5/2012 12:20:32 AM
Surr: Toluene-d8	103	70-130		%REC	1	4/5/2012 12:20:32 AM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204157

Date Reported: 4/19/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW 23+10

Project: North Boundary Barrier 4-3-12

Collection Date: 4/3/2012 10:20:00 AM

Lab ID: 1204157-003

Matrix: AQUEOUS

Received Date: 4/4/2012 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/4/2012 3:46:57 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/4/2012 3:46:57 PM
Surr: DNOP	113	69-152		%REC	1	4/4/2012 3:46:57 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	0.17	0.050		mg/L	1	4/9/2012 11:19:03 PM
Surr: BFB	108	69.3-120		%REC	1	4/9/2012 11:19:03 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: JDJ
Benzene	ND	1.0		µg/L	1	4/5/2012 12:48:44 AM
Toluene	ND	1.0		µg/L	1	4/5/2012 12:48:44 AM
Ethylbenzene	ND	1.0		µg/L	1	4/5/2012 12:48:44 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/5/2012 12:48:44 AM
Xylenes, Total	ND	2.0		µg/L	1	4/5/2012 12:48:44 AM
Surr: 1,2-Dichloroethane-d4	89.9	70-130		%REC	1	4/5/2012 12:48:44 AM
Surr: 4-Bromofluorobenzene	118	70-130		%REC	1	4/5/2012 12:48:44 AM
Surr: Dibromofluoromethane	95.2	69.8-130		%REC	1	4/5/2012 12:48:44 AM
Surr: Toluene-d8	105	70-130		%REC	1	4/5/2012 12:48:44 AM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order **1204157**Date Reported: **4/19/2012****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** OW 23+90**Project:** North Boundary Barrier 4-3-12**Collection Date:** 4/3/2012 10:00:00 AM**Lab ID:** 1204157-004**Matrix:** AQUEOUS**Received Date:** 4/4/2012 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/4/2012 4:08:23 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/4/2012 4:08:23 PM
Surr: DNOP	114	69-152		%REC	1	4/4/2012 4:08:23 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/9/2012 11:49:31 PM
Surr: BFB	76.3	69.3-120		%REC	1	4/9/2012 11:49:31 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: JDJ
Benzene	ND	1.0		µg/L	1	4/5/2012 1:16:56 AM
Toluene	ND	1.0		µg/L	1	4/5/2012 1:16:56 AM
Ethylbenzene	ND	1.0		µg/L	1	4/5/2012 1:16:56 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/5/2012 1:16:56 AM
Xylenes, Total	ND	2.0		µg/L	1	4/5/2012 1:16:56 AM
Surr: 1,2-Dichloroethane-d4	99.3	70-130		%REC	1	4/5/2012 1:16:56 AM
Surr: 4-Bromofluorobenzene	118	70-130		%REC	1	4/5/2012 1:16:56 AM
Surr: Dibromofluoromethane	97.0	69.8-130		%REC	1	4/5/2012 1:16:56 AM
Surr: Toluene-d8	86.8	70-130		%REC	1	4/5/2012 1:16:56 AM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204157

Date Reported: 4/19/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW 25+70

Project: North Boundary Barrier 4-3-12

Collection Date: 4/3/2012 9:40:00 AM

Lab ID: 1204157-005

Matrix: AQUEOUS

Received Date: 4/4/2012 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/4/2012 4:29:47 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/4/2012 4:29:47 PM
Surr: DNOP	122	69-152		%REC	1	4/4/2012 4:29:47 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	0.24	0.050		mg/L	1	4/10/2012 12:20:04 AM
Surr: BFB	85.6	69.3-120		%REC	1	4/10/2012 12:20:04 AM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: JDJ
Benzene	ND	1.0		µg/L	1	4/5/2012 1:45:16 AM
Toluene	ND	1.0		µg/L	1	4/5/2012 1:45:16 AM
Ethylbenzene	ND	1.0		µg/L	1	4/5/2012 1:45:16 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/5/2012 1:45:16 AM
Xylenes, Total	ND	2.0		µg/L	1	4/5/2012 1:45:16 AM
Surr: 1,2-Dichloroethane-d4	104	70-130		%REC	1	4/5/2012 1:45:16 AM
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	4/5/2012 1:45:16 AM
Surr: Dibromofluoromethane	105	69.8-130		%REC	1	4/5/2012 1:45:16 AM
Surr: Toluene-d8	103	70-130		%REC	1	4/5/2012 1:45:16 AM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204157

Date Reported: 4/19/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: CW 0+60

Project: North Boundary Barrier 4-3-12

Collection Date: 4/3/2012 8:50:00 AM

Lab ID: 1204157-006

Matrix: AQUEOUS

Received Date: 4/4/2012 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	0.76	0.20		mg/L	1	4/4/2012 4:51:18 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/4/2012 4:51:18 PM
Surr: DNOP	115	69-152		%REC	1	4/4/2012 4:51:18 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	1.9	0.050		mg/L	1	4/10/2012 12:50:36 AM
Surr: BFB	150	69.3-120	S	%REC	1	4/10/2012 12:50:36 AM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: JDJ
Benzene	14	1.0		µg/L	1	4/5/2012 2:41:51 AM
Toluene	ND	1.0		µg/L	1	4/5/2012 2:41:51 AM
Ethylbenzene	2.8	1.0		µg/L	1	4/5/2012 2:41:51 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/5/2012 2:41:51 AM
Xylenes, Total	ND	2.0		µg/L	1	4/5/2012 2:41:51 AM
Surr: 1,2-Dichloroethane-d4	87.0	70-130		%REC	1	4/5/2012 2:41:51 AM
Surr: 4-Bromofluorobenzene	130	70-130	S	%REC	1	4/5/2012 2:41:51 AM
Surr: Dibromofluoromethane	105	69.8-130		%REC	1	4/5/2012 2:41:51 AM
Surr: Toluene-d8	103	70-130		%REC	1	4/5/2012 2:41:51 AM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204157

Date Reported: 4/19/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: CW 25+95

Project: North Boundary Barrier 4-3-12

Collection Date: 4/3/2012 9:15:00 AM

Lab ID: 1204157-007

Matrix: AQUEOUS

Received Date: 4/4/2012 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	0.23	0.20		mg/L	1	4/4/2012 5:33:58 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/4/2012 5:33:58 PM
Surr: DNOP	114	69-152		%REC	1	4/4/2012 5:33:58 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	16	1.0		mg/L	20	4/10/2012 1:21:09 AM
Surr: BFB	102	69.3-120		%REC	20	4/10/2012 1:21:09 AM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: JDJ
Benzene	2,200	100		µg/L	100	4/5/2012 3:10:06 AM
Toluene	22	10		µg/L	10	4/5/2012 3:38:21 AM
Ethylbenzene	410	10		µg/L	10	4/5/2012 3:38:21 AM
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	4/5/2012 3:38:21 AM
Xylenes, Total	42	20		µg/L	10	4/5/2012 3:38:21 AM
Surr: 1,2-Dichloroethane-d4	108	70-130		%REC	10	4/5/2012 3:38:21 AM
Surr: 4-Bromofluorobenzene	110	70-130		%REC	10	4/5/2012 3:38:21 AM
Surr: Dibromofluoromethane	110	69.8-130		%REC	10	4/5/2012 3:38:21 AM
Surr: Toluene-d8	89.6	70-130		%REC	10	4/5/2012 3:38:21 AM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204157

Date Reported: 4/19/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: CW 0+60D

Project: North Boundary Barrier 4-3-12

Collection Date: 4/3/2012 8:50:00 AM

Lab ID: 1204157-008

Matrix: AQUEOUS

Received Date: 4/4/2012 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	0.94	0.20		mg/L	1	4/4/2012 5:55:16 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/4/2012 5:55:16 PM
Surr: DNOP	120	69-152		%REC	1	4/4/2012 5:55:16 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	2.3	0.050		mg/L	1	4/10/2012 2:22:36 AM
Surr: BFB	159	69.3-120	S	%REC	1	4/10/2012 2:22:36 AM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: JDJ
Benzene	16	1.0		µg/L	1	4/5/2012 4:34:49 AM
Toluene	ND	1.0		µg/L	1	4/5/2012 4:34:49 AM
Ethylbenzene	2.7	1.0		µg/L	1	4/5/2012 4:34:49 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/5/2012 4:34:49 AM
Xylenes, Total	ND	2.0		µg/L	1	4/5/2012 4:34:49 AM
Surr: 1,2-Dichloroethane-d4	101	70-130		%REC	1	4/5/2012 4:34:49 AM
Surr: 4-Bromofluorobenzene	120	70-130		%REC	1	4/5/2012 4:34:49 AM
Surr: Dibromofluoromethane	107	69.8-130		%REC	1	4/5/2012 4:34:49 AM
Surr: Toluene-d8	101	70-130		%REC	1	4/5/2012 4:34:49 AM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204157

Date Reported: 4/19/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: TRIP BLANK

Project: North Boundary Barrier 4-3-12

Collection Date:

Lab ID: 1204157-009

Matrix: TRIP BLANK

Received Date: 4/4/2012 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: JDJ
Benzene	ND	1.0		µg/L	1	4/5/2012 5:02:59 AM
Toluene	ND	1.0		µg/L	1	4/5/2012 5:02:59 AM
Ethylbenzene	ND	1.0		µg/L	1	4/5/2012 5:02:59 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/5/2012 5:02:59 AM
Xylenes, Total	ND	2.0		µg/L	1	4/5/2012 5:02:59 AM
Surr: 1,2-Dichloroethane-d4	91.7	70-130		%REC	1	4/5/2012 5:02:59 AM
Surr: 4-Bromofluorobenzene	111	70-130		%REC	1	4/5/2012 5:02:59 AM
Surr: Dibromofluoromethane	98.7	69.8-130		%REC	1	4/5/2012 5:02:59 AM
Surr: Toluene-d8	89.1	70-130		%REC	1	4/5/2012 5:02:59 AM

Qualifiers:

- * /X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204157

19-Apr-12

Client: Western Refining Southwest, Inc.

Project: North Boundary Barrier 4-3-12

Sample ID	MB-1378		SampType: MBLK		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	PBW		Batch ID: 1378		RunNo: 1890					
Prep Date:	4/4/2012		Analysis Date: 4/4/2012		SeqNo: 53098		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.58		0.5000		116	69	152			

Sample ID	LCS-1378		SampType: LCS		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	LCSW		Batch ID: 1378		RunNo: 1890					
Prep Date:	4/4/2012		Analysis Date: 4/4/2012		SeqNo: 53099		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.6	0.20	2.500	0	104	74	157			
Surr: DNOP	0.27		0.2500		108	69	152			

Sample ID	1204157-001BMS		SampType: MS		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	OW 16+60		Batch ID: 1378		RunNo: 1890					
Prep Date:	4/4/2012		Analysis Date: 4/4/2012		SeqNo: 53132		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	21	0.20	2.500	21.59	-21.5	71	161			S
Surr: DNOP	0.27		0.2500		108	69	152			

Sample ID	1204157-001BMSD		SampType: MSD		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	OW 16+60		Batch ID: 1378		RunNo: 1890					
Prep Date:	4/4/2012		Analysis Date: 4/4/2012		SeqNo: 53158		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	15	0.20	2.500	21.59	-249	71	161	31.1	23	SR
Surr: DNOP	0.27		0.2500		107	69	152	0	0	

Qualifiers:

* / X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204157

19-Apr-12

Client: Western Refining Southwest, Inc.

Project: North Boundary Barrier 4-3-12

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015B: Gasoline Range					
Client ID:	PBW	Batch ID:	R2016	RunNo:	2016					
Prep Date:		Analysis Date:	4/9/2012	SeqNo:	56151	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	14		20.00		70.2	69.3	120			

Sample ID	2.5UG GRO LCS	SampType:	LCS	TestCode:	EPA Method 8015B: Gasoline Range					
Client ID:	LCSW	Batch ID:	R2016	RunNo:	2016					
Prep Date:		Analysis Date:	4/9/2012	SeqNo:	56152	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.57	0.050	0.5000	0	114	101	123			
Surr: BFB	22		20.00		109	69.3	120			

Qualifiers:

*/X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204157

19-Apr-12

Client: Western Refining Southwest, Inc.

Project: North Boundary Barrier 4-3-12

Sample ID	5ml rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	R1897	RunNo:	1897					
Prep Date:		Analysis Date:	4/4/2012	SeqNo:	53395	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 1,2-Dichloroethane-d4	11		10.00		111	70	130			
Surr: 4-Bromofluorobenzene	12		10.00		123	70	130			
Surr: Dibromofluoromethane	12		10.00		120	69.8	130			
Surr: Toluene-d8	11		10.00		107	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	R1897	RunNo:	1897					
Prep Date:		Analysis Date:	4/4/2012	SeqNo:	53397	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.9	84.1	126			
Toluene	22	1.0	20.00	0	108	80	120			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.3	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		106	70	130			
Surr: Dibromofluoromethane	11		10.00		109	69.8	130			
Surr: Toluene-d8	11		10.00		105	70	130			

Qualifiers:

* / X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Sample Log-In Check List

Client Name: Western Refining Southwest, Inc Bloomfield Work Order Number: 1204157

Received by/date:  04/04/12

Logged By: Ashley Gallegos 4/4/2012 10:15:00 AM 

Completed By: Ashley Gallegos 4/4/2012 11:25:30 AM 

Reviewed By:  04/04/12

Chain of Custody

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

Log In

4. Coolers are present? (see 19. for cooler specific information) Yes ☒ No ☐ NA ☐
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
6. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☒ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
10. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
11. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☒
12. Were any sample containers received broken? Yes ☐ No ☒
13. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
15. Is it clear what analyses were requested? Yes ☒ No ☐
16. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved
bottles checked
for pH:

(<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

17. 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: _____

18. Additional remarks:

19. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.3	Good	Yes			

Western Refining

Bloomfield, NM 87413

email or Fax#:

☐ Standard ☒ Level 4 (Full Validation)

☐ NELAP ☐ Other

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

Sample Request ID

2010/10/10

919577

10

4

ed by:

1

Time

Project #:

42

—

excel format

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

11/11/2019 11:11 AM

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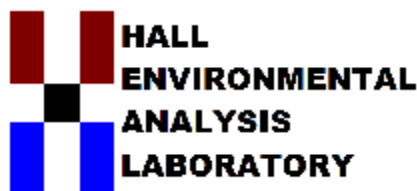
[illegible]

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ase include results in excel form

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



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

August 28, 2012

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: Observation Wells 8-8-12

OrderNo.: 1208397

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 5 sample(s) on 8/9/2012 for the analyses presented in the following report.

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", with a stylized flourish at the end.

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

Workorder Sample Summary

WO#: 1208397

28-Aug-12

CLIENT: Western Refining Southwest, Inc.

Project: Observation Wells 8-8-12

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1208397-001	OW-16+60		8/8/2012 8:30:00 AM	8/9/2012 10:00:00 AM	Aqueous
1208397-001	OW-16+60		8/8/2012 8:30:00 AM	8/9/2012 10:00:00 AM	Aqueous
1208397-001	OW-16+60		8/8/2012 8:30:00 AM	8/9/2012 10:00:00 AM	Aqueous
1208397-002	OW-23+10		8/8/2012 9:50:00 AM	8/9/2012 10:00:00 AM	Aqueous
1208397-002	OW-23+10		8/8/2012 9:50:00 AM	8/9/2012 10:00:00 AM	Aqueous
1208397-002	OW-23+10		8/8/2012 9:50:00 AM	8/9/2012 10:00:00 AM	Aqueous
1208397-003	OW-23+90		8/8/2012 10:10:00 AM	8/9/2012 10:00:00 AM	Aqueous
1208397-003	OW-23+90		8/8/2012 10:10:00 AM	8/9/2012 10:00:00 AM	Aqueous
1208397-003	OW-23+90		8/8/2012 10:10:00 AM	8/9/2012 10:00:00 AM	Aqueous
1208397-004	OW-25+70		8/8/2012 10:30:00 AM	8/9/2012 10:00:00 AM	Aqueous
1208397-004	OW-25+70		8/8/2012 10:30:00 AM	8/9/2012 10:00:00 AM	Aqueous
1208397-004	OW-25+70		8/8/2012 10:30:00 AM	8/9/2012 10:00:00 AM	Aqueous
1208397-005	Trip Blank			8/9/2012 10:00:00 AM	Trip Blank
1208397-005	Trip Blank			8/9/2012 10:00:00 AM	Trip Blank

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208397

Date Reported: 8/28/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW-16+60

Project: Observation Wells 8-8-12

Collection Date: 8/8/2012 8:30:00 AM

Lab ID: 1208397-001

Matrix: AQUEOUS

Received Date: 8/9/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	110	2.0		mg/L	10	8/13/2012 7:33:44 AM
Motor Oil Range Organics (MRO)	ND	25		mg/L	10	8/13/2012 7:33:44 AM
Surr: DNOP	0	69-152	S	%REC	10	8/13/2012 7:33:44 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	4.1	1.0		mg/L	20	8/14/2012 12:15:00 PM
Surr: BFB	112	69.8-119		%REC	20	8/14/2012 12:15:00 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: DJF
Benzene	17	10		µg/L	10	8/13/2012 8:17:23 PM
Toluene	ND	10		µg/L	10	8/13/2012 8:17:23 PM
Ethylbenzene	27	10		µg/L	10	8/13/2012 8:17:23 PM
Methyl tert-butyl ether (MTBE)	610	10		µg/L	10	8/13/2012 8:17:23 PM
Xylenes, Total	ND	20		µg/L	10	8/13/2012 8:17:23 PM
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	10	8/13/2012 8:17:23 PM
Surr: 4-Bromofluorobenzene	96.2	70-130		%REC	10	8/13/2012 8:17:23 PM
Surr: Dibromofluoromethane	103	70-130		%REC	10	8/13/2012 8:17:23 PM
Surr: Toluene-d8	94.1	70-130		%REC	10	8/13/2012 8:17:23 PM

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
X Value exceeds Maximum Contaminant Level.

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208397

Date Reported: 8/28/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW-23+10

Project: Observation Wells 8-8-12

Collection Date: 8/8/2012 9:50:00 AM

Lab ID: 1208397-002

Matrix: AQUEOUS

Received Date: 8/9/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/12/2012 7:51:21 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/12/2012 7:51:21 PM
Surr: DNOP	131	69-152		%REC	1	8/12/2012 7:51:21 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	0.35	0.050		mg/L	1	8/14/2012 2:46:04 PM
Surr: BFB	125	69.8-119	S	%REC	1	8/14/2012 2:46:04 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: DJF
Benzene	ND	1.0		µg/L	1	8/13/2012 9:14:23 PM
Toluene	ND	1.0		µg/L	1	8/13/2012 9:14:23 PM
Ethylbenzene	ND	1.0		µg/L	1	8/13/2012 9:14:23 PM
Methyl tert-butyl ether (MTBE)	2.1	1.0		µg/L	1	8/13/2012 9:14:23 PM
Xylenes, Total	ND	2.0		µg/L	1	8/13/2012 9:14:23 PM
Surr: 1,2-Dichloroethane-d4	102	70-130		%REC	1	8/13/2012 9:14:23 PM
Surr: 4-Bromofluorobenzene	107	70-130		%REC	1	8/13/2012 9:14:23 PM
Surr: Dibromofluoromethane	106	70-130		%REC	1	8/13/2012 9:14:23 PM
Surr: Toluene-d8	100	70-130		%REC	1	8/13/2012 9:14:23 PM

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
X Value exceeds Maximum Contaminant Level.

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208397

Date Reported: 8/28/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW-23+90

Project: Observation Wells 8-8-12

Collection Date: 8/8/2012 10:10:00 AM

Lab ID: 1208397-003

Matrix: AQUEOUS

Received Date: 8/9/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/12/2012 8:16:58 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/12/2012 8:16:58 PM
Surr: DNOP	134	69-152		%REC	1	8/12/2012 8:16:58 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	0.31	0.050		mg/L	1	8/14/2012 3:16:27 PM
Surr: BFB	93.7	69.8-119		%REC	1	8/14/2012 3:16:27 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: DJF
Benzene	ND	1.0		µg/L	1	8/13/2012 9:42:39 PM
Toluene	ND	1.0		µg/L	1	8/13/2012 9:42:39 PM
Ethylbenzene	ND	1.0		µg/L	1	8/13/2012 9:42:39 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/13/2012 9:42:39 PM
Xylenes, Total	ND	2.0		µg/L	1	8/13/2012 9:42:39 PM
Surr: 1,2-Dichloroethane-d4	102	70-130		%REC	1	8/13/2012 9:42:39 PM
Surr: 4-Bromofluorobenzene	123	70-130		%REC	1	8/13/2012 9:42:39 PM
Surr: Dibromofluoromethane	99.9	70-130		%REC	1	8/13/2012 9:42:39 PM
Surr: Toluene-d8	106	70-130		%REC	1	8/13/2012 9:42:39 PM

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
X Value exceeds Maximum Contaminant Level.

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208397

Date Reported: 8/28/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW-25+70

Project: Observation Wells 8-8-12

Collection Date: 8/8/2012 10:30:00 AM

Lab ID: 1208397-004

Matrix: AQUEOUS

Received Date: 8/9/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/12/2012 8:42:20 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/12/2012 8:42:20 PM
Surr: DNOP	138	69-152		%REC	1	8/12/2012 8:42:20 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	0.21	0.050		mg/L	1	8/14/2012 3:46:43 PM
Surr: BFB	117	69.8-119		%REC	1	8/14/2012 3:46:43 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: DJF
Benzene	ND	1.0		µg/L	1	8/13/2012 10:11:03 PM
Toluene	ND	1.0		µg/L	1	8/13/2012 10:11:03 PM
Ethylbenzene	ND	1.0		µg/L	1	8/13/2012 10:11:03 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/13/2012 10:11:03 PM
Xylenes, Total	ND	2.0		µg/L	1	8/13/2012 10:11:03 PM
Surr: 1,2-Dichloroethane-d4	99.4	70-130		%REC	1	8/13/2012 10:11:03 PM
Surr: 4-Bromofluorobenzene	127	70-130		%REC	1	8/13/2012 10:11:03 PM
Surr: Dibromofluoromethane	101	70-130		%REC	1	8/13/2012 10:11:03 PM
Surr: Toluene-d8	101	70-130		%REC	1	8/13/2012 10:11:03 PM

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
X Value exceeds Maximum Contaminant Level.

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208397

Date Reported: 8/28/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: Observation Wells 8-8-12

Collection Date:

Lab ID: 1208397-005

Matrix: TRIP BLANK

Received Date: 8/9/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/14/2012 4:47:13 PM
Surr: BFB	102	69.8-119		%REC	1	8/14/2012 4:47:13 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: DJF
Benzene	ND	1.0		µg/L	1	8/13/2012 10:39:32 PM
Toluene	ND	1.0		µg/L	1	8/13/2012 10:39:32 PM
Ethylbenzene	ND	1.0		µg/L	1	8/13/2012 10:39:32 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/13/2012 10:39:32 PM
Xylenes, Total	ND	2.0		µg/L	1	8/13/2012 10:39:32 PM
Surr: 1,2-Dichloroethane-d4	94.3	70-130		%REC	1	8/13/2012 10:39:32 PM
Surr: 4-Bromofluorobenzene	202	70-130	S	%REC	1	8/13/2012 10:39:32 PM
Surr: Dibromofluoromethane	100	70-130		%REC	1	8/13/2012 10:39:32 PM
Surr: Toluene-d8	104	70-130		%REC	1	8/13/2012 10:39:32 PM

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
X Value exceeds Maximum Contaminant Level.

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208397

28-Aug-12

Client: Western Refining Southwest, Inc.

Project: Observation Wells 8-8-12

Sample ID	MB-3274		SampType: MBLK		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	PBW		Batch ID: 3274		RunNo: 4806					
Prep Date:	8/10/2012		Analysis Date: 8/12/2012		SeqNo: 135494		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.62		0.5000		125	69	152			

Sample ID	1208397-001CMS		SampType: MS		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	OW-16+60		Batch ID: 3274		RunNo: 4806					
Prep Date:	8/10/2012		Analysis Date: 8/12/2012		SeqNo: 135509		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	38	0.20	2.500	104.3	-2650	71	161			S
Surr: DNOP	0.27		0.2500		107	69	152			

Sample ID	1208397-001CMSD		SampType: MSD		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	OW-16+60		Batch ID: 3274		RunNo: 4806					
Prep Date:	8/10/2012		Analysis Date: 8/12/2012		SeqNo: 135511		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	0.20	2.500	104.3	-2380	71	161	16.7	23	S
Surr: DNOP	0.27		0.2500		108	69	152	0	0	

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208397

28-Aug-12

Client: Western Refining Southwest, Inc.

Project: Observation Wells 8-8-12

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015B: Gasoline Range						
Client ID:	PBW	Batch ID:	R4871	RunNo:	4871						
Prep Date:		Analysis Date:	8/14/2012	SeqNo:	137702	Units:	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	ND	0.050									
Surr: BFB	20		20.00		101	69.8	119				

Sample ID	1208397-001BMS	SampType:	MS	TestCode:	EPA Method 8015B: Gasoline Range						
Client ID:	OW-16+60	Batch ID:	R4871	RunNo:	4871						
Prep Date:		Analysis Date:	8/14/2012	SeqNo:	137705	Units:	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	23	1.0	10.00	4.076	191	63.5	131				S
Surr: BFB	510		400.0		128	69.8	119				S

Sample ID	1208397-001BMSD	SampType:	MSD	TestCode:	EPA Method 8015B: Gasoline Range						
Client ID:	OW-16+60	Batch ID:	R4871	RunNo:	4871						
Prep Date:		Analysis Date:	8/14/2012	SeqNo:	137706	Units:	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	23	1.0	10.00	4.076	194	63.5	131	0.943	16.7		S
Surr: BFB	510		400.0		127	69.8	119	0	0		S

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208397

28-Aug-12

Client: Western Refining Southwest, Inc.

Project: Observation Wells 8-8-12

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	R4835	RunNo:	4835					
Prep Date:		Analysis Date:	8/13/2012	SeqNo:	136673	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 1,2-Dichloroethane-d4	9.6		10.00		95.5	70	130			
Surr: 4-Bromofluorobenzene	13		10.00		128	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.9	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208397

28-Aug-12

Client: Western Refining Southwest, Inc.

Project: Observation Wells 8-8-12

Sample ID	rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R4835			RunNo: 4835					
Prep Date:		Analysis Date: 8/13/2012			SeqNo: 136669		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								
Tetrachloroethene (PCE)	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.6		10.00		95.5	70	130			
Surr: 4-Bromofluorobenzene	13		10.00		128	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.9	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits



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 Southwest, Inc Bloomfield** Work Order Number: **1208397**

Received by/date:

Logged By: **Lindsay Mangin**

08/09/12
8/9/2012 10:00:00 AM

Jamie Hedges

Completed By: **Lindsay Mangin**

8/9/2012 10:37:01 AM

Jamie Hedges

Reviewed By: *mg*

08/09/12

Chain of Custody

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

Log In

4. Coolers are present? (see 19. for cooler specific information) Yes ☒ No ☐ NA ☐
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
6. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☒ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
10. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
11. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
12. Were any sample containers received broken? Yes ☐ No ☒
13. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐ # of preserved bottles checked for pH: ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐ (<2 or >12 unless noted)
15. Is it clear what analyses were requested? Yes ☒ No ☐ Adjusted? ☐
16. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐ Checked by: ☐

Special Handling (if applicable)

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

Person Notified:

Date:

By Whom:

Via: ☐

eMail ☐

Phone ☐

Fax ☐

In Person ☐

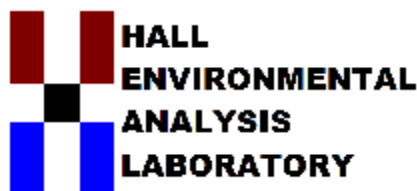
Regarding:

Client Instructions:

18. Additional remarks:

19. Cooler Information

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



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

August 28, 2012

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: Collection Wells 8-8-12

OrderNo.: 1208400

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 8/9/2012 for the analyses presented in the following report.

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



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

Workorder Sample Summary

WO#: 1208400

28-Aug-12

CLIENT: Western Refining Southwest, Inc.

Project: Collection Wells 8-8-12

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1208400-001	CW 0+60		8/8/2012 7:45:00 AM	8/9/2012 10:00:00 AM	Aqueous
1208400-001	CW 0+60		8/8/2012 7:45:00 AM	8/9/2012 10:00:00 AM	Aqueous
1208400-001	CW 0+60		8/8/2012 7:45:00 AM	8/9/2012 10:00:00 AM	Aqueous
1208400-002	CW 25+95		8/8/2012 10:45:00 AM	8/9/2012 10:00:00 AM	Aqueous
1208400-002	CW 25+95		8/8/2012 10:45:00 AM	8/9/2012 10:00:00 AM	Aqueous
1208400-002	CW 25+95		8/8/2012 10:45:00 AM	8/9/2012 10:00:00 AM	Aqueous
1208400-003	OW 25+70 Dup		8/8/2012 10:30:00 AM	8/9/2012 10:00:00 AM	Aqueous
1208400-003	OW 25+70 Dup		8/8/2012 10:30:00 AM	8/9/2012 10:00:00 AM	Aqueous
1208400-003	OW 25+70 Dup		8/8/2012 10:30:00 AM	8/9/2012 10:00:00 AM	Aqueous

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208400

Date Reported: 8/28/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: CW 0+60

Project: Collection Wells 8-8-12

Collection Date: 8/8/2012 7:45:00 AM

Lab ID: 1208400-001

Matrix: AQUEOUS

Received Date: 8/9/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	0.34	0.20		mg/L	1	8/12/2012 9:07:40 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/12/2012 9:07:40 PM
Surr: DNOP	131	69-152		%REC	1	8/12/2012 9:07:40 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	1.1	0.25		mg/L	5	8/14/2012 5:17:24 PM
Surr: BFB	103	69.8-119		%REC	5	8/14/2012 5:17:24 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: RAA
Benzene	7.9	1.0		µg/L	1	8/14/2012 2:10:54 PM
Toluene	ND	1.0		µg/L	1	8/14/2012 2:10:54 PM
Ethylbenzene	4.3	1.0		µg/L	1	8/14/2012 2:10:54 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/14/2012 2:10:54 PM
Xylenes, Total	ND	2.0		µg/L	1	8/14/2012 2:10:54 PM
Surr: 1,2-Dichloroethane-d4	72.4	70-130		%REC	1	8/14/2012 2:10:54 PM
Surr: 4-Bromofluorobenzene	81.4	70-130		%REC	1	8/14/2012 2:10:54 PM
Surr: Dibromofluoromethane	95.4	70-130		%REC	1	8/14/2012 2:10:54 PM
Surr: Toluene-d8	83.2	70-130		%REC	1	8/14/2012 2:10:54 PM

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
X Value exceeds Maximum Contaminant Level.

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208400

Date Reported: 8/28/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: CW 25+95

Project: Collection Wells 8-8-12

Collection Date: 8/8/2012 10:45:00 AM

Lab ID: 1208400-002

Matrix: AQUEOUS

Received Date: 8/9/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/12/2012 9:32:44 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/12/2012 9:32:44 PM
Surr: DNOP	126	69-152		%REC	1	8/12/2012 9:32:44 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	6.1	0.50		mg/L	10	8/14/2012 5:47:40 PM
Surr: BFB	89.3	69.8-119		%REC	10	8/14/2012 5:47:40 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: RAA
Benzene	2000	100		µg/L	100	8/14/2012 2:38:37 PM
Toluene	13	10		µg/L	10	8/14/2012 3:06:20 PM
Ethylbenzene	120	10		µg/L	10	8/14/2012 3:06:20 PM
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	8/14/2012 3:06:20 PM
Xylenes, Total	23	20		µg/L	10	8/14/2012 3:06:20 PM
Surr: 1,2-Dichloroethane-d4	71.7	70-130		%REC	10	8/14/2012 3:06:20 PM
Surr: 4-Bromofluorobenzene	79.6	70-130		%REC	10	8/14/2012 3:06:20 PM
Surr: Dibromofluoromethane	80.3	70-130		%REC	10	8/14/2012 3:06:20 PM
Surr: Toluene-d8	84.0	70-130		%REC	10	8/14/2012 3:06:20 PM

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
X Value exceeds Maximum Contaminant Level.

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208400

Date Reported: 8/28/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: OW 25+70 Dup

Project: Collection Wells 8-8-12

Collection Date: 8/8/2012 10:30:00 AM

Lab ID: 1208400-003

Matrix: AQUEOUS

Received Date: 8/9/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/12/2012 9:58:06 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/12/2012 9:58:06 PM
Surr: DNOP	136	69-152		%REC	1	8/12/2012 9:58:06 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	0.21	0.050		mg/L	1	8/14/2012 6:48:16 PM
Surr: BFB	108	69.8-119		%REC	1	8/14/2012 6:48:16 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: RAA
Benzene	ND	1.0		µg/L	1	8/14/2012 3:34:04 PM
Toluene	ND	1.0		µg/L	1	8/14/2012 3:34:04 PM
Ethylbenzene	ND	1.0		µg/L	1	8/14/2012 3:34:04 PM
Methyl tert-butyl ether (MTBE)	1.1	1.0		µg/L	1	8/14/2012 3:34:04 PM
Xylenes, Total	ND	2.0		µg/L	1	8/14/2012 3:34:04 PM
Surr: 1,2-Dichloroethane-d4	71.4	70-130		%REC	1	8/14/2012 3:34:04 PM
Surr: 4-Bromofluorobenzene	81.3	70-130		%REC	1	8/14/2012 3:34:04 PM
Surr: Dibromofluoromethane	89.8	70-130		%REC	1	8/14/2012 3:34:04 PM
Surr: Toluene-d8	83.9	70-130		%REC	1	8/14/2012 3:34:04 PM

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit
X Value exceeds Maximum Contaminant Level.

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208400

28-Aug-12

Client: Western Refining Southwest, Inc.**Project:** Collection Wells 8-8-12

Sample ID	MB-3274		SampType:	MBLK		TestCode:	EPA Method 8015B: Diesel Range			
Client ID:	PBW		Batch ID:	3274		RunNo:	4806			
Prep Date:	8/10/2012		Analysis Date:	8/12/2012		SeqNo:	135494		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.62		0.5000		125	69	152			

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208400

28-Aug-12

Client: Western Refining Southwest, Inc.**Project:** Collection Wells 8-8-12

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015B: Gasoline Range					
Client ID:	PBW	Batch ID:	R4871	RunNo:	4871					
Prep Date:		Analysis Date:	8/14/2012	SeqNo:	137702	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	20		20.00		101	69.8	119			

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208400

28-Aug-12

Client: Western Refining Southwest, Inc.

Project: Collection Wells 8-8-12

Sample ID	5ml-rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	R4860	RunNo:	4860					
Prep Date:		Analysis Date:	8/14/2012	SeqNo:	137291	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	8.0		10.00		79.6	70	130			
Surr: Dibromofluoromethane	8.0		10.00		79.8	70	130			
Surr: Toluene-d8	8.4		10.00		83.9	70	130			

Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208400

28-Aug-12

Client: Western Refining Southwest, Inc.

Project: Collection Wells 8-8-12

Sample ID	5ml-rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R4860	RunNo:	4860					
Prep Date:		Analysis Date:	8/14/2012	SeqNo:	137259	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								
Tetrachloroethene (PCE)	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	8.0		10.00		79.6	70	130			
Surr: Dibromofluoromethane	8.0		10.00		79.8	70	130			
Surr: Toluene-d8	8.4		10.00		83.9	70	130			

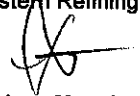
Qualifiers:

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

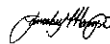
Sample Log-In Check List

Client Name: **Western Refining Southwest, Inc Bloomfield** Work Order Number: **1208400**

Received by/date: 

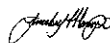
Logged By: **Lindsay Mangin**

08/09/12
8/9/2012 10:00:00 AM



Completed By: **Lindsay Mangin**

8/9/2012 10:46:45 AM



Reviewed By: **LD 08/09/12**

Chain of Custody

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

Log In

4. Coolers are present? (see 19. for cooler specific information) Yes ☒ No ☐ NA ☐
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
6. Were all samples received at a temperature of >0° C to 6.0°C Yes ☒ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☒ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
10. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
11. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
12. Were any sample containers received broken? Yes ☐ No ☒
13. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐ # of preserved bottles checked for pH:
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐ (<2 or >12 unless noted)
15. Is it clear what analyses were requested? Yes ☒ No ☐ Adjusted? ☐
16. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐ Checked by:

Special Handling (if applicable)

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

Person Notified:

Date:

By Whom:

Via:

eMail ☐

Phone ☐

Fax ☐

In Person ☐

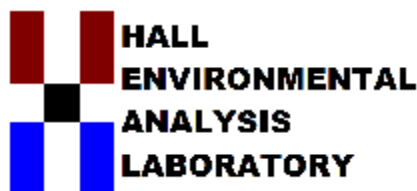
Regarding:

Client Instructions:

18. Additional remarks:

19. Cooler Information

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



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

September 27, 2012

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: RCRA Wells 8-15-12

OrderNo.: 1208722

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 6 sample(s) on 8/16/2012 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued September 24, 2012.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



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

Workorder Sample Summary

WO#: 1208722

27-Sep-12

CLIENT: Western Refining Southwest, Inc.

Project: RCRA Wells 8-15-12

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1208722-001	MW-50		8/15/2012 11:00:00 AM	8/16/2012 10:00:00 AM	Aqueous
1208722-001	MW-50		8/15/2012 11:00:00 AM	8/16/2012 10:00:00 AM	Aqueous
1208722-001	MW-50		8/15/2012 11:00:00 AM	8/16/2012 10:00:00 AM	Aqueous
1208722-001	MW-50		8/15/2012 11:00:00 AM	8/16/2012 10:00:00 AM	Aqueous
1208722-001	MW-50		8/15/2012 11:00:00 AM	8/16/2012 10:00:00 AM	Aqueous
1208722-001	MW-50		8/15/2012 11:00:00 AM	8/16/2012 10:00:00 AM	Aqueous
1208722-001	MW-50		8/15/2012 11:00:00 AM	8/16/2012 10:00:00 AM	Aqueous
1208722-002	MW-51		8/15/2012 11:15:00 AM	8/16/2012 10:00:00 AM	Aqueous
1208722-002	MW-51		8/15/2012 11:15:00 AM	8/16/2012 10:00:00 AM	Aqueous
1208722-002	MW-51		8/15/2012 11:15:00 AM	8/16/2012 10:00:00 AM	Aqueous
1208722-002	MW-51		8/15/2012 11:15:00 AM	8/16/2012 10:00:00 AM	Aqueous
1208722-002	MW-51		8/15/2012 11:15:00 AM	8/16/2012 10:00:00 AM	Aqueous
1208722-002	MW-51		8/15/2012 11:15:00 AM	8/16/2012 10:00:00 AM	Aqueous
1208722-002	MW-51		8/15/2012 11:15:00 AM	8/16/2012 10:00:00 AM	Aqueous
1208722-003	MW-52		8/15/2012 12:30:00 PM	8/16/2012 10:00:00 AM	Aqueous
1208722-003	MW-52		8/15/2012 12:30:00 PM	8/16/2012 10:00:00 AM	Aqueous
1208722-003	MW-52		8/15/2012 12:30:00 PM	8/16/2012 10:00:00 AM	Aqueous
1208722-003	MW-52		8/15/2012 12:30:00 PM	8/16/2012 10:00:00 AM	Aqueous
1208722-003	MW-52		8/15/2012 12:30:00 PM	8/16/2012 10:00:00 AM	Aqueous
1208722-003	MW-52		8/15/2012 12:30:00 PM	8/16/2012 10:00:00 AM	Aqueous
1208722-004	MW-53		8/15/2012 12:45:00 PM	8/16/2012 10:00:00 AM	Aqueous
1208722-004	MW-53		8/15/2012 12:45:00 PM	8/16/2012 10:00:00 AM	Aqueous
1208722-004	MW-53		8/15/2012 12:45:00 PM	8/16/2012 10:00:00 AM	Aqueous
1208722-004	MW-53		8/15/2012 12:45:00 PM	8/16/2012 10:00:00 AM	Aqueous
1208722-004	MW-53		8/15/2012 12:45:00 PM	8/16/2012 10:00:00 AM	Aqueous
1208722-004	MW-53		8/15/2012 12:45:00 PM	8/16/2012 10:00:00 AM	Aqueous
1208722-005	MW-59		8/15/2012 1:15:00 PM	8/16/2012 10:00:00 AM	Aqueous
1208722-005	MW-59		8/15/2012 1:15:00 PM	8/16/2012 10:00:00 AM	Aqueous
1208722-005	MW-59		8/15/2012 1:15:00 PM	8/16/2012 10:00:00 AM	Aqueous
1208722-005	MW-59		8/15/2012 1:15:00 PM	8/16/2012 10:00:00 AM	Aqueous
1208722-005	MW-59		8/15/2012 1:15:00 PM	8/16/2012 10:00:00 AM	Aqueous



Hall Environmental Analysis Laboratory
4901 Hawkins NE
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Website: www.hallenvironmental.com

Workorder Sample Summary

WO#: 1208722

27-Sep-12

CLIENT: Western Refining Southwest, Inc.

Project: RCRA Wells 8-15-12

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1208722-005	MW-59		8/15/2012 1:15:00 PM	8/16/2012 10:00:00 AM	Aqueous
1208722-006	TRIP BLANK			8/16/2012 10:00:00 AM	Trip Blank

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-50

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 11:00:00 AM

Lab ID: 1208722-001

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/17/2012 11:14:59 AM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/17/2012 11:14:59 AM
Surr: DNOP	142	69-152		%REC	1	8/17/2012 11:14:59 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/16/2012 3:50:42 PM
Surr: BFB	108	69.8-119		%REC	1	8/16/2012 3:50:42 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	0.37	0.10		mg/L	1	8/22/2012 3:10:45 PM
Chloride	6.6	0.50		mg/L	1	8/16/2012 2:23:25 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/16/2012 2:23:25 PM
Bromide	ND	0.10		mg/L	1	8/16/2012 2:23:25 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/16/2012 2:23:25 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/16/2012 2:23:25 PM
Sulfate	26	0.50		mg/L	1	8/16/2012 2:23:25 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: JLF
Barium	0.071	0.0020		mg/L	1	9/10/2012 4:57:48 PM
Cadmium	ND	0.0020		mg/L	1	9/10/2012 4:57:48 PM
Calcium	54	1.0		mg/L	1	9/10/2012 4:57:48 PM
Chromium	ND	0.0060		mg/L	1	9/10/2012 4:57:48 PM
Copper	ND	0.0060		mg/L	1	9/10/2012 4:57:48 PM
Iron	0.020	0.020		mg/L	1	9/10/2012 4:57:48 PM
Magnesium	13	1.0		mg/L	1	9/10/2012 4:57:48 PM
Manganese	2.2	0.010	*	mg/L	5	9/10/2012 5:01:16 PM
Potassium	1.6	1.0		mg/L	1	9/10/2012 4:57:48 PM
Silver	ND	0.0050		mg/L	1	9/10/2012 4:57:48 PM
Sodium	39	1.0		mg/L	1	9/10/2012 4:57:48 PM
Zinc	0.070	0.010		mg/L	1	9/10/2012 4:57:48 PM
EPA METHOD 200.7: METALS						Analyst: JLF
Arsenic	ND	0.020		mg/L	1	9/5/2012 4:36:58 PM
Barium	0.096	0.0020		mg/L	1	9/5/2012 4:36:58 PM
Cadmium	ND	0.0020		mg/L	1	9/5/2012 4:36:58 PM
Chromium	ND	0.0060		mg/L	1	9/5/2012 4:36:58 PM
Lead	ND	0.0050		mg/L	1	9/5/2012 4:36:58 PM
Selenium	ND	0.050		mg/L	1	9/5/2012 4:36:58 PM
Silver	ND	0.0050		mg/L	1	9/5/2012 4:36:58 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	0.0040	0.0010		mg/L	1	9/6/2012 12:30:56 PM
Lead	ND	0.0010		mg/L	1	9/6/2012 12:30:56 PM
Selenium	ND	0.0010		mg/L	1	9/6/2012 12:30:56 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-50

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 11:00:00 AM

Lab ID: 1208722-001

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	ND	0.0010		mg/L	1	9/6/2012 12:30:56 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	9/6/2012 11:45:39 AM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Acenaphthylene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Aniline	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Anthracene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Azobenzene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Benz(a)anthracene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Benzo(a)pyrene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Benzo(b)fluoranthene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Benzo(k)fluoranthene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Benzoic acid	ND	20		µg/L	1	8/20/2012 6:48:58 PM
Benzyl alcohol	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/20/2012 6:48:58 PM
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Butyl benzyl phthalate	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Carbazole	ND	10		µg/L	1	8/20/2012 6:48:58 PM
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/20/2012 6:48:58 PM
4-Chloroaniline	ND	10		µg/L	1	8/20/2012 6:48:58 PM
2-Chloronaphthalene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
2-Chlorophenol	ND	10		µg/L	1	8/20/2012 6:48:58 PM
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Chrysene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Di-n-butyl phthalate	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Di-n-octyl phthalate	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Dibenzofuran	ND	10		µg/L	1	8/20/2012 6:48:58 PM
1,2-Dichlorobenzene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
1,3-Dichlorobenzene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
1,4-Dichlorobenzene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Diethyl phthalate	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Dimethyl phthalate	ND	10		µg/L	1	8/20/2012 6:48:58 PM
2,4-Dichlorophenol	ND	20		µg/L	1	8/20/2012 6:48:58 PM
2,4-Dimethylphenol	ND	10		µg/L	1	8/20/2012 6:48:58 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-50

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 11:00:00 AM

Lab ID: 1208722-001

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/20/2012 6:48:58 PM
2,4-Dinitrophenol	ND	20		µg/L	1	8/20/2012 6:48:58 PM
2,4-Dinitrotoluene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
2,6-Dinitrotoluene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Fluoranthene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Fluorene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Hexachlorobenzene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Hexachlorobutadiene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Hexachloroethane	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Isophorone	ND	10		µg/L	1	8/20/2012 6:48:58 PM
1-Methylnaphthalene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
2-Methylnaphthalene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
2-Methylphenol	ND	10		µg/L	1	8/20/2012 6:48:58 PM
3+4-Methylphenol	ND	10		µg/L	1	8/20/2012 6:48:58 PM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/20/2012 6:48:58 PM
N-Nitrosodimethylamine	ND	10		µg/L	1	8/20/2012 6:48:58 PM
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Naphthalene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
2-Nitroaniline	ND	10		µg/L	1	8/20/2012 6:48:58 PM
3-Nitroaniline	ND	10		µg/L	1	8/20/2012 6:48:58 PM
4-Nitroaniline	ND	20		µg/L	1	8/20/2012 6:48:58 PM
Nitrobenzene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
2-Nitrophenol	ND	10		µg/L	1	8/20/2012 6:48:58 PM
4-Nitrophenol	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Pentachlorophenol	ND	20		µg/L	1	8/20/2012 6:48:58 PM
Phenanthrene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Phenol	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Pyrene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Pyridine	ND	10		µg/L	1	8/20/2012 6:48:58 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/20/2012 6:48:58 PM
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/20/2012 6:48:58 PM
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/20/2012 6:48:58 PM
Surr: 2,4,6-Tribromophenol	93.5	44.2-126		%REC	1	8/20/2012 6:48:58 PM
Surr: 2-Fluorobiphenyl	74.6	37-114		%REC	1	8/20/2012 6:48:58 PM
Surr: 2-Fluorophenol	60.6	23.4-98		%REC	1	8/20/2012 6:48:58 PM
Surr: 4-Terphenyl-d14	72.1	41.3-116		%REC	1	8/20/2012 6:48:58 PM
Surr: Nitrobenzene-d5	78.1	39.5-118		%REC	1	8/20/2012 6:48:58 PM
Surr: Phenol-d5	45.9	20.9-95.9		%REC	1	8/20/2012 6:48:58 PM

EPA METHOD 8260B: VOLATILES

Analyst: MMS

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-50

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 11:00:00 AM

Lab ID: 1208722-001

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: MMS
Benzene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
Toluene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
Ethylbenzene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
Naphthalene	ND	2.0		µg/L	1	8/17/2012 12:09:18 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/17/2012 12:09:18 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/17/2012 12:09:18 PM
Acetone	ND	10		µg/L	1	8/17/2012 12:09:18 PM
Bromobenzene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
Bromoform	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
Bromomethane	ND	3.0		µg/L	1	8/17/2012 12:09:18 PM
2-Butanone	ND	10		µg/L	1	8/17/2012 12:09:18 PM
Carbon disulfide	ND	10		µg/L	1	8/17/2012 12:09:18 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
Chlorobenzene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
Chloroethane	ND	2.0		µg/L	1	8/17/2012 12:09:18 PM
Chloroform	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
Chloromethane	ND	3.0		µg/L	1	8/17/2012 12:09:18 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/17/2012 12:09:18 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
Dibromomethane	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/17/2012 12:09:18 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
2-Hexanone	ND	10		µg/L	1	8/17/2012 12:09:18 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-50

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 11:00:00 AM

Lab ID: 1208722-001

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: MMS
Isopropylbenzene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/17/2012 12:09:18 PM
Methylene Chloride	ND	3.0		µg/L	1	8/17/2012 12:09:18 PM
n-Butylbenzene	ND	3.0		µg/L	1	8/17/2012 12:09:18 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
Styrene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/17/2012 12:09:18 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/17/2012 12:09:18 PM
Vinyl chloride	ND	1.0		µg/L	1	8/17/2012 12:09:18 PM
Xylenes, Total	ND	1.5		µg/L	1	8/17/2012 12:09:18 PM
Surr: 1,2-Dichloroethane-d4	94.0	70-130		%REC	1	8/17/2012 12:09:18 PM
Surr: 4-Bromofluorobenzene	96.0	70-130		%REC	1	8/17/2012 12:09:18 PM
Surr: Dibromofluoromethane	118	70-130		%REC	1	8/17/2012 12:09:18 PM
Surr: Toluene-d8	96.5	70-130		%REC	1	8/17/2012 12:09:18 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	220	1.0		mg CO2/L	1	8/22/2012 4:05:31 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	510	0.010		µmhos/cm	1	8/22/2012 4:05:31 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	240	20		mg/L CaCO3	1	8/22/2012 4:05:31 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/22/2012 4:05:31 PM
Total Alkalinity (as CaCO3)	240	20		mg/L CaCO3	1	8/22/2012 4:05:31 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	322	20.0		mg/L	1	8/22/2012 6:46:00 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
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- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-51

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 11:15:00 AM

Lab ID: 1208722-002

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/17/2012 1:05:56 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/17/2012 1:05:56 PM
Surr: DNOP	139	69-152		%REC	1	8/17/2012 1:05:56 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/16/2012 4:20:58 PM
Surr: BFB	87.5	69.8-119		%REC	1	8/16/2012 4:20:58 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	0.51	0.10		mg/L	1	8/22/2012 3:23:09 PM
Chloride	7.6	0.50		mg/L	1	8/16/2012 3:13:04 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/16/2012 3:13:04 PM
Bromide	ND	0.10		mg/L	1	8/16/2012 3:13:04 PM
Nitrogen, Nitrate (As N)	0.25	0.10		mg/L	1	8/16/2012 3:13:04 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/16/2012 3:13:04 PM
Sulfate	35	0.50		mg/L	1	8/16/2012 3:13:04 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: JLF
Barium	0.053	0.0020		mg/L	1	9/10/2012 5:04:42 PM
Cadmium	ND	0.0020		mg/L	1	9/10/2012 5:04:42 PM
Calcium	58	1.0		mg/L	1	9/10/2012 5:04:42 PM
Chromium	ND	0.0060		mg/L	1	9/10/2012 5:04:42 PM
Copper	ND	0.0060		mg/L	1	9/10/2012 5:04:42 PM
Iron	ND	0.020		mg/L	1	9/10/2012 5:04:42 PM
Magnesium	12	1.0		mg/L	1	9/10/2012 5:04:42 PM
Manganese	0.99	0.0020	*	mg/L	1	9/10/2012 5:04:42 PM
Potassium	1.8	1.0		mg/L	1	9/10/2012 5:04:42 PM
Silver	ND	0.0050		mg/L	1	9/10/2012 5:04:42 PM
Sodium	43	1.0		mg/L	1	9/10/2012 5:04:42 PM
Zinc	0.043	0.010		mg/L	1	9/10/2012 5:04:42 PM
EPA METHOD 200.7: METALS						Analyst: JLF
Arsenic	ND	0.020		mg/L	1	9/5/2012 4:39:35 PM
Barium	0.076	0.0020		mg/L	1	9/5/2012 4:39:35 PM
Cadmium	ND	0.0020		mg/L	1	9/5/2012 4:39:35 PM
Chromium	ND	0.0060		mg/L	1	9/5/2012 4:39:35 PM
Lead	ND	0.0050		mg/L	1	9/5/2012 4:39:35 PM
Selenium	ND	0.050		mg/L	1	9/5/2012 4:39:35 PM
Silver	ND	0.0050		mg/L	1	9/5/2012 4:39:35 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	0.0032	0.0010		mg/L	1	9/6/2012 12:34:52 PM
Lead	ND	0.0010		mg/L	1	9/6/2012 12:34:52 PM
Selenium	ND	0.0010		mg/L	1	9/6/2012 12:34:52 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-51

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 11:15:00 AM

Lab ID: 1208722-002

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	0.0013	0.0010		mg/L	1	9/6/2012 12:34:52 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	9/6/2012 11:47:27 AM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Acenaphthylene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Aniline	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Anthracene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Azobenzene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Benz(a)anthracene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Benzo(a)pyrene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Benzo(b)fluoranthene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Benzo(k)fluoranthene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Benzoic acid	ND	20		µg/L	1	8/20/2012 7:18:34 PM
Benzyl alcohol	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/20/2012 7:18:34 PM
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Butyl benzyl phthalate	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Carbazole	ND	10		µg/L	1	8/20/2012 7:18:34 PM
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/20/2012 7:18:34 PM
4-Chloroaniline	ND	10		µg/L	1	8/20/2012 7:18:34 PM
2-Chloronaphthalene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
2-Chlorophenol	ND	10		µg/L	1	8/20/2012 7:18:34 PM
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Chrysene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Di-n-butyl phthalate	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Di-n-octyl phthalate	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Dibenzofuran	ND	10		µg/L	1	8/20/2012 7:18:34 PM
1,2-Dichlorobenzene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
1,3-Dichlorobenzene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
1,4-Dichlorobenzene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Diethyl phthalate	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Dimethyl phthalate	ND	10		µg/L	1	8/20/2012 7:18:34 PM
2,4-Dichlorophenol	ND	20		µg/L	1	8/20/2012 7:18:34 PM
2,4-Dimethylphenol	ND	10		µg/L	1	8/20/2012 7:18:34 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-51

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 11:15:00 AM

Lab ID: 1208722-002

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/20/2012 7:18:34 PM
2,4-Dinitrophenol	ND	20		µg/L	1	8/20/2012 7:18:34 PM
2,4-Dinitrotoluene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
2,6-Dinitrotoluene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Fluoranthene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Fluorene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Hexachlorobenzene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Hexachlorobutadiene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Hexachloroethane	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Isophorone	ND	10		µg/L	1	8/20/2012 7:18:34 PM
1-Methylnaphthalene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
2-Methylnaphthalene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
2-Methylphenol	ND	10		µg/L	1	8/20/2012 7:18:34 PM
3+4-Methylphenol	ND	10		µg/L	1	8/20/2012 7:18:34 PM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/20/2012 7:18:34 PM
N-Nitrosodimethylamine	ND	10		µg/L	1	8/20/2012 7:18:34 PM
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Naphthalene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
2-Nitroaniline	ND	10		µg/L	1	8/20/2012 7:18:34 PM
3-Nitroaniline	ND	10		µg/L	1	8/20/2012 7:18:34 PM
4-Nitroaniline	ND	20		µg/L	1	8/20/2012 7:18:34 PM
Nitrobenzene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
2-Nitrophenol	ND	10		µg/L	1	8/20/2012 7:18:34 PM
4-Nitrophenol	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Pentachlorophenol	ND	20		µg/L	1	8/20/2012 7:18:34 PM
Phenanthrene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Phenol	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Pyrene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Pyridine	ND	10		µg/L	1	8/20/2012 7:18:34 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/20/2012 7:18:34 PM
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/20/2012 7:18:34 PM
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/20/2012 7:18:34 PM
Surr: 2,4,6-Tribromophenol	92.2	44.2-126		%REC	1	8/20/2012 7:18:34 PM
Surr: 2-Fluorobiphenyl	78.5	37-114		%REC	1	8/20/2012 7:18:34 PM
Surr: 2-Fluorophenol	68.8	23.4-98		%REC	1	8/20/2012 7:18:34 PM
Surr: 4-Terphenyl-d14	70.3	41.3-116		%REC	1	8/20/2012 7:18:34 PM
Surr: Nitrobenzene-d5	82.5	39.5-118		%REC	1	8/20/2012 7:18:34 PM
Surr: Phenol-d5	53.3	20.9-95.9		%REC	1	8/20/2012 7:18:34 PM

EPA METHOD 8260B: VOLATILES

Analyst: MMS

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-51

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 11:15:00 AM

Lab ID: 1208722-002

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: MMS
Benzene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
Toluene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
Ethylbenzene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
Naphthalene	ND	2.0		µg/L	1	8/17/2012 1:38:52 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/17/2012 1:38:52 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/17/2012 1:38:52 PM
Acetone	ND	10		µg/L	1	8/17/2012 1:38:52 PM
Bromobenzene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
Bromoform	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
Bromomethane	ND	3.0		µg/L	1	8/17/2012 1:38:52 PM
2-Butanone	ND	10		µg/L	1	8/17/2012 1:38:52 PM
Carbon disulfide	ND	10		µg/L	1	8/17/2012 1:38:52 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
Chlorobenzene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
Chloroethane	ND	2.0		µg/L	1	8/17/2012 1:38:52 PM
Chloroform	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
Chloromethane	ND	3.0		µg/L	1	8/17/2012 1:38:52 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/17/2012 1:38:52 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
Dibromomethane	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/17/2012 1:38:52 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
2-Hexanone	ND	10		µg/L	1	8/17/2012 1:38:52 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-51

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 11:15:00 AM

Lab ID: 1208722-002

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: MMS
Isopropylbenzene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/17/2012 1:38:52 PM
Methylene Chloride	ND	3.0		µg/L	1	8/17/2012 1:38:52 PM
n-Butylbenzene	ND	3.0		µg/L	1	8/17/2012 1:38:52 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
Styrene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/17/2012 1:38:52 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/17/2012 1:38:52 PM
Vinyl chloride	ND	1.0		µg/L	1	8/17/2012 1:38:52 PM
Xylenes, Total	ND	1.5		µg/L	1	8/17/2012 1:38:52 PM
Surr: 1,2-Dichloroethane-d4	91.2	70-130		%REC	1	8/17/2012 1:38:52 PM
Surr: 4-Bromofluorobenzene	97.7	70-130		%REC	1	8/17/2012 1:38:52 PM
Surr: Dibromofluoromethane	111	70-130		%REC	1	8/17/2012 1:38:52 PM
Surr: Toluene-d8	101	70-130		%REC	1	8/17/2012 1:38:52 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	210	1.0		mg CO2/L	1	8/22/2012 4:17:52 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	500	0.010		µmhos/cm	1	8/22/2012 4:17:52 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	230	20		mg/L CaCO3	1	8/22/2012 4:17:52 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/22/2012 4:17:52 PM
Total Alkalinity (as CaCO3)	230	20		mg/L CaCO3	1	8/22/2012 4:17:52 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	320	20.0		mg/L	1	8/22/2012 6:46:00 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-52

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 12:30:00 PM

Lab ID: 1208722-003

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/17/2012 1:27:57 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/17/2012 1:27:57 PM
Surr: DNOP	125	69-152		%REC	1	8/17/2012 1:27:57 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/16/2012 4:51:09 PM
Surr: BFB	108	69.8-119		%REC	1	8/16/2012 4:51:09 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	0.85	0.10		mg/L	1	8/22/2012 4:00:23 PM
Chloride	720	25		mg/L	50	8/22/2012 4:12:48 PM
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	8/16/2012 3:50:17 PM
Bromide	1.5	0.10		mg/L	1	8/16/2012 3:37:52 PM
Nitrogen, Nitrate (As N)	19	2.0	*	mg/L	20	8/16/2012 3:50:17 PM
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	8/16/2012 3:50:17 PM
Sulfate	1300	25		mg/L	50	8/22/2012 4:12:48 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: JLF
Barium	0.020	0.0020		mg/L	1	9/10/2012 5:11:35 PM
Cadmium	ND	0.0020		mg/L	1	9/10/2012 5:11:35 PM
Calcium	320	5.0		mg/L	5	9/10/2012 5:14:37 PM
Chromium	ND	0.0060		mg/L	1	9/10/2012 5:11:35 PM
Copper	ND	0.0060		mg/L	1	9/10/2012 5:11:35 PM
Iron	2.3	0.10	*	mg/L	5	9/10/2012 5:14:37 PM
Magnesium	82	1.0		mg/L	1	9/10/2012 5:11:35 PM
Manganese	2.9	0.010	*	mg/L	5	9/10/2012 5:14:37 PM
Potassium	5.1	1.0		mg/L	1	9/10/2012 5:11:35 PM
Silver	ND	0.0050		mg/L	1	9/10/2012 5:11:35 PM
Sodium	630	10		mg/L	10	9/10/2012 7:23:57 PM
Zinc	0.11	0.010		mg/L	1	9/10/2012 5:11:35 PM
EPA METHOD 200.7: METALS						Analyst: JLF
Arsenic	ND	0.020		mg/L	1	9/5/2012 4:42:10 PM
Barium	0.22	0.0020		mg/L	1	9/5/2012 4:42:10 PM
Cadmium	ND	0.0020		mg/L	1	9/5/2012 4:42:10 PM
Chromium	ND	0.0060		mg/L	1	9/5/2012 4:42:10 PM
Lead	ND	0.0050		mg/L	1	9/5/2012 4:42:10 PM
Selenium	ND	0.050		mg/L	1	9/5/2012 4:42:10 PM
Silver	ND	0.0050		mg/L	1	9/5/2012 4:42:10 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	0.0031	0.0010		mg/L	1	9/6/2012 12:38:48 PM
Lead	ND	0.0010		mg/L	1	9/6/2012 12:38:48 PM
Selenium	0.053	0.0050	*	mg/L	5	9/6/2012 4:03:42 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-52

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 12:30:00 PM

Lab ID: 1208722-003

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	0.0093	0.0010		mg/L	1	9/6/2012 12:38:48 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	9/6/2012 11:49:14 AM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Acenaphthylene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Aniline	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Anthracene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Azobenzene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Benz(a)anthracene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Benzo(a)pyrene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Benzo(b)fluoranthene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Benzo(k)fluoranthene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Benzoic acid	ND	20		µg/L	1	8/20/2012 7:48:13 PM
Benzyl alcohol	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/20/2012 7:48:13 PM
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Butyl benzyl phthalate	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Carbazole	ND	10		µg/L	1	8/20/2012 7:48:13 PM
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/20/2012 7:48:13 PM
4-Chloroaniline	ND	10		µg/L	1	8/20/2012 7:48:13 PM
2-Chloronaphthalene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
2-Chlorophenol	ND	10		µg/L	1	8/20/2012 7:48:13 PM
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Chrysene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Di-n-butyl phthalate	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Di-n-octyl phthalate	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Dibenzofuran	ND	10		µg/L	1	8/20/2012 7:48:13 PM
1,2-Dichlorobenzene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
1,3-Dichlorobenzene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
1,4-Dichlorobenzene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Diethyl phthalate	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Dimethyl phthalate	ND	10		µg/L	1	8/20/2012 7:48:13 PM
2,4-Dichlorophenol	ND	20		µg/L	1	8/20/2012 7:48:13 PM
2,4-Dimethylphenol	ND	10		µg/L	1	8/20/2012 7:48:13 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-52

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 12:30:00 PM

Lab ID: 1208722-003

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/20/2012 7:48:13 PM
2,4-Dinitrophenol	ND	20		µg/L	1	8/20/2012 7:48:13 PM
2,4-Dinitrotoluene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
2,6-Dinitrotoluene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Fluoranthene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Fluorene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Hexachlorobenzene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Hexachlorobutadiene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Hexachloroethane	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Isophorone	ND	10		µg/L	1	8/20/2012 7:48:13 PM
1-Methylnaphthalene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
2-Methylnaphthalene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
2-Methylphenol	ND	10		µg/L	1	8/20/2012 7:48:13 PM
3+4-Methylphenol	ND	10		µg/L	1	8/20/2012 7:48:13 PM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/20/2012 7:48:13 PM
N-Nitrosodimethylamine	ND	10		µg/L	1	8/20/2012 7:48:13 PM
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Naphthalene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
2-Nitroaniline	ND	10		µg/L	1	8/20/2012 7:48:13 PM
3-Nitroaniline	ND	10		µg/L	1	8/20/2012 7:48:13 PM
4-Nitroaniline	ND	20		µg/L	1	8/20/2012 7:48:13 PM
Nitrobenzene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
2-Nitrophenol	ND	10		µg/L	1	8/20/2012 7:48:13 PM
4-Nitrophenol	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Pentachlorophenol	ND	20		µg/L	1	8/20/2012 7:48:13 PM
Phenanthrene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Phenol	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Pyrene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Pyridine	ND	10		µg/L	1	8/20/2012 7:48:13 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/20/2012 7:48:13 PM
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/20/2012 7:48:13 PM
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/20/2012 7:48:13 PM
Surr: 2,4,6-Tribromophenol	74.0	44.2-126		%REC	1	8/20/2012 7:48:13 PM
Surr: 2-Fluorobiphenyl	63.8	37-114		%REC	1	8/20/2012 7:48:13 PM
Surr: 2-Fluorophenol	54.8	23.4-98		%REC	1	8/20/2012 7:48:13 PM
Surr: 4-Terphenyl-d14	60.9	41.3-116		%REC	1	8/20/2012 7:48:13 PM
Surr: Nitrobenzene-d5	69.9	39.5-118		%REC	1	8/20/2012 7:48:13 PM
Surr: Phenol-d5	41.9	20.9-95.9		%REC	1	8/20/2012 7:48:13 PM

EPA METHOD 8260B: VOLATILES

Analyst: MMS

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-52

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 12:30:00 PM

Lab ID: 1208722-003

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: MMS
Benzene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
Toluene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
Ethylbenzene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
Naphthalene	ND	2.0		µg/L	1	8/17/2012 2:08:21 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/17/2012 2:08:21 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/17/2012 2:08:21 PM
Acetone	ND	10		µg/L	1	8/17/2012 2:08:21 PM
Bromobenzene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
Bromoform	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
Bromomethane	ND	3.0		µg/L	1	8/17/2012 2:08:21 PM
2-Butanone	ND	10		µg/L	1	8/17/2012 2:08:21 PM
Carbon disulfide	ND	10		µg/L	1	8/17/2012 2:08:21 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
Chlorobenzene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
Chloroethane	ND	2.0		µg/L	1	8/17/2012 2:08:21 PM
Chloroform	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
Chloromethane	ND	3.0		µg/L	1	8/17/2012 2:08:21 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/17/2012 2:08:21 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
Dibromomethane	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/17/2012 2:08:21 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
2-Hexanone	ND	10		µg/L	1	8/17/2012 2:08:21 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-52

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 12:30:00 PM

Lab ID: 1208722-003

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: MMS
Isopropylbenzene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/17/2012 2:08:21 PM
Methylene Chloride	ND	3.0		µg/L	1	8/17/2012 2:08:21 PM
n-Butylbenzene	ND	3.0		µg/L	1	8/17/2012 2:08:21 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
Styrene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/17/2012 2:08:21 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/17/2012 2:08:21 PM
Vinyl chloride	ND	1.0		µg/L	1	8/17/2012 2:08:21 PM
Xylenes, Total	ND	1.5		µg/L	1	8/17/2012 2:08:21 PM
Surr: 1,2-Dichloroethane-d4	93.4	70-130		%REC	1	8/17/2012 2:08:21 PM
Surr: 4-Bromofluorobenzene	97.1	70-130		%REC	1	8/17/2012 2:08:21 PM
Surr: Dibromofluoromethane	110	70-130		%REC	1	8/17/2012 2:08:21 PM
Surr: Toluene-d8	98.0	70-130		%REC	1	8/17/2012 2:08:21 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	240	1.0		mg CO2/L	1	8/22/2012 4:29:07 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	4400	0.010		µmhos/cm	1	8/22/2012 4:29:07 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	220	20		mg/L CaCO3	1	8/22/2012 4:29:07 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/22/2012 4:29:07 PM
Total Alkalinity (as CaCO3)	220	20		mg/L CaCO3	1	8/22/2012 4:29:07 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	3340	40.0		mg/L	1	8/22/2012 6:46:00 PM

Qualifiers:

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- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-53

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 12:45:00 PM

Lab ID: 1208722-004

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/17/2012 1:49:52 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/17/2012 1:49:52 PM
Surr: DNOP	137	69-152		%REC	1	8/17/2012 1:49:52 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/16/2012 5:21:25 PM
Surr: BFB	97.6	69.8-119		%REC	1	8/16/2012 5:21:25 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	0.40	0.10		mg/L	1	8/22/2012 4:25:13 PM
Chloride	960	50		mg/L	100	8/22/2012 4:50:02 PM
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	8/16/2012 4:39:55 PM
Bromide	1.7	0.10		mg/L	1	8/16/2012 4:27:31 PM
Nitrogen, Nitrate (As N)	12	2.0	*	mg/L	20	8/16/2012 4:39:55 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/16/2012 4:27:31 PM
Sulfate	1000	25		mg/L	50	8/22/2012 4:37:38 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: JLF
Barium	0.018	0.0020		mg/L	1	9/10/2012 5:18:04 PM
Cadmium	ND	0.0020		mg/L	1	9/10/2012 5:18:04 PM
Calcium	340	5.0		mg/L	5	9/10/2012 5:21:47 PM
Chromium	ND	0.0060		mg/L	1	9/10/2012 5:18:04 PM
Copper	ND	0.0060		mg/L	1	9/10/2012 5:18:04 PM
Iron	ND	0.020		mg/L	1	9/10/2012 5:18:04 PM
Magnesium	54	1.0		mg/L	1	9/10/2012 5:18:04 PM
Manganese	0.52	0.0020	*	mg/L	1	9/10/2012 5:18:04 PM
Potassium	4.7	1.0		mg/L	1	9/10/2012 5:18:04 PM
Silver	ND	0.0050		mg/L	1	9/10/2012 5:18:04 PM
Sodium	780	10		mg/L	10	9/10/2012 7:27:22 PM
Zinc	0.073	0.010		mg/L	1	9/10/2012 5:18:04 PM
EPA METHOD 200.7: METALS						Analyst: JLF
Arsenic	ND	0.020		mg/L	1	9/5/2012 4:50:03 PM
Barium	0.038	0.0020		mg/L	1	9/5/2012 4:50:03 PM
Cadmium	ND	0.0020		mg/L	1	9/5/2012 4:50:03 PM
Chromium	ND	0.0060		mg/L	1	9/5/2012 4:50:03 PM
Lead	ND	0.0050		mg/L	1	9/5/2012 4:50:03 PM
Selenium	ND	0.050		mg/L	1	9/5/2012 4:50:03 PM
Silver	ND	0.0050		mg/L	1	9/5/2012 4:50:03 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	0.0027	0.0010		mg/L	1	9/6/2012 12:50:40 PM
Lead	ND	0.0010		mg/L	1	9/6/2012 12:50:40 PM
Selenium	0.010	0.0010		mg/L	1	9/6/2012 12:50:40 PM

Qualifiers:

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- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-53

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 12:45:00 PM

Lab ID: 1208722-004

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	0.016	0.0010		mg/L	1	9/6/2012 12:50:40 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	9/6/2012 11:51:00 AM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Acenaphthylene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Aniline	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Anthracene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Azobenzene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Benz(a)anthracene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Benzo(a)pyrene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Benzo(b)fluoranthene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Benzo(k)fluoranthene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Benzoic acid	ND	20		µg/L	1	8/20/2012 8:17:48 PM
Benzyl alcohol	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/20/2012 8:17:48 PM
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Butyl benzyl phthalate	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Carbazole	ND	10		µg/L	1	8/20/2012 8:17:48 PM
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/20/2012 8:17:48 PM
4-Chloroaniline	ND	10		µg/L	1	8/20/2012 8:17:48 PM
2-Chloronaphthalene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
2-Chlorophenol	ND	10		µg/L	1	8/20/2012 8:17:48 PM
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Chrysene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Di-n-butyl phthalate	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Di-n-octyl phthalate	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Dibenzofuran	ND	10		µg/L	1	8/20/2012 8:17:48 PM
1,2-Dichlorobenzene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
1,3-Dichlorobenzene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
1,4-Dichlorobenzene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Diethyl phthalate	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Dimethyl phthalate	ND	10		µg/L	1	8/20/2012 8:17:48 PM
2,4-Dichlorophenol	ND	20		µg/L	1	8/20/2012 8:17:48 PM
2,4-Dimethylphenol	ND	10		µg/L	1	8/20/2012 8:17:48 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-53

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 12:45:00 PM

Lab ID: 1208722-004

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/20/2012 8:17:48 PM
2,4-Dinitrophenol	ND	20		µg/L	1	8/20/2012 8:17:48 PM
2,4-Dinitrotoluene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
2,6-Dinitrotoluene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Fluoranthene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Fluorene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Hexachlorobenzene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Hexachlorobutadiene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Hexachloroethane	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Isophorone	ND	10		µg/L	1	8/20/2012 8:17:48 PM
1-Methylnaphthalene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
2-Methylnaphthalene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
2-Methylphenol	ND	10		µg/L	1	8/20/2012 8:17:48 PM
3+4-Methylphenol	ND	10		µg/L	1	8/20/2012 8:17:48 PM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/20/2012 8:17:48 PM
N-Nitrosodimethylamine	ND	10		µg/L	1	8/20/2012 8:17:48 PM
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Naphthalene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
2-Nitroaniline	ND	10		µg/L	1	8/20/2012 8:17:48 PM
3-Nitroaniline	ND	10		µg/L	1	8/20/2012 8:17:48 PM
4-Nitroaniline	ND	20		µg/L	1	8/20/2012 8:17:48 PM
Nitrobenzene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
2-Nitrophenol	ND	10		µg/L	1	8/20/2012 8:17:48 PM
4-Nitrophenol	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Pentachlorophenol	ND	20		µg/L	1	8/20/2012 8:17:48 PM
Phenanthrene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Phenol	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Pyrene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Pyridine	ND	10		µg/L	1	8/20/2012 8:17:48 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/20/2012 8:17:48 PM
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/20/2012 8:17:48 PM
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/20/2012 8:17:48 PM
Surr: 2,4,6-Tribromophenol	83.3	44.2-126		%REC	1	8/20/2012 8:17:48 PM
Surr: 2-Fluorobiphenyl	71.8	37-114		%REC	1	8/20/2012 8:17:48 PM
Surr: 2-Fluorophenol	54.8	23.4-98		%REC	1	8/20/2012 8:17:48 PM
Surr: 4-Terphenyl-d14	60.9	41.3-116		%REC	1	8/20/2012 8:17:48 PM
Surr: Nitrobenzene-d5	75.1	39.5-118		%REC	1	8/20/2012 8:17:48 PM
Surr: Phenol-d5	41.2	20.9-95.9		%REC	1	8/20/2012 8:17:48 PM

EPA METHOD 8260B: VOLATILES

Analyst: MMS

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-53

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 12:45:00 PM

Lab ID: 1208722-004

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: MMS
Benzene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
Toluene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
Ethylbenzene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
Naphthalene	ND	2.0		µg/L	1	8/17/2012 2:37:53 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/17/2012 2:37:53 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/17/2012 2:37:53 PM
Acetone	ND	10		µg/L	1	8/17/2012 2:37:53 PM
Bromobenzene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
Bromoform	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
Bromomethane	ND	3.0		µg/L	1	8/17/2012 2:37:53 PM
2-Butanone	ND	10		µg/L	1	8/17/2012 2:37:53 PM
Carbon disulfide	ND	10		µg/L	1	8/17/2012 2:37:53 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
Chlorobenzene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
Chloroethane	ND	2.0		µg/L	1	8/17/2012 2:37:53 PM
Chloroform	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
Chloromethane	ND	3.0		µg/L	1	8/17/2012 2:37:53 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/17/2012 2:37:53 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
Dibromomethane	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/17/2012 2:37:53 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
2-Hexanone	ND	10		µg/L	1	8/17/2012 2:37:53 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-53

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 12:45:00 PM

Lab ID: 1208722-004

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: MMS
Isopropylbenzene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/17/2012 2:37:53 PM
Methylene Chloride	ND	3.0		µg/L	1	8/17/2012 2:37:53 PM
n-Butylbenzene	ND	3.0		µg/L	1	8/17/2012 2:37:53 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
Styrene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/17/2012 2:37:53 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/17/2012 2:37:53 PM
Vinyl chloride	ND	1.0		µg/L	1	8/17/2012 2:37:53 PM
Xylenes, Total	ND	1.5		µg/L	1	8/17/2012 2:37:53 PM
Surr: 1,2-Dichloroethane-d4	98.0	70-130		%REC	1	8/17/2012 2:37:53 PM
Surr: 4-Bromofluorobenzene	114	70-130		%REC	1	8/17/2012 2:37:53 PM
Surr: Dibromofluoromethane	114	70-130		%REC	1	8/17/2012 2:37:53 PM
Surr: Toluene-d8	94.5	70-130		%REC	1	8/17/2012 2:37:53 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	320	1.0		mg CO2/L	1	8/22/2012 4:41:50 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	4900	0.010		µmhos/cm	1	8/22/2012 4:41:50 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	340	20		mg/L CaCO3	1	8/22/2012 4:41:50 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/22/2012 4:41:50 PM
Total Alkalinity (as CaCO3)	340	20		mg/L CaCO3	1	8/22/2012 4:41:50 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	3470	20.0		mg/L	1	8/22/2012 6:46:00 PM

Qualifiers:

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- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-59

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 1:15:00 PM

Lab ID: 1208722-005

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	0.55	0.20		mg/L	1	8/17/2012 2:11:58 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/17/2012 2:11:58 PM
Surr: DNOP	149	69-152		%REC	1	8/17/2012 2:11:58 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	1.2	0.25		mg/L	5	8/16/2012 5:51:34 PM
Surr: BFB	89.7	69.8-119		%REC	5	8/16/2012 5:51:34 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	ND	0.50		mg/L	5	8/22/2012 5:02:27 PM
Chloride	150	10		mg/L	20	8/16/2012 5:04:43 PM
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	8/16/2012 4:52:19 PM
Bromide	2.5	0.50		mg/L	5	8/16/2012 4:52:19 PM
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	8/16/2012 4:52:19 PM
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	8/16/2012 4:52:19 PM
Sulfate	310	10		mg/L	20	8/16/2012 5:04:43 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: JLF
Barium	0.085	0.0020		mg/L	1	9/10/2012 5:27:03 PM
Cadmium	ND	0.0020		mg/L	1	9/10/2012 5:27:03 PM
Calcium	200	5.0		mg/L	5	9/10/2012 5:40:43 PM
Chromium	ND	0.0060		mg/L	1	9/10/2012 5:27:03 PM
Copper	ND	0.0060		mg/L	1	9/10/2012 5:27:03 PM
Iron	6.1	0.20	*	mg/L	10	9/11/2012 3:06:04 PM
Magnesium	51	1.0		mg/L	1	9/10/2012 5:27:03 PM
Manganese	3.3	0.010	*	mg/L	5	9/10/2012 5:40:43 PM
Potassium	3.0	1.0		mg/L	1	9/10/2012 5:27:03 PM
Silver	ND	0.0050		mg/L	1	9/10/2012 5:27:03 PM
Sodium	390	5.0		mg/L	5	9/10/2012 5:40:43 PM
Zinc	0.10	0.010		mg/L	1	9/10/2012 5:27:03 PM
EPA METHOD 200.7: METALS						Analyst: JLF
Arsenic	ND	0.020	*	mg/L	1	9/5/2012 4:52:38 PM
Barium	0.64	0.0020		mg/L	1	9/5/2012 4:52:38 PM
Cadmium	ND	0.0020		mg/L	1	9/5/2012 4:52:38 PM
Chromium	0.017	0.0060		mg/L	1	9/5/2012 4:52:38 PM
Lead	0.035	0.0050	*	mg/L	1	9/5/2012 4:52:38 PM
Selenium	ND	0.050		mg/L	1	9/5/2012 4:52:38 PM
Silver	ND	0.0050		mg/L	1	9/5/2012 4:52:38 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	0.014	0.0010	*	mg/L	1	9/6/2012 12:54:36 PM
Lead	ND	0.0010		mg/L	1	9/6/2012 12:54:36 PM
Selenium	0.0061	0.0010		mg/L	1	9/6/2012 12:54:36 PM

Qualifiers:

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- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-59

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 1:15:00 PM

Lab ID: 1208722-005

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	0.0024	0.0010		mg/L	1	9/6/2012 12:54:36 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	9/11/2012 12:08:10 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Acenaphthylene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Aniline	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Anthracene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Azobenzene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Benz(a)anthracene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Benzo(a)pyrene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Benzo(b)fluoranthene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Benzo(k)fluoranthene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Benzoic acid	ND	20		µg/L	1	8/20/2012 8:47:22 PM
Benzyl alcohol	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/20/2012 8:47:22 PM
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Butyl benzyl phthalate	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Carbazole	ND	10		µg/L	1	8/20/2012 8:47:22 PM
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/20/2012 8:47:22 PM
4-Chloroaniline	ND	10		µg/L	1	8/20/2012 8:47:22 PM
2-Chloronaphthalene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
2-Chlorophenol	ND	10		µg/L	1	8/20/2012 8:47:22 PM
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Chrysene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Di-n-butyl phthalate	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Di-n-octyl phthalate	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Dibenzofuran	ND	10		µg/L	1	8/20/2012 8:47:22 PM
1,2-Dichlorobenzene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
1,3-Dichlorobenzene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
1,4-Dichlorobenzene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Diethyl phthalate	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Dimethyl phthalate	ND	10		µg/L	1	8/20/2012 8:47:22 PM
2,4-Dichlorophenol	ND	20		µg/L	1	8/20/2012 8:47:22 PM
2,4-Dimethylphenol	ND	10		µg/L	1	8/20/2012 8:47:22 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-59

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 1:15:00 PM

Lab ID: 1208722-005

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/20/2012 8:47:22 PM
2,4-Dinitrophenol	ND	20		µg/L	1	8/20/2012 8:47:22 PM
2,4-Dinitrotoluene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
2,6-Dinitrotoluene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Fluoranthene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Fluorene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Hexachlorobenzene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Hexachlorobutadiene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Hexachloroethane	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Isophorone	ND	10		µg/L	1	8/20/2012 8:47:22 PM
1-Methylnaphthalene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
2-Methylnaphthalene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
2-Methylphenol	ND	10		µg/L	1	8/20/2012 8:47:22 PM
3+4-Methylphenol	ND	10		µg/L	1	8/20/2012 8:47:22 PM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/20/2012 8:47:22 PM
N-Nitrosodimethylamine	ND	10		µg/L	1	8/20/2012 8:47:22 PM
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Naphthalene	17	10		µg/L	1	8/20/2012 8:47:22 PM
2-Nitroaniline	ND	10		µg/L	1	8/20/2012 8:47:22 PM
3-Nitroaniline	ND	10		µg/L	1	8/20/2012 8:47:22 PM
4-Nitroaniline	ND	20		µg/L	1	8/20/2012 8:47:22 PM
Nitrobenzene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
2-Nitrophenol	ND	10		µg/L	1	8/20/2012 8:47:22 PM
4-Nitrophenol	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Pentachlorophenol	ND	20		µg/L	1	8/20/2012 8:47:22 PM
Phenanthrene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Phenol	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Pyrene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Pyridine	ND	10		µg/L	1	8/20/2012 8:47:22 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/20/2012 8:47:22 PM
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/20/2012 8:47:22 PM
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/20/2012 8:47:22 PM
Surr: 2,4,6-Tribromophenol	80.8	44.2-126		%REC	1	8/20/2012 8:47:22 PM
Surr: 2-Fluorobiphenyl	69.5	37-114		%REC	1	8/20/2012 8:47:22 PM
Surr: 2-Fluorophenol	54.8	23.4-98		%REC	1	8/20/2012 8:47:22 PM
Surr: 4-Terphenyl-d14	64.7	41.3-116		%REC	1	8/20/2012 8:47:22 PM
Surr: Nitrobenzene-d5	66.7	39.5-118		%REC	1	8/20/2012 8:47:22 PM
Surr: Phenol-d5	45.7	20.9-95.9		%REC	1	8/20/2012 8:47:22 PM

EPA METHOD 8260B: VOLATILES

Analyst: MMS

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-59

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 1:15:00 PM

Lab ID: 1208722-005

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: MMS
Benzene	4.2	1.0		µg/L	1	8/17/2012 3:07:43 PM
Toluene	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
Ethylbenzene	29	1.0		µg/L	1	8/17/2012 3:07:43 PM
Methyl tert-butyl ether (MTBE)	140	1.0		µg/L	1	8/17/2012 3:07:43 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
1,2-Dichloroethane (EDC)	4.2	1.0		µg/L	1	8/17/2012 3:07:43 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
Naphthalene	8.8	2.0		µg/L	1	8/17/2012 3:07:43 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/17/2012 3:07:43 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/17/2012 3:07:43 PM
Acetone	ND	10		µg/L	1	8/17/2012 3:07:43 PM
Bromobenzene	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
Bromoform	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
Bromomethane	ND	3.0		µg/L	1	8/17/2012 3:07:43 PM
2-Butanone	ND	10		µg/L	1	8/17/2012 3:07:43 PM
Carbon disulfide	ND	10		µg/L	1	8/17/2012 3:07:43 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
Chlorobenzene	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
Chloroethane	ND	2.0		µg/L	1	8/17/2012 3:07:43 PM
Chloroform	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
Chloromethane	ND	3.0		µg/L	1	8/17/2012 3:07:43 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/17/2012 3:07:43 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
Dibromomethane	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/17/2012 3:07:43 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
2-Hexanone	ND	10		µg/L	1	8/17/2012 3:07:43 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-59

Project: RCRA Wells 8-15-12

Collection Date: 8/15/2012 1:15:00 PM

Lab ID: 1208722-005

Matrix: AQUEOUS

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: MMS
Isopropylbenzene	4.2	1.0		µg/L	1	8/17/2012 3:07:43 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/17/2012 3:07:43 PM
Methylene Chloride	ND	3.0		µg/L	1	8/17/2012 3:07:43 PM
n-Butylbenzene	ND	3.0		µg/L	1	8/17/2012 3:07:43 PM
n-Propylbenzene	3.8	1.0		µg/L	1	8/17/2012 3:07:43 PM
sec-Butylbenzene	1.5	1.0		µg/L	1	8/17/2012 3:07:43 PM
Styrene	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/17/2012 3:07:43 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/17/2012 3:07:43 PM
Vinyl chloride	ND	1.0		µg/L	1	8/17/2012 3:07:43 PM
Xylenes, Total	ND	1.5		µg/L	1	8/17/2012 3:07:43 PM
Surr: 1,2-Dichloroethane-d4	90.2	70-130		%REC	1	8/17/2012 3:07:43 PM
Surr: 4-Bromofluorobenzene	95.7	70-130		%REC	1	8/17/2012 3:07:43 PM
Surr: Dibromofluoromethane	99.9	70-130		%REC	1	8/17/2012 3:07:43 PM
Surr: Toluene-d8	94.3	70-130		%REC	1	8/17/2012 3:07:43 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	960	1.0		mg CO2/L	1	8/22/2012 4:56:41 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	2500	0.010		µmhos/cm	1	8/22/2012 4:56:41 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	990	20		mg/L CaCO3	1	8/22/2012 4:56:41 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/22/2012 4:56:41 PM
Total Alkalinity (as CaCO3)	990	20		mg/L CaCO3	1	8/22/2012 4:56:41 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	1740	40.0		mg/L	1	8/22/2012 6:46:00 PM

Qualifiers:

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- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: TRIP BLANK

Project: RCRA Wells 8-15-12

Collection Date:

Lab ID: 1208722-006

Matrix: TRIP BLANK

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: MMS
Benzene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
Toluene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
Ethylbenzene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
Naphthalene	ND	2.0		µg/L	1	8/17/2012 4:07:14 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/17/2012 4:07:14 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/17/2012 4:07:14 PM
Acetone	ND	10		µg/L	1	8/17/2012 4:07:14 PM
Bromobenzene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
Bromoform	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
Bromomethane	ND	3.0		µg/L	1	8/17/2012 4:07:14 PM
2-Butanone	ND	10		µg/L	1	8/17/2012 4:07:14 PM
Carbon disulfide	ND	10		µg/L	1	8/17/2012 4:07:14 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
Chlorobenzene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
Chloroethane	ND	2.0		µg/L	1	8/17/2012 4:07:14 PM
Chloroform	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
Chloromethane	ND	3.0		µg/L	1	8/17/2012 4:07:14 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/17/2012 4:07:14 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
Dibromomethane	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/17/2012 4:07:14 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
2-Hexanone	ND	10		µg/L	1	8/17/2012 4:07:14 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208722

Date Reported: 9/27/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: TRIP BLANK

Project: RCRA Wells 8-15-12

Collection Date:

Lab ID: 1208722-006

Matrix: TRIP BLANK

Received Date: 8/16/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: MMS
Isopropylbenzene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/17/2012 4:07:14 PM
Methylene Chloride	ND	3.0		µg/L	1	8/17/2012 4:07:14 PM
n-Butylbenzene	ND	3.0		µg/L	1	8/17/2012 4:07:14 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
Styrene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/17/2012 4:07:14 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/17/2012 4:07:14 PM
Vinyl chloride	ND	1.0		µg/L	1	8/17/2012 4:07:14 PM
Xylenes, Total	ND	1.5		µg/L	1	8/17/2012 4:07:14 PM
Surr: 1,2-Dichloroethane-d4	92.6	70-130		%REC	1	8/17/2012 4:07:14 PM
Surr: 4-Bromofluorobenzene	95.3	70-130		%REC	1	8/17/2012 4:07:14 PM
Surr: Dibromofluoromethane	108	70-130		%REC	1	8/17/2012 4:07:14 PM
Surr: Toluene-d8	104	70-130		%REC	1	8/17/2012 4:07:14 PM

Qualifiers:

* Value exceeds Maximum Contaminant Level.
 E Value above quantitation range
 J Analyte detected below quantitation limits
 P Sample pH greater than 2
 RL Reporting Detection Limit

B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 R RPD outside accepted recovery limits
 S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208722

27-Sep-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-15-12

Sample ID	MB-3398	SampType:	MBLK		TestCode:	EPA Method 200.7: Metals				
Client ID:	PBW	Batch ID:	3398		RunNo:	5186				
Prep Date:	8/20/2012	Analysis Date:	8/29/2012		SeqNo:	147371	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Silver	ND	0.0050								

Sample ID	MB-3398		SampType: MBLK		TestCode: EPA Method 200.7: Metals					
Client ID:	PBW		Batch ID: 3398		RunNo: 5316					
Prep Date:	8/20/2012		Analysis Date: 9/5/2012		SeqNo: 151323		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.050								

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 200.7: Metals					
Client ID:	PBW	Batch ID: R5414			RunNo: 5414					
Prep Date:		Analysis Date: 9/10/2012			SeqNo: 154616		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
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								
Zinc	ND	0.010								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208722

27-Sep-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-15-12

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R5414	RunNo:	5414					
Prep Date:		Analysis Date:	9/10/2012	SeqNo:	154618	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
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								
Zinc	ND	0.010								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R5435	RunNo:	5435					
Prep Date:		Analysis Date:	9/11/2012	SeqNo:	155088	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208722

27-Sep-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-15-12

Sample ID	MB-3398		SampType: MBLK		TestCode: EPA Method 200.7: Total Metals					
Client ID:	PBW		Batch ID: 3398		RunNo: 4984					
Prep Date:	8/20/2012		Analysis Date: 8/20/2012		SeqNo: 141129		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								

Sample ID	MB-3398		SampType: MBLK		TestCode: EPA Method 200.7: Total Metals					
Client ID:	PBW		Batch ID: 3398		RunNo: 5186					
Prep Date:	8/20/2012		Analysis Date: 8/29/2012		SeqNo: 147433		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Lead	ND	0.0050								
Silver	ND	0.0050								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208722

27-Sep-12

Client: Western Refining Southwest, Inc.**Project:** RCRA Wells 8-15-12

Sample ID MB	SampType: MBLK		TestCode: EPA 200.8: Dissolved Metals							
Client ID: PBW	Batch ID: R5350		RunNo: 5350							
Prep Date:	Analysis Date: 9/6/2012		SeqNo: 152420		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Sample ID MB	SampType: MBLK		TestCode: EPA 200.8: Dissolved Metals							
Client ID: PBW	Batch ID: R5350		RunNo: 5350							
Prep Date:	Analysis Date: 9/6/2012		SeqNo: 152421		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208722

27-Sep-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-15-12

Sample ID	MB-3618	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	3618	RunNo:	5342					
Prep Date:	9/5/2012	Analysis Date:	9/6/2012	SeqNo:	152067	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	MB-3670	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	3670	RunNo:	5432					
Prep Date:	9/10/2012	Analysis Date:	9/11/2012	SeqNo:	155009	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	1208722-005GMS	SampType:	MS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	MW-59	Batch ID:	3670	RunNo:	5432					
Prep Date:	9/10/2012	Analysis Date:	9/11/2012	SeqNo:	155012	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	.00005024	96.8	75	125			

Sample ID	1208722-005GMSD	SampType:	MSD	TestCode:	EPA Method 245.1: Mercury					
Client ID:	MW-59	Batch ID:	3670	RunNo:	5432					
Prep Date:	9/10/2012	Analysis Date:	9/11/2012	SeqNo:	155013	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	.00005024	97.6	75	125	0.862	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208722

27-Sep-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-15-12

Sample ID	MB		SampType: MBLK			TestCode: EPA Method 300.0: Anions				
Client ID:	PBW		Batch ID: R4926			RunNo: 4926				
Prep Date:			Analysis Date: 8/16/2012			SeqNo: 139306		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	1208722-001EMS		SampType: MS			TestCode: EPA Method 300.0: Anions				
Client ID:	MW-50		Batch ID: R4926			RunNo: 4926				
Prep Date:			Analysis Date: 8/16/2012			SeqNo: 139309		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	5.000	6.616	101	87.8	111			
Nitrogen, Nitrite (As N)	0.91	0.10	1.000	0	91.2	72.5	111			
Bromide	2.4	0.10	2.500	0	94.7	83.3	107			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0.06614	96.5	90.4	113			
Phosphorus, Orthophosphate (As P	4.4	0.50	5.000	0	88.4	74.5	115			
Sulfate	36	0.50	10.00	25.82	107	84.6	122			

Sample ID	1208722-001EMSD		SampType: MSD			TestCode: EPA Method 300.0: Anions				
Client ID:	MW-50		Batch ID: R4926			RunNo: 4926				
Prep Date:			Analysis Date: 8/16/2012			SeqNo: 139310		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	12	0.50	5.000	6.616	101	87.8	111	0.226	20	
Nitrogen, Nitrite (As N)	0.93	0.10	1.000	0	92.7	72.5	111	1.65	20	
Bromide	2.4	0.10	2.500	0	95.4	83.3	107	0.708	20	
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0.06614	97.0	90.4	113	0.486	20	
Phosphorus, Orthophosphate (As P	4.4	0.50	5.000	0	89.0	74.5	115	0.592	20	
Sulfate	36	0.50	10.00	25.82	107	84.6	122	0.0193	20	

Sample ID	MB		SampType: MBLK			TestCode: EPA Method 300.0: Anions				
Client ID:	PBW		Batch ID: R5041			RunNo: 5041				
Prep Date:			Analysis Date: 8/22/2012			SeqNo: 142833		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208722

27-Sep-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-15-12

Sample ID	MB-3380	SampType: MBLK			TestCode: EPA Method 8015B: Diesel Range					
Client ID:	PBW	Batch ID: 3380			RunNo: 4922					
Prep Date:	8/17/2012	Analysis Date: 8/17/2012			SeqNo: 139537		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.73		0.5000		146	69	152			

Sample ID	1208722-001CMS		SampType: MS		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	MW-50		Batch ID: 3380		RunNo: 4922					
Prep Date:	8/17/2012		Analysis Date: 8/17/2012		SeqNo: 139600		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.3	0.20	2.500	0	93.3	71	161			
Surr: DNOP	0.28		0.2500		112	69	152			

Sample ID	1208722-001CMSD		SampType: MSD		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	MW-50		Batch ID: 3380		RunNo: 4922					
Prep Date:	8/17/2012		Analysis Date: 8/17/2012		SeqNo: 139601		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.3	0.20	2.500	0	93.3	71	161	0.00643	23	
Surr: DNOP	0.29		0.2500		115	69	152	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208722

27-Sep-12

Client: Western Refining Southwest, Inc.**Project:** RCRA Wells 8-15-12

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015B: Gasoline Range					
Client ID:	PBW	Batch ID:	R4928	RunNo:	4928					
Prep Date:		Analysis Date:	8/16/2012	SeqNo:	139406	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		86.0	69.8	119			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208722

27-Sep-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-15-12

Sample ID	5ml rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R4958	RunNo:	4958					
Prep Date:		Analysis Date:	8/17/2012	SeqNo:	140229	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208722

27-Sep-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-15-12

Sample ID	5ml rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R4958			RunNo: 4958					
Prep Date:		Analysis Date: 8/17/2012			SeqNo: 140229		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.0	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130			
Surr: Dibromofluoromethane	12		10.00		116	70	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Sample ID	1208722-001ams	SampType: MS			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	MW-50	Batch ID: R4958			RunNo: 4958					
Prep Date:		Analysis Date: 8/17/2012			SeqNo: 140233		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	94.8	66.8	128			
Toluene	22	1.0	20.00	0	111	70	130			
Chlorobenzene	21	1.0	20.00	0	105	70	130			
1,1-Dichloroethene	17	1.0	20.00	0	86.2	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	88.1	70	130			
Surr: 1,2-Dichloroethane-d4	9.3		10.00		92.7	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		104	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208722

27-Sep-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-15-12

Sample ID	1208722-001ams		SampType:	MS		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	MW-50		Batch ID:	R4958		RunNo:	4958			
Prep Date:			Analysis Date:	8/17/2012		SeqNo:	140233	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	11		10.00		113	70	130			
Surr: Toluene-d8	11		10.00		107	70	130			

Sample ID	1208722-001amsd		SampType:	MSD		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	MW-50		Batch ID:	R4958		RunNo:	4958			
Prep Date:			Analysis Date:	8/17/2012		SeqNo:	140240	Units:	µg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	91.9	66.8	128	3.08	16.7	
Toluene	23	1.0	20.00	0	115	70	130	3.66	18.7	
Chlorobenzene	21	1.0	20.00	0	105	70	130	0.315	19.5	
1,1-Dichloroethene	18	1.0	20.00	0	91.2	70	130	5.69	16.7	
Trichloroethene (TCE)	17	1.0	20.00	0	82.7	70	130	6.30	17.5	
Surr: 1,2-Dichloroethane-d4	9.0		10.00		90.2	70	130	0	0	
Surr: 4-Bromofluorobenzene	9.0		10.00		90.0	70	130	0	0	
Surr: Dibromofluoromethane	11		10.00		109	70	130	0	0	
Surr: Toluene-d8	11		10.00		112	70	130	0	0	

Sample ID	b4		SampType:	MBLK		TestCode:	EPA Method 8260B: VOLATILES			
Client ID:	PBW		Batch ID:	R4958		RunNo:	4958			
Prep Date:			Analysis Date:	8/17/2012		SeqNo:	140263	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								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208722

27-Sep-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-15-12

Sample ID b4		SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID: PBW		Batch ID: R4958			RunNo: 4958					
Prep Date:		Analysis Date: 8/17/2012			SeqNo: 140263		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
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								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208722

27-Sep-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-15-12

Sample ID b4	SampType: MBLK		TestCode: EPA Method 8260B: VOLATILES							
Client ID: PBW	Batch ID: R4958		RunNo: 4958							
Prep Date:	Analysis Date: 8/17/2012		SeqNo: 140263		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	9.4		10.00		94.3	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	11		10.00		113	70	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208722

27-Sep-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-15-12

Sample ID	mb-3356	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	3356	RunNo:	4981					
Prep Date:	8/16/2012	Analysis Date:	8/20/2012	SeqNo:	140908	Units:	µg/L			
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								
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								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208722

27-Sep-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-15-12

Sample ID	mb-3356	SampType:	MBLK	TestCode:	EPA Method 8270C: Semivolatiles					
Client ID:	PBW	Batch ID:	3356	RunNo:	4981					
Prep Date:	8/16/2012	Analysis Date:	8/20/2012	SeqNo:	140908	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	20								
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: 2,4,6-Tribromophenol	120		200.0		57.9	44.2	126			
Surr: 2-Fluorobiphenyl	45		100.0		44.6	37	114			
Surr: 2-Fluorophenol	72		200.0		36.2	23.4	98			
Surr: 4-Terphenyl-d14	47		100.0		46.7	41.3	116			
Surr: Nitrobenzene-d5	48		100.0		48.0	39.5	118			
Surr: Phenol-d5	66		200.0		33.1	20.9	95.9			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208722

27-Sep-12

Client: Western Refining Southwest, Inc.**Project:** RCRA Wells 8-15-12

Sample ID	mb-1	SampType:	mbk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R5065	RunNo:	5065					
Prep Date:		Analysis Date:	8/22/2012	SeqNo:	143511	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208722

27-Sep-12

Client: Western Refining Southwest, Inc.**Project:** RCRA Wells 8-15-12

Sample ID	MB-3424		SampType:	MBLK		TestCode:	SM2540C MOD: Total Dissolved Solids			
Client ID:	PBW		Batch ID:	3424		RunNo:	5037			
Prep Date:	8/21/2012		Analysis Date:	8/22/2012		SeqNo:	142756	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

Sample Log-In Check List

Client Name: **Western Refining Southwest, Inc Bloomfield** Work Order Number: **1208722**

Received by/date: *[Signature]* **08/16/12**

Logged By: **Ashley Gallegos** 8/16/2012 10:00:00 AM *[Signature]*

Completed By: **Ashley Gallegos** 8/16/2012 10:13:57 AM *[Signature]*

Reviewed By: **IO 08/16/12**

Chain of Custody

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

Log In

4. Coolers are present? (see 19. for cooler specific information) Yes ☒ No ☐ NA ☐
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
6. Were all samples received at a temperature of >0° C to 6.0°C Yes ☒ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☒ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
10. Was preservative added to bottles? Yes ☒ No ☒ NA ☐
added 1ml HNO3 to -005 G for acceptable pH 08/16/12
11. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
12. Were any sample containers received broken? Yes ☐ No ☒
13. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
15. Is it clear what analyses were requested? Yes ☒ No ☐
16. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved bottles checked for pH: **15**
(**2** of **15** unless noted)
Adjusted? ☒
Checked by: *[Signature]*

Special Handling (if applicable)

17. 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: _____

18. Additional remarks:

19. Cooler Information

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

www.hallenvironmental.com

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

[illegible]

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

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:

☒ Standard ☒ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☐ EDD (Type)

Date Time Matrix Sample Request ID

8-15-01 12:30 H₂O MW-52

1-Liter Amber

1-500ml Amber

1-500ml HNO₃

1-250ml HNO₃

1-500ml

1-250ml H₂SO₄

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

RCRA wells 8-15-12

Project #:

Project Manager:

Sampler: Bob & Steve

On Ice: ☒ Yes ☐ No

Sample Temperature: 21

Container Type and #

5-1/2A HCl

1-Liter Amber

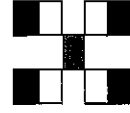
1-500ml Amber

1-500ml HNO₃

1-250ml HNO₃

1-500ml

1-250ml H₂SO₄



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 Method 8015B (Gas)

TPH (Method 418.1)

EDB (Method 504.1)

8310 (PNA or PAH)

RCRA 8 Metals

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / 8082 PCBs

8260B (VOA)

8270 (Semi-VOA)

DRO-805B

Dissolved Metals

Cation/Anion Balance

Alkalinity / CO₂

Air Blowers (or N)

Remarks:

Received by: Christian Watson Date: 8/15/12 Time: 1415

Relinquished by: Robert Brakow Date: 8/15/12 Time: 1415

Date: 8/15/12 Time: 1738

Date: 8/15/12 Time: 10:00

Received by: Christian Watson Date: 8/15/12 Time: 10:00

Relinquished by: Christian Watson Date: 8/15/12 Time: 10:00

Date: 8/15/12 Time: 1738

Date: 8/15/12 Time: 10:00

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

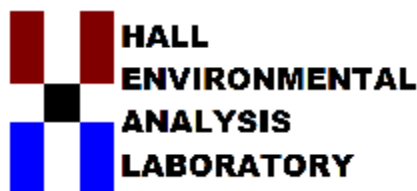
Analysis Request

[illegible][illegible]

Date:	Time:	Relinquished by:	Received by:	Date:	Time:
8/15/12	1415	Robert Krakow	Christine Weber	8/15/12	1415
8/15/12	1738	Christine Weber	Christine Weber	8/16/12	10:00

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this

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



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

October 03, 2012

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

RE: RCRA Wells 8-16-12

OrderNo.: 1208782

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 9 sample(s) on 8/17/2012 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued September 27, 2012.

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

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

Sincerely,

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

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109



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

Workorder Sample Summary

WO#: 1208782

03-Oct-12

CLIENT: Western Refining Southwest, Inc.

Project: RCRA Wells 8-16-12

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1208782-001	MW-62		8/16/2012 8:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-001	MW-62		8/16/2012 8:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-001	MW-62		8/16/2012 8:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-001	MW-62		8/16/2012 8:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-001	MW-62		8/16/2012 8:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-001	MW-62		8/16/2012 8:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-001	MW-62		8/16/2012 8:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-002	Field Blank		8/16/2012 10:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-003	MW-63		8/16/2012 9:20:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-003	MW-63		8/16/2012 9:20:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-003	MW-63		8/16/2012 9:20:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-003	MW-63		8/16/2012 9:20:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-003	MW-63		8/16/2012 9:20:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-003	MW-63		8/16/2012 9:20:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-003	MW-63		8/16/2012 9:20:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-004	MW-64		8/16/2012 10:00:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-004	MW-64		8/16/2012 10:00:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-004	MW-64		8/16/2012 10:00:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-004	MW-64		8/16/2012 10:00:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-004	MW-64		8/16/2012 10:00:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-004	MW-64		8/16/2012 10:00:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-005	MW-65		8/16/2012 9:00:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-005	MW-65		8/16/2012 9:00:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-005	MW-65		8/16/2012 9:00:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-005	MW-65		8/16/2012 9:00:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-005	MW-65		8/16/2012 9:00:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-005	MW-65		8/16/2012 9:00:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-006	MW-67		8/16/2012 8:00:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-006	MW-67		8/16/2012 8:00:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-006	MW-67		8/16/2012 8:00:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-006	MW-67		8/16/2012 8:00:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-006	MW-67		8/16/2012 8:00:00 AM	8/17/2012 10:00:00 AM	Aqueous



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

Workorder Sample Summary

WO#: 1208782
03-Oct-12

CLIENT: Western Refining Southwest, Inc.
Project: RCRA Wells 8-16-12

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1208782-006	MW-67		8/16/2012 8:00:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-006	MW-67		8/16/2012 8:00:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-007	MW-68		8/16/2012 7:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-007	MW-68		8/16/2012 7:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-007	MW-68		8/16/2012 7:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-007	MW-68		8/16/2012 7:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-007	MW-68		8/16/2012 7:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-007	MW-68		8/16/2012 7:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-007	MW-68		8/16/2012 7:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-008	MW-68 DUP		8/16/2012 7:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-008	MW-68 DUP		8/16/2012 7:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-008	MW-68 DUP		8/16/2012 7:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-008	MW-68 DUP		8/16/2012 7:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-008	MW-68 DUP		8/16/2012 7:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-008	MW-68 DUP		8/16/2012 7:30:00 AM	8/17/2012 10:00:00 AM	Aqueous
1208782-009	Trip Blank			8/17/2012 10:00:00 AM	Trip Blank
1208782-009	Trip Blank			8/17/2012 10:00:00 AM	Trip Blank

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-62

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 8:30:00 AM

Lab ID: 1208782-001

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/21/2012 12:06:55 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/21/2012 12:06:55 PM
Surr: DNOP	142	69-152		%REC	1	8/21/2012 12:06:55 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/22/2012 12:30:02 PM
Surr: BFB	82.2	69.8-119		%REC	1	8/22/2012 12:30:02 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	ND	0.50		mg/L	5	8/23/2012 1:44:58 AM
Chloride	12	2.5		mg/L	5	8/20/2012 12:23:12 PM
Bromide	ND	0.50		mg/L	5	8/20/2012 12:23:12 PM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	8/23/2012 4:38:43 AM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	8/20/2012 12:23:12 PM
Sulfate	3600	100		mg/L	200	8/23/2012 1:57:23 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: JLF
Barium	0.015	0.0020		mg/L	1	9/10/2012 3:44:14 PM
Cadmium	ND	0.0020		mg/L	1	9/10/2012 3:44:14 PM
Calcium	450	5.0		mg/L	5	9/10/2012 3:48:08 PM
Chromium	ND	0.0060		mg/L	1	9/10/2012 3:44:14 PM
Copper	ND	0.0060		mg/L	1	9/10/2012 3:44:14 PM
Iron	0.089	0.020		mg/L	1	9/10/2012 3:44:14 PM
Magnesium	39	1.0		mg/L	1	9/10/2012 3:44:14 PM
Manganese	1.8	0.010	*	mg/L	5	9/10/2012 3:48:08 PM
Potassium	10	1.0		mg/L	1	9/10/2012 3:44:14 PM
Silver	ND	0.0050		mg/L	1	9/10/2012 3:44:14 PM
Sodium	1500	50		mg/L	50	9/10/2012 6:57:59 PM
Zinc	0.066	0.010		mg/L	1	9/10/2012 3:44:14 PM
EPA METHOD 200.7: METALS						Analyst: JLF
Arsenic	ND	0.020		mg/L	1	9/5/2012 4:17:23 PM
Barium	0.021	0.0020		mg/L	1	9/5/2012 4:17:23 PM
Cadmium	ND	0.0020		mg/L	1	9/5/2012 3:12:11 PM
Chromium	ND	0.0060		mg/L	1	9/5/2012 4:17:23 PM
Lead	ND	0.0050		mg/L	1	9/5/2012 4:17:23 PM
Selenium	ND	0.050		mg/L	1	9/5/2012 4:17:23 PM
Silver	ND	0.0050		mg/L	1	9/5/2012 3:12:11 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	ND	0.0010		mg/L	1	9/4/2012 2:06:49 PM
Lead	ND	0.0010		mg/L	1	9/4/2012 2:06:49 PM
Selenium	ND	0.0050		mg/L	5	9/14/2012 2:16:28 PM
Uranium	0.0075	0.0010		mg/L	1	9/4/2012 2:06:49 PM

Qualifiers:

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- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-62

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 8:30:00 AM

Lab ID: 1208782-001

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	8/21/2012 4:09:02 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Acenaphthylene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Aniline	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Anthracene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Azobenzene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Benz(a)anthracene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Benzo(a)pyrene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Benzo(b)fluoranthene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Benzo(k)fluoranthene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Benzoic acid	ND	20		µg/L	1	8/22/2012 1:22:15 PM
Benzyl alcohol	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/22/2012 1:22:15 PM
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Butyl benzyl phthalate	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Carbazole	ND	10		µg/L	1	8/22/2012 1:22:15 PM
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/22/2012 1:22:15 PM
4-Chloroaniline	ND	10		µg/L	1	8/22/2012 1:22:15 PM
2-Chloronaphthalene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
2-Chlorophenol	ND	10		µg/L	1	8/22/2012 1:22:15 PM
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Chrysene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Di-n-butyl phthalate	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Di-n-octyl phthalate	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Dibenzofuran	ND	10		µg/L	1	8/22/2012 1:22:15 PM
1,2-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
1,3-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
1,4-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Diethyl phthalate	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Dimethyl phthalate	ND	10		µg/L	1	8/22/2012 1:22:15 PM
2,4-Dichlorophenol	ND	20		µg/L	1	8/22/2012 1:22:15 PM
2,4-Dimethylphenol	ND	10		µg/L	1	8/22/2012 1:22:15 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/22/2012 1:22:15 PM
2,4-Dinitrophenol	ND	20		µg/L	1	8/22/2012 1:22:15 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-62

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 8:30:00 AM

Lab ID: 1208782-001

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
2,4-Dinitrotoluene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
2,6-Dinitrotoluene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Fluoranthene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Fluorene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Hexachlorobenzene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Hexachlorobutadiene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Hexachloroethane	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Isophorone	ND	10		µg/L	1	8/22/2012 1:22:15 PM
1-Methylnaphthalene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
2-Methylnaphthalene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
2-Methylphenol	ND	10		µg/L	1	8/22/2012 1:22:15 PM
3+4-Methylphenol	ND	10		µg/L	1	8/22/2012 1:22:15 PM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/22/2012 1:22:15 PM
N-Nitrosodimethylamine	ND	10		µg/L	1	8/22/2012 1:22:15 PM
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Naphthalene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
2-Nitroaniline	ND	10		µg/L	1	8/22/2012 1:22:15 PM
3-Nitroaniline	ND	10		µg/L	1	8/22/2012 1:22:15 PM
4-Nitroaniline	ND	20		µg/L	1	8/22/2012 1:22:15 PM
Nitrobenzene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
2-Nitrophenol	ND	10		µg/L	1	8/22/2012 1:22:15 PM
4-Nitrophenol	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Pentachlorophenol	ND	20		µg/L	1	8/22/2012 1:22:15 PM
Phenanthrene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Phenol	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Pyrene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Pyridine	ND	10		µg/L	1	8/22/2012 1:22:15 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/22/2012 1:22:15 PM
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/22/2012 1:22:15 PM
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/22/2012 1:22:15 PM
Surr: 2,4,6-Tribromophenol	51.2	44.2-126		%REC	1	8/22/2012 1:22:15 PM
Surr: 2-Fluorobiphenyl	41.4	37-114		%REC	1	8/22/2012 1:22:15 PM
Surr: 2-Fluorophenol	31.0	23.4-98		%REC	1	8/22/2012 1:22:15 PM
Surr: 4-Terphenyl-d14	37.0	41.3-116	S	%REC	1	8/22/2012 1:22:15 PM
Surr: Nitrobenzene-d5	44.9	39.5-118		%REC	1	8/22/2012 1:22:15 PM
Surr: Phenol-d5	24.3	20.9-95.9		%REC	1	8/22/2012 1:22:15 PM
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Benzene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
Toluene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-62

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 8:30:00 AM

Lab ID: 1208782-001

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Ethylbenzene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
Naphthalene	ND	2.0		µg/L	1	8/20/2012 11:31:00 AM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/20/2012 11:31:00 AM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/20/2012 11:31:00 AM
Acetone	ND	10		µg/L	1	8/20/2012 11:31:00 AM
Bromobenzene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
Bromodichloromethane	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
Bromoform	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
Bromomethane	ND	3.0		µg/L	1	8/20/2012 11:31:00 AM
2-Butanone	ND	10		µg/L	1	8/20/2012 11:31:00 AM
Carbon disulfide	ND	10		µg/L	1	8/20/2012 11:31:00 AM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
Chlorobenzene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
Chloroethane	ND	2.0		µg/L	1	8/20/2012 11:31:00 AM
Chloroform	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
Chloromethane	ND	3.0		µg/L	1	8/20/2012 11:31:00 AM
2-Chlorotoluene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
4-Chlorotoluene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
cis-1,2-DCE	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/20/2012 11:31:00 AM
Dibromochloromethane	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
Dibromomethane	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/20/2012 11:31:00 AM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
2-Hexanone	ND	10		µg/L	1	8/20/2012 11:31:00 AM
Isopropylbenzene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-62

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 8:30:00 AM

Lab ID: 1208782-001

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
4-Methyl-2-pentanone	ND	10		µg/L	1	8/20/2012 11:31:00 AM
Methylene Chloride	ND	3.0		µg/L	1	8/20/2012 11:31:00 AM
n-Butylbenzene	ND	3.0		µg/L	1	8/20/2012 11:31:00 AM
n-Propylbenzene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
sec-Butylbenzene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
Styrene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
tert-Butylbenzene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/20/2012 11:31:00 AM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
trans-1,2-DCE	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/20/2012 11:31:00 AM
Vinyl chloride	ND	1.0		µg/L	1	8/20/2012 11:31:00 AM
Xylenes, Total	ND	1.5		µg/L	1	8/20/2012 11:31:00 AM
Surr: 1,2-Dichloroethane-d4	94.1	70-130		%REC	1	8/20/2012 11:31:00 AM
Surr: 4-Bromofluorobenzene	91.0	70-130		%REC	1	8/20/2012 11:31:00 AM
Surr: Dibromofluoromethane	98.0	70-130		%REC	1	8/20/2012 11:31:00 AM
Surr: Toluene-d8	81.8	70-130		%REC	1	8/20/2012 11:31:00 AM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	580	1.0		mg CO2/L	1	8/24/2012 3:25:55 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	6800	0.010		µmhos/cm	1	8/24/2012 3:25:55 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	610	20		mg/L CaCO3	1	8/24/2012 3:25:55 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/24/2012 3:25:55 PM
Total Alkalinity (as CaCO3)	610	20		mg/L CaCO3	1	8/24/2012 3:25:55 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	5990	100		mg/L	1	8/24/2012 8:54:00 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Field Blank

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 10:30:00 AM

Lab ID: 1208782-002

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Benzene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
Toluene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
Ethylbenzene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
Naphthalene	ND	2.0		µg/L	1	8/20/2012 12:53:38 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/20/2012 12:53:38 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/20/2012 12:53:38 PM
Acetone	ND	10		µg/L	1	8/20/2012 12:53:38 PM
Bromobenzene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
Bromoform	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
Bromomethane	ND	3.0		µg/L	1	8/20/2012 12:53:38 PM
2-Butanone	ND	10		µg/L	1	8/20/2012 12:53:38 PM
Carbon disulfide	ND	10		µg/L	1	8/20/2012 12:53:38 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
Chlorobenzene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
Chloroethane	ND	2.0		µg/L	1	8/20/2012 12:53:38 PM
Chloroform	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
Chloromethane	ND	3.0		µg/L	1	8/20/2012 12:53:38 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/20/2012 12:53:38 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
Dibromomethane	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/20/2012 12:53:38 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
2-Hexanone	ND	10		µg/L	1	8/20/2012 12:53:38 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Field Blank

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 10:30:00 AM

Lab ID: 1208782-002

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Isopropylbenzene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/20/2012 12:53:38 PM
Methylene Chloride	ND	3.0		µg/L	1	8/20/2012 12:53:38 PM
n-Butylbenzene	ND	3.0		µg/L	1	8/20/2012 12:53:38 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
Styrene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/20/2012 12:53:38 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/20/2012 12:53:38 PM
Vinyl chloride	ND	1.0		µg/L	1	8/20/2012 12:53:38 PM
Xylenes, Total	ND	1.5		µg/L	1	8/20/2012 12:53:38 PM
Surr: 1,2-Dichloroethane-d4	89.3	70-130		%REC	1	8/20/2012 12:53:38 PM
Surr: 4-Bromofluorobenzene	95.2	70-130		%REC	1	8/20/2012 12:53:38 PM
Surr: Dibromofluoromethane	91.3	70-130		%REC	1	8/20/2012 12:53:38 PM
Surr: Toluene-d8	84.3	70-130		%REC	1	8/20/2012 12:53:38 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-63

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 9:20:00 AM

Lab ID: 1208782-003

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/21/2012 1:12:59 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/21/2012 1:12:59 PM
Surr: DNOP	139	69-152		%REC	1	8/21/2012 1:12:59 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/22/2012 1:00:14 PM
Surr: BFB	91.4	69.8-119		%REC	1	8/22/2012 1:00:14 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	ND	0.50		mg/L	5	8/23/2012 2:09:47 AM
Chloride	250	10		mg/L	20	8/20/2012 1:00:26 PM
Bromide	5.2	0.50		mg/L	5	8/20/2012 12:48:01 PM
Nitrate+Nitrite as N	110	4.0	*	mg/L	20	8/29/2012 10:00:52 AM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	8/20/2012 12:48:01 PM
Sulfate	1800	50		mg/L	100	8/23/2012 2:22:12 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: JLF
Barium	0.017	0.0020		mg/L	1	9/10/2012 3:51:47 PM
Cadmium	ND	0.0020		mg/L	1	9/10/2012 3:51:47 PM
Calcium	460	5.0		mg/L	5	9/10/2012 4:05:56 PM
Chromium	ND	0.0060		mg/L	1	9/10/2012 3:51:47 PM
Copper	ND	0.0060		mg/L	1	9/10/2012 3:51:47 PM
Iron	ND	0.020		mg/L	1	9/10/2012 3:51:47 PM
Magnesium	180	5.0		mg/L	5	9/10/2012 4:05:56 PM
Manganese	2.2	0.010	*	mg/L	5	9/10/2012 4:05:56 PM
Potassium	4.7	1.0		mg/L	1	9/10/2012 3:51:47 PM
Silver	ND	0.0050		mg/L	1	9/10/2012 3:51:47 PM
Sodium	580	10		mg/L	10	9/10/2012 7:13:33 PM
Zinc	0.17	0.010		mg/L	1	9/10/2012 3:51:47 PM
EPA METHOD 200.7: METALS						Analyst: JLF
Arsenic	ND	0.020	*	mg/L	1	9/5/2012 4:19:59 PM
Barium	0.11	0.0020		mg/L	1	9/5/2012 4:19:59 PM
Cadmium	ND	0.0020		mg/L	1	9/5/2012 3:14:42 PM
Chromium	ND	0.0060		mg/L	1	9/5/2012 4:19:59 PM
Lead	ND	0.0050		mg/L	1	9/5/2012 4:19:59 PM
Selenium	ND	0.050		mg/L	1	9/5/2012 4:19:59 PM
Silver	ND	0.0050		mg/L	1	9/5/2012 3:14:42 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	0.0068	0.0010		mg/L	1	9/4/2012 2:10:44 PM
Lead	ND	0.0010		mg/L	1	9/4/2012 2:10:44 PM
Selenium	ND	0.050		mg/L	50	9/14/2012 2:20:24 PM
Uranium	0.067	0.0050	*	mg/L	5	9/4/2012 3:57:12 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-63

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 9:20:00 AM

Lab ID: 1208782-003

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	8/21/2012 4:10:48 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Acenaphthylene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Aniline	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Anthracene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Azobenzene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Benz(a)anthracene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Benzo(a)pyrene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Benzo(b)fluoranthene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Benzo(k)fluoranthene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Benzoic acid	ND	20		µg/L	1	8/22/2012 11:53:20 AM
Benzyl alcohol	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/22/2012 11:53:20 AM
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Butyl benzyl phthalate	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Carbazole	ND	10		µg/L	1	8/22/2012 11:53:20 AM
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/22/2012 11:53:20 AM
4-Chloroaniline	ND	10		µg/L	1	8/22/2012 11:53:20 AM
2-Chloronaphthalene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
2-Chlorophenol	ND	10		µg/L	1	8/22/2012 11:53:20 AM
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Chrysene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Di-n-butyl phthalate	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Di-n-octyl phthalate	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Dibenzofuran	ND	10		µg/L	1	8/22/2012 11:53:20 AM
1,2-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
1,3-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
1,4-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Diethyl phthalate	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Dimethyl phthalate	ND	10		µg/L	1	8/22/2012 11:53:20 AM
2,4-Dichlorophenol	ND	20		µg/L	1	8/22/2012 11:53:20 AM
2,4-Dimethylphenol	ND	10		µg/L	1	8/22/2012 11:53:20 AM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/22/2012 11:53:20 AM
2,4-Dinitrophenol	ND	20		µg/L	1	8/22/2012 11:53:20 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-63

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 9:20:00 AM

Lab ID: 1208782-003

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
2,4-Dinitrotoluene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
2,6-Dinitrotoluene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Fluoranthene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Fluorene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Hexachlorobenzene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Hexachlorobutadiene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Hexachloroethane	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Isophorone	ND	10		µg/L	1	8/22/2012 11:53:20 AM
1-Methylnaphthalene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
2-Methylnaphthalene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
2-Methylphenol	ND	10		µg/L	1	8/22/2012 11:53:20 AM
3+4-Methylphenol	ND	10		µg/L	1	8/22/2012 11:53:20 AM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/22/2012 11:53:20 AM
N-Nitrosodimethylamine	ND	10		µg/L	1	8/22/2012 11:53:20 AM
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Naphthalene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
2-Nitroaniline	ND	10		µg/L	1	8/22/2012 11:53:20 AM
3-Nitroaniline	ND	10		µg/L	1	8/22/2012 11:53:20 AM
4-Nitroaniline	ND	20		µg/L	1	8/22/2012 11:53:20 AM
Nitrobenzene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
2-Nitrophenol	ND	10		µg/L	1	8/22/2012 11:53:20 AM
4-Nitrophenol	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Pentachlorophenol	ND	20		µg/L	1	8/22/2012 11:53:20 AM
Phenanthrene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Phenol	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Pyrene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Pyridine	ND	10		µg/L	1	8/22/2012 11:53:20 AM
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/22/2012 11:53:20 AM
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/22/2012 11:53:20 AM
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/22/2012 11:53:20 AM
Surr: 2,4,6-Tribromophenol	93.6	44.2-126		%REC	1	8/22/2012 11:53:20 AM
Surr: 2-Fluorobiphenyl	79.3	37-114		%REC	1	8/22/2012 11:53:20 AM
Surr: 2-Fluorophenol	51.7	23.4-98		%REC	1	8/22/2012 11:53:20 AM
Surr: 4-Terphenyl-d14	64.6	41.3-116		%REC	1	8/22/2012 11:53:20 AM
Surr: Nitrobenzene-d5	71.2	39.5-118		%REC	1	8/22/2012 11:53:20 AM
Surr: Phenol-d5	43.0	20.9-95.9		%REC	1	8/22/2012 11:53:20 AM
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Benzene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
Toluene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-63

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 9:20:00 AM

Lab ID: 1208782-003

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Ethylbenzene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
Methyl tert-butyl ether (MTBE)	4.9	1.0		µg/L	1	8/20/2012 1:21:12 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
1,2-Dichloroethane (EDC)	1.3	1.0		µg/L	1	8/20/2012 1:21:12 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
Naphthalene	ND	2.0		µg/L	1	8/20/2012 1:21:12 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/20/2012 1:21:12 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/20/2012 1:21:12 PM
Acetone	ND	10		µg/L	1	8/20/2012 1:21:12 PM
Bromobenzene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
Bromoform	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
Bromomethane	ND	3.0		µg/L	1	8/20/2012 1:21:12 PM
2-Butanone	ND	10		µg/L	1	8/20/2012 1:21:12 PM
Carbon disulfide	ND	10		µg/L	1	8/20/2012 1:21:12 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
Chlorobenzene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
Chloroethane	ND	2.0		µg/L	1	8/20/2012 1:21:12 PM
Chloroform	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
Chloromethane	ND	3.0		µg/L	1	8/20/2012 1:21:12 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/20/2012 1:21:12 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
Dibromomethane	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/20/2012 1:21:12 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
2-Hexanone	ND	10		µg/L	1	8/20/2012 1:21:12 PM
Isopropylbenzene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-63

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 9:20:00 AM

Lab ID: 1208782-003

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
4-Methyl-2-pentanone	ND	10		µg/L	1	8/20/2012 1:21:12 PM
Methylene Chloride	ND	3.0		µg/L	1	8/20/2012 1:21:12 PM
n-Butylbenzene	ND	3.0		µg/L	1	8/20/2012 1:21:12 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
Styrene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/20/2012 1:21:12 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/20/2012 1:21:12 PM
Vinyl chloride	ND	1.0		µg/L	1	8/20/2012 1:21:12 PM
Xylenes, Total	ND	1.5		µg/L	1	8/20/2012 1:21:12 PM
Surr: 1,2-Dichloroethane-d4	89.8	70-130		%REC	1	8/20/2012 1:21:12 PM
Surr: 4-Bromofluorobenzene	92.3	70-130		%REC	1	8/20/2012 1:21:12 PM
Surr: Dibromofluoromethane	86.5	70-130		%REC	1	8/20/2012 1:21:12 PM
Surr: Toluene-d8	87.1	70-130		%REC	1	8/20/2012 1:21:12 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	530	1.0		mg CO2/L	1	8/24/2012 3:49:15 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	4800	0.010		µmhos/cm	1	8/24/2012 3:49:15 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	520	20		mg/L CaCO3	1	8/24/2012 3:49:15 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/24/2012 3:49:15 PM
Total Alkalinity (as CaCO3)	520	20		mg/L CaCO3	1	8/24/2012 3:49:15 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	4360	40.0		mg/L	1	8/24/2012 8:54:00 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-64

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 10:00:00 AM

Lab ID: 1208782-004

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/21/2012 1:35:02 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/21/2012 1:35:02 PM
Surr: DNOP	141	69-152		%REC	1	8/21/2012 1:35:02 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/22/2012 1:30:29 PM
Surr: BFB	97.9	69.8-119		%REC	1	8/22/2012 1:30:29 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	ND	0.50		mg/L	5	8/23/2012 3:11:50 AM
Chloride	940	50		mg/L	100	8/23/2012 2:34:36 AM
Bromide	5.7	0.50		mg/L	5	8/20/2012 1:12:50 PM
Nitrate+Nitrite as N	43	2.0	*	mg/L	10	8/23/2012 5:40:47 AM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	8/20/2012 1:12:50 PM
Sulfate	1600	25		mg/L	50	8/23/2012 3:24:14 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: JLF
Barium	0.012	0.0020		mg/L	1	9/10/2012 4:09:32 PM
Cadmium	ND	0.0020		mg/L	1	9/10/2012 4:09:32 PM
Calcium	490	50		mg/L	50	9/10/2012 7:17:00 PM
Chromium	ND	0.0060		mg/L	1	9/10/2012 4:09:32 PM
Copper	ND	0.0060		mg/L	1	9/10/2012 4:09:32 PM
Iron	0.029	0.020		mg/L	1	9/10/2012 4:09:32 PM
Magnesium	75	1.0		mg/L	1	9/10/2012 4:09:32 PM
Manganese	ND	0.0020		mg/L	1	9/10/2012 4:09:32 PM
Potassium	4.9	1.0		mg/L	1	9/10/2012 4:09:32 PM
Silver	ND	0.0050		mg/L	1	9/10/2012 4:09:32 PM
Sodium	890	50		mg/L	50	9/10/2012 7:17:00 PM
Zinc	0.096	0.010		mg/L	1	9/10/2012 4:09:32 PM
EPA METHOD 200.7: METALS						Analyst: JLF
Arsenic	ND	0.020		mg/L	1	9/5/2012 4:24:11 PM
Barium	0.056	0.0020		mg/L	1	9/5/2012 4:24:11 PM
Cadmium	ND	0.0020		mg/L	1	9/5/2012 3:17:15 PM
Chromium	ND	0.0060		mg/L	1	9/5/2012 4:24:11 PM
Lead	ND	0.0050		mg/L	1	9/5/2012 4:24:11 PM
Selenium	ND	0.050		mg/L	1	9/5/2012 4:24:11 PM
Silver	ND	0.0050		mg/L	1	9/5/2012 3:17:15 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	0.0029	0.0010		mg/L	1	9/4/2012 2:14:40 PM
Lead	ND	0.0010		mg/L	1	9/4/2012 2:14:40 PM
Selenium	ND	0.050		mg/L	50	9/14/2012 2:24:20 PM
Uranium	0.016	0.0010		mg/L	1	9/4/2012 2:14:40 PM

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-64

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 10:00:00 AM

Lab ID: 1208782-004

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	8/21/2012 4:12:35 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Acenaphthylene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Aniline	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Anthracene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Azobenzene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Benz(a)anthracene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Benzo(a)pyrene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Benzo(b)fluoranthene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Benzo(k)fluoranthene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Benzoic acid	ND	20		µg/L	1	8/22/2012 3:21:02 PM
Benzyl alcohol	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/22/2012 3:21:02 PM
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Butyl benzyl phthalate	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Carbazole	ND	10		µg/L	1	8/22/2012 3:21:02 PM
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/22/2012 3:21:02 PM
4-Chloroaniline	ND	10		µg/L	1	8/22/2012 3:21:02 PM
2-Chloronaphthalene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
2-Chlorophenol	ND	10		µg/L	1	8/22/2012 3:21:02 PM
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Chrysene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Di-n-butyl phthalate	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Di-n-octyl phthalate	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Dibenzofuran	ND	10		µg/L	1	8/22/2012 3:21:02 PM
1,2-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
1,3-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
1,4-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Diethyl phthalate	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Dimethyl phthalate	ND	10		µg/L	1	8/22/2012 3:21:02 PM
2,4-Dichlorophenol	ND	20		µg/L	1	8/22/2012 3:21:02 PM
2,4-Dimethylphenol	ND	10		µg/L	1	8/22/2012 3:21:02 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/22/2012 3:21:02 PM
2,4-Dinitrophenol	ND	20		µg/L	1	8/22/2012 3:21:02 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-64

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 10:00:00 AM

Lab ID: 1208782-004

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
2,4-Dinitrotoluene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
2,6-Dinitrotoluene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Fluoranthene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Fluorene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Hexachlorobenzene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Hexachlorobutadiene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Hexachloroethane	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Isophorone	ND	10		µg/L	1	8/22/2012 3:21:02 PM
1-Methylnaphthalene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
2-Methylnaphthalene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
2-Methylphenol	ND	10		µg/L	1	8/22/2012 3:21:02 PM
3+4-Methylphenol	ND	10		µg/L	1	8/22/2012 3:21:02 PM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/22/2012 3:21:02 PM
N-Nitrosodimethylamine	ND	10		µg/L	1	8/22/2012 3:21:02 PM
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Naphthalene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
2-Nitroaniline	ND	10		µg/L	1	8/22/2012 3:21:02 PM
3-Nitroaniline	ND	10		µg/L	1	8/22/2012 3:21:02 PM
4-Nitroaniline	ND	20		µg/L	1	8/22/2012 3:21:02 PM
Nitrobenzene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
2-Nitrophenol	ND	10		µg/L	1	8/22/2012 3:21:02 PM
4-Nitrophenol	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Pentachlorophenol	ND	20		µg/L	1	8/22/2012 3:21:02 PM
Phenanthrene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Phenol	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Pyrene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Pyridine	ND	10		µg/L	1	8/22/2012 3:21:02 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/22/2012 3:21:02 PM
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/22/2012 3:21:02 PM
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/22/2012 3:21:02 PM
Surr: 2,4,6-Tribromophenol	89.1	44.2-126		%REC	1	8/22/2012 3:21:02 PM
Surr: 2-Fluorobiphenyl	87.5	37-114		%REC	1	8/22/2012 3:21:02 PM
Surr: 2-Fluorophenol	63.0	23.4-98		%REC	1	8/22/2012 3:21:02 PM
Surr: 4-Terphenyl-d14	76.6	41.3-116		%REC	1	8/22/2012 3:21:02 PM
Surr: Nitrobenzene-d5	82.3	39.5-118		%REC	1	8/22/2012 3:21:02 PM
Surr: Phenol-d5	48.7	20.9-95.9		%REC	1	8/22/2012 3:21:02 PM
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Benzene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
Toluene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-64

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 10:00:00 AM

Lab ID: 1208782-004

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Ethylbenzene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
Naphthalene	ND	2.0		µg/L	1	8/20/2012 1:48:45 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/20/2012 1:48:45 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/20/2012 1:48:45 PM
Acetone	ND	10		µg/L	1	8/20/2012 1:48:45 PM
Bromobenzene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
Bromoform	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
Bromomethane	ND	3.0		µg/L	1	8/20/2012 1:48:45 PM
2-Butanone	ND	10		µg/L	1	8/20/2012 1:48:45 PM
Carbon disulfide	ND	10		µg/L	1	8/20/2012 1:48:45 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
Chlorobenzene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
Chloroethane	ND	2.0		µg/L	1	8/20/2012 1:48:45 PM
Chloroform	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
Chloromethane	ND	3.0		µg/L	1	8/20/2012 1:48:45 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/20/2012 1:48:45 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
Dibromomethane	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/20/2012 1:48:45 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
2-Hexanone	ND	10		µg/L	1	8/20/2012 1:48:45 PM
Isopropylbenzene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-64

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 10:00:00 AM

Lab ID: 1208782-004

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
4-Methyl-2-pentanone	ND	10		µg/L	1	8/20/2012 1:48:45 PM
Methylene Chloride	ND	3.0		µg/L	1	8/20/2012 1:48:45 PM
n-Butylbenzene	ND	3.0		µg/L	1	8/20/2012 1:48:45 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
Styrene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/20/2012 1:48:45 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/20/2012 1:48:45 PM
Vinyl chloride	ND	1.0		µg/L	1	8/20/2012 1:48:45 PM
Xylenes, Total	ND	1.5		µg/L	1	8/20/2012 1:48:45 PM
Surr: 1,2-Dichloroethane-d4	92.4	70-130		%REC	1	8/20/2012 1:48:45 PM
Surr: 4-Bromofluorobenzene	95.0	70-130		%REC	1	8/20/2012 1:48:45 PM
Surr: Dibromofluoromethane	96.2	70-130		%REC	1	8/20/2012 1:48:45 PM
Surr: Toluene-d8	85.3	70-130		%REC	1	8/20/2012 1:48:45 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	300	1.0		mg CO2/L	1	8/24/2012 4:10:32 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	5800	0.010		µmhos/cm	1	8/24/2012 4:10:32 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	300	20		mg/L CaCO3	1	8/24/2012 4:10:32 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/24/2012 4:10:32 PM
Total Alkalinity (as CaCO3)	300	20		mg/L CaCO3	1	8/24/2012 4:10:32 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	4460	40.0		mg/L	1	8/24/2012 8:54:00 AM

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- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-65

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 9:00:00 AM

Lab ID: 1208782-005

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	2.3	0.20		mg/L	1	8/21/2012 1:57:17 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/21/2012 1:57:17 PM
Surr: DNOP	133	69-152		%REC	1	8/21/2012 1:57:17 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	22	2.5		mg/L	50	8/22/2012 4:01:26 PM
Surr: BFB	96.3	69.8-119		%REC	50	8/22/2012 4:01:26 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	ND	0.50		mg/L	5	8/23/2012 3:36:38 AM
Chloride	160	10		mg/L	20	8/20/2012 1:50:04 PM
Bromide	4.3	0.50		mg/L	5	8/20/2012 1:37:40 PM
Nitrate+Nitrite as N	ND	1.0		mg/L	5	8/23/2012 5:53:12 AM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	8/20/2012 1:37:40 PM
Sulfate	1600	25		mg/L	50	8/23/2012 3:49:03 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: JLF
Barium	0.053	0.0020		mg/L	1	9/10/2012 4:18:38 PM
Cadmium	ND	0.0020		mg/L	1	9/10/2012 4:18:38 PM
Calcium	410	5.0		mg/L	5	9/10/2012 4:21:38 PM
Chromium	ND	0.0060		mg/L	1	9/10/2012 4:18:38 PM
Copper	ND	0.0060		mg/L	1	9/10/2012 4:18:38 PM
Iron	12	1.0	*	mg/L	50	9/10/2012 7:20:25 PM
Magnesium	110	5.0		mg/L	5	9/10/2012 4:21:38 PM
Manganese	5.3	0.10	*	mg/L	50	9/10/2012 7:20:25 PM
Potassium	4.3	1.0		mg/L	1	9/10/2012 4:18:38 PM
Silver	ND	0.0050		mg/L	1	9/10/2012 4:18:38 PM
Sodium	860	50		mg/L	50	9/10/2012 7:20:25 PM
Zinc	0.052	0.010		mg/L	1	9/10/2012 4:18:38 PM
EPA METHOD 200.7: METALS						Analyst: JLF
Arsenic	ND	0.020	*	mg/L	1	9/5/2012 4:26:42 PM
Barium	0.058	0.0020		mg/L	1	9/5/2012 4:26:42 PM
Cadmium	ND	0.0020		mg/L	1	9/5/2012 3:19:47 PM
Chromium	ND	0.0060		mg/L	1	9/5/2012 4:26:42 PM
Lead	ND	0.0050		mg/L	1	9/5/2012 4:26:42 PM
Selenium	ND	0.050		mg/L	1	9/5/2012 4:26:42 PM
Silver	ND	0.0050		mg/L	1	9/5/2012 3:19:47 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	0.020	0.0010	*	mg/L	1	9/4/2012 2:18:36 PM
Lead	ND	0.0010		mg/L	1	9/4/2012 2:18:36 PM
Selenium	ND	0.010		mg/L	10	9/14/2012 2:28:16 PM
Uranium	0.010	0.0010		mg/L	1	9/4/2012 2:18:36 PM

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- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-65

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 9:00:00 AM

Lab ID: 1208782-005

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	8/21/2012 4:14:21 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Acenaphthylene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Aniline	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Anthracene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Azobenzene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Benz(a)anthracene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Benzo(a)pyrene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Benzo(b)fluoranthene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Benzo(k)fluoranthene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Benzoic acid	ND	20		µg/L	1	8/22/2012 2:21:30 PM
Benzyl alcohol	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/22/2012 2:21:30 PM
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Butyl benzyl phthalate	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Carbazole	ND	10		µg/L	1	8/22/2012 2:21:30 PM
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/22/2012 2:21:30 PM
4-Chloroaniline	ND	10		µg/L	1	8/22/2012 2:21:30 PM
2-Chloronaphthalene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
2-Chlorophenol	ND	10		µg/L	1	8/22/2012 2:21:30 PM
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Chrysene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Di-n-butyl phthalate	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Di-n-octyl phthalate	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Dibenzofuran	ND	10		µg/L	1	8/22/2012 2:21:30 PM
1,2-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
1,3-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
1,4-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Diethyl phthalate	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Dimethyl phthalate	ND	10		µg/L	1	8/22/2012 2:21:30 PM
2,4-Dichlorophenol	ND	20		µg/L	1	8/22/2012 2:21:30 PM
2,4-Dimethylphenol	17	10		µg/L	1	8/22/2012 2:21:30 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/22/2012 2:21:30 PM
2,4-Dinitrophenol	ND	20		µg/L	1	8/22/2012 2:21:30 PM

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- H Holding times for preparation or analysis exceeded
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- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-65

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 9:00:00 AM

Lab ID: 1208782-005

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
2,4-Dinitrotoluene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
2,6-Dinitrotoluene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Fluoranthene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Fluorene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Hexachlorobenzene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Hexachlorobutadiene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Hexachloroethane	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Isophorone	ND	10		µg/L	1	8/22/2012 2:21:30 PM
1-Methylnaphthalene	98	10		µg/L	1	8/22/2012 2:21:30 PM
2-Methylnaphthalene	150	10		µg/L	1	8/22/2012 2:21:30 PM
2-Methylphenol	ND	10		µg/L	1	8/22/2012 2:21:30 PM
3+4-Methylphenol	ND	10		µg/L	1	8/22/2012 2:21:30 PM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/22/2012 2:21:30 PM
N-Nitrosodimethylamine	ND	10		µg/L	1	8/22/2012 2:21:30 PM
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Naphthalene	260	20		µg/L	2	8/22/2012 5:50:10 PM
2-Nitroaniline	ND	10		µg/L	1	8/22/2012 2:21:30 PM
3-Nitroaniline	ND	10		µg/L	1	8/22/2012 2:21:30 PM
4-Nitroaniline	ND	20		µg/L	1	8/22/2012 2:21:30 PM
Nitrobenzene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
2-Nitrophenol	ND	10		µg/L	1	8/22/2012 2:21:30 PM
4-Nitrophenol	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Pentachlorophenol	ND	20		µg/L	1	8/22/2012 2:21:30 PM
Phenanthrene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Phenol	52	10		µg/L	1	8/22/2012 2:21:30 PM
Pyrene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Pyridine	ND	10		µg/L	1	8/22/2012 2:21:30 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/22/2012 2:21:30 PM
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/22/2012 2:21:30 PM
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/22/2012 2:21:30 PM
Surr: 2,4,6-Tribromophenol	87.1	44.2-126		%REC	1	8/22/2012 2:21:30 PM
Surr: 2-Fluorobiphenyl	69.8	37-114		%REC	1	8/22/2012 2:21:30 PM
Surr: 2-Fluorophenol	44.7	23.4-98		%REC	1	8/22/2012 2:21:30 PM
Surr: 4-Terphenyl-d14	64.5	41.3-116		%REC	1	8/22/2012 2:21:30 PM
Surr: Nitrobenzene-d5	65.0	39.5-118		%REC	1	8/22/2012 2:21:30 PM
Surr: Phenol-d5	47.1	20.9-95.9		%REC	1	8/22/2012 2:21:30 PM
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Benzene	7200	100		µg/L	100	8/20/2012 2:16:20 PM
Toluene	ND	20		µg/L	20	8/20/2012 2:43:58 PM

Qualifiers:

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- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-65

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 9:00:00 AM

Lab ID: 1208782-005

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Ethylbenzene	1700	20		µg/L	20	8/20/2012 2:43:58 PM
Methyl tert-butyl ether (MTBE)	790	20		µg/L	20	8/20/2012 2:43:58 PM
1,2,4-Trimethylbenzene	1500	20		µg/L	20	8/20/2012 2:43:58 PM
1,3,5-Trimethylbenzene	90	20		µg/L	20	8/20/2012 2:43:58 PM
1,2-Dichloroethane (EDC)	170	20		µg/L	20	8/20/2012 2:43:58 PM
1,2-Dibromoethane (EDB)	ND	20		µg/L	20	8/20/2012 2:43:58 PM
Naphthalene	400	40		µg/L	20	8/20/2012 2:43:58 PM
1-Methylnaphthalene	130	80		µg/L	20	8/20/2012 2:43:58 PM
2-Methylnaphthalene	210	80		µg/L	20	8/20/2012 2:43:58 PM
Acetone	ND	200		µg/L	20	8/20/2012 2:43:58 PM
Bromobenzene	ND	20		µg/L	20	8/20/2012 2:43:58 PM
Bromodichloromethane	ND	20		µg/L	20	8/20/2012 2:43:58 PM
Bromoform	ND	20		µg/L	20	8/20/2012 2:43:58 PM
Bromomethane	ND	60		µg/L	20	8/20/2012 2:43:58 PM
2-Butanone	ND	200		µg/L	20	8/20/2012 2:43:58 PM
Carbon disulfide	ND	200		µg/L	20	8/20/2012 2:43:58 PM
Carbon Tetrachloride	ND	20		µg/L	20	8/20/2012 2:43:58 PM
Chlorobenzene	ND	20		µg/L	20	8/20/2012 2:43:58 PM
Chloroethane	ND	40		µg/L	20	8/20/2012 2:43:58 PM
Chloroform	ND	20		µg/L	20	8/20/2012 2:43:58 PM
Chloromethane	ND	60		µg/L	20	8/20/2012 2:43:58 PM
2-Chlorotoluene	ND	20		µg/L	20	8/20/2012 2:43:58 PM
4-Chlorotoluene	ND	20		µg/L	20	8/20/2012 2:43:58 PM
cis-1,2-DCE	ND	20		µg/L	20	8/20/2012 2:43:58 PM
cis-1,3-Dichloropropene	ND	20		µg/L	20	8/20/2012 2:43:58 PM
1,2-Dibromo-3-chloropropane	ND	40		µg/L	20	8/20/2012 2:43:58 PM
Dibromochloromethane	ND	20		µg/L	20	8/20/2012 2:43:58 PM
Dibromomethane	ND	20		µg/L	20	8/20/2012 2:43:58 PM
1,2-Dichlorobenzene	ND	20		µg/L	20	8/20/2012 2:43:58 PM
1,3-Dichlorobenzene	ND	20		µg/L	20	8/20/2012 2:43:58 PM
1,4-Dichlorobenzene	ND	20		µg/L	20	8/20/2012 2:43:58 PM
Dichlorodifluoromethane	ND	20		µg/L	20	8/20/2012 2:43:58 PM
1,1-Dichloroethane	ND	20		µg/L	20	8/20/2012 2:43:58 PM
1,1-Dichloroethene	ND	20		µg/L	20	8/20/2012 2:43:58 PM
1,2-Dichloropropane	ND	20		µg/L	20	8/20/2012 2:43:58 PM
1,3-Dichloropropane	ND	20		µg/L	20	8/20/2012 2:43:58 PM
2,2-Dichloropropane	ND	40		µg/L	20	8/20/2012 2:43:58 PM
1,1-Dichloropropene	ND	20		µg/L	20	8/20/2012 2:43:58 PM
Hexachlorobutadiene	ND	20		µg/L	20	8/20/2012 2:43:58 PM
2-Hexanone	ND	200		µg/L	20	8/20/2012 2:43:58 PM
Isopropylbenzene	79	20		µg/L	20	8/20/2012 2:43:58 PM
4-Isopropyltoluene	ND	20		µg/L	20	8/20/2012 2:43:58 PM

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- H Holding times for preparation or analysis exceeded
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- R RPD outside accepted recovery limits
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-65

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 9:00:00 AM

Lab ID: 1208782-005

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
4-Methyl-2-pentanone	ND	200		µg/L	20	8/20/2012 2:43:58 PM
Methylene Chloride	ND	60		µg/L	20	8/20/2012 2:43:58 PM
n-Butylbenzene	ND	60		µg/L	20	8/20/2012 2:43:58 PM
n-Propylbenzene	230	20		µg/L	20	8/20/2012 2:43:58 PM
sec-Butylbenzene	ND	20		µg/L	20	8/20/2012 2:43:58 PM
Styrene	ND	20		µg/L	20	8/20/2012 2:43:58 PM
tert-Butylbenzene	ND	20		µg/L	20	8/20/2012 2:43:58 PM
1,1,1,2-Tetrachloroethane	ND	20		µg/L	20	8/20/2012 2:43:58 PM
1,1,2,2-Tetrachloroethane	ND	40		µg/L	20	8/20/2012 2:43:58 PM
Tetrachloroethene (PCE)	ND	20		µg/L	20	8/20/2012 2:43:58 PM
trans-1,2-DCE	ND	20		µg/L	20	8/20/2012 2:43:58 PM
trans-1,3-Dichloropropene	ND	20		µg/L	20	8/20/2012 2:43:58 PM
1,2,3-Trichlorobenzene	ND	20		µg/L	20	8/20/2012 2:43:58 PM
1,2,4-Trichlorobenzene	ND	20		µg/L	20	8/20/2012 2:43:58 PM
1,1,1-Trichloroethane	ND	20		µg/L	20	8/20/2012 2:43:58 PM
1,1,2-Trichloroethane	ND	20		µg/L	20	8/20/2012 2:43:58 PM
Trichloroethene (TCE)	ND	20		µg/L	20	8/20/2012 2:43:58 PM
Trichlorofluoromethane	ND	20		µg/L	20	8/20/2012 2:43:58 PM
1,2,3-Trichloropropane	ND	40		µg/L	20	8/20/2012 2:43:58 PM
Vinyl chloride	ND	20		µg/L	20	8/20/2012 2:43:58 PM
Xylenes, Total	590	30		µg/L	20	8/20/2012 2:43:58 PM
Surr: 1,2-Dichloroethane-d4	88.9	70-130		%REC	20	8/20/2012 2:43:58 PM
Surr: 4-Bromofluorobenzene	88.4	70-130		%REC	20	8/20/2012 2:43:58 PM
Surr: Dibromofluoromethane	87.8	70-130		%REC	20	8/20/2012 2:43:58 PM
Surr: Toluene-d8	85.5	70-130		%REC	20	8/20/2012 2:43:58 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	1100	2.5		mg CO2/L	2.5	8/28/2012 2:04:00 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	4700	0.010		µmhos/cm	1	8/24/2012 4:25:04 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	1200	50		mg/L CaCO3	2.5	8/28/2012 2:04:59 PM
Carbonate (As CaCO3)	ND	5.0		mg/L CaCO3	2.5	8/28/2012 2:04:59 PM
Total Alkalinity (as CaCO3)	1200	50		mg/L CaCO3	2.5	8/28/2012 2:04:59 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	3850	40.0		mg/L	1	8/24/2012 8:54:00 AM

Qualifiers:

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- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-67

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 8:00:00 AM

Lab ID: 1208782-006

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/21/2012 2:19:17 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/21/2012 2:19:17 PM
Surr: DNOP	142	69-152		%REC	1	8/21/2012 2:19:17 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	0.053	0.050		mg/L	1	8/22/2012 2:00:43 PM
Surr: BFB	88.0	69.8-119		%REC	1	8/22/2012 2:00:43 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	0.77	0.50		mg/L	5	8/23/2012 4:01:29 AM
Chloride	6.5	2.5		mg/L	5	8/20/2012 2:02:28 PM
Bromide	ND	0.50		mg/L	5	8/20/2012 2:02:28 PM
Nitrate+Nitrite as N	5.5	1.0		mg/L	5	8/23/2012 6:05:38 AM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	8/20/2012 2:02:28 PM
Sulfate	200	2.5		mg/L	5	8/20/2012 2:02:28 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: JLF
Barium	0.040	0.0020		mg/L	1	9/10/2012 4:24:32 PM
Cadmium	ND	0.0020		mg/L	1	9/10/2012 4:24:32 PM
Calcium	160	5.0		mg/L	5	9/10/2012 4:28:08 PM
Chromium	ND	0.0060		mg/L	1	9/10/2012 4:24:32 PM
Copper	ND	0.0060		mg/L	1	9/10/2012 4:24:32 PM
Iron	ND	0.020		mg/L	1	9/10/2012 4:24:32 PM
Magnesium	33	1.0		mg/L	1	9/10/2012 4:24:32 PM
Manganese	0.17	0.0020	*	mg/L	1	9/10/2012 4:24:32 PM
Potassium	3.3	1.0		mg/L	1	9/10/2012 4:24:32 PM
Silver	ND	0.0050		mg/L	1	9/10/2012 4:24:32 PM
Sodium	90	1.0		mg/L	1	9/10/2012 4:24:32 PM
Zinc	0.062	0.010		mg/L	1	9/10/2012 4:24:32 PM
EPA METHOD 200.7: METALS						Analyst: JLF
Arsenic	ND	0.020		mg/L	1	9/5/2012 4:29:14 PM
Barium	0.052	0.0020		mg/L	1	9/5/2012 4:29:14 PM
Cadmium	ND	0.0020		mg/L	1	9/5/2012 3:22:21 PM
Chromium	ND	0.0060		mg/L	1	9/5/2012 4:29:14 PM
Lead	ND	0.0050		mg/L	1	9/5/2012 4:29:14 PM
Selenium	ND	0.050		mg/L	1	9/5/2012 4:29:14 PM
Silver	ND	0.0050		mg/L	1	9/5/2012 3:22:21 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	ND	0.0010		mg/L	1	9/4/2012 2:26:31 PM
Lead	ND	0.0010		mg/L	1	9/4/2012 2:26:31 PM
Selenium	0.0018	0.0010		mg/L	1	9/4/2012 2:26:31 PM
Uranium	0.0077	0.0010		mg/L	1	9/4/2012 2:26:31 PM

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- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-67

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 8:00:00 AM

Lab ID: 1208782-006

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	8/21/2012 4:16:08 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Acenaphthylene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Aniline	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Anthracene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Azobenzene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Benz(a)anthracene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Benzo(a)pyrene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Benzo(b)fluoranthene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Benzo(k)fluoranthene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Benzoic acid	ND	20		µg/L	1	8/22/2012 2:51:19 PM
Benzyl alcohol	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/22/2012 2:51:19 PM
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Butyl benzyl phthalate	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Carbazole	ND	10		µg/L	1	8/22/2012 2:51:19 PM
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/22/2012 2:51:19 PM
4-Chloroaniline	ND	10		µg/L	1	8/22/2012 2:51:19 PM
2-Chloronaphthalene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
2-Chlorophenol	ND	10		µg/L	1	8/22/2012 2:51:19 PM
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Chrysene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Di-n-butyl phthalate	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Di-n-octyl phthalate	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Dibenzofuran	ND	10		µg/L	1	8/22/2012 2:51:19 PM
1,2-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
1,3-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
1,4-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Diethyl phthalate	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Dimethyl phthalate	ND	10		µg/L	1	8/22/2012 2:51:19 PM
2,4-Dichlorophenol	ND	20		µg/L	1	8/22/2012 2:51:19 PM
2,4-Dimethylphenol	ND	10		µg/L	1	8/22/2012 2:51:19 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/22/2012 2:51:19 PM
2,4-Dinitrophenol	ND	20		µg/L	1	8/22/2012 2:51:19 PM

Qualifiers:

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- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-67

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 8:00:00 AM

Lab ID: 1208782-006

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
2,4-Dinitrotoluene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
2,6-Dinitrotoluene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Fluoranthene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Fluorene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Hexachlorobenzene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Hexachlorobutadiene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Hexachloroethane	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Isophorone	ND	10		µg/L	1	8/22/2012 2:51:19 PM
1-Methylnaphthalene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
2-Methylnaphthalene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
2-Methylphenol	ND	10		µg/L	1	8/22/2012 2:51:19 PM
3+4-Methylphenol	ND	10		µg/L	1	8/22/2012 2:51:19 PM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/22/2012 2:51:19 PM
N-Nitrosodimethylamine	ND	10		µg/L	1	8/22/2012 2:51:19 PM
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Naphthalene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
2-Nitroaniline	ND	10		µg/L	1	8/22/2012 2:51:19 PM
3-Nitroaniline	ND	10		µg/L	1	8/22/2012 2:51:19 PM
4-Nitroaniline	ND	20		µg/L	1	8/22/2012 2:51:19 PM
Nitrobenzene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
2-Nitrophenol	ND	10		µg/L	1	8/22/2012 2:51:19 PM
4-Nitrophenol	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Pentachlorophenol	ND	20		µg/L	1	8/22/2012 2:51:19 PM
Phenanthrene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Phenol	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Pyrene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Pyridine	ND	10		µg/L	1	8/22/2012 2:51:19 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/22/2012 2:51:19 PM
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/22/2012 2:51:19 PM
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/22/2012 2:51:19 PM
Surr: 2,4,6-Tribromophenol	76.4	44.2-126		%REC	1	8/22/2012 2:51:19 PM
Surr: 2-Fluorobiphenyl	63.7	37-114		%REC	1	8/22/2012 2:51:19 PM
Surr: 2-Fluorophenol	39.9	23.4-98		%REC	1	8/22/2012 2:51:19 PM
Surr: 4-Terphenyl-d14	52.5	41.3-116		%REC	1	8/22/2012 2:51:19 PM
Surr: Nitrobenzene-d5	65.2	39.5-118		%REC	1	8/22/2012 2:51:19 PM
Surr: Phenol-d5	30.0	20.9-95.9		%REC	1	8/22/2012 2:51:19 PM
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Benzene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
Toluene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM

Qualifiers:

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- B Analyte detected in the associated Method Blank
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- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-67

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 8:00:00 AM

Lab ID: 1208782-006

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Ethylbenzene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
Naphthalene	ND	2.0		µg/L	1	8/20/2012 3:39:11 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/20/2012 3:39:11 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/20/2012 3:39:11 PM
Acetone	ND	10		µg/L	1	8/20/2012 3:39:11 PM
Bromobenzene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
Bromoform	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
Bromomethane	ND	3.0		µg/L	1	8/20/2012 3:39:11 PM
2-Butanone	ND	10		µg/L	1	8/20/2012 3:39:11 PM
Carbon disulfide	ND	10		µg/L	1	8/20/2012 3:39:11 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
Chlorobenzene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
Chloroethane	ND	2.0		µg/L	1	8/20/2012 3:39:11 PM
Chloroform	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
Chloromethane	ND	3.0		µg/L	1	8/20/2012 3:39:11 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/20/2012 3:39:11 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
Dibromomethane	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/20/2012 3:39:11 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
2-Hexanone	ND	10		µg/L	1	8/20/2012 3:39:11 PM
Isopropylbenzene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-67

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 8:00:00 AM

Lab ID: 1208782-006

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
4-Methyl-2-pentanone	ND	10		µg/L	1	8/20/2012 3:39:11 PM
Methylene Chloride	ND	3.0		µg/L	1	8/20/2012 3:39:11 PM
n-Butylbenzene	ND	3.0		µg/L	1	8/20/2012 3:39:11 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
Styrene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/20/2012 3:39:11 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/20/2012 3:39:11 PM
Vinyl chloride	ND	1.0		µg/L	1	8/20/2012 3:39:11 PM
Xylenes, Total	ND	1.5		µg/L	1	8/20/2012 3:39:11 PM
Surr: 1,2-Dichloroethane-d4	96.4	70-130		%REC	1	8/20/2012 3:39:11 PM
Surr: 4-Bromofluorobenzene	88.9	70-130		%REC	1	8/20/2012 3:39:11 PM
Surr: Dibromofluoromethane	62.7	70-130	S	%REC	1	8/20/2012 3:39:11 PM
Surr: Toluene-d8	84.9	70-130		%REC	1	8/20/2012 3:39:11 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	460	1.0		mg CO2/L	1	8/24/2012 5:03:10 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	1200	0.010		µmhos/cm	1	8/24/2012 5:03:10 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	470	20		mg/L CaCO3	1	8/24/2012 5:03:10 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/24/2012 5:03:10 PM
Total Alkalinity (as CaCO3)	470	20		mg/L CaCO3	1	8/24/2012 5:03:10 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	863	20.0		mg/L	1	8/24/2012 8:54:00 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-68

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 7:30:00 AM

Lab ID: 1208782-007

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/21/2012 2:41:22 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/21/2012 2:41:22 PM
Surr: DNOP	145	69-152		%REC	1	8/21/2012 2:41:22 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/22/2012 2:30:55 PM
Surr: BFB	97.6	69.8-119		%REC	1	8/22/2012 2:30:55 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	ND	0.50		mg/L	5	8/23/2012 4:13:53 AM
Chloride	62	2.5		mg/L	5	8/20/2012 2:52:07 PM
Bromide	ND	0.50		mg/L	5	8/20/2012 2:52:07 PM
Nitrate+Nitrite as N	6.0	1.0		mg/L	5	8/23/2012 8:34:34 AM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	8/20/2012 2:52:07 PM
Sulfate	280	10		mg/L	20	8/20/2012 3:04:32 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: JLF
Barium	0.022	0.0020		mg/L	1	9/10/2012 4:31:34 PM
Cadmium	ND	0.0020		mg/L	1	9/10/2012 4:31:34 PM
Calcium	88	1.0		mg/L	1	9/10/2012 4:31:34 PM
Chromium	ND	0.0060		mg/L	1	9/10/2012 4:31:34 PM
Copper	ND	0.0060		mg/L	1	9/10/2012 4:31:34 PM
Iron	ND	0.020		mg/L	1	9/10/2012 4:31:34 PM
Magnesium	22	1.0		mg/L	1	9/10/2012 4:31:34 PM
Manganese	0.12	0.0020	*	mg/L	1	9/10/2012 4:31:34 PM
Potassium	3.0	1.0		mg/L	1	9/10/2012 4:31:34 PM
Silver	ND	0.0050		mg/L	1	9/10/2012 4:31:34 PM
Sodium	110	5.0		mg/L	5	9/10/2012 4:35:09 PM
Zinc	0.011	0.010		mg/L	1	9/10/2012 4:31:34 PM
EPA METHOD 200.7: METALS						Analyst: JLF
Arsenic	ND	0.020		mg/L	1	9/5/2012 4:31:46 PM
Barium	0.065	0.0020		mg/L	1	9/5/2012 4:31:46 PM
Cadmium	ND	0.0020		mg/L	1	9/5/2012 3:24:58 PM
Chromium	ND	0.0060		mg/L	1	9/5/2012 4:31:46 PM
Lead	ND	0.0050		mg/L	1	9/5/2012 4:31:46 PM
Selenium	ND	0.050		mg/L	1	9/5/2012 4:31:46 PM
Silver	ND	0.0050		mg/L	1	9/5/2012 3:24:58 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	ND	0.0010		mg/L	1	9/4/2012 2:38:22 PM
Lead	ND	0.0010		mg/L	1	9/4/2012 2:38:22 PM
Selenium	0.0035	0.0010		mg/L	1	9/4/2012 2:38:22 PM
Uranium	0.0039	0.0010		mg/L	1	9/4/2012 2:38:22 PM

Qualifiers:

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- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-68

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 7:30:00 AM

Lab ID: 1208782-007

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	8/21/2012 4:17:55 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Acenaphthylene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Aniline	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Anthracene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Azobenzene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Benz(a)anthracene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Benzo(a)pyrene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Benzo(b)fluoranthene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Benzo(k)fluoranthene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Benzoic acid	ND	20		µg/L	1	8/22/2012 12:52:41 PM
Benzyl alcohol	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/22/2012 12:52:41 PM
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Butyl benzyl phthalate	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Carbazole	ND	10		µg/L	1	8/22/2012 12:52:41 PM
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/22/2012 12:52:41 PM
4-Chloroaniline	ND	10		µg/L	1	8/22/2012 12:52:41 PM
2-Chloronaphthalene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
2-Chlorophenol	ND	10		µg/L	1	8/22/2012 12:52:41 PM
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Chrysene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Di-n-butyl phthalate	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Di-n-octyl phthalate	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Dibenzofuran	ND	10		µg/L	1	8/22/2012 12:52:41 PM
1,2-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
1,3-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
1,4-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Diethyl phthalate	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Dimethyl phthalate	ND	10		µg/L	1	8/22/2012 12:52:41 PM
2,4-Dichlorophenol	ND	20		µg/L	1	8/22/2012 12:52:41 PM
2,4-Dimethylphenol	ND	10		µg/L	1	8/22/2012 12:52:41 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/22/2012 12:52:41 PM
2,4-Dinitrophenol	ND	20		µg/L	1	8/22/2012 12:52:41 PM

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-68

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 7:30:00 AM

Lab ID: 1208782-007

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
2,4-Dinitrotoluene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
2,6-Dinitrotoluene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Fluoranthene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Fluorene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Hexachlorobenzene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Hexachlorobutadiene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Hexachloroethane	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Isophorone	ND	10		µg/L	1	8/22/2012 12:52:41 PM
1-Methylnaphthalene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
2-Methylnaphthalene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
2-Methylphenol	ND	10		µg/L	1	8/22/2012 12:52:41 PM
3+4-Methylphenol	ND	10		µg/L	1	8/22/2012 12:52:41 PM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/22/2012 12:52:41 PM
N-Nitrosodimethylamine	ND	10		µg/L	1	8/22/2012 12:52:41 PM
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Naphthalene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
2-Nitroaniline	ND	10		µg/L	1	8/22/2012 12:52:41 PM
3-Nitroaniline	ND	10		µg/L	1	8/22/2012 12:52:41 PM
4-Nitroaniline	ND	20		µg/L	1	8/22/2012 12:52:41 PM
Nitrobenzene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
2-Nitrophenol	ND	10		µg/L	1	8/22/2012 12:52:41 PM
4-Nitrophenol	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Pentachlorophenol	ND	20		µg/L	1	8/22/2012 12:52:41 PM
Phenanthrene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Phenol	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Pyrene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Pyridine	ND	10		µg/L	1	8/22/2012 12:52:41 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/22/2012 12:52:41 PM
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/22/2012 12:52:41 PM
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/22/2012 12:52:41 PM
Surr: 2,4,6-Tribromophenol	87.7	44.2-126		%REC	1	8/22/2012 12:52:41 PM
Surr: 2-Fluorobiphenyl	70.8	37-114		%REC	1	8/22/2012 12:52:41 PM
Surr: 2-Fluorophenol	57.4	23.4-98		%REC	1	8/22/2012 12:52:41 PM
Surr: 4-Terphenyl-d14	68.2	41.3-116		%REC	1	8/22/2012 12:52:41 PM
Surr: Nitrobenzene-d5	70.9	39.5-118		%REC	1	8/22/2012 12:52:41 PM
Surr: Phenol-d5	42.6	20.9-95.9		%REC	1	8/22/2012 12:52:41 PM
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Benzene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
Toluene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-68

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 7:30:00 AM

Lab ID: 1208782-007

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Ethylbenzene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
Naphthalene	ND	2.0		µg/L	1	8/20/2012 4:06:44 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/20/2012 4:06:44 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/20/2012 4:06:44 PM
Acetone	ND	10		µg/L	1	8/20/2012 4:06:44 PM
Bromobenzene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
Bromoform	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
Bromomethane	ND	3.0		µg/L	1	8/20/2012 4:06:44 PM
2-Butanone	ND	10		µg/L	1	8/20/2012 4:06:44 PM
Carbon disulfide	ND	10		µg/L	1	8/20/2012 4:06:44 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
Chlorobenzene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
Chloroethane	ND	2.0		µg/L	1	8/20/2012 4:06:44 PM
Chloroform	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
Chloromethane	ND	3.0		µg/L	1	8/20/2012 4:06:44 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/20/2012 4:06:44 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
Dibromomethane	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/20/2012 4:06:44 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
2-Hexanone	ND	10		µg/L	1	8/20/2012 4:06:44 PM
Isopropylbenzene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM

Qualifiers:

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- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-68

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 7:30:00 AM

Lab ID: 1208782-007

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
4-Methyl-2-pentanone	ND	10		µg/L	1	8/20/2012 4:06:44 PM
Methylene Chloride	ND	3.0		µg/L	1	8/20/2012 4:06:44 PM
n-Butylbenzene	ND	3.0		µg/L	1	8/20/2012 4:06:44 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
Styrene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/20/2012 4:06:44 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/20/2012 4:06:44 PM
Vinyl chloride	ND	1.0		µg/L	1	8/20/2012 4:06:44 PM
Xylenes, Total	ND	1.5		µg/L	1	8/20/2012 4:06:44 PM
Surr: 1,2-Dichloroethane-d4	89.8	70-130		%REC	1	8/20/2012 4:06:44 PM
Surr: 4-Bromofluorobenzene	92.3	70-130		%REC	1	8/20/2012 4:06:44 PM
Surr: Dibromofluoromethane	93.8	70-130		%REC	1	8/20/2012 4:06:44 PM
Surr: Toluene-d8	89.7	70-130		%REC	1	8/20/2012 4:06:44 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	190	1.0		mg CO2/L	1	8/24/2012 5:22:13 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	1100	0.010		µmhos/cm	1	8/24/2012 5:22:13 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	200	20		mg/L CaCO3	1	8/24/2012 5:22:13 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/24/2012 5:22:13 PM
Total Alkalinity (as CaCO3)	200	20		mg/L CaCO3	1	8/24/2012 5:22:13 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	788	40.0		mg/L	1	8/24/2012 8:54:00 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-68 DUP

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 7:30:00 AM

Lab ID: 1208782-008

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/21/2012 3:03:20 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/21/2012 3:03:20 PM
Surr: DNOP	152	69-152	S	%REC	1	8/21/2012 3:03:20 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/22/2012 3:01:00 PM
Surr: BFB	103	69.8-119		%REC	1	8/22/2012 3:01:00 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	ND	0.50		mg/L	5	8/23/2012 4:26:18 AM
Chloride	58	2.5		mg/L	5	8/20/2012 3:16:57 PM
Bromide	ND	0.50		mg/L	5	8/20/2012 3:16:57 PM
Nitrate+Nitrite as N	6.0	1.0		mg/L	5	8/23/2012 6:30:27 AM
Phosphorus, Orthophosphate (As P)	ND	2.5	H	mg/L	5	8/20/2012 3:16:57 PM
Sulfate	240	10		mg/L	20	8/20/2012 3:29:21 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: JLF
Barium	0.022	0.0020		mg/L	1	9/10/2012 4:38:37 PM
Cadmium	ND	0.0020		mg/L	1	9/10/2012 4:38:37 PM
Calcium	94	1.0		mg/L	1	9/10/2012 4:38:37 PM
Chromium	ND	0.0060		mg/L	1	9/10/2012 4:38:37 PM
Copper	ND	0.0060		mg/L	1	9/10/2012 4:38:37 PM
Iron	ND	0.020		mg/L	1	9/10/2012 4:38:37 PM
Magnesium	22	1.0		mg/L	1	9/10/2012 4:38:37 PM
Manganese	0.17	0.0020	*	mg/L	1	9/10/2012 4:38:37 PM
Potassium	3.2	1.0		mg/L	1	9/10/2012 4:38:37 PM
Silver	ND	0.0050		mg/L	1	9/10/2012 4:38:37 PM
Sodium	120	5.0		mg/L	5	9/10/2012 4:54:23 PM
Zinc	0.059	0.010		mg/L	1	9/10/2012 4:38:37 PM
EPA METHOD 200.7: METALS						Analyst: JLF
Arsenic	ND	0.020		mg/L	1	9/5/2012 4:34:24 PM
Barium	0.048	0.0020		mg/L	1	9/5/2012 4:34:24 PM
Cadmium	ND	0.0020		mg/L	1	9/5/2012 3:27:32 PM
Chromium	ND	0.0060		mg/L	1	9/5/2012 4:34:24 PM
Lead	ND	0.0050		mg/L	1	9/5/2012 4:34:24 PM
Selenium	ND	0.050		mg/L	1	9/5/2012 4:34:24 PM
Silver	ND	0.0050		mg/L	1	9/5/2012 3:27:32 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	ND	0.0010		mg/L	1	9/4/2012 2:46:14 PM
Lead	ND	0.0010		mg/L	1	9/4/2012 2:46:14 PM
Selenium	0.0034	0.0010		mg/L	1	9/4/2012 2:46:14 PM
Uranium	0.0044	0.0010		mg/L	1	9/4/2012 2:46:14 PM

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- H Holding times for preparation or analysis exceeded
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- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-68 DUP

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 7:30:00 AM

Lab ID: 1208782-008

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	8/21/2012 4:23:14 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
Acenaphthene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Acenaphthylene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Aniline	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Anthracene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Azobenzene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Benz(a)anthracene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Benzo(a)pyrene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Benzo(b)fluoranthene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Benzo(g,h,i)perylene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Benzo(k)fluoranthene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Benzoic acid	ND	20		µg/L	1	8/22/2012 12:23:03 PM
Benzyl alcohol	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Bis(2-chloroethyl)ether	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	8/22/2012 12:23:03 PM
4-Bromophenyl phenyl ether	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Butyl benzyl phthalate	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Carbazole	ND	10		µg/L	1	8/22/2012 12:23:03 PM
4-Chloro-3-methylphenol	ND	10		µg/L	1	8/22/2012 12:23:03 PM
4-Chloroaniline	ND	10		µg/L	1	8/22/2012 12:23:03 PM
2-Chloronaphthalene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
2-Chlorophenol	ND	10		µg/L	1	8/22/2012 12:23:03 PM
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Chrysene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Di-n-butyl phthalate	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Di-n-octyl phthalate	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Dibenz(a,h)anthracene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Dibenzofuran	ND	10		µg/L	1	8/22/2012 12:23:03 PM
1,2-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
1,3-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
1,4-Dichlorobenzene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
3,3'-Dichlorobenzidine	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Diethyl phthalate	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Dimethyl phthalate	ND	10		µg/L	1	8/22/2012 12:23:03 PM
2,4-Dichlorophenol	ND	20		µg/L	1	8/22/2012 12:23:03 PM
2,4-Dimethylphenol	ND	10		µg/L	1	8/22/2012 12:23:03 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	8/22/2012 12:23:03 PM
2,4-Dinitrophenol	ND	20		µg/L	1	8/22/2012 12:23:03 PM

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-68 DUP

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 7:30:00 AM

Lab ID: 1208782-008

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: JDC
2,4-Dinitrotoluene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
2,6-Dinitrotoluene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Fluoranthene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Fluorene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Hexachlorobenzene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Hexachlorobutadiene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Hexachlorocyclopentadiene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Hexachloroethane	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Isophorone	ND	10		µg/L	1	8/22/2012 12:23:03 PM
1-Methylnaphthalene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
2-Methylnaphthalene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
2-Methylphenol	ND	10		µg/L	1	8/22/2012 12:23:03 PM
3+4-Methylphenol	ND	10		µg/L	1	8/22/2012 12:23:03 PM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	8/22/2012 12:23:03 PM
N-Nitrosodimethylamine	ND	10		µg/L	1	8/22/2012 12:23:03 PM
N-Nitrosodiphenylamine	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Naphthalene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
2-Nitroaniline	ND	10		µg/L	1	8/22/2012 12:23:03 PM
3-Nitroaniline	ND	10		µg/L	1	8/22/2012 12:23:03 PM
4-Nitroaniline	ND	20		µg/L	1	8/22/2012 12:23:03 PM
Nitrobenzene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
2-Nitrophenol	ND	10		µg/L	1	8/22/2012 12:23:03 PM
4-Nitrophenol	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Pentachlorophenol	ND	20		µg/L	1	8/22/2012 12:23:03 PM
Phenanthrene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Phenol	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Pyrene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Pyridine	ND	10		µg/L	1	8/22/2012 12:23:03 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	1	8/22/2012 12:23:03 PM
2,4,5-Trichlorophenol	ND	10		µg/L	1	8/22/2012 12:23:03 PM
2,4,6-Trichlorophenol	ND	10		µg/L	1	8/22/2012 12:23:03 PM
Surr: 2,4,6-Tribromophenol	81.4	44.2-126		%REC	1	8/22/2012 12:23:03 PM
Surr: 2-Fluorobiphenyl	68.5	37-114		%REC	1	8/22/2012 12:23:03 PM
Surr: 2-Fluorophenol	48.0	23.4-98		%REC	1	8/22/2012 12:23:03 PM
Surr: 4-Terphenyl-d14	64.2	41.3-116		%REC	1	8/22/2012 12:23:03 PM
Surr: Nitrobenzene-d5	65.2	39.5-118		%REC	1	8/22/2012 12:23:03 PM
Surr: Phenol-d5	37.9	20.9-95.9		%REC	1	8/22/2012 12:23:03 PM
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Benzene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
Toluene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM

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Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-68 DUP

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 7:30:00 AM

Lab ID: 1208782-008

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Ethylbenzene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
Naphthalene	ND	2.0		µg/L	1	8/20/2012 4:34:17 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/20/2012 4:34:17 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/20/2012 4:34:17 PM
Acetone	ND	10		µg/L	1	8/20/2012 4:34:17 PM
Bromobenzene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
Bromoform	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
Bromomethane	ND	3.0		µg/L	1	8/20/2012 4:34:17 PM
2-Butanone	ND	10		µg/L	1	8/20/2012 4:34:17 PM
Carbon disulfide	ND	10		µg/L	1	8/20/2012 4:34:17 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
Chlorobenzene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
Chloroethane	ND	2.0		µg/L	1	8/20/2012 4:34:17 PM
Chloroform	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
Chloromethane	ND	3.0		µg/L	1	8/20/2012 4:34:17 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/20/2012 4:34:17 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
Dibromomethane	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/20/2012 4:34:17 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
2-Hexanone	ND	10		µg/L	1	8/20/2012 4:34:17 PM
Isopropylbenzene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM

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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-68 DUP

Project: RCRA Wells 8-16-12

Collection Date: 8/16/2012 7:30:00 AM

Lab ID: 1208782-008

Matrix: AQUEOUS

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
4-Methyl-2-pentanone	ND	10		µg/L	1	8/20/2012 4:34:17 PM
Methylene Chloride	ND	3.0		µg/L	1	8/20/2012 4:34:17 PM
n-Butylbenzene	ND	3.0		µg/L	1	8/20/2012 4:34:17 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
Styrene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/20/2012 4:34:17 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/20/2012 4:34:17 PM
Vinyl chloride	ND	1.0		µg/L	1	8/20/2012 4:34:17 PM
Xylenes, Total	ND	1.5		µg/L	1	8/20/2012 4:34:17 PM
Surr: 1,2-Dichloroethane-d4	85.8	70-130		%REC	1	8/20/2012 4:34:17 PM
Surr: 4-Bromofluorobenzene	97.3	70-130		%REC	1	8/20/2012 4:34:17 PM
Surr: Dibromofluoromethane	82.3	70-130		%REC	1	8/20/2012 4:34:17 PM
Surr: Toluene-d8	86.4	70-130		%REC	1	8/20/2012 4:34:17 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	180	1.0		mg CO2/L	1	8/24/2012 5:52:30 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	1000	0.010		µmhos/cm	1	8/24/2012 5:52:30 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	190	20		mg/L CaCO3	1	8/24/2012 5:52:30 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/24/2012 5:52:30 PM
Total Alkalinity (as CaCO3)	190	20		mg/L CaCO3	1	8/24/2012 5:52:30 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	696	40.0		mg/L	1	8/24/2012 8:54:00 AM

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
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Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: RCRA Wells 8-16-12

Collection Date:

Lab ID: 1208782-009

Matrix: TRIP BLANK

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/22/2012 3:31:12 PM
Surr: BFB	117	69.8-119		%REC	1	8/22/2012 3:31:12 PM
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Benzene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
Toluene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
Ethylbenzene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
Naphthalene	ND	2.0		µg/L	1	8/20/2012 5:01:49 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/20/2012 5:01:49 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/20/2012 5:01:49 PM
Acetone	ND	10		µg/L	1	8/20/2012 5:01:49 PM
Bromobenzene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
Bromoform	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
Bromomethane	ND	3.0		µg/L	1	8/20/2012 5:01:49 PM
2-Butanone	ND	10		µg/L	1	8/20/2012 5:01:49 PM
Carbon disulfide	ND	10		µg/L	1	8/20/2012 5:01:49 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
Chlorobenzene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
Chloroethane	ND	2.0		µg/L	1	8/20/2012 5:01:49 PM
Chloroform	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
Chloromethane	ND	3.0		µg/L	1	8/20/2012 5:01:49 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/20/2012 5:01:49 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
Dibromomethane	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208782

Date Reported: 10/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: RCRA Wells 8-16-12

Collection Date:

Lab ID: 1208782-009

Matrix: TRIP BLANK

Received Date: 8/17/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
2,2-Dichloropropane	ND	2.0		µg/L	1	8/20/2012 5:01:49 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
2-Hexanone	ND	10		µg/L	1	8/20/2012 5:01:49 PM
Isopropylbenzene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/20/2012 5:01:49 PM
Methylene Chloride	ND	3.0		µg/L	1	8/20/2012 5:01:49 PM
n-Butylbenzene	ND	3.0		µg/L	1	8/20/2012 5:01:49 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
Styrene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/20/2012 5:01:49 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/20/2012 5:01:49 PM
Vinyl chloride	ND	1.0		µg/L	1	8/20/2012 5:01:49 PM
Xylenes, Total	ND	1.5		µg/L	1	8/20/2012 5:01:49 PM
Surr: 1,2-Dichloroethane-d4	88.4	70-130		%REC	1	8/20/2012 5:01:49 PM
Surr: 4-Bromofluorobenzene	87.2	70-130		%REC	1	8/20/2012 5:01:49 PM
Surr: Dibromofluoromethane	92.8	70-130		%REC	1	8/20/2012 5:01:49 PM
Surr: Toluene-d8	85.0	70-130		%REC	1	8/20/2012 5:01:49 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208782

03-Oct-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-16-12

Sample ID	MB-3433		SampType: MBLK		TestCode: EPA Method 200.7: Metals					
Client ID:	PBW		Batch ID: 3433		RunNo: 5316					
Prep Date:	8/22/2012		Analysis Date: 9/5/2012		SeqNo: 151321		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 200.7: Metals					
Client ID:	PBW	Batch ID: R5414			RunNo: 5414					
Prep Date:		Analysis Date: 9/10/2012			SeqNo: 154616		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
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								
Zinc	ND	0.010								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208782

03-Oct-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-16-12

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R5414	RunNo:	5414					
Prep Date:		Analysis Date:	9/10/2012	SeqNo:	154618	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
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								
Zinc	ND	0.010								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208782

03-Oct-12

Client: Western Refining Southwest, Inc.**Project:** RCRA Wells 8-16-12

Sample ID	MB-3433		SampType:	MBLK		TestCode:	EPA Method 200.7: Total Metals			
Client ID:	PBW		Batch ID:	3433		RunNo:	5027			
Prep Date:	8/22/2012		Analysis Date:	8/22/2012		SeqNo:	142570	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Silver	ND	0.0050								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208782

03-Oct-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-16-12

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Metals					
Client ID:	PBW	Batch ID:	R5291	RunNo:	5291					
Prep Date:		Analysis Date:	9/4/2012	SeqNo:	150650	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Metals					
Client ID:	PBW	Batch ID:	R5291	RunNo:	5291					
Prep Date:		Analysis Date:	9/4/2012	SeqNo:	150651	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Metals					
Client ID:	PBW	Batch ID:	R5552	RunNo:	5552					
Prep Date:		Analysis Date:	9/14/2012	SeqNo:	158709	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Metals					
Client ID:	PBW	Batch ID:	R5552	RunNo:	5552					
Prep Date:		Analysis Date:	9/14/2012	SeqNo:	158710	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208782

03-Oct-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-16-12

Sample ID	1208782-007FMS	SampType: MS			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	MW-68	Batch ID: R5291			RunNo: 5291					
Prep Date:		Analysis Date: 9/4/2012			SeqNo: 150672		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.026	0.0010	0.02500	0.0007961	102	70	130			
Lead	0.026	0.0010	0.02500	0	103	70	130			
Selenium	0.028	0.0010	0.02500	0.003466	97.9	70	130			
Uranium	0.028	0.0010	0.02500	0.003860	98.3	70	130			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R5291			RunNo: 5291					
Prep Date:		Analysis Date: 9/4/2012			SeqNo: 150689		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R5291			RunNo: 5291					
Prep Date:		Analysis Date: 9/4/2012			SeqNo: 150690		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R5552			RunNo: 5552					
Prep Date:		Analysis Date: 9/14/2012			SeqNo: 158750		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Sample ID	MB	SampType:	MBLK		TestCode:	EPA 200.8: Dissolved Metals				
Client ID:	PBW	Batch ID:	R5552		RunNo:	5552				
Prep Date:		Analysis Date:	9/14/2012		SeqNo:	158751		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	0.0010								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208782

03-Oct-12

Client: Western Refining Southwest, Inc.**Project:** RCRA Wells 8-16-12

Sample ID	MB-3407	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	3407	RunNo:	5002					
Prep Date:	8/20/2012	Analysis Date:	8/21/2012	SeqNo:	141546	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208782

03-Oct-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-16-12

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R4980	RunNo:	4980					
Prep Date:		Analysis Date:	8/20/2012	SeqNo:	140862	Units:	mg/L			
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								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R5064	RunNo:	5064					
Prep Date:		Analysis Date:	8/22/2012	SeqNo:	143390	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R5064	RunNo:	5064					
Prep Date:		Analysis Date:	8/23/2012	SeqNo:	143470	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R5224	RunNo:	5224					
Prep Date:		Analysis Date:	8/29/2012	SeqNo:	148465	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrate+Nitrite as N	ND	0.20								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R5224	RunNo:	5224					
Prep Date:		Analysis Date:	8/29/2012	SeqNo:	148540	Units:	mg/L			
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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- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208782

03-Oct-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-16-12

Sample ID	MB-3401	SampType: MBLK			TestCode: EPA Method 8015B: Diesel Range					
Client ID:	PBW	Batch ID: 3401			RunNo: 4986					
Prep Date:	8/20/2012	Analysis Date: 8/21/2012			SeqNo: 141254		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.68		0.5000		137	69	152			

Sample ID	1208782-001CMS		SampType: MS		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	MW-62		Batch ID: 3401		RunNo: 4986					
Prep Date:	8/20/2012		Analysis Date: 8/21/2012		SeqNo: 141333		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.0	0.20	2.500	0	79.7	71	161			
Surr: DNOP	0.22		0.2500		87.6	69	152			

Sample ID	1208782-001CMSD		SampType: MSD		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	MW-62		Batch ID: 3401		RunNo: 4986					
Prep Date:	8/20/2012		Analysis Date: 8/21/2012		SeqNo: 141336		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.1	0.20	2.500	0	85.5	71	161	6.96	23	
Surr: DNOP	0.27		0.2500		107	69	152	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208782

03-Oct-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-16-12

Sample ID	5ML RB	SampType:	MBLK	TestCode:	EPA Method 8015B: Gasoline Range					
Client ID:	PBW	Batch ID:	R5050	RunNo:	5050					
Prep Date:		Analysis Date:	8/22/2012	SeqNo:	143063	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	19		20.00		94.4	69.8	119			

Sample ID	1208782-005BMS	SampType:	MS	TestCode:	EPA Method 8015B: Gasoline Range					
Client ID:	MW-65	Batch ID:	R5050	RunNo:	5050					
Prep Date:		Analysis Date:	8/22/2012	SeqNo:	143075	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	53	2.5	25.00	21.90	124	63.5	131			
Surr: BFB	1100		1000		108	69.8	119			

Sample ID	1208782-005BMSD	SampType:	MSD	TestCode:	EPA Method 8015B: Gasoline Range					
Client ID:	MW-65	Batch ID:	R5050	RunNo:	5050					
Prep Date:		Analysis Date:	8/22/2012	SeqNo:	143076	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	52	2.5	25.00	21.90	121	63.5	131	1.33	16.7	
Surr: BFB	1300		1000		126	69.8	119	0	0	S

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208782

03-Oct-12

Client: Western Refining Southwest, Inc.**Project:** RCRA Wells 8-16-12

Sample ID	5ML RB		SampType: MBLK		TestCode: EPA Method 8021B: Volatiles					
Client ID:	PBW		Batch ID: R5050		RunNo: 5050					
Prep Date:			Analysis Date: 8/22/2012		SeqNo: 143084		Units: %REC			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	20		20.00		99.6	55	140			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208782

03-Oct-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-16-12

Sample ID	5ml rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R4985	RunNo:	4985					
Prep Date:		Analysis Date:	8/20/2012	SeqNo:	141117	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208782

03-Oct-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-16-12

Sample ID	5ml rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R4985			RunNo: 4985					
Prep Date:		Analysis Date: 8/20/2012			SeqNo: 141117		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	8.6		10.00		85.6	70	130			
Surr: 4-Bromofluorobenzene	8.9		10.00		88.7	70	130			
Surr: Dibromofluoromethane	8.5		10.00		84.7	70	130			
Surr: Toluene-d8	8.6		10.00		86.3	70	130			

Sample ID	1208782-001a ms	SampType:	MS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	MW-62	Batch ID:	R4985	RunNo:	4985					
Prep Date:		Analysis Date:	8/20/2012	SeqNo:	141158	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	98.7	66.8	128			
Toluene	19	1.0	20.00	0	95.1	70	130			
Chlorobenzene	18	1.0	20.00	0	91.1	70	130			
1,1-Dichloroethene	21	1.0	20.00	0	103	70	130			
Trichloroethene (TCE)	18	1.0	20.00	0	91.7	70	130			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.7	70	130			
Surr: 4-Bromofluorobenzene	9.2		10.00		91.8	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208782

03-Oct-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-16-12

Sample ID	1208782-001a ms	SampType:	MS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	MW-62	Batch ID:	R4985	RunNo:	4985					
Prep Date:		Analysis Date:	8/20/2012	SeqNo:	141158	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	7.4		10.00		73.7	70	130			
Surr: Toluene-d8	8.3		10.00		83.5	70	130			

Sample ID	1208782-001a msd	SampType: MSD			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	MW-62	Batch ID: R4985			RunNo: 4985					
Prep Date:		Analysis Date: 8/20/2012			SeqNo: 141160		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	91.9	66.8	128	7.08	16.7	
Toluene	18	1.0	20.00	0	89.9	70	130	5.63	18.7	
Chlorobenzene	17	1.0	20.00	0	85.8	70	130	5.99	19.5	
1,1-Dichloroethene	19	1.0	20.00	0	96.5	70	130	6.73	16.7	
Trichloroethene (TCE)	18	1.0	20.00	0	87.9	70	130	4.30	17.5	
Surr: 1,2-Dichloroethane-d4	8.9		10.00		89.1	70	130	0	0	
Surr: 4-Bromofluorobenzene	8.9		10.00		88.9	70	130	0	0	
Surr: Dibromofluoromethane	7.9		10.00		78.6	70	130	0	0	
Surr: Toluene-d8	8.1		10.00		80.6	70	130	0	0	

Sample ID	b5	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R4985			RunNo: 4985					
Prep Date:		Analysis Date: 8/20/2012			SeqNo: 141179		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								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208782

03-Oct-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-16-12

Sample ID	b5	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R4985	RunNo:	4985					
Prep Date:		Analysis Date:	8/20/2012	SeqNo:	141179	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	3.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
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								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208782

03-Oct-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-16-12

Sample ID b5	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R4985			RunNo: 4985						
Prep Date:	Analysis Date: 8/20/2012			SeqNo: 141179		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	8.9		10.00		88.5	70	130			
Surr: 4-Bromofluorobenzene	9.0		10.00		90.1	70	130			
Surr: Dibromofluoromethane	9.0		10.00		90.0	70	130			
Surr: Toluene-d8	8.7		10.00		87.1	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208782

03-Oct-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-16-12

Sample ID	mb-3436		SampType: MBLK		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	PBW		Batch ID: 3436		RunNo: 5040					
Prep Date:	8/22/2012		Analysis Date: 8/22/2012		SeqNo: 142815		Units: µg/L			
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								
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								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208782

03-Oct-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-16-12

Sample ID	mb-3436		SampType: MBLK		TestCode: EPA Method 8270C: Semivolatiles					
Client ID:	PBW		Batch ID: 3436		RunNo: 5040					
Prep Date:	8/22/2012		Analysis Date: 8/22/2012		SeqNo: 142815		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	20								
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: 2,4,6-Tribromophenol	100		200.0		50.7	44.2	126			
Surr: 2-Fluorobiphenyl	48		100.0		48.0	37	114			
Surr: 2-Fluorophenol	70		200.0		35.0	23.4	98			
Surr: 4-Terphenyl-d14	63		100.0		63.2	41.3	116			
Surr: Nitrobenzene-d5	46		100.0		45.5	39.5	118			
Surr: Phenol-d5	70		200.0		34.9	20.9	95.9			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208782

03-Oct-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-16-12

Sample ID	mb-1	SampType:	mblk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R5115	RunNo:	5115					
Prep Date:		Analysis Date:	8/24/2012	SeqNo:	145164	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID	mb-2	SampType:	mblk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R5115	RunNo:	5115					
Prep Date:		Analysis Date:	8/24/2012	SeqNo:	145188	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID	mb-1	SampType:	mblk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R5163	RunNo:	5163					
Prep Date:		Analysis Date:	8/28/2012	SeqNo:	146961	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID	mb-2	SampType:	mblk	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R5163	RunNo:	5163					
Prep Date:		Analysis Date:	8/28/2012	SeqNo:	146985	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208782

03-Oct-12

Client: Western Refining Southwest, Inc.

Project: RCRA Wells 8-16-12

Sample ID	MB-3446	SampType: MBLK		TestCode: SM2540C MOD: Total Dissolved Solids						
Client ID:	PBW	Batch ID: 3446		RunNo: 5082						
Prep Date:	8/22/2012	Analysis Date: 8/24/2012		SeqNo: 143935		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	1208782-001EMS	SampType:	MS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	MW-62	Batch ID:	3446	RunNo:	5082					
Prep Date:	8/22/2012	Analysis Date:	8/24/2012	SeqNo:	143945	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	11100	100	5000	5990	103	80	120			

Sample ID	1208782-001EMSD	SampType:	MSD	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	MW-62	Batch ID:	3446	RunNo:	5082					
Prep Date:	8/22/2012	Analysis Date:	8/24/2012	SeqNo:	143946	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	11200	100	5000	5990	103	80	120	0.359	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

Sample Log-In Check List

Client Name: Western Refining Southwest, Inc Bloomfield	Work Order Number: 1208782
Received by/date: <u>MLG</u> <u>08/17/12</u>	
Logged By: Ashley Gallegos	8/17/2012 10:00:00 AM <u>AG</u>
Completed By: Ashley Gallegos	8/17/2012 1:51:22 PM <u>AG</u>
Reviewed By: <u>IO</u> <u>08/20/12</u>	

Chain of Custody

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

Log In

4. Coolers are present? (see 19. for cooler specific information) Yes ☒ No ☐ NA ☐
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
6. Were all samples received at a temperature of >0° C to 6.0°C Yes ☒ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☒ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
10. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
11. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials ☐
12. Were any sample containers received broken? Yes ☐ No ☒
13. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
15. Is it clear what analyses were requested? Yes ☒ No ☐
16. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved bottles checked for pH: 221
(2 or >12 unless noted)
Adjusted? _____
Checked by: [Signature]

Special Handling (if applicable)

17. 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: _____	

18. Additional remarks:

19. Cooler Information

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

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4135
email or Fax#:

QA/QC Package:
☒ Standard
☐ Other
☐ EDD (Type) _____

☒ Level 4 (Full Validation)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

RCRA Wells 8-16-12

Project #:

Project Manager:

Sampler: Bob & Steve

On Ice: ☒ Yes ☐ No

Sample Temperature: 1.0°C

HEAL No.

1208782 -001

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	TPH Method 8015B (Gas only)	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	DRO-8015B	Dissolved Metals	Cation/Anion Balance	Air Bubbles (X or N)
8-16-12	1030	H ₂ O	MW-62	5-VOA	HCl	X									X	X				
				1-liter	amber															
				1-500ml	amber												X			
				1-500ml	HNO ₃							X								
				1-250ml	HNO ₃													X		
				1-500ml																
				1-250ml	H ₂ SO ₄													X		
8-16-12	1030		Field Blank	3-VOA	HCl										X					

Remarks:

Relinquished by: Robert Kradon
Date: 8/16/12 Time: 1434

Received by: Christine Wadsworth
Date: 8/16/12 Time: 1434

Relinquished by: Christine Wadsworth
Date: 8/16/12 Time: 1742

Received by: Michelle Davis
Date: 8/17/12 Time: 10:20



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:
☒ Standard
☐ Other
☐ EDD (Type) _____

☒ Level 4 (Full Validation)

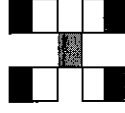
Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

RCRA Wells 8-16-12

Project #:



**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Project Manager:

Sampler: Bob + Steve

On Ice ☒ Yes ☐ No

Sample Temperature: 10°C

Container Type and #

Preservative Type

HEAL No

1208781

5-VOA HCl -003

1-liter amber

1-500ml amber

1-500ml HNO3

1-250ml HNO3

1-500ml

1-250ml H2SO4

Date Time Matrix Sample Request ID

8-16-12 0920 H2O MW-63

Date: 8/16/12 1434

Date: 8/16/12 1434

Date: 8/16/12 1742

Date: 8/16/12 1742

Received by: Christine Krabon

Date: 8/16/12 1434

Received by: Christine Krabon

Date: 8/16/12 1742

Remarks:

BTEX + MTBE + TMB's (8021)

BTEX + MTBE + TPH (Gas only)

TPH Method 8015B (Gas/)

TPH (Method 418.1)

EDB (Method 504.1)

8310 (PNA or PAH)

RCRA 8 Metals

Anions (F, Cl, NO3, PO4, SO4)

8081 Pesticides / 8082 PCB's

8260B (VOA)

8270 (Semi-VOA)

DRO 8015B

Dissolved Metals

Cation/Anion Balance

Alkalinity, CO2

☒ Standard ☐ Rush

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



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

April 18, 2012

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: Refinery Wells 4-4-12

OrderNo.: 1204259

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 4/5/2012 for the analyses presented in the following report.

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", with a stylized flourish at the end.

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

Workorder Sample Summary

WO#: 1204259

18-Apr-12

CLIENT: Western Refining Southwest, Inc.

Project: Refinery Wells 4-4-12

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1204259-001	MW-8		4/4/2012 12:20:00 PM	4/5/2012 11:00:00 AM	Aqueous
1204259-002	MW-30		4/4/2012 11:15:00 AM	4/5/2012 11:00:00 AM	Aqueous
1204259-003	TRIP BLANK			4/5/2012 11:00:00 AM	Aqueous

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204259

Date Reported: 4/18/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-8

Project: Refinery Wells 4-4-12

Collection Date: 4/4/2012 12:20:00 PM

Lab ID: 1204259-001

Matrix: AQUEOUS

Received Date: 4/5/2012 11:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: MMS
Benzene	1.3	1.0		µg/L	1	4/7/2012 3:52:01 AM
Toluene	3.0	1.0		µg/L	1	4/7/2012 3:52:01 AM
Ethylbenzene	16	1.0		µg/L	1	4/7/2012 3:52:01 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/7/2012 3:52:01 AM
Xylenes, Total	56	2.0		µg/L	1	4/7/2012 3:52:01 AM
Surr: 1,2-Dichloroethane-d4	95.2	70-130		%REC	1	4/7/2012 3:52:01 AM
Surr: 4-Bromofluorobenzene	78.6	70-130		%REC	1	4/7/2012 3:52:01 AM
Surr: Dibromofluoromethane	119	69.8-130		%REC	1	4/7/2012 3:52:01 AM
Surr: Toluene-d8	96.3	70-130		%REC	1	4/7/2012 3:52:01 AM

Qualifiers:

- * / X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204259

Date Reported: 4/18/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-30

Project: Refinery Wells 4-4-12

Collection Date: 4/4/2012 11:15:00 AM

Lab ID: 1204259-002

Matrix: AQUEOUS

Received Date: 4/5/2012 11:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: MMS
Benzene	4,700	50		µg/L	50	4/7/2012 5:20:16 AM
Toluene	1,600	50		µg/L	50	4/7/2012 5:20:16 AM
Ethylbenzene	3,700	50		µg/L	50	4/7/2012 5:20:16 AM
Methyl tert-butyl ether (MTBE)	ND	50		µg/L	50	4/7/2012 5:20:16 AM
Xylenes, Total	9,400	100		µg/L	50	4/7/2012 5:20:16 AM
Surr: 1,2-Dichloroethane-d4	103	70-130		%REC	50	4/7/2012 5:20:16 AM
Surr: 4-Bromofluorobenzene	75.4	70-130		%REC	50	4/7/2012 5:20:16 AM
Surr: Dibromofluoromethane	102	69.8-130		%REC	50	4/7/2012 5:20:16 AM
Surr: Toluene-d8	100	70-130		%REC	50	4/7/2012 5:20:16 AM

Qualifiers:

- * /X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204259

Date Reported: 4/18/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: TRIP BLANK

Project: Refinery Wells 4-4-12

Collection Date:

Lab ID: 1204259-003

Matrix: AQUEOUS

Received Date: 4/5/2012 11:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: MMS
Benzene	ND	1.0		µg/L	1	4/7/2012 6:19:09 AM
Toluene	ND	1.0		µg/L	1	4/7/2012 6:19:09 AM
Ethylbenzene	ND	1.0		µg/L	1	4/7/2012 6:19:09 AM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/7/2012 6:19:09 AM
Xylenes, Total	ND	2.0		µg/L	1	4/7/2012 6:19:09 AM
Surr: 1,2-Dichloroethane-d4	107	70-130		%REC	1	4/7/2012 6:19:09 AM
Surr: 4-Bromofluorobenzene	114	70-130		%REC	1	4/7/2012 6:19:09 AM
Surr: Dibromofluoromethane	108	69.8-130		%REC	1	4/7/2012 6:19:09 AM
Surr: Toluene-d8	103	70-130		%REC	1	4/7/2012 6:19:09 AM

Qualifiers:

- * / X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204259

18-Apr-12

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 4-4-12

Sample ID	100ng lcs		SampType: LCS		TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	LCSW		Batch ID: R1986		RunNo: 1986					
Prep Date:			Analysis Date: 4/6/2012		SeqNo: 55511		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	96.1	84.1	126			
Toluene	21	1.0	20.00	0	103	80	120			
Surr: 1,2-Dichloroethane-d4	9.4		10.00		94.5	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		114	70	130			
Surr: Dibromofluoromethane	10		10.00		101	69.8	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID	b5	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID: R1986			RunNo: 1986					
Prep Date:		Analysis Date: 4/6/2012			SeqNo: 55534		Units: µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 1,2-Dichloroethane-d4	9.6		10.00		96.2	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.8	69.8	130			
Surr: Toluene-d8	10		10.00		102	70	130			

Qualifiers:

*/X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Sample Log-In Check List

Client Name: **Western Refining Southwest, Inc Bloomfield** Work Order Number: **1204259**

Received by/date: *mg* **04/05/12**

Logged By: **Ashley Gallegos** **4/5/2012 11:00:00 AM**

Completed By: **Ashley Gallegos** **4/5/2012 1:51:21 PM**

Reviewed By: *ED 04/05/12*

mg

mg

Chain of Custody

1. Were seals intact? Yes No Not Present ✓
2. Is Chain of Custody complete? Yes ✓ No Not Present
3. How was the sample delivered? UPS

Log In

4. Coolers are present? (see 19. for cooler specific information) Yes ✓ No NA
5. Was an attempt made to cool the samples? Yes ✓ No NA
6. Were all samples received at a temperature of >0° C to 6.0°C Yes ✓ No NA
7. Sample(s) in proper container(s)? Yes ✓ No
8. Sufficient sample volume for indicated test(s)? Yes ✓ No
9. Are samples (except VOA and ONG) properly preserved? Yes ✓ No
10. Was preservative added to bottles? Yes No ✓ NA
11. VOA vials have zero headspace? Yes No No VOA Vials ✓
12. Were any sample containers received broken? Yes No ✓
13. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ✓ No # of preserved bottles checked for pH:
14. Are matrices correctly identified on Chain of Custody? Yes ✓ No (<2 or >12 unless noted)
15. Is it clear what analyses were requested? Yes ✓ No Adjusted?
16. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ✓ No Checked by:

Special Handling (if applicable)

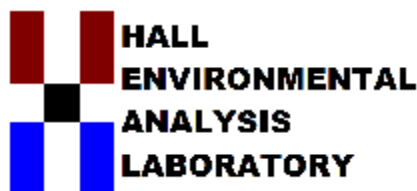
17. Was client notified of all discrepancies with this order? Yes No NA ✓

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

18. Additional remarks:

19. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	6.0	Good	Yes			



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

September 25, 2012

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: Refinery Wells 8/9/2012

OrderNo.: 1208476

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 9 sample(s) on 8/10/2012 for the analyses presented in the following report.

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



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

Workorder Sample Summary

WO#: 1208476

25-Sep-12

CLIENT: Western Refining Southwest, Inc.

Project: Refinery Wells 8/9/2012

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1208476-001	MW-29		8/9/2012 8:20:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-001	MW-29		8/9/2012 8:20:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-001	MW-29		8/9/2012 8:20:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-001	MW-29		8/9/2012 8:20:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-001	MW-29		8/9/2012 8:20:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-001	MW-29		8/9/2012 8:20:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-002	MW-44		8/9/2012 10:30:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-002	MW-44		8/9/2012 10:30:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-002	MW-44		8/9/2012 10:30:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-002	MW-44		8/9/2012 10:30:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-002	MW-44		8/9/2012 10:30:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-002	MW-44		8/9/2012 10:30:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-003	MW-30		8/9/2012 9:20:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-003	MW-30		8/9/2012 9:20:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-003	MW-30		8/9/2012 9:20:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-003	MW-30		8/9/2012 9:20:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-003	MW-30		8/9/2012 9:20:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-003	MW-30		8/9/2012 9:20:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-004	MW-31		8/9/2012 1:30:00 PM	8/10/2012 10:05:00 AM	Aqueous
1208476-004	MW-31		8/9/2012 1:30:00 PM	8/10/2012 10:05:00 AM	Aqueous
1208476-004	MW-31		8/9/2012 1:30:00 PM	8/10/2012 10:05:00 AM	Aqueous
1208476-004	MW-31		8/9/2012 1:30:00 PM	8/10/2012 10:05:00 AM	Aqueous
1208476-004	MW-31		8/9/2012 1:30:00 PM	8/10/2012 10:05:00 AM	Aqueous
1208476-004	MW-31		8/9/2012 1:30:00 PM	8/10/2012 10:05:00 AM	Aqueous
1208476-005	MW-4		8/9/2012 1:00:00 PM	8/10/2012 10:05:00 AM	Aqueous
1208476-005	MW-4		8/9/2012 1:00:00 PM	8/10/2012 10:05:00 AM	Aqueous
1208476-005	MW-4		8/9/2012 1:00:00 PM	8/10/2012 10:05:00 AM	Aqueous
1208476-005	MW-4		8/9/2012 1:00:00 PM	8/10/2012 10:05:00 AM	Aqueous
1208476-005	MW-4		8/9/2012 1:00:00 PM	8/10/2012 10:05:00 AM	Aqueous
1208476-006	MW-8		8/9/2012 8:45:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-006	MW-8		8/9/2012 8:45:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-006	MW-8		8/9/2012 8:45:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-006	MW-8		8/9/2012 8:45:00 AM	8/10/2012 10:05:00 AM	Aqueous



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

Workorder Sample Summary

WO#: 1208476

25-Sep-12

CLIENT: Western Refining Southwest, Inc.

Project: Refinery Wells 8/9/2012

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1208476-006	MW-8		8/9/2012 8:45:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-006	MW-8		8/9/2012 8:45:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-007	RW-9		8/9/2012 11:15:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-007	RW-9		8/9/2012 11:15:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-007	RW-9		8/9/2012 11:15:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-007	RW-9		8/9/2012 11:15:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-007	RW-9		8/9/2012 11:15:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-007	RW-9		8/9/2012 11:15:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-008	RW-15		8/9/2012 10:45:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-008	RW-15		8/9/2012 10:45:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-008	RW-15		8/9/2012 10:45:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-008	RW-15		8/9/2012 10:45:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-008	RW-15		8/9/2012 10:45:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-008	RW-15		8/9/2012 10:45:00 AM	8/10/2012 10:05:00 AM	Aqueous
1208476-009	TRIP BLANK			8/10/2012 10:05:00 AM	Trip Blank
1208476-009	TRIP BLANK			8/10/2012 10:05:00 AM	Trip Blank

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-29

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 8:20:00 AM

Lab ID: 1208476-001

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/13/2012 10:42:30 AM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/13/2012 10:42:30 AM
Surr: DNOP	140	69-152		%REC	1	8/13/2012 10:42:30 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/14/2012 7:18:21 PM
Surr: BFB	120	69.8-119	S	%REC	1	8/14/2012 7:18:21 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	0.32	0.10		mg/L	1	8/10/2012 7:59:05 PM
Chloride	44	10		mg/L	20	8/10/2012 8:11:30 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/10/2012 7:59:05 PM
Bromide	0.28	0.10		mg/L	1	8/15/2012 12:55:23 AM
Nitrogen, Nitrate (As N)	0.59	0.10		mg/L	1	8/10/2012 7:59:05 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/10/2012 7:59:05 PM
Sulfate	160	10		mg/L	20	8/10/2012 8:11:30 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	0.020	0.0020		mg/L	1	8/26/2012 4:04:17 PM
Cadmium	ND	0.0020		mg/L	1	8/26/2012 4:04:17 PM
Calcium	69	1.0		mg/L	1	8/30/2012 4:54:09 PM
Chromium	ND	0.0060		mg/L	1	8/26/2012 4:04:17 PM
Copper	ND	0.0060		mg/L	1	8/30/2012 4:54:09 PM
Iron	ND	0.020		mg/L	1	8/26/2012 4:04:17 PM
Magnesium	16	1.0		mg/L	1	8/30/2012 4:54:09 PM
Manganese	1.2	0.010	*	mg/L	5	8/26/2012 4:08:02 PM
Potassium	2.8	1.0		mg/L	1	8/29/2012 4:20:07 PM
Silver	ND	0.0050		mg/L	1	8/26/2012 4:04:17 PM
Sodium	120	5.0		mg/L	5	8/29/2012 4:23:54 PM
Zinc	0.080	0.010		mg/L	1	8/26/2012 4:04:17 PM
EPA METHOD 200.7: METALS						Analyst: ELS
Arsenic	ND	0.020		mg/L	1	8/27/2012 3:25:16 PM
Barium	0.070	0.0020		mg/L	1	8/27/2012 3:25:16 PM
Cadmium	ND	0.0020		mg/L	1	8/27/2012 3:25:16 PM
Chromium	ND	0.0060		mg/L	1	8/27/2012 3:25:16 PM
Lead	ND	0.0050		mg/L	1	8/27/2012 3:25:16 PM
Selenium	ND	0.050		mg/L	1	8/27/2012 3:25:16 PM
Silver	ND	0.0050		mg/L	1	8/27/2012 3:25:16 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	0.0013	0.0010		mg/L	1	8/27/2012 1:05:56 PM
Lead	ND	0.0010		mg/L	1	8/27/2012 1:05:56 PM
Selenium	0.0023	0.0010		mg/L	1	8/27/2012 1:05:56 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-29

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 8:20:00 AM

Lab ID: 1208476-001

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	0.0022	0.0010		mg/L	1	8/27/2012 1:05:56 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	8/21/2012 3:51:19 PM
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Benzene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
Toluene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
Ethylbenzene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
Naphthalene	ND	2.0		µg/L	1	8/14/2012 4:01:47 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/14/2012 4:01:47 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/14/2012 4:01:47 PM
Acetone	ND	10		µg/L	1	8/14/2012 4:01:47 PM
Bromobenzene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
Bromoform	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
Bromomethane	ND	3.0		µg/L	1	8/14/2012 4:01:47 PM
2-Butanone	ND	10		µg/L	1	8/14/2012 4:01:47 PM
Carbon disulfide	ND	10		µg/L	1	8/14/2012 4:01:47 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
Chlorobenzene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
Chloroethane	ND	2.0		µg/L	1	8/14/2012 4:01:47 PM
Chloroform	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
Chloromethane	ND	3.0		µg/L	1	8/14/2012 4:01:47 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/14/2012 4:01:47 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
Dibromomethane	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-29

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 8:20:00 AM

Lab ID: 1208476-001

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
1,3-Dichloropropane	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/14/2012 4:01:47 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
2-Hexanone	ND	10		µg/L	1	8/14/2012 4:01:47 PM
Isopropylbenzene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/14/2012 4:01:47 PM
Methylene Chloride	ND	3.0		µg/L	1	8/14/2012 4:01:47 PM
n-Butylbenzene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
Styrene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/14/2012 4:01:47 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/14/2012 4:01:47 PM
Vinyl chloride	ND	1.0		µg/L	1	8/14/2012 4:01:47 PM
Xylenes, Total	ND	1.5		µg/L	1	8/14/2012 4:01:47 PM
Surr: 1,2-Dichloroethane-d4	72.5	70-130		%REC	1	8/14/2012 4:01:47 PM
Surr: 4-Bromofluorobenzene	78.8	70-130		%REC	1	8/14/2012 4:01:47 PM
Surr: Dibromofluoromethane	76.4	70-130		%REC	1	8/14/2012 4:01:47 PM
Surr: Toluene-d8	83.5	70-130		%REC	1	8/14/2012 4:01:47 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	230	1.0		mg CO2/L	1	8/16/2012 1:29:11 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	950	0.010		µmhos/cm	1	8/16/2012 1:29:11 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	250	20		mg/L CaCO3	1	8/16/2012 1:29:11 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/16/2012 1:29:11 PM
Total Alkalinity (as CaCO3)	250	20		mg/L CaCO3	1	8/16/2012 1:29:11 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-29

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 8:20:00 AM

Lab ID: 1208476-001

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	634	40.0		mg/L	1	8/16/2012 10:50:00 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-44

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 10:30:00 AM

Lab ID: 1208476-002

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	0.46	0.20		mg/L	1	8/13/2012 11:59:01 AM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/13/2012 11:59:01 AM
Surr: DNOP	120	69-152		%REC	1	8/13/2012 11:59:01 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/14/2012 7:48:32 PM
Surr: BFB	94.1	69.8-119		%REC	1	8/14/2012 7:48:32 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	0.16	0.10		mg/L	1	8/10/2012 8:23:55 PM
Chloride	68	10		mg/L	20	8/10/2012 8:36:20 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/10/2012 8:23:55 PM
Bromide	0.22	0.10		mg/L	1	8/15/2012 1:07:48 AM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/10/2012 8:23:55 PM
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	8/10/2012 8:36:20 PM
Sulfate	3000	50		mg/L	100	8/15/2012 1:20:13 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	0.015	0.0020		mg/L	1	8/26/2012 4:23:01 PM
Cadmium	ND	0.0020		mg/L	1	8/26/2012 4:23:01 PM
Calcium	490	10		mg/L	10	8/30/2012 5:03:24 PM
Chromium	ND	0.0060		mg/L	1	8/26/2012 4:23:01 PM
Copper	ND	0.0060		mg/L	1	8/30/2012 4:59:32 PM
Iron	0.35	0.020	*	mg/L	1	8/26/2012 4:23:01 PM
Magnesium	58	1.0		mg/L	1	8/30/2012 4:59:32 PM
Manganese	0.91	0.0020	*	mg/L	1	8/26/2012 4:23:01 PM
Potassium	8.8	1.0		mg/L	1	8/29/2012 4:37:04 PM
Silver	ND	0.0050		mg/L	1	8/26/2012 4:23:01 PM
Sodium	950	10		mg/L	10	8/29/2012 4:40:55 PM
Zinc	0.22	0.010		mg/L	1	8/26/2012 4:23:01 PM
EPA METHOD 200.7: METALS						Analyst: ELS
Arsenic	ND	0.020	*	mg/L	1	8/27/2012 3:28:02 PM
Barium	0.22	0.0020		mg/L	1	8/27/2012 3:28:02 PM
Cadmium	ND	0.0020		mg/L	1	8/27/2012 3:28:02 PM
Chromium	0.037	0.0060		mg/L	1	8/27/2012 3:28:02 PM
Lead	0.010	0.0050		mg/L	1	8/27/2012 3:28:02 PM
Selenium	ND	0.050		mg/L	1	8/27/2012 3:28:02 PM
Silver	ND	0.0050		mg/L	1	8/27/2012 3:28:02 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	ND	0.0010		mg/L	1	8/29/2012 1:02:33 PM
Lead	ND	0.0010		mg/L	1	8/28/2012 4:35:20 PM
Selenium	0.0022	0.0010		mg/L	1	8/29/2012 1:02:33 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-44

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 10:30:00 AM

Lab ID: 1208476-002

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	0.0015	0.0010		mg/L	1	8/29/2012 1:02:33 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	8/21/2012 3:53:06 PM
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Benzene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
Toluene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
Ethylbenzene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
Methyl tert-butyl ether (MTBE)	2.0	1.0		µg/L	1	8/14/2012 5:25:09 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
Naphthalene	ND	2.0		µg/L	1	8/14/2012 5:25:09 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/14/2012 5:25:09 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/14/2012 5:25:09 PM
Acetone	ND	10		µg/L	1	8/14/2012 5:25:09 PM
Bromobenzene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
Bromoform	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
Bromomethane	ND	3.0		µg/L	1	8/14/2012 5:25:09 PM
2-Butanone	ND	10		µg/L	1	8/14/2012 5:25:09 PM
Carbon disulfide	ND	10		µg/L	1	8/14/2012 5:25:09 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
Chlorobenzene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
Chloroethane	ND	2.0		µg/L	1	8/14/2012 5:25:09 PM
Chloroform	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
Chloromethane	ND	3.0		µg/L	1	8/14/2012 5:25:09 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/14/2012 5:25:09 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
Dibromomethane	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-44

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 10:30:00 AM

Lab ID: 1208476-002

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
1,3-Dichloropropane	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/14/2012 5:25:09 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
2-Hexanone	ND	10		µg/L	1	8/14/2012 5:25:09 PM
Isopropylbenzene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/14/2012 5:25:09 PM
Methylene Chloride	ND	3.0		µg/L	1	8/14/2012 5:25:09 PM
n-Butylbenzene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
Styrene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/14/2012 5:25:09 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/14/2012 5:25:09 PM
Vinyl chloride	ND	1.0		µg/L	1	8/14/2012 5:25:09 PM
Xylenes, Total	ND	1.5		µg/L	1	8/14/2012 5:25:09 PM
Surr: 1,2-Dichloroethane-d4	72.9	70-130		%REC	1	8/14/2012 5:25:09 PM
Surr: 4-Bromofluorobenzene	75.9	70-130		%REC	1	8/14/2012 5:25:09 PM
Surr: Dibromofluoromethane	82.3	70-130		%REC	1	8/14/2012 5:25:09 PM
Surr: Toluene-d8	84.2	70-130		%REC	1	8/14/2012 5:25:09 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	360	1.0		mg CO2/L	1	8/16/2012 1:41:29 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	5400	0.010		µmhos/cm	1	8/16/2012 1:41:29 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	380	20		mg/L CaCO3	1	8/16/2012 1:41:29 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/16/2012 1:41:29 PM
Total Alkalinity (as CaCO3)	380	20		mg/L CaCO3	1	8/16/2012 1:41:29 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-44

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 10:30:00 AM

Lab ID: 1208476-002

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	4880	100		mg/L	1	8/16/2012 10:50:00 AM

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2
RL Reporting Detection Limit

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-30

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 9:20:00 AM

Lab ID: 1208476-003

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	4.4	0.20		mg/L	1	8/13/2012 12:24:42 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/13/2012 12:24:42 PM
Surr: DNOP	124	69-152		%REC	1	8/13/2012 12:24:42 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	77	5.0		mg/L	100	8/14/2012 10:53:09 PM
Surr: BFB	106	69.8-119		%REC	100	8/14/2012 10:53:09 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	ND	0.50		mg/L	5	8/10/2012 9:25:57 PM
Chloride	230	10		mg/L	20	8/10/2012 8:48:44 PM
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	8/10/2012 9:25:57 PM
Bromide	3.9	0.50		mg/L	5	8/15/2012 1:32:37 AM
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	8/10/2012 9:25:57 PM
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	8/10/2012 9:25:57 PM
Sulfate	23	2.5		mg/L	5	8/10/2012 9:25:57 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	0.93	0.0020		mg/L	1	8/26/2012 4:30:52 PM
Cadmium	ND	0.0020		mg/L	1	8/26/2012 4:30:52 PM
Calcium	150	10		mg/L	10	8/30/2012 5:10:27 PM
Chromium	ND	0.0060		mg/L	1	8/26/2012 4:30:52 PM
Copper	ND	0.0060		mg/L	1	8/30/2012 5:07:06 PM
Iron	2.7	0.10	*	mg/L	5	8/26/2012 4:34:16 PM
Magnesium	48	1.0		mg/L	1	8/30/2012 5:07:06 PM
Manganese	2.8	0.010	*	mg/L	5	8/26/2012 4:34:16 PM
Potassium	4.1	1.0		mg/L	1	8/29/2012 4:44:39 PM
Silver	ND	0.0050		mg/L	1	8/26/2012 4:30:52 PM
Sodium	590	10		mg/L	10	8/29/2012 4:58:15 PM
Zinc	0.040	0.010		mg/L	1	8/26/2012 4:30:52 PM
EPA METHOD 200.7: METALS						Analyst: ELS
Arsenic	ND	0.020		mg/L	1	8/27/2012 3:41:20 PM
Barium	1.1	0.010		mg/L	5	8/27/2012 4:21:10 PM
Cadmium	ND	0.0020		mg/L	1	8/27/2012 3:41:20 PM
Chromium	ND	0.0060		mg/L	1	8/27/2012 3:41:20 PM
Lead	ND	0.0050		mg/L	1	8/27/2012 3:41:20 PM
Selenium	ND	0.050		mg/L	1	8/27/2012 3:41:20 PM
Silver	ND	0.0050		mg/L	1	8/27/2012 3:41:20 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	0.0039	0.0010		mg/L	1	8/27/2012 1:13:48 PM
Lead	ND	0.0010		mg/L	1	8/27/2012 1:13:48 PM
Selenium	0.0098	0.0010		mg/L	1	8/27/2012 1:13:48 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-30

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 9:20:00 AM

Lab ID: 1208476-003

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	0.0024	0.0010		mg/L	1	8/27/2012 1:13:48 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	8/21/2012 3:54:53 PM
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Benzene	5400	100		µg/L	100	8/14/2012 5:52:57 PM
Toluene	8800	100		µg/L	100	8/14/2012 5:52:57 PM
Ethylbenzene	4300	100		µg/L	100	8/14/2012 5:52:57 PM
Methyl tert-butyl ether (MTBE)	ND	100		µg/L	100	8/14/2012 5:52:57 PM
1,2,4-Trimethylbenzene	3600	100		µg/L	100	8/14/2012 5:52:57 PM
1,3,5-Trimethylbenzene	840	100		µg/L	100	8/14/2012 5:52:57 PM
1,2-Dichloroethane (EDC)	ND	100		µg/L	100	8/14/2012 5:52:57 PM
1,2-Dibromoethane (EDB)	ND	100		µg/L	100	8/14/2012 5:52:57 PM
Naphthalene	760	200		µg/L	100	8/14/2012 5:52:57 PM
1-Methylnaphthalene	ND	400		µg/L	100	8/14/2012 5:52:57 PM
2-Methylnaphthalene	ND	400		µg/L	100	8/14/2012 5:52:57 PM
Acetone	ND	1000		µg/L	100	8/14/2012 5:52:57 PM
Bromobenzene	ND	100		µg/L	100	8/14/2012 5:52:57 PM
Bromodichloromethane	ND	100		µg/L	100	8/14/2012 5:52:57 PM
Bromoform	ND	100		µg/L	100	8/14/2012 5:52:57 PM
Bromomethane	ND	300		µg/L	100	8/14/2012 5:52:57 PM
2-Butanone	ND	1000		µg/L	100	8/14/2012 5:52:57 PM
Carbon disulfide	ND	1000		µg/L	100	8/14/2012 5:52:57 PM
Carbon Tetrachloride	ND	100		µg/L	100	8/14/2012 5:52:57 PM
Chlorobenzene	ND	100		µg/L	100	8/14/2012 5:52:57 PM
Chloroethane	ND	200		µg/L	100	8/14/2012 5:52:57 PM
Chloroform	ND	100		µg/L	100	8/14/2012 5:52:57 PM
Chloromethane	ND	300		µg/L	100	8/14/2012 5:52:57 PM
2-Chlorotoluene	ND	100		µg/L	100	8/14/2012 5:52:57 PM
4-Chlorotoluene	ND	100		µg/L	100	8/14/2012 5:52:57 PM
cis-1,2-DCE	ND	100		µg/L	100	8/14/2012 5:52:57 PM
cis-1,3-Dichloropropene	ND	100		µg/L	100	8/14/2012 5:52:57 PM
1,2-Dibromo-3-chloropropane	ND	200		µg/L	100	8/14/2012 5:52:57 PM
Dibromochloromethane	ND	100		µg/L	100	8/14/2012 5:52:57 PM
Dibromomethane	ND	100		µg/L	100	8/14/2012 5:52:57 PM
1,2-Dichlorobenzene	ND	100		µg/L	100	8/14/2012 5:52:57 PM
1,3-Dichlorobenzene	ND	100		µg/L	100	8/14/2012 5:52:57 PM
1,4-Dichlorobenzene	ND	100		µg/L	100	8/14/2012 5:52:57 PM
Dichlorodifluoromethane	ND	100		µg/L	100	8/14/2012 5:52:57 PM
1,1-Dichloroethane	ND	100		µg/L	100	8/14/2012 5:52:57 PM
1,1-Dichloroethene	ND	100		µg/L	100	8/14/2012 5:52:57 PM
1,2-Dichloropropane	ND	100		µg/L	100	8/14/2012 5:52:57 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-30

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 9:20:00 AM

Lab ID: 1208476-003

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
1,3-Dichloropropane	ND	100		µg/L	100	8/14/2012 5:52:57 PM
2,2-Dichloropropane	ND	200		µg/L	100	8/14/2012 5:52:57 PM
1,1-Dichloropropene	ND	100		µg/L	100	8/14/2012 5:52:57 PM
Hexachlorobutadiene	ND	100		µg/L	100	8/14/2012 5:52:57 PM
2-Hexanone	ND	1000		µg/L	100	8/14/2012 5:52:57 PM
Isopropylbenzene	130	100		µg/L	100	8/14/2012 5:52:57 PM
4-Isopropyltoluene	ND	100		µg/L	100	8/14/2012 5:52:57 PM
4-Methyl-2-pentanone	ND	1000		µg/L	100	8/14/2012 5:52:57 PM
Methylene Chloride	ND	300		µg/L	100	8/14/2012 5:52:57 PM
n-Butylbenzene	ND	100		µg/L	100	8/14/2012 5:52:57 PM
n-Propylbenzene	550	100		µg/L	100	8/14/2012 5:52:57 PM
sec-Butylbenzene	ND	100		µg/L	100	8/14/2012 5:52:57 PM
Styrene	ND	100		µg/L	100	8/14/2012 5:52:57 PM
tert-Butylbenzene	ND	100		µg/L	100	8/14/2012 5:52:57 PM
1,1,1,2-Tetrachloroethane	ND	100		µg/L	100	8/14/2012 5:52:57 PM
1,1,2,2-Tetrachloroethane	ND	200		µg/L	100	8/14/2012 5:52:57 PM
Tetrachloroethene (PCE)	ND	100		µg/L	100	8/14/2012 5:52:57 PM
trans-1,2-DCE	ND	100		µg/L	100	8/14/2012 5:52:57 PM
trans-1,3-Dichloropropene	ND	100		µg/L	100	8/14/2012 5:52:57 PM
1,2,3-Trichlorobenzene	ND	100		µg/L	100	8/14/2012 5:52:57 PM
1,2,4-Trichlorobenzene	ND	100		µg/L	100	8/14/2012 5:52:57 PM
1,1,1-Trichloroethane	ND	100		µg/L	100	8/14/2012 5:52:57 PM
1,1,2-Trichloroethane	ND	100		µg/L	100	8/14/2012 5:52:57 PM
Trichloroethene (TCE)	ND	100		µg/L	100	8/14/2012 5:52:57 PM
Trichlorofluoromethane	ND	100		µg/L	100	8/14/2012 5:52:57 PM
1,2,3-Trichloropropane	ND	200		µg/L	100	8/14/2012 5:52:57 PM
Vinyl chloride	ND	100		µg/L	100	8/14/2012 5:52:57 PM
Xylenes, Total	16000	150		µg/L	100	8/14/2012 5:52:57 PM
Surr: 1,2-Dichloroethane-d4	72.7	70-130		%REC	100	8/14/2012 5:52:57 PM
Surr: 4-Bromofluorobenzene	76.7	70-130		%REC	100	8/14/2012 5:52:57 PM
Surr: Dibromofluoromethane	86.5	70-130		%REC	100	8/14/2012 5:52:57 PM
Surr: Toluene-d8	83.1	70-130		%REC	100	8/14/2012 5:52:57 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	1400	2.5		mg CO2/L	2.5	8/17/2012 10:11:31 AM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	3200	0.010		µmhos/cm	1	8/16/2012 1:57:29 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	1500	50		mg/L CaCO3	2.5	8/17/2012 10:11:31 AM
Carbonate (As CaCO3)	ND	5.0		mg/L CaCO3	2.5	8/17/2012 10:11:31 AM
Total Alkalinity (as CaCO3)	1500	50		mg/L CaCO3	2.5	8/17/2012 10:11:31 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-30

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 9:20:00 AM

Lab ID: 1208476-003

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	2100	20.0		mg/L	1	8/16/2012 10:50:00 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-31

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 1:30:00 PM

Lab ID: 1208476-004

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	1.8	0.20		mg/L	1	8/13/2012 12:50:19 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/13/2012 12:50:19 PM
Surr: DNOP	125	69-152		%REC	1	8/13/2012 12:50:19 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	26	5.0		mg/L	100	8/14/2012 11:23:22 PM
Surr: BFB	98.9	69.8-119		%REC	100	8/14/2012 11:23:22 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	0.51	0.10		mg/L	1	8/10/2012 9:38:21 PM
Chloride	380	10		mg/L	20	8/10/2012 9:50:46 PM
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	8/10/2012 9:50:46 PM
Bromide	2.1	0.10		mg/L	1	8/15/2012 1:45:02 AM
Nitrogen, Nitrate (As N)	0.73	0.10		mg/L	1	8/10/2012 9:38:21 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/10/2012 9:38:21 PM
Sulfate	88	10		mg/L	20	8/10/2012 9:50:46 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	1.3	0.010		mg/L	5	8/26/2012 4:41:46 PM
Cadmium	ND	0.0020		mg/L	1	8/26/2012 4:37:52 PM
Calcium	140	10		mg/L	10	8/30/2012 5:18:32 PM
Chromium	ND	0.0060		mg/L	1	8/26/2012 4:37:52 PM
Copper	ND	0.0060		mg/L	1	8/30/2012 5:14:36 PM
Iron	0.19	0.020		mg/L	1	8/26/2012 4:37:52 PM
Magnesium	53	1.0		mg/L	1	8/30/2012 5:14:36 PM
Manganese	1.1	0.010	*	mg/L	5	8/26/2012 4:41:46 PM
Potassium	5.7	1.0		mg/L	1	8/29/2012 5:02:02 PM
Silver	ND	0.0050		mg/L	1	8/26/2012 4:37:52 PM
Sodium	570	10		mg/L	10	8/29/2012 5:05:55 PM
Zinc	0.085	0.010		mg/L	1	8/26/2012 4:37:52 PM
EPA METHOD 200.7: METALS						Analyst: ELS
Arsenic	ND	0.020		mg/L	1	8/27/2012 3:44:05 PM
Barium	1.1	0.010		mg/L	5	8/27/2012 4:23:54 PM
Cadmium	ND	0.0020		mg/L	1	8/27/2012 3:44:05 PM
Chromium	ND	0.0060		mg/L	1	8/27/2012 3:44:05 PM
Lead	ND	0.0050		mg/L	1	8/27/2012 3:44:05 PM
Selenium	ND	0.050		mg/L	1	8/27/2012 3:44:05 PM
Silver	ND	0.0050		mg/L	1	8/27/2012 3:44:05 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	0.0042	0.0010		mg/L	1	8/27/2012 1:17:44 PM
Lead	ND	0.0010		mg/L	1	8/27/2012 1:17:44 PM
Selenium	0.015	0.0010		mg/L	1	8/27/2012 1:17:44 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-31

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 1:30:00 PM

Lab ID: 1208476-004

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	0.0083	0.0010		mg/L	1	8/27/2012 1:17:44 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	8/21/2012 3:56:42 PM
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Benzene	4200	50		µg/L	50	8/14/2012 6:20:43 PM
Toluene	2000	50		µg/L	50	8/14/2012 6:20:43 PM
Ethylbenzene	1400	50		µg/L	50	8/14/2012 6:20:43 PM
Methyl tert-butyl ether (MTBE)	ND	50		µg/L	50	8/14/2012 6:20:43 PM
1,2,4-Trimethylbenzene	1800	50		µg/L	50	8/14/2012 6:20:43 PM
1,3,5-Trimethylbenzene	270	50		µg/L	50	8/14/2012 6:20:43 PM
1,2-Dichloroethane (EDC)	ND	50		µg/L	50	8/14/2012 6:20:43 PM
1,2-Dibromoethane (EDB)	ND	50		µg/L	50	8/14/2012 6:20:43 PM
Naphthalene	230	100		µg/L	50	8/14/2012 6:20:43 PM
1-Methylnaphthalene	ND	200		µg/L	50	8/14/2012 6:20:43 PM
2-Methylnaphthalene	ND	200		µg/L	50	8/14/2012 6:20:43 PM
Acetone	ND	500		µg/L	50	8/14/2012 6:20:43 PM
Bromobenzene	ND	50		µg/L	50	8/14/2012 6:20:43 PM
Bromodichloromethane	ND	50		µg/L	50	8/14/2012 6:20:43 PM
Bromoform	ND	50		µg/L	50	8/14/2012 6:20:43 PM
Bromomethane	ND	150		µg/L	50	8/14/2012 6:20:43 PM
2-Butanone	ND	500		µg/L	50	8/14/2012 6:20:43 PM
Carbon disulfide	ND	500		µg/L	50	8/14/2012 6:20:43 PM
Carbon Tetrachloride	ND	50		µg/L	50	8/14/2012 6:20:43 PM
Chlorobenzene	ND	50		µg/L	50	8/14/2012 6:20:43 PM
Chloroethane	ND	100		µg/L	50	8/14/2012 6:20:43 PM
Chloroform	ND	50		µg/L	50	8/14/2012 6:20:43 PM
Chloromethane	ND	150		µg/L	50	8/14/2012 6:20:43 PM
2-Chlorotoluene	ND	50		µg/L	50	8/14/2012 6:20:43 PM
4-Chlorotoluene	ND	50		µg/L	50	8/14/2012 6:20:43 PM
cis-1,2-DCE	ND	50		µg/L	50	8/14/2012 6:20:43 PM
cis-1,3-Dichloropropene	ND	50		µg/L	50	8/14/2012 6:20:43 PM
1,2-Dibromo-3-chloropropane	ND	100		µg/L	50	8/14/2012 6:20:43 PM
Dibromochloromethane	ND	50		µg/L	50	8/14/2012 6:20:43 PM
Dibromomethane	ND	50		µg/L	50	8/14/2012 6:20:43 PM
1,2-Dichlorobenzene	ND	50		µg/L	50	8/14/2012 6:20:43 PM
1,3-Dichlorobenzene	ND	50		µg/L	50	8/14/2012 6:20:43 PM
1,4-Dichlorobenzene	ND	50		µg/L	50	8/14/2012 6:20:43 PM
Dichlorodifluoromethane	ND	50		µg/L	50	8/14/2012 6:20:43 PM
1,1-Dichloroethane	ND	50		µg/L	50	8/14/2012 6:20:43 PM
1,1-Dichloroethene	ND	50		µg/L	50	8/14/2012 6:20:43 PM
1,2-Dichloropropane	ND	50		µg/L	50	8/14/2012 6:20:43 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-31

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 1:30:00 PM

Lab ID: 1208476-004

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
1,3-Dichloropropane	ND	50		µg/L	50	8/14/2012 6:20:43 PM
2,2-Dichloropropane	ND	100		µg/L	50	8/14/2012 6:20:43 PM
1,1-Dichloropropene	ND	50		µg/L	50	8/14/2012 6:20:43 PM
Hexachlorobutadiene	ND	50		µg/L	50	8/14/2012 6:20:43 PM
2-Hexanone	ND	500		µg/L	50	8/14/2012 6:20:43 PM
Isopropylbenzene	94	50		µg/L	50	8/14/2012 6:20:43 PM
4-Isopropyltoluene	ND	50		µg/L	50	8/14/2012 6:20:43 PM
4-Methyl-2-pentanone	ND	500		µg/L	50	8/14/2012 6:20:43 PM
Methylene Chloride	ND	150		µg/L	50	8/14/2012 6:20:43 PM
n-Butylbenzene	ND	50		µg/L	50	8/14/2012 6:20:43 PM
n-Propylbenzene	300	50		µg/L	50	8/14/2012 6:20:43 PM
sec-Butylbenzene	ND	50		µg/L	50	8/14/2012 6:20:43 PM
Styrene	ND	50		µg/L	50	8/14/2012 6:20:43 PM
tert-Butylbenzene	ND	50		µg/L	50	8/14/2012 6:20:43 PM
1,1,1,2-Tetrachloroethane	ND	50		µg/L	50	8/14/2012 6:20:43 PM
1,1,2,2-Tetrachloroethane	ND	100		µg/L	50	8/14/2012 6:20:43 PM
Tetrachloroethene (PCE)	ND	50		µg/L	50	8/14/2012 6:20:43 PM
trans-1,2-DCE	ND	50		µg/L	50	8/14/2012 6:20:43 PM
trans-1,3-Dichloropropene	ND	50		µg/L	50	8/14/2012 6:20:43 PM
1,2,3-Trichlorobenzene	ND	50		µg/L	50	8/14/2012 6:20:43 PM
1,2,4-Trichlorobenzene	ND	50		µg/L	50	8/14/2012 6:20:43 PM
1,1,1-Trichloroethane	ND	50		µg/L	50	8/14/2012 6:20:43 PM
1,1,2-Trichloroethane	ND	50		µg/L	50	8/14/2012 6:20:43 PM
Trichloroethene (TCE)	ND	50		µg/L	50	8/14/2012 6:20:43 PM
Trichlorofluoromethane	ND	50		µg/L	50	8/14/2012 6:20:43 PM
1,2,3-Trichloropropane	ND	100		µg/L	50	8/14/2012 6:20:43 PM
Vinyl chloride	ND	50		µg/L	50	8/14/2012 6:20:43 PM
Xylenes, Total	5100	75		µg/L	50	8/14/2012 6:20:43 PM
Surr: 1,2-Dichloroethane-d4	71.0	70-130		%REC	50	8/14/2012 6:20:43 PM
Surr: 4-Bromofluorobenzene	82.1	70-130		%REC	50	8/14/2012 6:20:43 PM
Surr: Dibromofluoromethane	74.7	70-130		%REC	50	8/14/2012 6:20:43 PM
Surr: Toluene-d8	85.2	70-130		%REC	50	8/14/2012 6:20:43 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	1100	2.5		mg CO2/L	2.5	8/17/2012 10:32:01 AM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	3200	0.010		µmhos/cm	1	8/16/2012 2:27:20 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	1200	50		mg/L CaCO3	2.5	8/17/2012 10:32:01 AM
Carbonate (As CaCO3)	ND	5.0		mg/L CaCO3	2.5	8/17/2012 10:32:01 AM
Total Alkalinity (as CaCO3)	1200	50		mg/L CaCO3	2.5	8/17/2012 10:32:01 AM

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-31

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 1:30:00 PM

Lab ID: 1208476-004

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	2090	20.0		mg/L	1	8/16/2012 10:50:00 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

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- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-4

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 1:00:00 PM

Lab ID: 1208476-005

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JPM
Diesel Range Organics (DRO)	0.48	0.20		mg/L	1	8/13/2012 1:41:34 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/13/2012 1:41:34 PM
Surr: DNOP	128	69-152		%REC	1	8/13/2012 1:41:34 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	9.8	0.50		mg/L	10	8/14/2012 11:53:38 PM
Surr: BFB	110	69.8-119		%REC	10	8/14/2012 11:53:38 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	ND	0.50		mg/L	5	8/10/2012 10:03:10 PM
Chloride	220	10		mg/L	20	8/10/2012 10:15:35 PM
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	8/10/2012 10:03:10 PM
Bromide	3.0	0.50		mg/L	5	8/15/2012 1:57:26 AM
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	8/10/2012 10:03:10 PM
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	8/10/2012 10:03:10 PM
Sulfate	ND	2.5		mg/L	5	8/10/2012 10:03:10 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	2.0	0.010	*	mg/L	5	8/26/2012 4:48:50 PM
Cadmium	ND	0.0020		mg/L	1	8/26/2012 4:45:30 PM
Calcium	160	10		mg/L	10	8/30/2012 5:38:20 PM
Chromium	ND	0.0060		mg/L	1	8/26/2012 4:45:30 PM
Copper	ND	0.0060		mg/L	1	8/30/2012 5:22:27 PM
Iron	7.9	0.20	*	mg/L	10	8/29/2012 5:14:39 PM
Magnesium	63	1.0		mg/L	1	8/30/2012 5:22:27 PM
Manganese	3.5	0.010	*	mg/L	5	8/26/2012 4:48:50 PM
Potassium	4.2	1.0		mg/L	1	8/29/2012 5:11:27 PM
Silver	ND	0.0050		mg/L	1	8/26/2012 4:45:30 PM
Sodium	330	10		mg/L	10	8/29/2012 5:14:39 PM
Zinc	0.042	0.010		mg/L	1	8/26/2012 4:45:30 PM
EPA METHOD 200.7: METALS						Analyst: ELS
Arsenic	ND	0.020		mg/L	1	8/27/2012 3:46:50 PM
Barium	2.3	0.010	*	mg/L	5	8/27/2012 4:29:00 PM
Cadmium	ND	0.0020		mg/L	1	8/27/2012 3:46:50 PM
Chromium	0.014	0.0060		mg/L	1	8/27/2012 3:46:50 PM
Lead	0.0077	0.0050		mg/L	1	8/27/2012 3:46:50 PM
Selenium	ND	0.050		mg/L	1	8/27/2012 3:46:50 PM
Silver	ND	0.0050		mg/L	1	8/27/2012 3:46:50 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	0.0095	0.0010		mg/L	1	8/27/2012 1:21:40 PM
Lead	0.0014	0.0010		mg/L	1	8/27/2012 1:21:40 PM
Selenium	0.0079	0.0010		mg/L	1	8/27/2012 1:21:40 PM

Qualifiers:

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- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-4

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 1:00:00 PM

Lab ID: 1208476-005

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	ND	0.0010		mg/L	1	8/27/2012 1:21:40 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	8/21/2012 4:01:58 PM
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Benzene	190	10		µg/L	10	8/14/2012 6:48:27 PM
Toluene	ND	10		µg/L	10	8/14/2012 6:48:27 PM
Ethylbenzene	83	10		µg/L	10	8/14/2012 6:48:27 PM
Methyl tert-butyl ether (MTBE)	ND	10		µg/L	10	8/14/2012 6:48:27 PM
1,2,4-Trimethylbenzene	220	10		µg/L	10	8/14/2012 6:48:27 PM
1,3,5-Trimethylbenzene	11	10		µg/L	10	8/14/2012 6:48:27 PM
1,2-Dichloroethane (EDC)	ND	10		µg/L	10	8/14/2012 6:48:27 PM
1,2-Dibromoethane (EDB)	ND	10		µg/L	10	8/14/2012 6:48:27 PM
Naphthalene	110	20		µg/L	10	8/14/2012 6:48:27 PM
1-Methylnaphthalene	ND	40		µg/L	10	8/14/2012 6:48:27 PM
2-Methylnaphthalene	66	40		µg/L	10	8/14/2012 6:48:27 PM
Acetone	ND	100		µg/L	10	8/14/2012 6:48:27 PM
Bromobenzene	ND	10		µg/L	10	8/14/2012 6:48:27 PM
Bromodichloromethane	ND	10		µg/L	10	8/14/2012 6:48:27 PM
Bromoform	ND	10		µg/L	10	8/14/2012 6:48:27 PM
Bromomethane	ND	30		µg/L	10	8/14/2012 6:48:27 PM
2-Butanone	ND	100		µg/L	10	8/14/2012 6:48:27 PM
Carbon disulfide	ND	100		µg/L	10	8/14/2012 6:48:27 PM
Carbon Tetrachloride	ND	10		µg/L	10	8/14/2012 6:48:27 PM
Chlorobenzene	ND	10		µg/L	10	8/14/2012 6:48:27 PM
Chloroethane	ND	20		µg/L	10	8/14/2012 6:48:27 PM
Chloroform	ND	10		µg/L	10	8/14/2012 6:48:27 PM
Chloromethane	ND	30		µg/L	10	8/14/2012 6:48:27 PM
2-Chlorotoluene	ND	10		µg/L	10	8/14/2012 6:48:27 PM
4-Chlorotoluene	ND	10		µg/L	10	8/14/2012 6:48:27 PM
cis-1,2-DCE	ND	10		µg/L	10	8/14/2012 6:48:27 PM
cis-1,3-Dichloropropene	ND	10		µg/L	10	8/14/2012 6:48:27 PM
1,2-Dibromo-3-chloropropane	ND	20		µg/L	10	8/14/2012 6:48:27 PM
Dibromochloromethane	ND	10		µg/L	10	8/14/2012 6:48:27 PM
Dibromomethane	ND	10		µg/L	10	8/14/2012 6:48:27 PM
1,2-Dichlorobenzene	ND	10		µg/L	10	8/14/2012 6:48:27 PM
1,3-Dichlorobenzene	ND	10		µg/L	10	8/14/2012 6:48:27 PM
1,4-Dichlorobenzene	ND	10		µg/L	10	8/14/2012 6:48:27 PM
Dichlorodifluoromethane	ND	10		µg/L	10	8/14/2012 6:48:27 PM
1,1-Dichloroethane	ND	10		µg/L	10	8/14/2012 6:48:27 PM
1,1-Dichloroethene	ND	10		µg/L	10	8/14/2012 6:48:27 PM
1,2-Dichloropropane	ND	10		µg/L	10	8/14/2012 6:48:27 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-4

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 1:00:00 PM

Lab ID: 1208476-005

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
1,3-Dichloropropane	ND	10		µg/L	10	8/14/2012 6:48:27 PM
2,2-Dichloropropane	ND	20		µg/L	10	8/14/2012 6:48:27 PM
1,1-Dichloropropene	ND	10		µg/L	10	8/14/2012 6:48:27 PM
Hexachlorobutadiene	ND	10		µg/L	10	8/14/2012 6:48:27 PM
2-Hexanone	ND	100		µg/L	10	8/14/2012 6:48:27 PM
Isopropylbenzene	58	10		µg/L	10	8/14/2012 6:48:27 PM
4-Isopropyltoluene	ND	10		µg/L	10	8/14/2012 6:48:27 PM
4-Methyl-2-pentanone	ND	100		µg/L	10	8/14/2012 6:48:27 PM
Methylene Chloride	ND	30		µg/L	10	8/14/2012 6:48:27 PM
n-Butylbenzene	ND	10		µg/L	10	8/14/2012 6:48:27 PM
n-Propylbenzene	77	10		µg/L	10	8/14/2012 6:48:27 PM
sec-Butylbenzene	14	10		µg/L	10	8/14/2012 6:48:27 PM
Styrene	ND	10		µg/L	10	8/14/2012 6:48:27 PM
tert-Butylbenzene	ND	10		µg/L	10	8/14/2012 6:48:27 PM
1,1,1,2-Tetrachloroethane	ND	10		µg/L	10	8/14/2012 6:48:27 PM
1,1,2,2-Tetrachloroethane	ND	20		µg/L	10	8/14/2012 6:48:27 PM
Tetrachloroethene (PCE)	ND	10		µg/L	10	8/14/2012 6:48:27 PM
trans-1,2-DCE	ND	10		µg/L	10	8/14/2012 6:48:27 PM
trans-1,3-Dichloropropene	ND	10		µg/L	10	8/14/2012 6:48:27 PM
1,2,3-Trichlorobenzene	ND	10		µg/L	10	8/14/2012 6:48:27 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	10	8/14/2012 6:48:27 PM
1,1,1-Trichloroethane	ND	10		µg/L	10	8/14/2012 6:48:27 PM
1,1,2-Trichloroethane	ND	10		µg/L	10	8/14/2012 6:48:27 PM
Trichloroethene (TCE)	ND	10		µg/L	10	8/14/2012 6:48:27 PM
Trichlorofluoromethane	ND	10		µg/L	10	8/14/2012 6:48:27 PM
1,2,3-Trichloropropane	ND	20		µg/L	10	8/14/2012 6:48:27 PM
Vinyl chloride	ND	10		µg/L	10	8/14/2012 6:48:27 PM
Xylenes, Total	34	15		µg/L	10	8/14/2012 6:48:27 PM
Surr: 1,2-Dichloroethane-d4	72.0	70-130		%REC	10	8/14/2012 6:48:27 PM
Surr: 4-Bromofluorobenzene	85.4	70-130		%REC	10	8/14/2012 6:48:27 PM
Surr: Dibromofluoromethane	88.4	70-130		%REC	10	8/14/2012 6:48:27 PM
Surr: Toluene-d8	82.7	70-130		%REC	10	8/14/2012 6:48:27 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	1000	1.0		mg CO2/L	1	8/16/2012 3:04:24 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	2400	0.010		µmhos/cm	1	8/16/2012 3:04:24 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	1100	20		mg/L CaCO3	1	8/16/2012 3:04:24 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/16/2012 3:04:24 PM
Total Alkalinity (as CaCO3)	1100	20		mg/L CaCO3	1	8/16/2012 3:04:24 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-4

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 1:00:00 PM

Lab ID: 1208476-005

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	1570	40.0		mg/L	1	8/16/2012 10:50:00 AM

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2
RL Reporting Detection Limit

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-8

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 8:45:00 AM

Lab ID: 1208476-006

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	0.27	0.20		mg/L	1	8/13/2012 2:07:14 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/13/2012 2:07:14 PM
Surr: DNOP	130	69-152		%REC	1	8/13/2012 2:07:14 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	0.16	0.050		mg/L	1	8/15/2012 12:23:48 AM
Surr: BFB	98.8	69.8-119		%REC	1	8/15/2012 12:23:48 AM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	0.79	0.10		mg/L	1	8/10/2012 10:28:00 PM
Chloride	240	10		mg/L	20	8/10/2012 10:40:25 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/10/2012 10:28:00 PM
Bromide	1.0	0.10		mg/L	1	8/15/2012 2:34:41 AM
Nitrogen, Nitrate (As N)	16	2.0	*	mg/L	20	8/10/2012 10:40:25 PM
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	8/10/2012 10:40:25 PM
Sulfate	1800	50		mg/L	100	8/15/2012 2:47:05 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	0.026	0.010		mg/L	5	8/26/2012 4:55:27 PM
Cadmium	ND	0.010		mg/L	5	8/26/2012 4:55:27 PM
Calcium	240	5.0		mg/L	5	8/30/2012 5:41:42 PM
Chromium	3.9	0.030	*	mg/L	5	8/26/2012 4:55:27 PM
Copper	0.17	0.030		mg/L	5	8/30/2012 5:41:42 PM
Iron	60	2.0	*	mg/L	100	8/29/2012 5:31:42 PM
Magnesium	48	5.0		mg/L	5	8/30/2012 5:41:42 PM
Manganese	9.6	0.020	*	mg/L	10	8/29/2012 5:21:11 PM
Potassium	5.4	5.0		mg/L	5	8/29/2012 5:17:54 PM
Silver	ND	0.025		mg/L	5	8/26/2012 4:55:27 PM
Sodium	330	5.0		mg/L	5	8/29/2012 5:17:54 PM
Zinc	0.54	0.050		mg/L	5	8/26/2012 4:55:27 PM
EPA METHOD 200.7: METALS						Analyst: ELS
Arsenic	ND	0.040		mg/L	2	8/27/2012 4:10:31 PM
Barium	0.035	0.0040		mg/L	2	8/27/2012 4:10:31 PM
Cadmium	ND	0.0040		mg/L	2	8/27/2012 4:10:31 PM
Chromium	4.8	0.060	*	mg/L	10	8/27/2012 4:31:44 PM
Lead	ND	0.010		mg/L	2	8/27/2012 4:10:31 PM
Selenium	ND	0.10		mg/L	2	8/27/2012 4:10:31 PM
Silver	ND	0.010		mg/L	2	8/27/2012 4:10:31 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	0.011	0.0010	*	mg/L	1	8/27/2012 1:33:30 PM
Lead	0.0016	0.0010		mg/L	1	8/27/2012 1:33:30 PM
Selenium	0.040	0.0010		mg/L	1	8/27/2012 1:33:30 PM

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-8

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 8:45:00 AM

Lab ID: 1208476-006

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	0.030	0.0010		mg/L	1	8/27/2012 1:33:30 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	0.0040	0.00020	*	mg/L	1	8/21/2012 4:37:28 PM
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Benzene	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
Toluene	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
Ethylbenzene	3.9	1.0		µg/L	1	8/14/2012 7:16:09 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
1,2,4-Trimethylbenzene	21	1.0		µg/L	1	8/14/2012 7:16:09 PM
1,3,5-Trimethylbenzene	5.2	1.0		µg/L	1	8/14/2012 7:16:09 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
Naphthalene	8.7	2.0		µg/L	1	8/14/2012 7:16:09 PM
1-Methylnaphthalene	23	4.0		µg/L	1	8/14/2012 7:16:09 PM
2-Methylnaphthalene	19	4.0		µg/L	1	8/14/2012 7:16:09 PM
Acetone	ND	10		µg/L	1	8/14/2012 7:16:09 PM
Bromobenzene	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
Bromoform	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
Bromomethane	ND	3.0		µg/L	1	8/14/2012 7:16:09 PM
2-Butanone	ND	10		µg/L	1	8/14/2012 7:16:09 PM
Carbon disulfide	ND	10		µg/L	1	8/14/2012 7:16:09 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
Chlorobenzene	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
Chloroethane	ND	2.0		µg/L	1	8/14/2012 7:16:09 PM
Chloroform	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
Chloromethane	ND	3.0		µg/L	1	8/14/2012 7:16:09 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/14/2012 7:16:09 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
Dibromomethane	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
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- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-8

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 8:45:00 AM

Lab ID: 1208476-006

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
1,3-Dichloropropane	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	8/14/2012 7:16:09 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
2-Hexanone	ND	10		µg/L	1	8/14/2012 7:16:09 PM
Isopropylbenzene	1.4	1.0		µg/L	1	8/14/2012 7:16:09 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/14/2012 7:16:09 PM
Methylene Chloride	ND	3.0		µg/L	1	8/14/2012 7:16:09 PM
n-Butylbenzene	1.1	1.0		µg/L	1	8/14/2012 7:16:09 PM
n-Propylbenzene	3.6	1.0		µg/L	1	8/14/2012 7:16:09 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
Styrene	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/14/2012 7:16:09 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/14/2012 7:16:09 PM
Vinyl chloride	ND	1.0		µg/L	1	8/14/2012 7:16:09 PM
Xylenes, Total	9.3	1.5		µg/L	1	8/14/2012 7:16:09 PM
Surr: 1,2-Dichloroethane-d4	71.8	70-130		%REC	1	8/14/2012 7:16:09 PM
Surr: 4-Bromofluorobenzene	82.7	70-130		%REC	1	8/14/2012 7:16:09 PM
Surr: Dibromofluoromethane	72.2	70-130		%REC	1	8/14/2012 7:16:09 PM
Surr: Toluene-d8	84.9	70-130		%REC	1	8/14/2012 7:16:09 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	ND	1.0		mg CO2/L	1	8/16/2012 3:40:22 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	3600	0.010		µmhos/cm	1	8/16/2012 3:40:22 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	ND	20		mg/L CaCO3	1	8/16/2012 3:40:22 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/16/2012 3:40:22 PM
Total Alkalinity (as CaCO3)	ND	20		mg/L CaCO3	1	8/16/2012 3:40:22 PM

Qualifiers:

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- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: MW-8

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 8:45:00 AM

Lab ID: 1208476-006

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	3050	100		mg/L	1	8/16/2012 10:50:00 AM

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2
RL Reporting Detection Limit

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: RW-9

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 11:15:00 AM

Lab ID: 1208476-007

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	14	0.20		mg/L	1	8/13/2012 2:33:09 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/13/2012 2:33:09 PM
Surr: DNOP	114	69-152		%REC	1	8/13/2012 2:33:09 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	23	1.0		mg/L	20	8/15/2012 12:53:54 AM
Surr: BFB	113	69.8-119		%REC	20	8/15/2012 12:53:54 AM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	ND	1.0		mg/L	10	8/15/2012 2:59:30 AM
Chloride	460	25		mg/L	50	8/10/2012 11:05:15 PM
Bromide	5.6	1.0		mg/L	10	8/15/2012 2:59:30 AM
Nitrate+Nitrite as N	ND	2.0		mg/L	10	8/15/2012 3:11:55 AM
Phosphorus, Orthophosphate (As P)	ND	5.0	H	mg/L	10	8/15/2012 2:59:30 AM
Sulfate	21	5.0		mg/L	10	8/15/2012 2:59:30 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	3.8	0.010	*	mg/L	5	8/26/2012 5:13:27 PM
Cadmium	ND	0.0020		mg/L	1	8/26/2012 5:09:57 PM
Calcium	230	10		mg/L	10	8/30/2012 5:48:07 PM
Chromium	0.0077	0.0060		mg/L	1	8/26/2012 5:09:57 PM
Copper	ND	0.0060		mg/L	1	8/30/2012 5:44:54 PM
Iron	43	2.0	*	mg/L	100	8/29/2012 5:54:24 PM
Magnesium	71	1.0		mg/L	1	8/30/2012 5:44:54 PM
Manganese	5.6	0.020	*	mg/L	10	8/29/2012 5:51:06 PM
Potassium	4.9	1.0		mg/L	1	8/29/2012 5:35:25 PM
Silver	ND	0.0050		mg/L	1	8/26/2012 5:09:57 PM
Sodium	450	10		mg/L	10	8/29/2012 5:51:06 PM
Zinc	0.14	0.010		mg/L	1	8/26/2012 5:09:57 PM
EPA METHOD 200.7: METALS						Analyst: ELS
Arsenic	ND	0.020	*	mg/L	1	8/27/2012 3:57:47 PM
Barium	4.5	0.020	*	mg/L	10	8/27/2012 4:34:29 PM
Cadmium	ND	0.0020		mg/L	1	8/27/2012 3:57:47 PM
Chromium	0.0097	0.0060		mg/L	1	8/27/2012 3:57:47 PM
Lead	0.041	0.0050	*	mg/L	1	8/27/2012 3:57:47 PM
Selenium	ND	0.050		mg/L	1	8/27/2012 3:57:47 PM
Silver	ND	0.0050		mg/L	1	8/27/2012 3:57:47 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	0.020	0.0050	*	mg/L	5	8/27/2012 1:37:26 PM
Lead	0.014	0.0050		mg/L	5	8/27/2012 1:37:26 PM
Selenium	0.013	0.0050		mg/L	5	8/27/2012 1:37:26 PM
Uranium	ND	0.0010		mg/L	1	8/29/2012 1:06:29 PM

Qualifiers:

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- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: RW-9

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 11:15:00 AM

Lab ID: 1208476-007

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	8/21/2012 4:05:30 PM
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Benzene	5400	200		µg/L	200	8/14/2012 7:43:46 PM
Toluene	ND	20		µg/L	20	8/14/2012 8:11:24 PM
Ethylbenzene	670	20		µg/L	20	8/14/2012 8:11:24 PM
Methyl tert-butyl ether (MTBE)	6400	200		µg/L	200	8/14/2012 7:43:46 PM
1,2,4-Trimethylbenzene	1200	20		µg/L	20	8/14/2012 8:11:24 PM
1,3,5-Trimethylbenzene	250	20		µg/L	20	8/14/2012 8:11:24 PM
1,2-Dichloroethane (EDC)	ND	20		µg/L	20	8/14/2012 8:11:24 PM
1,2-Dibromoethane (EDB)	ND	20		µg/L	20	8/14/2012 8:11:24 PM
Naphthalene	250	40		µg/L	20	8/14/2012 8:11:24 PM
1-Methylnaphthalene	130	80		µg/L	20	8/14/2012 8:11:24 PM
2-Methylnaphthalene	190	80		µg/L	20	8/14/2012 8:11:24 PM
Acetone	ND	200		µg/L	20	8/14/2012 8:11:24 PM
Bromobenzene	ND	20		µg/L	20	8/14/2012 8:11:24 PM
Bromodichloromethane	ND	20		µg/L	20	8/14/2012 8:11:24 PM
Bromoform	ND	20		µg/L	20	8/14/2012 8:11:24 PM
Bromomethane	ND	60		µg/L	20	8/14/2012 8:11:24 PM
2-Butanone	ND	200		µg/L	20	8/14/2012 8:11:24 PM
Carbon disulfide	ND	200		µg/L	20	8/14/2012 8:11:24 PM
Carbon Tetrachloride	ND	20		µg/L	20	8/14/2012 8:11:24 PM
Chlorobenzene	ND	20		µg/L	20	8/14/2012 8:11:24 PM
Chloroethane	ND	40		µg/L	20	8/14/2012 8:11:24 PM
Chloroform	ND	20		µg/L	20	8/14/2012 8:11:24 PM
Chloromethane	ND	60		µg/L	20	8/14/2012 8:11:24 PM
2-Chlorotoluene	ND	20		µg/L	20	8/14/2012 8:11:24 PM
4-Chlorotoluene	ND	20		µg/L	20	8/14/2012 8:11:24 PM
cis-1,2-DCE	ND	20		µg/L	20	8/14/2012 8:11:24 PM
cis-1,3-Dichloropropene	ND	20		µg/L	20	8/14/2012 8:11:24 PM
1,2-Dibromo-3-chloropropane	ND	40		µg/L	20	8/14/2012 8:11:24 PM
Dibromochloromethane	ND	20		µg/L	20	8/14/2012 8:11:24 PM
Dibromomethane	ND	20		µg/L	20	8/14/2012 8:11:24 PM
1,2-Dichlorobenzene	ND	20		µg/L	20	8/14/2012 8:11:24 PM
1,3-Dichlorobenzene	ND	20		µg/L	20	8/14/2012 8:11:24 PM
1,4-Dichlorobenzene	ND	20		µg/L	20	8/14/2012 8:11:24 PM
Dichlorodifluoromethane	ND	20		µg/L	20	8/14/2012 8:11:24 PM
1,1-Dichloroethane	ND	20		µg/L	20	8/14/2012 8:11:24 PM
1,1-Dichloroethene	ND	20		µg/L	20	8/14/2012 8:11:24 PM
1,2-Dichloropropane	ND	20		µg/L	20	8/14/2012 8:11:24 PM
1,3-Dichloropropane	ND	20		µg/L	20	8/14/2012 8:11:24 PM
2,2-Dichloropropane	ND	40		µg/L	20	8/14/2012 8:11:24 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: RW-9

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 11:15:00 AM

Lab ID: 1208476-007

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
1,1-Dichloropropene	ND	20		µg/L	20	8/14/2012 8:11:24 PM
Hexachlorobutadiene	ND	20		µg/L	20	8/14/2012 8:11:24 PM
2-Hexanone	ND	200		µg/L	20	8/14/2012 8:11:24 PM
Isopropylbenzene	46	20		µg/L	20	8/14/2012 8:11:24 PM
4-Isopropyltoluene	ND	20		µg/L	20	8/14/2012 8:11:24 PM
4-Methyl-2-pentanone	ND	200		µg/L	20	8/14/2012 8:11:24 PM
Methylene Chloride	ND	60		µg/L	20	8/14/2012 8:11:24 PM
n-Butylbenzene	ND	20		µg/L	20	8/14/2012 8:11:24 PM
n-Propylbenzene	99	20		µg/L	20	8/14/2012 8:11:24 PM
sec-Butylbenzene	ND	20		µg/L	20	8/14/2012 8:11:24 PM
Styrene	ND	20		µg/L	20	8/14/2012 8:11:24 PM
tert-Butylbenzene	ND	20		µg/L	20	8/14/2012 8:11:24 PM
1,1,1,2-Tetrachloroethane	ND	20		µg/L	20	8/14/2012 8:11:24 PM
1,1,2,2-Tetrachloroethane	ND	40		µg/L	20	8/14/2012 8:11:24 PM
Tetrachloroethene (PCE)	ND	20		µg/L	20	8/14/2012 8:11:24 PM
trans-1,2-DCE	ND	20		µg/L	20	8/14/2012 8:11:24 PM
trans-1,3-Dichloropropene	ND	20		µg/L	20	8/14/2012 8:11:24 PM
1,2,3-Trichlorobenzene	ND	20		µg/L	20	8/14/2012 8:11:24 PM
1,2,4-Trichlorobenzene	ND	20		µg/L	20	8/14/2012 8:11:24 PM
1,1,1-Trichloroethane	ND	20		µg/L	20	8/14/2012 8:11:24 PM
1,1,2-Trichloroethane	ND	20		µg/L	20	8/14/2012 8:11:24 PM
Trichloroethene (TCE)	ND	20		µg/L	20	8/14/2012 8:11:24 PM
Trichlorofluoromethane	ND	20		µg/L	20	8/14/2012 8:11:24 PM
1,2,3-Trichloropropane	ND	40		µg/L	20	8/14/2012 8:11:24 PM
Vinyl chloride	ND	20		µg/L	20	8/14/2012 8:11:24 PM
Xylenes, Total	1800	30		µg/L	20	8/14/2012 8:11:24 PM
Surr: 1,2-Dichloroethane-d4	72.2	70-130		%REC	20	8/14/2012 8:11:24 PM
Surr: 4-Bromofluorobenzene	83.9	70-130		%REC	20	8/14/2012 8:11:24 PM
Surr: Dibromofluoromethane	77.6	70-130		%REC	20	8/14/2012 8:11:24 PM
Surr: Toluene-d8	83.1	70-130		%REC	20	8/14/2012 8:11:24 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	1200	2.5		mg CO2/L	2.5	8/17/2012 10:50:16 AM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	3300	0.010		µmhos/cm	1	8/16/2012 4:11:30 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	1200	50		mg/L CaCO3	2.5	8/17/2012 10:50:16 AM
Carbonate (As CaCO3)	ND	5.0		mg/L CaCO3	2.5	8/17/2012 10:50:16 AM
Total Alkalinity (as CaCO3)	1200	50		mg/L CaCO3	2.5	8/17/2012 10:50:16 AM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	2240	100		mg/L	1	8/16/2012 10:50:00 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: RW-15

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 10:45:00 AM

Lab ID: 1208476-008

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	2.1	0.20		mg/L	1	8/13/2012 2:59:03 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/13/2012 2:59:03 PM
Surr: DNOP	124	69-152		%REC	1	8/13/2012 2:59:03 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	10	1.0		mg/L	20	8/15/2012 1:24:10 AM
Surr: BFB	114	69.8-119		%REC	20	8/15/2012 1:24:10 AM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	ND	0.50		mg/L	5	8/10/2012 11:54:53 PM
Chloride	440	25		mg/L	50	8/15/2012 3:49:08 AM
Nitrogen, Nitrite (As N)	ND	0.50		mg/L	5	8/10/2012 11:54:53 PM
Bromide	7.4	0.50		mg/L	5	8/15/2012 3:36:44 AM
Nitrogen, Nitrate (As N)	ND	0.50		mg/L	5	8/10/2012 11:54:53 PM
Phosphorus, Orthophosphate (As P)	ND	2.5		mg/L	5	8/10/2012 11:54:53 PM
Sulfate	ND	2.5		mg/L	5	8/10/2012 11:54:53 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	1.1	0.010		mg/L	5	8/26/2012 5:19:54 PM
Cadmium	ND	0.0020		mg/L	1	8/26/2012 5:16:32 PM
Calcium	130	20		mg/L	20	8/30/2012 5:54:46 PM
Chromium	ND	0.0060		mg/L	1	8/26/2012 5:16:32 PM
Copper	ND	0.0060		mg/L	1	8/30/2012 5:51:26 PM
Iron	11	0.40	*	mg/L	20	8/29/2012 6:01:27 PM
Magnesium	46	1.0		mg/L	1	8/30/2012 5:51:26 PM
Manganese	1.4	0.010	*	mg/L	5	8/26/2012 5:19:54 PM
Potassium	4.9	1.0		mg/L	1	8/29/2012 5:58:07 PM
Silver	ND	0.0050		mg/L	1	8/26/2012 5:16:32 PM
Sodium	550	20		mg/L	20	8/29/2012 6:01:27 PM
Zinc	0.076	0.010		mg/L	1	8/26/2012 5:16:32 PM
EPA METHOD 200.7: METALS						Analyst: ELS
Arsenic	ND	0.020		mg/L	1	8/27/2012 4:00:40 PM
Barium	1.2	0.010		mg/L	5	8/27/2012 4:37:16 PM
Cadmium	ND	0.0020		mg/L	1	8/27/2012 4:00:40 PM
Chromium	ND	0.0060		mg/L	1	8/27/2012 4:00:40 PM
Lead	ND	0.0050		mg/L	1	8/27/2012 4:00:40 PM
Selenium	ND	0.050		mg/L	1	8/27/2012 4:00:40 PM
Silver	ND	0.0050		mg/L	1	8/27/2012 4:00:40 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	0.0074	0.0050		mg/L	5	8/27/2012 1:41:22 PM
Lead	ND	0.0010		mg/L	1	9/6/2012 12:11:13 PM
Selenium	0.015	0.0050		mg/L	5	8/27/2012 1:41:22 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: RW-15

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 10:45:00 AM

Lab ID: 1208476-008

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	ND	0.0010		mg/L	1	9/6/2012 3:47:54 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		mg/L	1	8/21/2012 4:07:16 PM
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Benzene	1100	20		µg/L	20	8/14/2012 9:34:04 PM
Toluene	ND	20		µg/L	20	8/14/2012 9:34:04 PM
Ethylbenzene	1000	20		µg/L	20	8/14/2012 9:34:04 PM
Methyl tert-butyl ether (MTBE)	93	20		µg/L	20	8/14/2012 9:34:04 PM
1,2,4-Trimethylbenzene	700	20		µg/L	20	8/14/2012 9:34:04 PM
1,3,5-Trimethylbenzene	190	20		µg/L	20	8/14/2012 9:34:04 PM
1,2-Dichloroethane (EDC)	ND	20		µg/L	20	8/14/2012 9:34:04 PM
1,2-Dibromoethane (EDB)	ND	20		µg/L	20	8/14/2012 9:34:04 PM
Naphthalene	160	40		µg/L	20	8/14/2012 9:34:04 PM
1-Methylnaphthalene	ND	80		µg/L	20	8/14/2012 9:34:04 PM
2-Methylnaphthalene	85	80		µg/L	20	8/14/2012 9:34:04 PM
Acetone	ND	200		µg/L	20	8/14/2012 9:34:04 PM
Bromobenzene	ND	20		µg/L	20	8/14/2012 9:34:04 PM
Bromodichloromethane	ND	20		µg/L	20	8/14/2012 9:34:04 PM
Bromoform	ND	20		µg/L	20	8/14/2012 9:34:04 PM
Bromomethane	ND	60		µg/L	20	8/14/2012 9:34:04 PM
2-Butanone	ND	200		µg/L	20	8/14/2012 9:34:04 PM
Carbon disulfide	ND	200		µg/L	20	8/14/2012 9:34:04 PM
Carbon Tetrachloride	ND	20		µg/L	20	8/14/2012 9:34:04 PM
Chlorobenzene	ND	20		µg/L	20	8/14/2012 9:34:04 PM
Chloroethane	ND	40		µg/L	20	8/14/2012 9:34:04 PM
Chloroform	ND	20		µg/L	20	8/14/2012 9:34:04 PM
Chloromethane	ND	60		µg/L	20	8/14/2012 9:34:04 PM
2-Chlorotoluene	ND	20		µg/L	20	8/14/2012 9:34:04 PM
4-Chlorotoluene	ND	20		µg/L	20	8/14/2012 9:34:04 PM
cis-1,2-DCE	ND	20		µg/L	20	8/14/2012 9:34:04 PM
cis-1,3-Dichloropropene	ND	20		µg/L	20	8/14/2012 9:34:04 PM
1,2-Dibromo-3-chloropropane	ND	40		µg/L	20	8/14/2012 9:34:04 PM
Dibromochloromethane	ND	20		µg/L	20	8/14/2012 9:34:04 PM
Dibromomethane	ND	20		µg/L	20	8/14/2012 9:34:04 PM
1,2-Dichlorobenzene	ND	20		µg/L	20	8/14/2012 9:34:04 PM
1,3-Dichlorobenzene	ND	20		µg/L	20	8/14/2012 9:34:04 PM
1,4-Dichlorobenzene	ND	20		µg/L	20	8/14/2012 9:34:04 PM
Dichlorodifluoromethane	ND	20		µg/L	20	8/14/2012 9:34:04 PM
1,1-Dichloroethane	ND	20		µg/L	20	8/14/2012 9:34:04 PM
1,1-Dichloroethene	ND	20		µg/L	20	8/14/2012 9:34:04 PM
1,2-Dichloropropane	ND	20		µg/L	20	8/14/2012 9:34:04 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: RW-15

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 10:45:00 AM

Lab ID: 1208476-008

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
1,3-Dichloropropane	ND	20		µg/L	20	8/14/2012 9:34:04 PM
2,2-Dichloropropane	ND	40		µg/L	20	8/14/2012 9:34:04 PM
1,1-Dichloropropene	ND	20		µg/L	20	8/14/2012 9:34:04 PM
Hexachlorobutadiene	ND	20		µg/L	20	8/14/2012 9:34:04 PM
2-Hexanone	ND	200		µg/L	20	8/14/2012 9:34:04 PM
Isopropylbenzene	24	20		µg/L	20	8/14/2012 9:34:04 PM
4-Isopropyltoluene	ND	20		µg/L	20	8/14/2012 9:34:04 PM
4-Methyl-2-pentanone	ND	200		µg/L	20	8/14/2012 9:34:04 PM
Methylene Chloride	ND	60		µg/L	20	8/14/2012 9:34:04 PM
n-Butylbenzene	ND	20		µg/L	20	8/14/2012 9:34:04 PM
n-Propylbenzene	97	20		µg/L	20	8/14/2012 9:34:04 PM
sec-Butylbenzene	ND	20		µg/L	20	8/14/2012 9:34:04 PM
Styrene	ND	20		µg/L	20	8/14/2012 9:34:04 PM
tert-Butylbenzene	ND	20		µg/L	20	8/14/2012 9:34:04 PM
1,1,1,2-Tetrachloroethane	ND	20		µg/L	20	8/14/2012 9:34:04 PM
1,1,2,2-Tetrachloroethane	ND	40		µg/L	20	8/14/2012 9:34:04 PM
Tetrachloroethene (PCE)	ND	20		µg/L	20	8/14/2012 9:34:04 PM
trans-1,2-DCE	ND	20		µg/L	20	8/14/2012 9:34:04 PM
trans-1,3-Dichloropropene	ND	20		µg/L	20	8/14/2012 9:34:04 PM
1,2,3-Trichlorobenzene	ND	20		µg/L	20	8/14/2012 9:34:04 PM
1,2,4-Trichlorobenzene	ND	20		µg/L	20	8/14/2012 9:34:04 PM
1,1,1-Trichloroethane	ND	20		µg/L	20	8/14/2012 9:34:04 PM
1,1,2-Trichloroethane	ND	20		µg/L	20	8/14/2012 9:34:04 PM
Trichloroethene (TCE)	ND	20		µg/L	20	8/14/2012 9:34:04 PM
Trichlorofluoromethane	ND	20		µg/L	20	8/14/2012 9:34:04 PM
1,2,3-Trichloropropane	ND	40		µg/L	20	8/14/2012 9:34:04 PM
Vinyl chloride	ND	20		µg/L	20	8/14/2012 9:34:04 PM
Xylenes, Total	2100	30		µg/L	20	8/14/2012 9:34:04 PM
Surr: 1,2-Dichloroethane-d4	73.5	70-130		%REC	20	8/14/2012 9:34:04 PM
Surr: 4-Bromofluorobenzene	80.6	70-130		%REC	20	8/14/2012 9:34:04 PM
Surr: Dibromofluoromethane	85.4	70-130		%REC	20	8/14/2012 9:34:04 PM
Surr: Toluene-d8	83.6	70-130		%REC	20	8/14/2012 9:34:04 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	1000	2.5		mg CO2/L	2.5	8/17/2012 11:09:31 AM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	3200	0.010		µmhos/cm	1	8/16/2012 4:51:19 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	1100	50		mg/L CaCO3	2.5	8/17/2012 11:09:31 AM
Carbonate (As CaCO3)	ND	5.0		mg/L CaCO3	2.5	8/17/2012 11:09:31 AM
Total Alkalinity (as CaCO3)	1100	50		mg/L CaCO3	2.5	8/17/2012 11:09:31 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: RW-15

Project: Refinery Wells 8/9/2012

Collection Date: 8/9/2012 10:45:00 AM

Lab ID: 1208476-008

Matrix: AQUEOUS

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	1980	100		mg/L	1	8/16/2012 10:50:00 AM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: TRIP BLANK

Project: Refinery Wells 8/9/2012

Collection Date:

Lab ID: 1208476-009

Matrix: TRIP BLANK

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/15/2012 2:54:49 AM
Surr: BFB	101	69.8-119		%REC	1	8/15/2012 2:54:49 AM
EPA METHOD 8260B: VOLATILES						Analyst: RAA
Benzene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
Toluene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
Ethylbenzene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
Naphthalene	ND	2.0		µg/L	1	8/15/2012 12:12:27 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	8/15/2012 12:12:27 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	8/15/2012 12:12:27 PM
Acetone	ND	10		µg/L	1	8/15/2012 12:12:27 PM
Bromobenzene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
Bromodichloromethane	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
Bromoform	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
Bromomethane	ND	3.0		µg/L	1	8/15/2012 12:12:27 PM
2-Butanone	ND	10		µg/L	1	8/15/2012 12:12:27 PM
Carbon disulfide	ND	10		µg/L	1	8/15/2012 12:12:27 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
Chlorobenzene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
Chloroethane	ND	2.0		µg/L	1	8/15/2012 12:12:27 PM
Chloroform	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
Chloromethane	ND	3.0		µg/L	1	8/15/2012 12:12:27 PM
2-Chlorotoluene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
4-Chlorotoluene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
cis-1,2-DCE	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	8/15/2012 12:12:27 PM
Dibromochloromethane	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
Dibromomethane	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208476

Date Reported: 9/25/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: TRIP BLANK

Project: Refinery Wells 8/9/2012

Collection Date:

Lab ID: 1208476-009

Matrix: TRIP BLANK

Received Date: 8/10/2012 10:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: RAA
2,2-Dichloropropane	ND	2.0		µg/L	1	8/15/2012 12:12:27 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
2-Hexanone	ND	10		µg/L	1	8/15/2012 12:12:27 PM
Isopropylbenzene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	8/15/2012 12:12:27 PM
Methylene Chloride	ND	3.0		µg/L	1	8/15/2012 12:12:27 PM
n-Butylbenzene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
n-Propylbenzene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
sec-Butylbenzene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
Styrene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
tert-Butylbenzene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	8/15/2012 12:12:27 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
trans-1,2-DCE	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	8/15/2012 12:12:27 PM
Vinyl chloride	ND	1.0		µg/L	1	8/15/2012 12:12:27 PM
Xylenes, Total	ND	1.5		µg/L	1	8/15/2012 12:12:27 PM
Surr: 1,2-Dichloroethane-d4	73.2	70-130		%REC	1	8/15/2012 12:12:27 PM
Surr: 4-Bromofluorobenzene	83.8	70-130		%REC	1	8/15/2012 12:12:27 PM
Surr: Dibromofluoromethane	85.0	70-130		%REC	1	8/15/2012 12:12:27 PM
Surr: Toluene-d8	85.3	70-130		%REC	1	8/15/2012 12:12:27 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208476

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8/9/2012

Sample ID	MB-3309		SampType: MBLK		TestCode: EPA Method 200.7: Metals					
Client ID:	PBW		Batch ID: 3309		RunNo: 5076					
Prep Date:	8/14/2012		Analysis Date: 8/23/2012		SeqNo: 143798		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 200.7: Metals					
Client ID:	PBW	Batch ID: R5189			RunNo: 5189					
Prep Date:		Analysis Date: 8/29/2012			SeqNo: 147493			Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 200.7: Metals					
Client ID:	PBW	Batch ID: R5231			RunNo: 5231					
Prep Date:		Analysis Date: 8/30/2012			SeqNo: 148701		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Copper	ND	0.0060								
Magnesium	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208476

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8/9/2012

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R5100	RunNo:	5100					
Prep Date:		Analysis Date:	8/26/2012	SeqNo:	144522	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R5100	RunNo:	5100					
Prep Date:		Analysis Date:	8/26/2012	SeqNo:	144578	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Iron	ND	0.020								
Manganese	ND	0.0020								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R5189	RunNo:	5189					
Prep Date:		Analysis Date:	8/29/2012	SeqNo:	147581	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R5231	RunNo:	5231					
Prep Date:		Analysis Date:	8/30/2012	SeqNo:	148699	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Copper	ND	0.0060								
Magnesium	ND	1.0								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208476

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8/9/2012

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Metals					
Client ID:	PBW	Batch ID:	R5117	RunNo:	5117					
Prep Date:		Analysis Date:	8/27/2012	SeqNo:	145332	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Metals					
Client ID:	PBW	Batch ID:	R5117	RunNo:	5117					
Prep Date:		Analysis Date:	8/27/2012	SeqNo:	145333	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Metals					
Client ID:	PBW	Batch ID:	R5167	RunNo:	5167					
Prep Date:		Analysis Date:	8/28/2012	SeqNo:	147072	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0010								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Metals					
Client ID:	PBW	Batch ID:	R5167	RunNo:	5167					
Prep Date:		Analysis Date:	8/28/2012	SeqNo:	147073	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0010								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Metals					
Client ID:	PBW	Batch ID:	R5204	RunNo:	5204					
Prep Date:		Analysis Date:	8/29/2012	SeqNo:	148025	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208476

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8/9/2012

Sample ID	1208476-008EMS		SampType: MS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	RW-15		Batch ID: R5117		RunNo: 5117					
Prep Date:			Analysis Date: 8/27/2012		SeqNo: 145348		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.13	0.0050	0.1250	0.007430	95.4	70	130			
Selenium	0.13	0.0050	0.1250	0.01509	91.5	70	130			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R5117			RunNo: 5117					
Prep Date:		Analysis Date: 8/27/2012			SeqNo: 145356		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R5117			RunNo: 5117					
Prep Date:		Analysis Date: 8/27/2012			SeqNo: 145357		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Sample ID	MB	SampType: MBLK		TestCode: EPA 200.8: Dissolved Metals						
Client ID:	PBW	Batch ID: R5167		RunNo: 5167						
Prep Date:		Analysis Date: 8/28/2012		SeqNo: 147085		Units: mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0010								

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R5204			RunNo: 5204					
Prep Date:		Analysis Date: 8/29/2012			SeqNo: 148049		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208476

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8/9/2012

Sample ID	1208476-008EMS		SampType: MS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	RW-15		Batch ID: R5350		RunNo: 5350					
Prep Date:			Analysis Date: 9/6/2012		SeqNo: 152348		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.025	0.0010	0.02500	0.0001002	101	70	130			

Sample ID	1208476-008EMS		SampType: MS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	RW-15		Batch ID: R5350		RunNo: 5350					
Prep Date:			Analysis Date: 9/6/2012		SeqNo: 152349		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	0.029	0.0010	0.02500	0	117	70	130			

Sample ID	MB		SampType: MBLK		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW		Batch ID: R5350		RunNo: 5350					
Prep Date:			Analysis Date: 9/6/2012		SeqNo: 152420		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0010								
Uranium	ND	0.0010								

Sample ID	MB		SampType: MBLK		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW		Batch ID: R5350		RunNo: 5350					
Prep Date:			Analysis Date: 9/6/2012		SeqNo: 152421		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.0010								
Uranium	ND	0.0010								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208476

25-Sep-12

Client: Western Refining Southwest, Inc.**Project:** Refinery Wells 8/9/2012

Sample ID	MB-3407	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	3407	RunNo:	5002					
Prep Date:	8/20/2012	Analysis Date:	8/21/2012	SeqNo:	141546	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208476

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8/9/2012

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R4808	RunNo:	4808					
Prep Date:		Analysis Date:	8/10/2012	SeqNo:	135623	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R4867	RunNo:	4867					
Prep Date:		Analysis Date:	8/14/2012	SeqNo:	137440	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Bromide	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								
Nitrate+Nitrite as N	ND	0.20								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208476

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8/9/2012

Sample ID	MB-3285	SampType: MBLK			TestCode: EPA Method 8015B: Diesel Range					
Client ID:	PBW	Batch ID: 3285			RunNo: 4815					
Prep Date:	8/13/2012	Analysis Date: 8/13/2012			SeqNo: 136019		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.64		0.5000		129	69	152			

Sample ID	1208476-001CMS		SampType: MS		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	MW-29		Batch ID: 3285		RunNo: 4815					
Prep Date:	8/13/2012		Analysis Date: 8/13/2012		SeqNo: 136108		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.8	0.20	2.500	0	110	71	161			
Surr: DNOP	0.29		0.2500		116	69	152			

Sample ID	1208476-001CMSD			SampType:	MSD		TestCode:	EPA Method 8015B: Diesel Range			
Client ID:	MW-29			Batch ID:	3285		RunNo:	4815			
Prep Date:	8/13/2012			Analysis Date:	8/13/2012		SeqNo:	136253		Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	2.6	0.20	2.500	0	105	71	161	5.21	23		
Surr: DNOP	0.27		0.2500		108	69	152	0	0		

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208476

25-Sep-12

Client: Western Refining Southwest, Inc.**Project:** Refinery Wells 8/9/2012

Sample ID	5ML RB		SampType:	MBLK		TestCode:	EPA Method 8015B: Gasoline Range			
Client ID:	PBW		Batch ID:	R4871		RunNo:	4871			
Prep Date:			Analysis Date:	8/14/2012		SeqNo:	137702	Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	20		20.00		101	69.8	119			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208476

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8/9/2012

Sample ID	5ml-rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	R4860	RunNo:	4860					
Prep Date:		Analysis Date:	8/14/2012	SeqNo:	137291	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								
Xylenes, Total	ND	2.0								
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	8.0		10.00		79.6	70	130			
Surr: Dibromofluoromethane	8.0		10.00		79.8	70	130			
Surr: Toluene-d8	8.4		10.00		83.9	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208476

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8/9/2012

Sample ID	5ml-rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R4860	RunNo:	4860					
Prep Date:		Analysis Date:	8/14/2012	SeqNo:	137259	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208476

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8/9/2012

Sample ID	5ml-rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R4860	RunNo:	4860					
Prep Date:		Analysis Date:	8/14/2012	SeqNo:	137259	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	1.0								
n-Propylbenzene	ND	1.0								
sec-Butylbenzene	ND	1.0								
Styrene	ND	1.0								
tert-Butylbenzene	ND	1.0								
1,1,1,2-Tetrachloroethane	ND	1.0								
1,1,2,2-Tetrachloroethane	ND	2.0								
Tetrachloroethene (PCE)	ND	1.0								
trans-1,2-DCE	ND	1.0								
trans-1,3-Dichloropropene	ND	1.0								
1,2,3-Trichlorobenzene	ND	1.0								
1,2,4-Trichlorobenzene	ND	1.0								
1,1,1-Trichloroethane	ND	1.0								
1,1,2-Trichloroethane	ND	1.0								
Trichloroethene (TCE)	ND	1.0								
Trichlorofluoromethane	ND	1.0								
1,2,3-Trichloropropane	ND	2.0								
Vinyl chloride	ND	1.0								
Xylenes, Total	ND	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		106	70	130			
Surr: 4-Bromofluorobenzene	8.0		10.00		79.6	70	130			
Surr: Dibromofluoromethane	8.0		10.00		79.8	70	130			
Surr: Toluene-d8	8.4		10.00		83.9	70	130			

Sample ID	1208476-001a ms	SampType:	MS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	MW-29	Batch ID:	R4860	RunNo:	4860					
Prep Date:		Analysis Date:	8/14/2012	SeqNo:	137263	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	89.6	66.8	128			
Toluene	18	1.0	20.00	0	92.5	70	130			
Chlorobenzene	18	1.0	20.00	0	92.0	70	130			
1,1-Dichloroethene	17	1.0	20.00	0	87.5	70	130			
Trichloroethene (TCE)	16	1.0	20.00	0	82.4	70	130			
Surr: 1,2-Dichloroethane-d4	7.3		10.00		72.8	70	130			
Surr: 4-Bromofluorobenzene	7.9		10.00		79.4	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208476

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8/9/2012

Sample ID	1208476-001a ms	SampType:	MS	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	MW-29	Batch ID:	R4860	RunNo:	4860					
Prep Date:		Analysis Date:	8/14/2012	SeqNo:	137263	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	7.9		10.00		79.3	70	130			
Surr: Toluene-d8	8.3		10.00		82.6	70	130			

Sample ID	1208476-001a msd	SampType:	MSD		TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	MW-29	Batch ID:	R4860		RunNo:	4860					
Prep Date:		Analysis Date:	8/14/2012		SeqNo:	137264		Units:	µg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Benzene	18	1.0	20.00	0	91.4	66.8	128	1.95	16.7		
Toluene	20	1.0	20.00	0	98.6	70	130	6.42	18.7		
Chlorobenzene	19	1.0	20.00	0	95.1	70	130	3.41	19.5		
1,1-Dichloroethene	17	1.0	20.00	0	87.5	70	130	0	16.7		
Trichloroethene (TCE)	16	1.0	20.00	0	81.9	70	130	0.626	17.5		
Surr: 1,2-Dichloroethane-d4	7.2		10.00		72.1	70	130	0	0		
Surr: 4-Bromofluorobenzene	8.2		10.00		82.0	70	130	0	0		
Surr: Dibromofluoromethane	7.8		10.00		77.7	70	130	0	0		
Surr: Toluene-d8	8.5		10.00		84.7	70	130	0	0		

Sample ID	5ml-rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R4886			RunNo: 4886					
Prep Date:		Analysis Date: 8/15/2012			SeqNo: 138095		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								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208476

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8/9/2012

Sample ID	5ml-rb	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID: R4886			RunNo: 4886					
Prep Date:		Analysis Date: 8/15/2012			SeqNo: 138095	Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	1.0								
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								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208476

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8/9/2012

Sample ID	5ml-rb	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R4886	RunNo:	4886					
Prep Date:		Analysis Date:	8/15/2012	SeqNo:	138095	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	7.3		10.00		72.9	70	130			
Surr: 4-Bromofluorobenzene	8.1		10.00		81.0	70	130			
Surr: Dibromofluoromethane	8.4		10.00		83.8	70	130			
Surr: Toluene-d8	8.3		10.00		83.1	70	130			

Sample ID	b5	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R4886	RunNo:	4886					
Prep Date:		Analysis Date:	8/15/2012	SeqNo:	138122	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
1,2-Dichloroethane (EDC)	ND	1.0								
1,2-Dibromoethane (EDB)	ND	1.0								
Naphthalene	ND	2.0								
1-Methylnaphthalene	ND	4.0								
2-Methylnaphthalene	ND	4.0								
Acetone	ND	10								
Bromobenzene	ND	1.0								
Bromodichloromethane	ND	1.0								
Bromoform	ND	1.0								
Bromomethane	ND	3.0								
2-Butanone	ND	10								
Carbon disulfide	ND	10								
Carbon Tetrachloride	ND	1.0								
Chlorobenzene	ND	1.0								
Chloroethane	ND	2.0								
Chloroform	ND	1.0								
Chloromethane	ND	3.0								
2-Chlorotoluene	ND	1.0								
4-Chlorotoluene	ND	1.0								
cis-1,2-DCE	ND	1.0								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208476

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8/9/2012

Sample ID	b5	SampType:	MBLK	TestCode:	EPA Method 8260B: VOLATILES					
Client ID:	PBW	Batch ID:	R4886	RunNo:	4886					
Prep Date:		Analysis Date:	8/15/2012	SeqNo:	138122	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
cis-1,3-Dichloropropene	ND	1.0								
1,2-Dibromo-3-chloropropane	ND	2.0								
Dibromochloromethane	ND	1.0								
Dibromomethane	ND	1.0								
1,2-Dichlorobenzene	ND	1.0								
1,3-Dichlorobenzene	ND	1.0								
1,4-Dichlorobenzene	ND	1.0								
Dichlorodifluoromethane	ND	1.0								
1,1-Dichloroethane	ND	1.0								
1,1-Dichloroethene	ND	1.0								
1,2-Dichloropropane	ND	1.0								
1,3-Dichloropropane	ND	1.0								
2,2-Dichloropropane	ND	2.0								
1,1-Dichloropropene	ND	1.0								
Hexachlorobutadiene	ND	1.0								
2-Hexanone	ND	10								
Isopropylbenzene	ND	1.0								
4-Isopropyltoluene	ND	1.0								
4-Methyl-2-pentanone	ND	10								
Methylene Chloride	ND	3.0								
n-Butylbenzene	ND	1.0								
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		91.8	70	130			
Surr: 4-Bromofluorobenzene	8.2		10.00		81.6	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH greater than 2

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208476

25-Sep-12

Client: Western Refining Southwest, Inc.**Project:** Refinery Wells 8/9/2012

Sample ID b5	SampType: MBLK			TestCode: EPA Method 8260B: VOLATILES						
Client ID: PBW	Batch ID: R4886			RunNo: 4886						
Prep Date:	Analysis Date: 8/15/2012			SeqNo: 138122		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	8.3		10.00		83.3	70	130			
Surr: Toluene-d8	8.3		10.00		82.8	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208476

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8/9/2012

Sample ID	1208476-006d dup	SampType:	dup	TestCode:	EPA 120.1: Specific Conductance					
Client ID:	MW-8	Batch ID:	R4929	RunNo:	4929					
Prep Date:		Analysis Date:	8/16/2012	SeqNo:	139525	Units:	µmhos/cm			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	3600	0.010						1.25	20	

Sample ID	1208476-008d dup	SampType:	dup	TestCode:	EPA 120.1: Specific Conductance					
Client ID:	RW-15	Batch ID:	R4929	RunNo:	4929					
Prep Date:		Analysis Date:	8/16/2012	SeqNo:	139528	Units:	µmhos/cm			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	3200	0.010						0.251	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208476

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8/9/2012

Sample ID mb	SampType: mblk			TestCode: SM2320B: Alkalinity						
Client ID: PBW	Batch ID: R4929			RunNo: 4929						
Prep Date:	Analysis Date: 8/16/2012			SeqNo: 139434		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID mb-2	SampType: mblk			TestCode: SM2320B: Alkalinity						
Client ID: PBW	Batch ID: R4929			RunNo: 4929						
Prep Date:	Analysis Date: 8/16/2012			SeqNo: 139458		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID 1208476-008D MS	SampType: MS			TestCode: SM2320B: Alkalinity						
Client ID: RW-15	Batch ID: R4942			RunNo: 4942						
Prep Date:	Analysis Date: 8/17/2012			SeqNo: 139823		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	1300	50	80.00	1173	105	62.6	110			

Sample ID 1208476-008D MSD	SampType: MSD			TestCode: SM2320B: Alkalinity						
Client ID: RW-15	Batch ID: R4942			RunNo: 4942						
Prep Date:	Analysis Date: 8/17/2012			SeqNo: 139824		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	1200	50	80.00	1173	88.4	59.9	111	3.99	10	

Sample ID 1208476-006D MS	SampType: MS			TestCode: SM2320B: Alkalinity						
Client ID: MW-8	Batch ID: R4942			RunNo: 4942						
Prep Date:	Analysis Date: 8/17/2012			SeqNo: 139825		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20	80.00	0	0	62.6	110			S

Sample ID 1208476-006D MSD	SampType: MSD			TestCode: SM2320B: Alkalinity						
Client ID: MW-8	Batch ID: R4942			RunNo: 4942						
Prep Date:	Analysis Date: 8/17/2012			SeqNo: 139826		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20	80.00	0	0	59.9	111	0	10	S

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208476

25-Sep-12

Client: Western Refining Southwest, Inc.

Project: Refinery Wells 8/9/2012

Sample ID	MB-3313	SampType:	MBLK	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW	Batch ID:	3313	RunNo:	4900					
Prep Date:	8/14/2012	Analysis Date:	8/16/2012	SeqNo:	138619	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	1208476-004DMS	SampType:	MS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	MW-31	Batch ID:	3313	RunNo:	4900					
Prep Date:	8/14/2012	Analysis Date:	8/16/2012	SeqNo:	138626	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	3080	20.0	1000	2093	98.2	80	120			

Sample ID	1208476-004DMSD	SampType:	MSD	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	MW-31	Batch ID:	3313	RunNo:	4900					
Prep Date:	8/14/2012	Analysis Date:	8/16/2012	SeqNo:	138627	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	3130	20.0	1000	2093	104	80	120	1.74	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

Sample Log-In Check List

Client Name: **Western Refining Southwest, Inc Bloomfield** Work Order Number: **1208476**

Received by/date:  **08/10/12**

Logged By: **Ashley Gallegos** **8/10/2012 10:05:00 AM** 

Completed By: **Ashley Gallegos** **8/10/2012 10:32:57 AM** 

Reviewed By: **JIB 08/10/12**

Chain of Custody

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

Log In

4. Coolers are present? (see 19. for cooler specific information) Yes ☒ No ☐ NA ☐
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
6. Were all samples received at a temperature of >0° C to 6.0°C Yes ☒ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☒ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
10. Was preservative added to bottles?
002E-ANDES 0.4 mL HNO₃ FOR ACCEPTABLE PH Yes ☒ No ☐ NA ☐
11. VOA vials have zero headspace?
003F, 004F, 005F, 007F, 008F - ADDEN 1 mL HNO₃ FOR ACCEPTABLE PH Yes ☒ No ☐ No VOA Vials ☒ **08/10/12**
12. Were any sample containers received broken? Yes ☐ No ☒
13. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐ # of preserved bottles checked for pH: **24**
(**<2** or **>12** unless noted)
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐ Adjusted? **YES**
15. Is it clear what analyses were requested? Yes ☒ No ☐
16. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐ Checked by: 

Special Handling (if applicable)

17. 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: _____

18. Additional remarks:

19. Cooler Information

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

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

Project Manager:

Project Manager:

Project Manager:

Project Manager:

AD

AD

AD

AD

AD

AD

AD

3-9-12	B:26	H ₂ O	MW-29	5-10A	HCl	-001	X			X		
				1-500ml	amber	-001				X		
				1-500ml	HNO ₃	-001			X			
				1-250ml	HNO ₃	-001					X	
				1-500ml		-001					X	
				1-250ml	H ₂ SO ₄	-001						X
	10:30		MW-44	5-10A	HCl	-002	X			X		
				1-500ml	amber	-003						
				1-500ml	HNO ₃	-004			X			
				1-250ml	HNO ₃	-003					X	
				1-500ml		-002						X
				1-250ml	H ₂ SO ₄	-007						X

Remarks:

Received by:

Date	Time

Robert Knab

8/9/12 1434

Relinquished by:

Received by:

Date _____ Time _____

Christine Walker

$$\frac{1}{2} \dot{\theta}$$

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

www.hallenvironmental.com

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

Chain-of-Custody Record						
Client: Western Refining		Turn-Around Time: ☒ Standard ☐ Rush				
Mailing Address: #50 CR 4990 Bloomfield, NM 87413		Project Name: Refinery wells 8-9-12				
Phone #: 505-632-4135		Project #:				
email or Fax#:		Project Manager:				
QA/QC Package: ☒ Standard ☒ Level 4 (Full Validation)		Sample: Bob + Dave				
Accreditation ☐ NELAP ☐ Other		On ice: ☒ Yes ☐ No				
☐ EDD (Type)		Sample Temperature: 10				
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.
8-9-12	1:00	H ₂ O	MW-4	5-VOA	HCl	-005
				4-500ml	amber	-005
				1-500ml	HNO ₃	-005
				1-250ml	HNO ₃	-005
				1-500ml		-005
				1-250ml	H ₂ SO ₄	-005
	8:45		MW-8	5-VOA	HCl	-0010
				1-500ml	amber	-0010
				1-500ml	HNO ₃	-0010
				1-250ml	HNO ₃	-0010
				1-500ml		-0010
				1-250ml	H ₂ SO ₄	-0010
Date:	Time:	Relinquished by:	Received by:			
8-9-12	1434	Robert Krakow	Christine Wacker 8/9/12 1434			
Date:	Time:	Relinquished by:	Received by:			
8/9/12	1710	Christine Wacker	8/10/12 1005			

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this.

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



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

May 03, 2012

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: San Juan River Bluff

OrderNo.: 1204391

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 3 sample(s) on 4/10/2012 for the analyses presented in the following report.

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", with a stylized flourish at the end.

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

Workorder Sample Summary

WO#: 1204391

03-May-12

CLIENT: Western Refining Southwest, Inc.

Project: San Juan River Bluff

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1204391-001	Outfall #2		4/9/2012 10:40:00 AM	4/10/2012 10:10:00 AM	Aqueous
1204391-001	Outfall #2		4/9/2012 10:40:00 AM	4/10/2012 10:10:00 AM	Aqueous
1204391-001	Outfall #2		4/9/2012 10:40:00 AM	4/10/2012 10:10:00 AM	Aqueous
1204391-001	Outfall #2		4/9/2012 10:40:00 AM	4/10/2012 10:10:00 AM	Aqueous
1204391-002	Outfall #3		4/9/2012 10:30:00 AM	4/10/2012 10:10:00 AM	Aqueous
1204391-002	Outfall #3		4/9/2012 10:30:00 AM	4/10/2012 10:10:00 AM	Aqueous
1204391-002	Outfall #3		4/9/2012 10:30:00 AM	4/10/2012 10:10:00 AM	Aqueous
1204391-002	Outfall #3		4/9/2012 10:30:00 AM	4/10/2012 10:10:00 AM	Aqueous
1204391-003	Trip Blank			4/10/2012 10:10:00 AM	Trip Blank

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204391

Date Reported: 5/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Outfall #2

Project: San Juan River Bluff

Collection Date: 4/9/2012 10:40:00 AM

Lab ID: 1204391-001

Matrix: AQUEOUS

Received Date: 4/10/2012 10:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: BRM
Fluoride	0.55	0.10		mg/L	1	4/14/2012 1:00:20 AM
Chloride	8.7	0.50		mg/L	1	4/10/2012 3:55:44 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/10/2012 3:55:44 PM
Bromide	ND	0.10		mg/L	1	4/10/2012 3:55:44 PM
Nitrogen, Nitrate (As N)	0.54	0.10		mg/L	1	4/10/2012 3:55:44 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	4/10/2012 3:55:44 PM
Sulfate	71	10		mg/L	20	4/10/2012 4:32:57 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: RAG
Barium	0.10	0.0020		mg/L	1	4/19/2012 4:52:46 PM
Cadmium	ND	0.0020		mg/L	1	4/19/2012 4:52:46 PM
Calcium	84	5.0		mg/L	5	4/24/2012 6:42:11 AM
Chromium	ND	0.0060		mg/L	1	4/19/2012 4:52:46 PM
Copper	ND	0.0060		mg/L	1	4/19/2012 4:52:46 PM
Iron	0.17	0.10		mg/L	5	4/26/2012 8:44:26 AM
Magnesium	18	5.0		mg/L	5	4/24/2012 6:42:11 AM
Manganese	0.045	0.0020		mg/L	1	4/19/2012 4:52:46 PM
Potassium	1.6	1.0		mg/L	1	4/27/2012 5:06:37 PM
Silver	ND	0.0050		mg/L	1	4/19/2012 4:52:46 PM
Sodium	66	5.0		mg/L	5	4/26/2012 8:44:26 AM
Zinc	0.13	0.010		mg/L	1	4/20/2012 4:03:54 PM
EPA 200.8: DISSOLVED METALS						Analyst: SNV
Arsenic	ND	0.0010		mg/L	1	4/23/2012 4:27:09 PM
Lead	ND	0.0010		mg/L	1	4/23/2012 4:27:09 PM
Selenium	0.0013	0.0010		mg/L	1	4/23/2012 4:27:09 PM
Uranium	0.0045	0.0010		mg/L	1	4/23/2012 4:27:09 PM
EPA METHOD 7470: MERCURY						Analyst: JLF
Mercury	ND	0.00020		mg/L	1	4/17/2012 10:01:52 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: RAG
Arsenic	ND	0.020		mg/L	1	4/12/2012 4:28:24 PM
Barium	0.15	0.020		mg/L	1	4/12/2012 4:28:24 PM
Cadmium	ND	0.0020		mg/L	1	4/12/2012 4:28:24 PM
Chromium	0.0061	0.0060		mg/L	1	4/12/2012 4:28:24 PM
Lead	0.0056	0.0050		mg/L	1	4/12/2012 4:28:24 PM
Selenium	ND	0.050		mg/L	1	4/12/2012 4:28:24 PM
Silver	ND	0.0050		mg/L	1	4/12/2012 4:28:24 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: JDJ
Benzene	ND	1.0		µg/L	1	4/11/2012 3:45:08 AM
Toluene	ND	1.0		µg/L	1	4/11/2012 3:45:08 AM
Ethylbenzene	ND	1.0		µg/L	1	4/11/2012 3:45:08 AM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204391

Date Reported: 5/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Outfall #2

Project: San Juan River Bluff

Collection Date: 4/9/2012 10:40:00 AM

Lab ID: 1204391-001

Matrix: AQUEOUS

Received Date: 4/10/2012 10:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: JDJ
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/11/2012 3:45:08 AM
Xylenes, Total	ND	2.0		µg/L	1	4/11/2012 3:45:08 AM
Surr: 1,2-Dichloroethane-d4	114	70-130		%REC	1	4/11/2012 3:45:08 AM
Surr: 4-Bromofluorobenzene	114	70-130		%REC	1	4/11/2012 3:45:08 AM
Surr: Dibromofluoromethane	115	69.8-130		%REC	1	4/11/2012 3:45:08 AM
Surr: Toluene-d8	104	70-130		%REC	1	4/11/2012 3:45:08 AM
CARBON DIOXIDE						Analyst: JLF
Total Carbon Dioxide	330	1.0		mg CO2/L	1	4/11/2012 4:32:00 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: JLF
Conductivity	760	0.010		µmhos/cm	1	4/18/2012 9:33:59 AM
SM2320B: ALKALINITY						Analyst: JLF
Bicarbonate (As CaCO3)	360	20		mg/L CaCO3	1	4/11/2012 4:32:47 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	4/11/2012 4:32:47 PM
Total Alkalinity (as CaCO3)	360	20		mg/L CaCO3	1	4/11/2012 4:32:47 PM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204391

Date Reported: 5/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Outfall #3

Project: San Juan River Bluff

Collection Date: 4/9/2012 10:30:00 AM

Lab ID: 1204391-002

Matrix: AQUEOUS

Received Date: 4/10/2012 10:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: BRM
Fluoride	0.41	0.10		mg/L	1	4/14/2012 1:12:45 AM
Chloride	16	0.50		mg/L	1	4/10/2012 4:45:22 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/10/2012 4:45:22 PM
Bromide	0.14	0.10		mg/L	1	4/10/2012 4:45:22 PM
Nitrogen, Nitrate (As N)	2.8	0.10		mg/L	1	4/10/2012 4:45:22 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	4/10/2012 4:45:22 PM
Sulfate	120	10		mg/L	20	4/10/2012 4:57:46 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: RAG
Barium	0.060	0.0020		mg/L	1	4/19/2012 4:58:54 PM
Cadmium	ND	0.0020		mg/L	1	4/19/2012 4:58:54 PM
Calcium	90	1.0		mg/L	1	4/20/2012 4:06:52 PM
Chromium	ND	0.0060		mg/L	1	4/19/2012 4:58:54 PM
Copper	ND	0.0060		mg/L	1	4/19/2012 4:58:54 PM
Iron	ND	0.020		mg/L	1	4/20/2012 4:06:52 PM
Magnesium	18	1.0		mg/L	1	4/20/2012 4:06:52 PM
Manganese	ND	0.0020		mg/L	1	4/19/2012 4:58:54 PM
Potassium	1.6	1.0		mg/L	1	4/20/2012 4:06:52 PM
Silver	ND	0.0050		mg/L	1	4/19/2012 4:58:54 PM
Sodium	64	1.0		mg/L	1	4/20/2012 4:06:52 PM
Zinc	0.020	0.010		mg/L	1	4/20/2012 4:06:52 PM
EPA 200.8: DISSOLVED METALS						Analyst: SNV
Arsenic	ND	0.0010		mg/L	1	4/23/2012 4:31:05 PM
Lead	ND	0.0010		mg/L	1	4/23/2012 4:31:05 PM
Selenium	0.0035	0.0010		mg/L	1	4/23/2012 4:31:05 PM
Uranium	0.0046	0.0010		mg/L	1	4/23/2012 4:31:05 PM
EPA METHOD 7470: MERCURY						Analyst: JLF
Mercury	ND	0.00020		mg/L	1	4/17/2012 10:03:37 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: RAG
Arsenic	ND	0.020		mg/L	1	4/12/2012 4:32:24 PM
Barium	0.057	0.020		mg/L	1	4/12/2012 4:32:24 PM
Cadmium	ND	0.0020		mg/L	1	4/12/2012 4:32:24 PM
Chromium	ND	0.0060		mg/L	1	4/12/2012 4:32:24 PM
Lead	ND	0.0050		mg/L	1	4/12/2012 4:32:24 PM
Selenium	ND	0.050		mg/L	1	4/12/2012 4:32:24 PM
Silver	ND	0.0050		mg/L	1	4/12/2012 4:32:24 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: JDJ
Benzene	ND	1.0		µg/L	1	4/11/2012 4:13:22 AM
Toluene	ND	1.0		µg/L	1	4/11/2012 4:13:22 AM
Ethylbenzene	ND	1.0		µg/L	1	4/11/2012 4:13:22 AM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204391

Date Reported: 5/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Outfall #3

Project: San Juan River Bluff

Collection Date: 4/9/2012 10:30:00 AM

Lab ID: 1204391-002

Matrix: AQUEOUS

Received Date: 4/10/2012 10:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: JDJ
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/11/2012 4:13:22 AM
Xylenes, Total	ND	2.0		µg/L	1	4/11/2012 4:13:22 AM
Surr: 1,2-Dichloroethane-d4	105	70-130		%REC	1	4/11/2012 4:13:22 AM
Surr: 4-Bromofluorobenzene	121	70-130		%REC	1	4/11/2012 4:13:22 AM
Surr: Dibromofluoromethane	102	69.8-130		%REC	1	4/11/2012 4:13:22 AM
Surr: Toluene-d8	91.8	70-130		%REC	1	4/11/2012 4:13:22 AM
CARBON DIOXIDE						Analyst: JLF
Total Carbon Dioxide	310	1.0		mg CO2/L	1	4/11/2012 4:47:00 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: JLF
Conductivity	870	0.010		µmhos/cm	1	4/18/2012 9:38:24 AM
SM2320B: ALKALINITY						Analyst: JLF
Bicarbonate (As CaCO3)	340	20		mg/L CaCO3	1	4/11/2012 4:47:49 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	4/11/2012 4:47:49 PM
Total Alkalinity (as CaCO3)	340	20		mg/L CaCO3	1	4/11/2012 4:47:49 PM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204391

Date Reported: 5/3/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: San Juan River Bluff

Collection Date:

Lab ID: 1204391-003

Matrix: TRIP BLANK

Received Date: 4/10/2012 10:10:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: JDJ
Benzene	ND	1.0		µg/L	1	4/11/2012 5:01:12 PM
Toluene	ND	1.0		µg/L	1	4/11/2012 5:01:12 PM
Ethylbenzene	ND	1.0		µg/L	1	4/11/2012 5:01:12 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/11/2012 5:01:12 PM
Xylenes, Total	ND	2.0		µg/L	1	4/11/2012 5:01:12 PM
Surr: 1,2-Dichloroethane-d4	98.2	70-130		%REC	1	4/11/2012 5:01:12 PM
Surr: 4-Bromofluorobenzene	105	70-130		%REC	1	4/11/2012 5:01:12 PM
Surr: Dibromofluoromethane	99.5	69.8-130		%REC	1	4/11/2012 5:01:12 PM
Surr: Toluene-d8	105	70-130		%REC	1	4/11/2012 5:01:12 PM

Qualifiers:

- * / X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204391

03-May-12

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID: R2266			RunNo: 2266					
Prep Date:		Analysis Date: 4/19/2012			SeqNo: 62909		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Manganese	ND	0.0020								
Silver	ND	0.0050								

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: R2266		RunNo: 2266					
Prep Date:			Analysis Date: 4/19/2012		SeqNo: 62910		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.51	0.0020	0.5000	0	102	85	115			
Cadmium	0.52	0.0020	0.5000	0	103	85	115			
Chromium	0.52	0.0060	0.5000	0	103	85	115			
Copper	0.51	0.0060	0.5000	0	102	85	115			
Manganese	0.50	0.0020	0.5000	0	99.3	85	115			
Silver	0.11	0.0050	0.1000	0	107	85	115			

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID: R2299			RunNo: 2299					
Prep Date:		Analysis Date: 4/20/2012			SeqNo: 63753		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Iron	ND	0.020								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								
Zinc	ND	0.010								

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: R2299		RunNo: 2299					
Prep Date:			Analysis Date: 4/20/2012		SeqNo: 63757		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	101	85	115			
Iron	0.49	0.020	0.5000	0.002040	97.9	85	115			
Magnesium	49	1.0	50.00	0	98.4	85	115			
Potassium	47	1.0	50.00	0	94.6	85	115			
Sodium	48	1.0	50.00	0	95.8	85	115			
Zinc	0.49	0.010	0.5000	0	98.7	85	115			

Qualifiers:

*/X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204391

03-May-12

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R2324	RunNo:	2324					
Prep Date:		Analysis Date:	4/24/2012	SeqNo:	64672	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R2324	RunNo:	2324					
Prep Date:		Analysis Date:	4/24/2012	SeqNo:	64673	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	49	1.0	50.00	0	98.4	85	115			
Magnesium	50	1.0	50.00	0	99.3	85	115			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R2390	RunNo:	2390					
Prep Date:		Analysis Date:	4/26/2012	SeqNo:	66510	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								
Sodium	ND	1.0								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R2390	RunNo:	2390					
Prep Date:		Analysis Date:	4/26/2012	SeqNo:	66511	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	0.47	0.020	0.5000	0	94.8	85	115			
Sodium	49	1.0	50.00	0	97.3	85	115			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID:	R2450	RunNo:	2450					
Prep Date:		Analysis Date:	4/27/2012	SeqNo:	68139	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	ND	1.0								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW	Batch ID:	R2450	RunNo:	2450					
Prep Date:		Analysis Date:	4/27/2012	SeqNo:	68140	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	48	1.0	50.00	0	95.6	85	115			

Qualifiers:

* / X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204391

03-May-12

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R2319			RunNo: 2319					
Prep Date:		Analysis Date: 4/23/2012			SeqNo: 64528		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Lead	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: R2319		RunNo: 2319					
Prep Date:			Analysis Date: 4/23/2012		SeqNo: 64529		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	100	85	115			
Lead	0.024	0.0010	0.02500	0	96.9	85	115			
Selenium	0.026	0.0010	0.02500	0	104	85	115			
Uranium	0.025	0.0010	0.02500	0	98.5	85	115			

Qualifiers:

* / X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204391

03-May-12

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R2037		RunNo: 2037							
Prep Date:	Analysis Date: 4/10/2012		SeqNo: 56648		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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 LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R2037		RunNo: 2037							
Prep Date:	Analysis Date: 4/10/2012		SeqNo: 56649		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	91.8	90	110			
Nitrogen, Nitrite (As N)	0.93	0.10	1.000	0	93.2	90	110			
Bromide	2.4	0.10	2.500	0	94.4	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	94.9	90	110			
Phosphorus, Orthophosphate (As P)	4.7	0.50	5.000	0	94.9	90	110			
Sulfate	9.4	0.50	10.00	0	93.7	90	110			

Sample ID 1204391-001BMS	SampType: MS		TestCode: EPA Method 300.0: Anions							
Client ID: Outfall #2	Batch ID: R2037		RunNo: 2037							
Prep Date:	Analysis Date: 4/10/2012		SeqNo: 56651		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	0.50	5.000	8.669	103	78	107			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	94.8	77.6	111			
Bromide	2.5	0.10	2.500	0	98.3	76	114			
Nitrogen, Nitrate (As N)	2.9	0.10	2.500	0.5421	94.5	82.8	116			
Phosphorus, Orthophosphate (As P)	4.7	0.50	5.000	0	94.9	79.3	108			

Sample ID 1204391-001BMSD	SampType: MSD		TestCode: EPA Method 300.0: Anions							
Client ID: Outfall #2	Batch ID: R2037		RunNo: 2037							
Prep Date:	Analysis Date: 4/10/2012		SeqNo: 56652		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	0.50	5.000	8.669	103	78	107	0.0928	20	
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	95.1	77.6	111	0.376	20	
Bromide	2.5	0.10	2.500	0	98.8	76	114	0.465	20	
Nitrogen, Nitrate (As N)	2.9	0.10	2.500	0.5421	95.3	82.8	116	0.632	20	
Phosphorus, Orthophosphate (As P)	4.8	0.50	5.000	0	95.2	79.3	108	0.301	20	

Qualifiers:

* /X Value exceeds Maximum Contaminant Level.
 E Value above quantitation range
 J Analyte detected below quantitation limits
 R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204391

03-May-12

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R2145	RunNo:	2145					
Prep Date:		Analysis Date:	4/14/2012	SeqNo:	59630	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R2145	RunNo:	2145					
Prep Date:		Analysis Date:	4/14/2012	SeqNo:	59631	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	101	90	110			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R2145	RunNo:	2145					
Prep Date:		Analysis Date:	4/13/2012	SeqNo:	59643	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID:	R2145	RunNo:	2145					
Prep Date:		Analysis Date:	4/13/2012	SeqNo:	59644	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.51	0.10	0.5000	0	103	90	110			

Qualifiers:

*/X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204391

03-May-12

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff

Sample ID	5ml rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	R2036	RunNo:	2036					
Prep Date:		Analysis Date:	4/10/2012	SeqNo:	56730	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 1,2-Dichloroethane-d4	12		10.00		122	70	130			
Surr: 4-Bromofluorobenzene	12		10.00		121	70	130			
Surr: Dibromofluoromethane	12		10.00		123	69.8	130			
Surr: Toluene-d8	9.1		10.00		91.4	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	R2036	RunNo:	2036					
Prep Date:		Analysis Date:	4/10/2012	SeqNo:	56732	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	112	84.1	126			
Toluene	19	1.0	20.00	0	95.8	80	120			
Surr: 1,2-Dichloroethane-d4	12		10.00		116	70	130			
Surr: 4-Bromofluorobenzene	10		10.00		102	70	130			
Surr: Dibromofluoromethane	12		10.00		119	69.8	130			
Surr: Toluene-d8	9.6		10.00		96.1	70	130			

Sample ID	5ml rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	R2066	RunNo:	2066					
Prep Date:		Analysis Date:	4/11/2012	SeqNo:	57364	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 1,2-Dichloroethane-d4	9.8		10.00		97.6	70	130			
Surr: 4-Bromofluorobenzene	12		10.00		117	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.6	69.8	130			
Surr: Toluene-d8	9.4		10.00		94.1	70	130			

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	R2066	RunNo:	2066					
Prep Date:		Analysis Date:	4/11/2012	SeqNo:	57365	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

*/X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204391

03-May-12

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff

Sample ID	100ng lcs	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	R2066	RunNo:	2066					
Prep Date:		Analysis Date:	4/11/2012	SeqNo:	57365	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	84.1	126			
Toluene	20	1.0	20.00	0	101	80	120			
Surr: 1,2-Dichloroethane-d4	9.3		10.00		92.8	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		111	70	130			
Surr: Dibromofluoromethane	10		10.00		103	69.8	130			
Surr: Toluene-d8	9.9		10.00		99.3	70	130			

Qualifiers:

*/X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204391

03-May-12

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff

Sample ID	MB-1543	SampType: MBLK			TestCode: EPA Method 7470: Mercury					
Client ID:	PBW	Batch ID: 1543			RunNo: 2165					
Prep Date:	4/16/2012	Analysis Date: 4/17/2012			SeqNo: 60357		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercurv	ND	0.00020								

Sample ID	LCS-1543	SampType: LCS			TestCode: EPA Method 7470: Mercury					
Client ID:	LCSW	Batch ID: 1543			RunNo: 2165					
Prep Date:	4/16/2012	Analysis Date: 4/17/2012			SeqNo: 60358		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0053	0.00020	0.005000	0	105	80	120			

Sample ID	LCSD-1543	SampType:	LCSD	TestCode:	EPA Method 7470: Mercury						
Client ID:	LCSS02	Batch ID:	1543	RunNo:	2165						
Prep Date:	4/16/2012	Analysis Date:	4/17/2012	SeqNo:	60359	Units:	mg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Mercury	0.0053	0.00020	0.005000	0	107	80	120	1.13	20		

Qualifiers:

*/X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
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R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204391

03-May-12

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff

Sample ID	MB-1477		SampType:	MBLK		TestCode:	EPA 6010B: Total Recoverable Metals			
Client ID:	PBW		Batch ID:	1477		RunNo:	2113			
Prep Date:	4/11/2012		Analysis Date:	4/12/2012		SeqNo:	58542		Units: mg/L	
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	LCS-1477		SampType:	LCS		TestCode:	EPA 6010B: Total Recoverable Metals			
Client ID:	LCSW		Batch ID:	1477		RunNo:	2113			
Prep Date:	4/11/2012		Analysis Date:	4/12/2012		SeqNo:	58544		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.51	0.020	0.5000	0	101	80	120			
Barium	0.49	0.020	0.5000	0	98.1	80	120			
Cadmium	0.50	0.0020	0.5000	0	100	80	120			
Chromium	0.49	0.0060	0.5000	0.0008200	98.2	80	120			
Lead	0.50	0.0050	0.5000	0	99.2	80	120			
Selenium	0.51	0.050	0.5000	0	103	80	120			
Silver	0.10	0.0050	0.1000	0	102	80	120			

Sample ID	LCS-1477		SampType:	LCSD		TestCode:	EPA 6010B: Total Recoverable Metals			
Client ID:	LCSS02		Batch ID:	1477		RunNo:	2113			
Prep Date:	4/11/2012		Analysis Date:	4/12/2012		SeqNo:	58546		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Arsenic	0.51	0.020	0.5000	0	101	80	120	0.274	20	
Barium	0.49	0.020	0.5000	0	98.4	80	120	0.301	20	
Cadmium	0.50	0.0020	0.5000	0	99.7	80	120	0.395	20	
Chromium	0.49	0.0060	0.5000	0.0008200	98.2	80	120	0.00610	20	
Lead	0.50	0.0050	0.5000	0	99.4	80	120	0.226	20	
Selenium	0.53	0.050	0.5000	0	106	80	120	3.31	20	
Silver	0.10	0.0050	0.1000	0	102	80	120	0.343	20	

Qualifiers:

* / X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204391

03-May-12

Client: Western Refining Southwest, Inc.

Project: San Juan River Bluff

Sample ID	mb-1		SampType: MBLK		TestCode: SM2320B: Alkalinity					
Client ID:	PBW		Batch ID: R2080		RunNo: 2080					
Prep Date:			Analysis Date: 4/11/2012		SeqNo: 57736		Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID	lcs-1		SampType: LCS			TestCode: SM2320B: Alkalinity				
Client ID:	LCSW		Batch ID: R2080			RunNo: 2080				
Prep Date:			Analysis Date: 4/11/2012			SeqNo: 57737		Units: mg/L CaCO3		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79	20	80.00	0	98.8	88.1	104			

Sample ID	Icsd-1		SampType: LCSD			TestCode: SM2320B: Alkalinity				
Client ID:	LCSS02		Batch ID: R2080			RunNo: 2080				
Prep Date:			Analysis Date: 4/11/2012			SeqNo: 57738		Units: mg/L CaCO3		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	80	20	80.00	0	99.8	88.1	104	1.11	20	

Qualifiers:

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Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87105
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Southwest, Inc Bloomfield Work Order Number: 1204391

Received by/date: AG 04/10/12

Logged By: Michelle Garcia 4/10/2012 10:10:00 AM

Michelle Garcia

Completed By: Michelle Garcia 4/10/2012 1:12:10 PM

Michelle Garcia

Reviewed By: IC 04/10/12

Chain of Custody

1. Were seals intact?	Yes	No	Not Present	✓
2. Is Chain of Custody complete?	Yes	✓ No	Not Present	
3. How was the sample delivered?	UPS			

Log In

4. Coolers are present? (see 19. for cooler specific information)	Yes	✓ No	NA
5. Was an attempt made to cool the samples?	Yes	✓ No	NA
6. Were all samples received at a temperature of >0° C to 6.0°C	Yes	✓ No	NA
7. Sample(s) in proper container(s)?	Yes	✓ No	
8. Sufficient sample volume for indicated test(s)?	Yes	✓ No	
9. Are samples (except VOA and ONG) properly preserved?	Yes	✓ No	
10. Was preservative added to bottles?	Yes	No	✓ NA
11. VOA vials have zero headspace?	Yes	No	No VOA Vials ✓
12. Were any sample containers received broken?	Yes	No	✓
13. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes	✓ No	# of preserved bottles checked for pH:
14. Are matrices correctly identified on Chain of Custody?	Yes	✓ No	(<2 or >12 unless noted)
15. Is it clear what analyses were requested?	Yes	✓ No	Adjusted?
16. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes	✓ No	Checked by:

Special Handling (if applicable)

17. 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: _____

18. Additional remarks:

19. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	Yes			

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990

Bloomfield NM 87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:

☐ Standard

☒ Level 4 (Full Validation)

Accreditation

☐ NELAP

☐ Other

☐ EDD (Type)

Sampler: Bob & Terry

On Ice: ☒ Yes ☐ No

Sample Temperature: 1

Date Time Matrix Sample Request ID

1-9-12 10:40 H₂O outfall # 2

filtered

1-500 ml HNO₃

1-250 ml H₂SO₄

1-500 ml

3-10A HCl - 002

1-500 ml HNO₃

filtered

1-250 ml HNO₃

1-250 ml H₂SO₄

1-500 ml

Trip Blank

12/10

Date: 1-9-12 3:00

Relinquished by: Robert Krabon

Date: 1-9-12 3:00

Relinquished by:

Received by:

04/10/12

Date

Time

Date

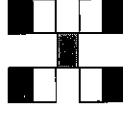
Time

Date

Time

Remarks: Please include Results in Excel format

Trip Blank



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 Method 8015B (Gas/Diesel)

TPH (Method 418.1)

EDB (Method 504.1)

8310 (PNA or PAH)

RCRA 8 Metals - Total Metals

Anions (F, Cl, NO₂, NO₃, PO₄, SO₄)

8081 Pesticides / 8082 PCB's

8260B (VOA) BTEX, MTBE, only

8270 (Semi-VOA)

Alkalinity, CO₂

Gold Total Dissolved Metals

See Attached List

off/d/12

Air Bubbles (Y or N)



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

May 08, 2012

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: San Juan River 4-11-12

OrderNo.: 1204495

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 4/12/2012 for the analyses presented in the following report.

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

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

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', with a stylized flourish at the end.

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

Workorder Sample Summary

WO#: 1204495

10-May-12

CLIENT: Western Refining Southwest, Inc.

Project: San Juan River 4-11-12

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1204495-001	North of 45		4/11/2012 10:30:00 AM	4/12/2012 10:15:00 AM	Aqueous
1204495-001	North of 45		4/11/2012 10:30:00 AM	4/12/2012 10:15:00 AM	Aqueous
1204495-001	North of 45		4/11/2012 10:30:00 AM	4/12/2012 10:15:00 AM	Aqueous
1204495-001	North of 45		4/11/2012 10:30:00 AM	4/12/2012 10:15:00 AM	Aqueous
1204495-001	North of 45		4/11/2012 10:30:00 AM	4/12/2012 10:15:00 AM	Aqueous
1204495-002	North of 46		4/11/2012 10:00:00 AM	4/12/2012 10:15:00 AM	Aqueous
1204495-002	North of 46		4/11/2012 10:00:00 AM	4/12/2012 10:15:00 AM	Aqueous
1204495-002	North of 46		4/11/2012 10:00:00 AM	4/12/2012 10:15:00 AM	Aqueous
1204495-002	North of 46		4/11/2012 10:00:00 AM	4/12/2012 10:15:00 AM	Aqueous
1204495-002	North of 46		4/11/2012 10:00:00 AM	4/12/2012 10:15:00 AM	Aqueous
1204495-003	Upstream		4/11/2012 9:30:00 AM	4/12/2012 10:15:00 AM	Aqueous
1204495-003	Upstream		4/11/2012 9:30:00 AM	4/12/2012 10:15:00 AM	Aqueous
1204495-003	Upstream		4/11/2012 9:30:00 AM	4/12/2012 10:15:00 AM	Aqueous
1204495-003	Upstream		4/11/2012 9:30:00 AM	4/12/2012 10:15:00 AM	Aqueous
1204495-003	Upstream		4/11/2012 9:30:00 AM	4/12/2012 10:15:00 AM	Aqueous
1204495-004	Down Stream		4/11/2012 12:00:00 PM	4/12/2012 10:15:00 AM	Aqueous
1204495-004	Down Stream		4/11/2012 12:00:00 PM	4/12/2012 10:15:00 AM	Aqueous
1204495-004	Down Stream		4/11/2012 12:00:00 PM	4/12/2012 10:15:00 AM	Aqueous
1204495-004	Down Stream		4/11/2012 12:00:00 PM	4/12/2012 10:15:00 AM	Aqueous
1204495-004	Down Stream		4/11/2012 12:00:00 PM	4/12/2012 10:15:00 AM	Aqueous

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204495

Date Reported: 5/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: North of 45

Project: San Juan River 4-11-12

Collection Date: 4/11/2012 10:30:00 AM

Lab ID: 1204495-001

Matrix: AQUEOUS

Received Date: 4/12/2012 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/14/2012 12:19:43 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/14/2012 12:19:43 PM
Surr: DNOP	119	69-152		%REC	1	4/14/2012 12:19:43 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/14/2012 4:38:43 AM
Surr: BFB	96.8	69.3-120		%REC	1	4/14/2012 4:38:43 AM
EPA METHOD 300.0: ANIONS						Analyst: BRM
Fluoride	0.19	0.10		mg/L	1	4/12/2012 7:11:40 PM
Chloride	2.7	0.50		mg/L	1	4/12/2012 7:11:40 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/12/2012 7:11:40 PM
Bromide	ND	0.10		mg/L	1	4/12/2012 7:11:40 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	4/12/2012 7:11:40 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	4/12/2012 7:11:40 PM
Sulfate	61	10		mg/L	20	4/12/2012 7:24:05 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	0.057	0.0020		mg/L	1	4/29/2012 2:40:47 PM
Cadmium	ND	0.0020		mg/L	1	4/29/2012 2:40:47 PM
Calcium	34	1.0		mg/L	1	5/1/2012 9:58:40 AM
Chromium	ND	0.0060		mg/L	1	4/29/2012 2:40:47 PM
Copper	0.0071	0.0060		mg/L	1	4/29/2012 2:40:47 PM
Iron	ND	0.020		mg/L	1	4/29/2012 2:40:47 PM
Lead	ND	0.0050		mg/L	1	4/29/2012 2:40:47 PM
Magnesium	5.9	1.0		mg/L	1	5/1/2012 9:58:40 AM
Manganese	0.016	0.0020		mg/L	1	4/29/2012 2:40:47 PM
Potassium	1.6	1.0		mg/L	1	5/1/2012 9:58:40 AM
Silver	ND	0.0050		mg/L	1	4/29/2012 2:40:47 PM
Sodium	22	1.0		mg/L	1	5/1/2012 9:58:40 AM
Zinc	0.011	0.010		mg/L	1	4/29/2012 2:40:47 PM
EPA METHOD 200.7: METALS						Analyst: ELS
Arsenic	ND	0.020		mg/L	1	4/25/2012 8:07:36 AM
Barium	0.060	0.0020		mg/L	1	4/17/2012 12:35:04 PM
Cadmium	ND	0.0020		mg/L	1	4/17/2012 12:35:04 PM
Chromium	ND	0.0060		mg/L	1	4/17/2012 12:35:04 PM
Lead	ND	0.0050		mg/L	1	4/17/2012 12:35:04 PM
Selenium	ND	0.050		mg/L	1	4/17/2012 12:35:04 PM
Silver	ND	0.0050		mg/L	1	4/17/2012 12:35:04 PM
EPA 200.8: DISSOLVED METALS						Analyst: SNV
Arsenic	ND	0.0010		mg/L	1	4/26/2012 3:32:40 PM
Selenium	ND	0.0010		mg/L	1	4/26/2012 3:32:40 PM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204495

Date Reported: 5/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: North of 45

Project: San Juan River 4-11-12

Collection Date: 4/11/2012 10:30:00 AM

Lab ID: 1204495-001

Matrix: AQUEOUS

Received Date: 4/12/2012 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: SNV
Uranium	ND	0.0010		mg/L	1	4/26/2012 3:32:40 PM
EPA METHOD 245.1: MERCURY						Analyst: JLF
Mercury	ND	0.00020		mg/L	1	4/17/2012 9:17:25 AM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: JDJ
Benzene	ND	1.0		µg/L	1	4/16/2012 1:37:33 PM
Toluene	ND	1.0		µg/L	1	4/16/2012 1:37:33 PM
Ethylbenzene	ND	1.0		µg/L	1	4/16/2012 1:37:33 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/16/2012 1:37:33 PM
Xylenes, Total	ND	2.0		µg/L	1	4/16/2012 1:37:33 PM
Surr: 1,2-Dichloroethane-d4	91.1	70-130		%REC	1	4/16/2012 1:37:33 PM
Surr: 4-Bromofluorobenzene	111	70-130		%REC	1	4/16/2012 1:37:33 PM
Surr: Dibromofluoromethane	99.2	69.8-130		%REC	1	4/16/2012 1:37:33 PM
Surr: Toluene-d8	97.5	70-130		%REC	1	4/16/2012 1:37:33 PM
CARBON DIOXIDE						Analyst: JLF
Total Carbon Dioxide	76	1.0		mg CO2/L	1	4/13/2012 1:34:39 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: JLF
Conductivity	320	0.010		µmhos/cm	1	4/13/2012 1:34:39 PM
SM2320B: ALKALINITY						Analyst: JLF
Bicarbonate (As CaCO3)	85	20		mg/L CaCO3	1	4/13/2012 1:34:39 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	4/13/2012 1:34:39 PM
Total Alkalinity (as CaCO3)	85	20		mg/L CaCO3	1	4/13/2012 1:34:39 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	187	20.0		mg/L	1	4/17/2012 9:31:00 AM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204495

Date Reported: 5/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: North of 46

Project: San Juan River 4-11-12

Collection Date: 4/11/2012 10:00:00 AM

Lab ID: 1204495-002

Matrix: AQUEOUS

Received Date: 4/12/2012 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/14/2012 1:23:53 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/14/2012 1:23:53 PM
Surr: DNOP	124	69-152		%REC	1	4/14/2012 1:23:53 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/14/2012 5:09:31 AM
Surr: BFB	76.3	69.3-120		%REC	1	4/14/2012 5:09:31 AM
EPA METHOD 300.0: ANIONS						Analyst: BRM
Fluoride	0.17	0.10		mg/L	1	4/12/2012 7:36:30 PM
Chloride	2.7	0.50		mg/L	1	4/12/2012 7:36:30 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/12/2012 7:36:30 PM
Bromide	ND	0.10		mg/L	1	4/12/2012 7:36:30 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	4/12/2012 7:36:30 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	4/12/2012 7:36:30 PM
Sulfate	60	10		mg/L	20	4/12/2012 7:48:55 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	0.058	0.0020		mg/L	1	4/29/2012 2:46:59 PM
Cadmium	ND	0.0020		mg/L	1	4/29/2012 2:46:59 PM
Calcium	34	1.0		mg/L	1	5/1/2012 10:00:46 AM
Chromium	ND	0.0060		mg/L	1	4/29/2012 2:46:59 PM
Copper	0.0065	0.0060		mg/L	1	4/29/2012 2:46:59 PM
Iron	ND	0.020		mg/L	1	4/29/2012 2:46:59 PM
Lead	ND	0.0050		mg/L	1	4/29/2012 2:46:59 PM
Magnesium	5.8	1.0		mg/L	1	5/1/2012 10:00:46 AM
Manganese	0.016	0.0020		mg/L	1	4/29/2012 2:46:59 PM
Potassium	1.5	1.0		mg/L	1	5/1/2012 10:00:46 AM
Silver	ND	0.0050		mg/L	1	4/29/2012 2:46:59 PM
Sodium	21	1.0		mg/L	1	5/1/2012 10:00:46 AM
Zinc	0.011	0.010		mg/L	1	4/29/2012 2:46:59 PM
EPA METHOD 200.7: METALS						Analyst: RAG
Arsenic	ND	0.020		mg/L	1	4/19/2012 12:36:24 PM
Barium	0.063	0.0020		mg/L	1	4/17/2012 12:56:14 PM
Cadmium	ND	0.0020		mg/L	1	4/17/2012 12:56:14 PM
Chromium	ND	0.0060		mg/L	1	4/17/2012 12:56:14 PM
Lead	ND	0.0050		mg/L	1	4/17/2012 12:56:14 PM
Selenium	ND	0.050		mg/L	1	4/17/2012 12:56:14 PM
Silver	ND	0.0050		mg/L	1	4/17/2012 12:56:14 PM
EPA 200.8: DISSOLVED METALS						Analyst: SNV
Arsenic	ND	0.0010		mg/L	1	4/26/2012 3:36:36 PM
Selenium	ND	0.0010		mg/L	1	4/26/2012 3:36:36 PM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204495

Date Reported: 5/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: North of 46

Project: San Juan River 4-11-12

Collection Date: 4/11/2012 10:00:00 AM

Lab ID: 1204495-002

Matrix: AQUEOUS

Received Date: 4/12/2012 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: SNV
Uranium	ND	0.0010		mg/L	1	4/26/2012 3:36:36 PM
EPA METHOD 245.1: MERCURY						Analyst: JLF
Mercury	ND	0.00020		mg/L	1	4/17/2012 9:19:11 AM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: JDJ
Benzene	ND	1.0		µg/L	1	4/16/2012 4:40:07 PM
Toluene	ND	1.0		µg/L	1	4/16/2012 4:40:07 PM
Ethylbenzene	ND	1.0		µg/L	1	4/16/2012 4:40:07 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/16/2012 4:40:07 PM
Xylenes, Total	ND	2.0		µg/L	1	4/16/2012 4:40:07 PM
Surr: 1,2-Dichloroethane-d4	96.8	70-130		%REC	1	4/16/2012 4:40:07 PM
Surr: 4-Bromofluorobenzene	114	70-130		%REC	1	4/16/2012 4:40:07 PM
Surr: Dibromofluoromethane	101	69.8-130		%REC	1	4/16/2012 4:40:07 PM
Surr: Toluene-d8	97.3	70-130		%REC	1	4/16/2012 4:40:07 PM
CARBON DIOXIDE						Analyst: JLF
Total Carbon Dioxide	76	1.0		mg CO2/L	1	4/13/2012 1:45:04 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: JLF
Conductivity	320	0.010		µmhos/cm	1	4/13/2012 1:45:04 PM
SM2320B: ALKALINITY						Analyst: JLF
Bicarbonate (As CaCO3)	86	20		mg/L CaCO3	1	4/13/2012 1:45:04 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	4/13/2012 1:45:04 PM
Total Alkalinity (as CaCO3)	86	20		mg/L CaCO3	1	4/13/2012 1:45:04 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	187	20.0		mg/L	1	4/17/2012 9:31:00 AM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204495

Date Reported: 5/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Upstream

Project: San Juan River 4-11-12

Collection Date: 4/11/2012 9:30:00 AM

Lab ID: 1204495-003

Matrix: AQUEOUS

Received Date: 4/12/2012 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/14/2012 1:45:11 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/14/2012 1:45:11 PM
Surr: DNOP	108	69-152		%REC	1	4/14/2012 1:45:11 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/14/2012 5:40:14 AM
Surr: BFB	96.2	69.3-120		%REC	1	4/14/2012 5:40:14 AM
EPA METHOD 300.0: ANIONS						Analyst: BRM
Fluoride	0.17	0.10		mg/L	1	4/12/2012 8:01:20 PM
Chloride	2.7	0.50		mg/L	1	4/12/2012 8:01:20 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/12/2012 8:01:20 PM
Bromide	ND	0.10		mg/L	1	4/12/2012 8:01:20 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	4/12/2012 8:01:20 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	4/12/2012 8:01:20 PM
Sulfate	62	10		mg/L	20	4/12/2012 8:13:45 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	0.058	0.0020		mg/L	1	4/29/2012 2:53:46 PM
Cadmium	ND	0.0020		mg/L	1	4/29/2012 2:53:46 PM
Calcium	32	1.0		mg/L	1	5/1/2012 10:02:55 AM
Chromium	ND	0.0060		mg/L	1	4/29/2012 2:53:46 PM
Copper	0.0072	0.0060		mg/L	1	4/29/2012 2:53:46 PM
Iron	ND	0.020		mg/L	1	4/29/2012 2:53:46 PM
Lead	ND	0.0050		mg/L	1	4/29/2012 2:53:46 PM
Magnesium	5.8	1.0		mg/L	1	5/1/2012 10:02:55 AM
Manganese	0.020	0.0020		mg/L	1	4/29/2012 2:53:46 PM
Potassium	1.5	1.0		mg/L	1	5/1/2012 10:02:55 AM
Silver	ND	0.0050		mg/L	1	4/29/2012 2:53:46 PM
Sodium	23	1.0		mg/L	1	5/1/2012 10:02:55 AM
Zinc	0.011	0.010		mg/L	1	4/29/2012 2:53:46 PM
EPA METHOD 200.7: METALS						Analyst: RAG
Arsenic	ND	0.020		mg/L	1	4/19/2012 12:39:34 PM
Barium	0.064	0.0020		mg/L	1	4/17/2012 12:59:21 PM
Cadmium	ND	0.0020		mg/L	1	4/17/2012 12:59:21 PM
Chromium	ND	0.0060		mg/L	1	4/17/2012 12:59:21 PM
Lead	ND	0.0050		mg/L	1	4/17/2012 12:59:21 PM
Selenium	ND	0.050		mg/L	1	4/17/2012 12:59:21 PM
Silver	ND	0.0050		mg/L	1	4/17/2012 12:59:21 PM
EPA 200.8: DISSOLVED METALS						Analyst: SNV
Arsenic	ND	0.0010		mg/L	1	4/26/2012 3:48:28 PM
Selenium	ND	0.0010		mg/L	1	4/26/2012 3:48:28 PM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204495

Date Reported: 5/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Upstream

Project: San Juan River 4-11-12

Collection Date: 4/11/2012 9:30:00 AM

Lab ID: 1204495-003

Matrix: AQUEOUS

Received Date: 4/12/2012 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: SNV
Uranium	ND	0.0010		mg/L	1	5/3/2012 12:39:45 PM
EPA METHOD 245.1: MERCURY						Analyst: JLF
Mercury	ND	0.00020		mg/L	1	4/17/2012 9:20:58 AM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: JDJ
Benzene	ND	1.0		µg/L	1	4/16/2012 5:09:25 PM
Toluene	ND	1.0		µg/L	1	4/16/2012 5:09:25 PM
Ethylbenzene	ND	1.0		µg/L	1	4/16/2012 5:09:25 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/16/2012 5:09:25 PM
Xylenes, Total	ND	2.0		µg/L	1	4/16/2012 5:09:25 PM
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	1	4/16/2012 5:09:25 PM
Surr: 4-Bromofluorobenzene	118	70-130		%REC	1	4/16/2012 5:09:25 PM
Surr: Dibromofluoromethane	103	69.8-130		%REC	1	4/16/2012 5:09:25 PM
Surr: Toluene-d8	93.4	70-130		%REC	1	4/16/2012 5:09:25 PM
CARBON DIOXIDE						Analyst: JLF
Total Carbon Dioxide	76	1.0		mg CO2/L	1	4/13/2012 1:56:30 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: JLF
Conductivity	320	0.010		µmhos/cm	1	4/13/2012 1:56:30 PM
SM2320B: ALKALINITY						Analyst: JLF
Bicarbonate (As CaCO3)	85	20		mg/L CaCO3	1	4/13/2012 1:56:30 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	4/13/2012 1:56:30 PM
Total Alkalinity (as CaCO3)	85	20		mg/L CaCO3	1	4/13/2012 1:56:30 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	190	20.0		mg/L	1	4/17/2012 9:31:00 AM

Qualifiers:

- * / X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204495

Date Reported: 5/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Down Stream

Project: San Juan River 4-11-12

Collection Date: 4/11/2012 12:00:00 PM

Lab ID: 1204495-004

Matrix: AQUEOUS

Received Date: 4/12/2012 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	4/14/2012 2:06:22 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	4/14/2012 2:06:22 PM
Surr: DNOP	124	69-152		%REC	1	4/14/2012 2:06:22 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	4/14/2012 6:11:00 AM
Surr: BFB	88.9	69.3-120		%REC	1	4/14/2012 6:11:00 AM
EPA METHOD 300.0: ANIONS						Analyst: BRM
Fluoride	0.18	0.10		mg/L	1	4/12/2012 8:26:10 PM
Chloride	3.2	0.50		mg/L	1	4/12/2012 8:26:10 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/12/2012 8:26:10 PM
Bromide	ND	0.10		mg/L	1	4/12/2012 8:26:10 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	4/12/2012 8:26:10 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	4/12/2012 8:26:10 PM
Sulfate	90	10		mg/L	20	4/12/2012 8:38:34 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	0.059	0.0020		mg/L	1	4/29/2012 3:00:34 PM
Cadmium	ND	0.0020		mg/L	1	4/29/2012 3:00:34 PM
Calcium	41	1.0		mg/L	1	5/1/2012 10:14:40 AM
Chromium	ND	0.0060		mg/L	1	4/29/2012 3:00:34 PM
Copper	ND	0.0060		mg/L	1	4/29/2012 3:00:34 PM
Iron	ND	0.020		mg/L	1	4/29/2012 3:00:34 PM
Lead	ND	0.0050		mg/L	1	4/29/2012 3:00:34 PM
Magnesium	6.5	1.0		mg/L	1	5/1/2012 10:14:40 AM
Manganese	0.10	0.0020	*	mg/L	1	4/29/2012 3:00:34 PM
Potassium	1.6	1.0		mg/L	1	5/1/2012 10:14:40 AM
Silver	ND	0.0050		mg/L	1	4/29/2012 3:00:34 PM
Sodium	30	1.0		mg/L	1	5/1/2012 10:14:40 AM
Zinc	0.011	0.010		mg/L	1	4/29/2012 3:00:34 PM
EPA METHOD 200.7: METALS						Analyst: RAG
Arsenic	ND	0.020		mg/L	1	4/19/2012 12:42:41 PM
Barium	0.065	0.0020		mg/L	1	4/17/2012 1:02:30 PM
Cadmium	ND	0.0020		mg/L	1	4/17/2012 1:02:30 PM
Chromium	ND	0.0060		mg/L	1	4/17/2012 1:02:30 PM
Lead	ND	0.0050		mg/L	1	4/17/2012 1:02:30 PM
Selenium	ND	0.050		mg/L	1	4/17/2012 1:02:30 PM
Silver	ND	0.0050		mg/L	1	4/17/2012 1:02:30 PM
EPA 200.8: DISSOLVED METALS						Analyst: SNV
Arsenic	ND	0.0010		mg/L	1	4/26/2012 3:52:24 PM
Selenium	ND	0.0010		mg/L	1	4/26/2012 3:52:24 PM

Qualifiers:

- * / X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204495

Date Reported: 5/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Down Stream

Project: San Juan River 4-11-12

Collection Date: 4/11/2012 12:00:00 PM

Lab ID: 1204495-004

Matrix: AQUEOUS

Received Date: 4/12/2012 10:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: SNV
Uranium	ND	0.0010		mg/L	1	5/3/2012 12:41:37 PM
EPA METHOD 245.1: MERCURY						Analyst: JLF
Mercury	ND	0.00020		mg/L	1	4/17/2012 9:22:45 AM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: JDJ
Benzene	ND	1.0		µg/L	1	4/16/2012 5:38:32 PM
Toluene	ND	1.0		µg/L	1	4/16/2012 5:38:32 PM
Ethylbenzene	ND	1.0		µg/L	1	4/16/2012 5:38:32 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	4/16/2012 5:38:32 PM
Xylenes, Total	ND	2.0		µg/L	1	4/16/2012 5:38:32 PM
Surr: 1,2-Dichloroethane-d4	91.5	70-130		%REC	1	4/16/2012 5:38:32 PM
Surr: 4-Bromofluorobenzene	108	70-130		%REC	1	4/16/2012 5:38:32 PM
Surr: Dibromofluoromethane	105	69.8-130		%REC	1	4/16/2012 5:38:32 PM
Surr: Toluene-d8	99.2	70-130		%REC	1	4/16/2012 5:38:32 PM
CARBON DIOXIDE						Analyst: JLF
Total Carbon Dioxide	83	1.0		mg CO2/L	1	4/13/2012 2:07:57 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: JLF
Conductivity	390	0.010		µmhos/cm	1	4/13/2012 2:07:57 PM
SM2320B: ALKALINITY						Analyst: JLF
Bicarbonate (As CaCO3)	92	20		mg/L CaCO3	1	4/13/2012 2:07:57 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	4/13/2012 2:07:57 PM
Total Alkalinity (as CaCO3)	92	20		mg/L CaCO3	1	4/13/2012 2:07:57 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	232	20.0		mg/L	1	4/17/2012 9:31:00 AM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204495

10-May-12

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-11-12

Sample ID	MB-1534		SampType: MBLK		TestCode: EPA Method 200.7: Metals					
Client ID:	PBW		Batch ID: 1534		RunNo: 2189					
Prep Date:	4/16/2012		Analysis Date: 4/17/2012		SeqNo: 60918		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Lead	ND	0.0050								
Selenium	ND	0.050								
Silver	ND	0.0050								

Sample ID	LCS-1534		SampType: LCS		TestCode: EPA Method 200.7: Metals					
Client ID:	LCSW		Batch ID: 1534		RunNo: 2189					
Prep Date:	4/16/2012		Analysis Date: 4/17/2012		SeqNo: 60919		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.0020	0.5000	0	96.0	85	115			
Cadmium	0.49	0.0020	0.5000	0	98.0	85	115			
Chromium	0.49	0.0060	0.5000	0	97.1	85	115			
Lead	0.50	0.0050	0.5000	0	99.1	85	115			
Selenium	0.50	0.050	0.5000	0.009680	97.6	85	115			
Silver	0.098	0.0050	0.1000	0	98.2	85	115			

Sample ID	1204495-001CMS		SampType: MS		TestCode: EPA Method 200.7: Metals					
Client ID:	North of 45		Batch ID: 1534		RunNo: 2189					
Prep Date:	4/16/2012		Analysis Date: 4/17/2012		SeqNo: 60953		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.48	0.0020	0.5000	0.06050	84.0	70	130			
Cadmium	0.43	0.0020	0.5000	0	85.3	70	130			
Chromium	0.43	0.0060	0.5000	0	85.1	70	130			
Lead	0.44	0.0050	0.5000	0	87.4	70	130			
Selenium	0.41	0.050	0.5000	0	82.4	70	130			
Silver	0.086	0.0050	0.1000	0	85.5	70	130			

Sample ID	1204495-001CMSD		SampType: MSD		TestCode: EPA Method 200.7: Metals					
Client ID:	North of 45		Batch ID: 1534		RunNo: 2189					
Prep Date:	4/16/2012		Analysis Date: 4/17/2012		SeqNo: 60954		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.54	0.0020	0.5000	0.06050	96.8	70	130	12.5	20	
Cadmium	0.49	0.0020	0.5000	0	97.8	70	130	13.6	20	
Chromium	0.49	0.0060	0.5000	0	97.4	70	130	13.4	20	
Lead	0.50	0.0050	0.5000	0	99.8	70	130	13.3	20	
Selenium	0.48	0.050	0.5000	0	96.7	70	130	16.1	20	
Silver	0.098	0.0050	0.1000	0	98.3	70	130	13.9	20	

Qualifiers:

*/X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204495

10-May-12

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-11-12

Sample ID	MB-1534		SampType: MBLK		TestCode: EPA Method 200.7: Metals					
Client ID:	PBW		Batch ID: 1534		RunNo: 2270					
Prep Date:	4/16/2012		Analysis Date: 4/19/2012		SeqNo: 63029		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								

Sample ID	LCS-1534		SampType: LCS		TestCode: EPA Method 200.7: Metals					
Client ID:	LCSW		Batch ID: 1534		RunNo: 2270					
Prep Date:	4/16/2012		Analysis Date: 4/19/2012		SeqNo: 63030		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.53	0.020	0.5000	0	106	85	115			

Sample ID	1204495-001CMS		SampType: MS		TestCode: EPA Method 200.7: Metals					
Client ID:	North of 45		Batch ID: 1534		RunNo: 2360					
Prep Date:	4/16/2012		Analysis Date: 4/25/2012		SeqNo: 65737		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.58	0.020	0.5000	0	115	70	130			

Sample ID	1204495-001CMSD		SampType: MSD		TestCode: EPA Method 200.7: Metals					
Client ID:	North of 45		Batch ID: 1534		RunNo: 2360					
Prep Date:	4/16/2012		Analysis Date: 4/25/2012		SeqNo: 65738		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	70	130	3.69	20	

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 200.7: Metals					
Client ID:	PBW	Batch ID: R2488			RunNo: 2488					
Prep Date:		Analysis Date: 5/1/2012			SeqNo: 69174		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 200.7: Metals					
Client ID:	LCSW		Batch ID: R2488		RunNo: 2488					
Prep Date:			Analysis Date: 5/1/2012		SeqNo: 69175		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	52	1.0	50.00	0	104	85	115			
Magnesium	52	1.0	50.00	0	104	85	115			
Potassium	51	1.0	50.00	0	102	85	115			
Sodium	51	1.0	50.00	0	102	85	115			

Qualifiers:

* / X Value exceeds Maximum Contaminant Level.
 E Value above quantitation range
 J Analyte detected below quantitation limits
 R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204495

10-May-12

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-11-12

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID: R2488			RunNo: 2488					
Prep Date:		Analysis Date: 5/1/2012			SeqNo: 69212		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: R2488		RunNo: 2488					
Prep Date:			Analysis Date: 5/1/2012		SeqNo: 69213		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	52	1.0	50.00	0	104	85	115			
Magnesium	52	1.0	50.00	0	104	85	115			
Potassium	51	1.0	50.00	0	102	85	115			
Sodium	51	1.0	50.00	0	102	85	115			

Qualifiers:

*/X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204495

10-May-12

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-11-12

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R2398			RunNo: 2398					
Prep Date:		Analysis Date: 4/26/2012			SeqNo: 66926		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R2398			RunNo: 2398					
Prep Date:		Analysis Date: 4/26/2012			SeqNo: 66927		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: R2398		RunNo: 2398					
Prep Date:			Analysis Date: 4/26/2012		SeqNo: 66928		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	101	85	115			
Selenium	0.025	0.0010	0.02500	0	101	85	115			
Uranium	0.024	0.0010	0.02500	0	97.4	85	115			

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: R2398		RunNo: 2398					
Prep Date:			Analysis Date: 4/26/2012		SeqNo: 66929		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	100	85	115			
Selenium	0.026	0.0010	0.02500	0	104	85	115			
Uranium	0.025	0.0010	0.02500	0	99.4	85	115			

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: R2548		RunNo: 2548					
Prep Date:			Analysis Date: 5/3/2012		SeqNo: 71011		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	0.024	0.0010	0.02500	0	94.0	85	115			

Qualifiers:

* / X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204495

10-May-12

Client: Western Refining Southwest, Inc.**Project:** San Juan River 4-11-12

Sample ID	MB	SampType:	MBLK	TestCode:	EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID:	R2548	RunNo:	2548					
Prep Date:		Analysis Date:	5/3/2012	SeqNo:	71013	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	ND	0.0010								

Qualifiers:

*/X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204495

10-May-12

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-11-12

Sample ID	MB-1542	SampType:	MBLK	TestCode:	EPA Method 245.1: Mercury					
Client ID:	PBW	Batch ID:	1542	RunNo:	2165					
Prep Date:	4/16/2012	Analysis Date:	4/17/2012	SeqNo:	60329	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-1542	SampType:	LCS	TestCode:	EPA Method 245.1: Mercury					
Client ID:	LCSW	Batch ID:	1542	RunNo:	2165					
Prep Date:	4/16/2012	Analysis Date:	4/17/2012	SeqNo:	60330	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0049	0.00020	0.005000	0	98.9	80	120			

Qualifiers:

*/X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204495

10-May-12

Client: Western Refining Southwest, Inc.**Project:** San Juan River 4-11-12

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R2115		RunNo: 2115							
Prep Date:	Analysis Date: 4/12/2012		SeqNo: 58592		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R2115		RunNo: 2115							
Prep Date:	Analysis Date: 4/12/2012		SeqNo: 58593		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	100	90	110			
Chloride	4.6	0.50	5.000	0	92.2	90	110			
Nitrogen, Nitrite (As N)	0.93	0.10	1.000	0	92.8	90	110			
Bromide	2.3	0.10	2.500	0	93.0	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	95.1	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	93.8	90	110			
Sulfate	9.4	0.50	10.00	0	94.4	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R2115		RunNo: 2115							
Prep Date:	Analysis Date: 4/13/2012		SeqNo: 58652		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R2115		RunNo: 2115							
Prep Date:	Analysis Date: 4/13/2012		SeqNo: 58653		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.50	0.10	0.5000	0	101	90	110			
Chloride	4.6	0.50	5.000	0	92.7	90	110			
Nitrogen, Nitrite (As N)	0.94	0.10	1.000	0	93.6	90	110			

Qualifiers:

*/X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204495

10-May-12

Client: Western Refining Southwest, Inc.**Project:** San Juan River 4-11-12

Sample ID	LCS	SampType: LCS			TestCode: EPA Method 300.0: Anions					
Client ID:	LCSW	Batch ID: R2115			RunNo: 2115					
Prep Date:		Analysis Date: 4/13/2012			SeqNo: 58653		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Bromide	2.3	0.10	2.500	0	93.4	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	95.5	90	110			
Phosphorus, Orthophosphate (As P	4.7	0.50	5.000	0	94.1	90	110			
Sulfate	9.4	0.50	10.00	0	94.1	90	110			

Qualifiers:

*/X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204495

10-May-12

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-11-12

Sample ID	MB-1507	SampType: MBLK			TestCode: EPA Method 8015B: Diesel Range					
Client ID:	PBW	Batch ID: 1507			RunNo: 2129					
Prep Date:	4/12/2012	Analysis Date: 4/14/2012			SeqNo: 58980		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.63		0.5000		126	69	152			

Sample ID	LCS-1507		SampType: LCS		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	LCSW		Batch ID: 1507		RunNo: 2129					
Prep Date:	4/12/2012		Analysis Date: 4/14/2012		SeqNo: 58981		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	3.4	0.20	2.500	0	137	74	157			
Surr: DNOP	0.27		0.2500		109	69	152			

Sample ID	1204495-001BMS		SampType: MS		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	North of 45		Batch ID: 1507		RunNo: 2129					
Prep Date:	4/12/2012		Analysis Date: 4/14/2012		SeqNo: 58986		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.3	0.20	2.500	0	92.2	71	161			
Surr: DNOP	0.29		0.2500		115	69	152			

Sample ID	1204495-001BMSD		SampType: MSD		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	North of 45		Batch ID: 1507		RunNo: 2129					
Prep Date:	4/12/2012		Analysis Date: 4/14/2012		SeqNo: 58987		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.1	0.20	2.500	0	84.8	71	161	8.36	23	
Surr: DNOP	0.27		0.2500		106	69	152	0	0	

Qualifiers:

* / X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204495

10-May-12

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-11-12

Sample ID	5ML RB		SampType: MBLK		TestCode: EPA Method 8015B: Gasoline Range					
Client ID:	PBW		Batch ID: R2130		RunNo: 2130					
Prep Date:			Analysis Date: 4/13/2012		SeqNo: 59020		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	14		20.00		71.8	69.3	120			

Sample ID	2.5UG GRO LCS		SampType: LCS		TestCode: EPA Method 8015B: Gasoline Range					
Client ID:	LCSW		Batch ID: R2130		RunNo: 2130					
Prep Date:			Analysis Date: 4/13/2012		SeqNo: 59021		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	102	101	123			
Surr: BFB	19		20.00		95.8	69.3	120			

Qualifiers:

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E Value above quantitation range
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R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204495

10-May-12

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-11-12

Sample ID 100ng lcs	SampType: LCS			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: LCSW	Batch ID: R2154			RunNo: 2154						
Prep Date:	Analysis Date: 4/16/2012			SeqNo: 59876		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	84.1	126			
Toluene	22	1.0	20.00	0	109	80	120			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		95.1	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		110	70	130			
Surr: Dibromofluoromethane	9.6		10.00		96.4	69.8	130			
Surr: Toluene-d8	11		10.00		107	70	130			

Sample ID 5ml rb	SampType: MBLK			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: PBW	Batch ID: R2154			RunNo: 2154						
Prep Date:	Analysis Date: 4/16/2012			SeqNo: 59881		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 1,2-Dichloroethane-d4	9.1		10.00		91.1	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		108	70	130			
Surr: Dibromofluoromethane	9.5		10.00		94.6	69.8	130			
Surr: Toluene-d8	10		10.00		100	70	130			

Sample ID 1204495-001AMS	SampType: MS			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: North of 45	Batch ID: R2154			RunNo: 2154						
Prep Date:	Analysis Date: 4/16/2012			SeqNo: 60151		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	71.1	135			
Toluene	20	1.0	20.00	0	100	74	121			
Surr: 1,2-Dichloroethane-d4	9.5		10.00		94.8	70	130			
Surr: 4-Bromofluorobenzene	12		10.00		116	70	130			
Surr: Dibromofluoromethane	9.5		10.00		95.3	69.8	130			
Surr: Toluene-d8	9.7		10.00		97.2	70	130			

Sample ID 1204495-001amsd	SampType: MSD			TestCode: EPA Method 8260: Volatiles Short List						
Client ID: North of 45	Batch ID: R2154			RunNo: 2154						
Prep Date:	Analysis Date: 4/16/2012			SeqNo: 60152		Units: µg/L				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	22	1.0	20.00	0	109	71.1	135	8.28	21.9	
Toluene	21	1.0	20.00	0	103	74	121	2.21	18.5	
Surr: 1,2-Dichloroethane-d4	10		10.00		100	70	130	0	0	

Qualifiers:

* / X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

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H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204495

10-May-12

Client: Western Refining Southwest, Inc.**Project:** San Juan River 4-11-12

Sample ID	1204495-001amsd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	North of 45	Batch ID:	R2154	RunNo:	2154					
Prep Date:		Analysis Date:	4/16/2012	SeqNo:	60152	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	11		10.00		107	70	130	0	0	
Surr: Dibromofluoromethane	11		10.00		105	69.8	130	0	0	
Surr: Toluene-d8	9.9		10.00		98.8	70	130	0	0	

Qualifiers:

*/X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

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H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204495

10-May-12

Client: Western Refining Southwest, Inc.

Project: San Juan River 4-11-12

Sample ID	mb-1		SampType: MBLK		TestCode: SM2320B: Alkalinity					
Client ID:	PBW		Batch ID: R2137		RunNo: 2137					
Prep Date:			Analysis Date: 4/13/2012		SeqNo: 59244		Units: mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID	lcs-1		SampType: LCS			TestCode: SM2320B: Alkalinity				
Client ID:	LCSW		Batch ID: R2137			RunNo: 2137				
Prep Date:			Analysis Date: 4/13/2012			SeqNo: 59245		Units: mg/L CaCO3		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	78	20	80.00	0	98.0	88.1	104			

Qualifiers:

*/X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
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R RPD outside accepted recovery limits

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204495

10-May-12

Client: Western Refining Southwest, Inc.**Project:** San Juan River 4-11-12

Sample ID	MB-1532		SampType: MBLK		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW		Batch ID: 1532		RunNo: 2163					
Prep Date:	4/15/2012		Analysis Date: 4/17/2012		SeqNo: 60226		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	LCS-1532		SampType: LCS		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW		Batch ID: 1532		RunNo: 2163					
Prep Date:	4/15/2012		Analysis Date: 4/17/2012		SeqNo: 60227		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1.010	20.0	1.000	0	101	80	120			

Qualifiers:

*/X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Sample Log-In Check List

Client Name: Western Refining Southwest, Inc Bloomfield Work Order Number: 1204495

Received by/date: *[Signature]* 04/12/12

Logged By: Lindsay Mangin 4/12/2012 10:15:00 AM *[Signature]*

Completed By: Lindsay Mangin 4/12/2012 10:44:56 AM *[Signature]*

Reviewed By: *TO 04/12/12* *[Signature]*

Chain of Custody

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

Log In

4. Coolers are present? (see 19. for cooler specific information)	Yes	☒	No	☐	NA	☐
5. Was an attempt made to cool the samples?	Yes	☒	No	☐	NA	☐
6. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C	Yes	☒	No	☐	NA	☐
7. Sample(s) in proper container(s)?	Yes	☒	No	☐		
8. Sufficient sample volume for indicated test(s)?	Yes	☒	No	☐		
9. Are samples (except VOA and ONG) properly preserved?	Yes	☒	No	☐		
10. Was preservative added to bottles?	Yes	☐	No	☒	NA	☐
11. VOA vials have zero headspace?	Yes	☒	No	☐	No VOA Vials	☐
12. Were any sample containers received broken?	Yes	☐	No	☒		
13. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes	☒	No	☐		
14. Are matrices correctly identified on Chain of Custody?	Yes	☒	No	☐		
15. Is it clear what analyses were requested?	Yes	☒	No	☐		
16. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes	☒	No	☐		
- # of preserved bottles checked for pH:

Adjusted pH:

Chemical:

of preserved bottles checked for pH: 12
(<2 or >12 unless noted)
Adjusted? _____
Checked by: [Signature]

Special Handling (if applicable)

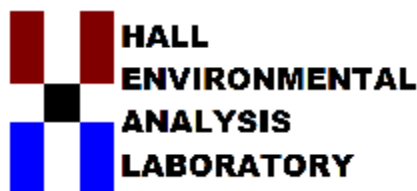
17. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

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

18. Additional remarks:

19. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.6	Good	Yes			



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

November 08, 2012

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: San Juan River

OrderNo.: 1208330

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 9 sample(s) on 8/8/2012 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued September 25, 2012.

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

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

Sincerely,

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

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



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

Workorder Sample Summary

WO#: 1208330
08-Nov-12

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1208330-001	Up Stream		8/7/2012 9:00:00 AM	8/8/2012 9:55:00 AM	Aqueous
1208330-001	Up Stream		8/7/2012 9:00:00 AM	8/8/2012 9:55:00 AM	Aqueous
1208330-001	Up Stream		8/7/2012 9:00:00 AM	8/8/2012 9:55:00 AM	Aqueous
1208330-001	Up Stream		8/7/2012 9:00:00 AM	8/8/2012 9:55:00 AM	Aqueous
1208330-001	Up Stream		8/7/2012 9:00:00 AM	8/8/2012 9:55:00 AM	Aqueous
1208330-002	Down Stream		8/7/2012 8:15:00 AM	8/8/2012 9:55:00 AM	Aqueous
1208330-002	Down Stream		8/7/2012 8:15:00 AM	8/8/2012 9:55:00 AM	Aqueous
1208330-002	Down Stream		8/7/2012 8:15:00 AM	8/8/2012 9:55:00 AM	Aqueous
1208330-002	Down Stream		8/7/2012 8:15:00 AM	8/8/2012 9:55:00 AM	Aqueous
1208330-002	Down Stream		8/7/2012 8:15:00 AM	8/8/2012 9:55:00 AM	Aqueous
1208330-003	Outfall #2		8/7/2012 1:25:00 PM	8/8/2012 9:55:00 AM	Aqueous
1208330-003	Outfall #2		8/7/2012 1:25:00 PM	8/8/2012 9:55:00 AM	Aqueous
1208330-003	Outfall #2		8/7/2012 1:25:00 PM	8/8/2012 9:55:00 AM	Aqueous
1208330-003	Outfall #2		8/7/2012 1:25:00 PM	8/8/2012 9:55:00 AM	Aqueous
1208330-004	Outfall #3		8/7/2012 1:45:00 PM	8/8/2012 9:55:00 AM	Aqueous
1208330-004	Outfall #3		8/7/2012 1:45:00 PM	8/8/2012 9:55:00 AM	Aqueous
1208330-004	Outfall #3		8/7/2012 1:45:00 PM	8/8/2012 9:55:00 AM	Aqueous
1208330-004	Outfall #3		8/7/2012 1:45:00 PM	8/8/2012 9:55:00 AM	Aqueous
1208330-005	North of 45		8/7/2012 10:15:00 AM	8/8/2012 9:55:00 AM	Aqueous
1208330-005	North of 45		8/7/2012 10:15:00 AM	8/8/2012 9:55:00 AM	Aqueous
1208330-005	North of 45		8/7/2012 10:15:00 AM	8/8/2012 9:55:00 AM	Aqueous
1208330-005	North of 45		8/7/2012 10:15:00 AM	8/8/2012 9:55:00 AM	Aqueous
1208330-005	North of 45		8/7/2012 10:15:00 AM	8/8/2012 9:55:00 AM	Aqueous
1208330-006	North of 46		8/7/2012 10:00:00 AM	8/8/2012 9:55:00 AM	Aqueous
1208330-006	North of 46		8/7/2012 10:00:00 AM	8/8/2012 9:55:00 AM	Aqueous
1208330-006	North of 46		8/7/2012 10:00:00 AM	8/8/2012 9:55:00 AM	Aqueous
1208330-006	North of 46		8/7/2012 10:00:00 AM	8/8/2012 9:55:00 AM	Aqueous
1208330-006	North of 46		8/7/2012 10:00:00 AM	8/8/2012 9:55:00 AM	Aqueous
1208330-007	Seep 1		8/7/2012 12:55:00 PM	8/8/2012 9:55:00 AM	Aqueous
1208330-007	Seep 1		8/7/2012 12:55:00 PM	8/8/2012 9:55:00 AM	Aqueous
1208330-007	Seep 1		8/7/2012 12:55:00 PM	8/8/2012 9:55:00 AM	Aqueous
1208330-008	Seep 1 DUUp		8/7/2012 12:55:00 PM	8/8/2012 9:55:00 AM	Aqueous
1208330-008	Seep 1 DUUp		8/7/2012 12:55:00 PM	8/8/2012 9:55:00 AM	Aqueous
1208330-008	Seep 1 DUUp		8/7/2012 12:55:00 PM	8/8/2012 9:55:00 AM	Aqueous



Hall Environmental Analysis Laboratory
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Workorder Sample Summary

WO#: 1208330
08-Nov-12

CLIENT: Western Refining Southwest, Inc.
Project: San Juan River

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1208330-009	Trip Blank			8/8/2012 9:55:00 AM	Trip Blank
1208330-009	Trip Blank			8/8/2012 9:55:00 AM	Trip Blank

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208330

Date Reported: 11/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Up Stream

Project: San Juan River

Collection Date: 8/7/2012 9:00:00 AM

Lab ID: 1208330-001

Matrix: AQUEOUS

Received Date: 8/8/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/12/2012 2:34:57 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/12/2012 2:34:57 PM
Surr: DNOP	123	69-152		%REC	1	8/12/2012 2:34:57 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/8/2012 6:30:20 PM
Surr: BFB	107	69.8-119		%REC	1	8/8/2012 6:30:20 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	0.17	0.10		mg/L	1	8/8/2012 7:28:40 PM
Chloride	2.7	0.50		mg/L	1	8/8/2012 7:28:40 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/8/2012 7:28:40 PM
Bromide	ND	0.10		mg/L	1	8/8/2012 7:28:40 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/8/2012 7:28:40 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/8/2012 7:28:40 PM
Sulfate	53	10		mg/L	20	8/8/2012 8:05:53 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	0.049	0.0020		mg/L	1	8/26/2012 1:12:03 PM
Cadmium	ND	0.0020		mg/L	1	8/26/2012 1:12:03 PM
Calcium	31	1.0		mg/L	1	8/26/2012 1:12:03 PM
Chromium	ND	0.0060		mg/L	1	8/26/2012 1:12:03 PM
Copper	ND	0.0060		mg/L	1	8/26/2012 1:12:03 PM
Iron	ND	0.020		mg/L	1	8/26/2012 1:12:03 PM
Lead	ND	0.0050		mg/L	1	8/26/2012 1:12:03 PM
Magnesium	5.2	1.0		mg/L	1	8/26/2012 1:12:03 PM
Manganese	0.0093	0.0020		mg/L	1	8/26/2012 1:12:03 PM
Potassium	1.6	1.0		mg/L	1	8/26/2012 1:12:03 PM
Silver	ND	0.0050		mg/L	1	8/26/2012 1:12:03 PM
Sodium	19	1.0		mg/L	1	8/26/2012 1:12:03 PM
Zinc	0.064	0.010		mg/L	1	8/26/2012 1:12:03 PM
EPA METHOD 200.7: METALS						Analyst: ELS
Arsenic	ND	0.020		mg/L	1	8/27/2012 2:59:46 PM
Barium	0.099	0.0020		mg/L	1	8/27/2012 2:59:46 PM
Cadmium	ND	0.0020		mg/L	1	8/27/2012 2:59:46 PM
Chromium	ND	0.0060		mg/L	1	8/27/2012 2:59:46 PM
Lead	ND	0.0050		mg/L	1	8/27/2012 2:59:46 PM
Selenium	ND	0.050		mg/L	1	8/27/2012 2:59:46 PM
Silver	ND	0.0050		mg/L	1	8/27/2012 2:59:46 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	ND	0.0010		mg/L	1	8/27/2012 12:30:30 PM
Selenium	ND	0.0010		mg/L	1	8/27/2012 12:30:30 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208330

Date Reported: 11/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Up Stream

Project: San Juan River

Collection Date: 8/7/2012 9:00:00 AM

Lab ID: 1208330-001

Matrix: AQUEOUS

Received Date: 8/8/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	ND	0.0010		mg/L	1	8/27/2012 12:30:30 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		ug/L	1	8/10/2012 12:53:36 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: DJF
Benzene	ND	1.0		µg/L	1	8/13/2012 3:04:54 PM
Toluene	ND	1.0		µg/L	1	8/13/2012 3:04:54 PM
Ethylbenzene	ND	1.0		µg/L	1	8/13/2012 3:04:54 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/13/2012 3:04:54 PM
Xylenes, Total	ND	2.0		µg/L	1	8/13/2012 3:04:54 PM
Surr: 1,2-Dichloroethane-d4	97.7	70-130		%REC	1	8/13/2012 3:04:54 PM
Surr: 4-Bromofluorobenzene	183	70-130	S	%REC	1	8/13/2012 3:04:54 PM
Surr: Dibromofluoromethane	94.5	70-130		%REC	1	8/13/2012 3:04:54 PM
Surr: Toluene-d8	104	70-130		%REC	1	8/13/2012 3:04:54 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	74	1.0		mg CO2/L	1	8/15/2012 6:40:00 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	290	0.010		µmhos/cm	1	8/15/2012 6:40:19 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	83	20		mg/L CaCO3	1	8/15/2012 6:40:19 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/15/2012 6:40:19 PM
Total Alkalinity (as CaCO3)	83	20		mg/L CaCO3	1	8/15/2012 6:40:19 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	201	20.0		mg/L	1	8/11/2012 4:02:00 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208330

Date Reported: 11/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Down Stream

Project: San Juan River

Collection Date: 8/7/2012 8:15:00 AM

Lab ID: 1208330-002

Matrix: AQUEOUS

Received Date: 8/8/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/12/2012 3:54:25 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/12/2012 3:54:25 PM
Surr: DNOP	132	69-152		%REC	1	8/12/2012 3:54:25 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/8/2012 7:30:58 PM
Surr: BFB	107	69.8-119		%REC	1	8/8/2012 7:30:58 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	0.16	0.10		mg/L	1	8/8/2012 8:43:06 PM
Chloride	2.6	0.50		mg/L	1	8/8/2012 8:43:06 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/8/2012 8:43:06 PM
Bromide	ND	0.10		mg/L	1	8/8/2012 8:43:06 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/8/2012 8:43:06 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/8/2012 8:43:06 PM
Sulfate	51	10		mg/L	20	8/8/2012 8:55:31 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	0.049	0.0020		mg/L	1	8/26/2012 1:19:35 PM
Cadmium	ND	0.0020		mg/L	1	8/26/2012 1:19:35 PM
Calcium	32	1.0		mg/L	1	8/26/2012 1:19:35 PM
Chromium	ND	0.0060		mg/L	1	8/26/2012 1:19:35 PM
Copper	ND	0.0060		mg/L	1	8/26/2012 1:19:35 PM
Iron	ND	0.020		mg/L	1	8/26/2012 1:19:35 PM
Lead	ND	0.0050		mg/L	1	8/26/2012 1:19:35 PM
Magnesium	5.2	1.0		mg/L	1	8/26/2012 1:19:35 PM
Manganese	0.016	0.0020		mg/L	1	8/26/2012 1:19:35 PM
Potassium	1.6	1.0		mg/L	1	8/26/2012 1:19:35 PM
Silver	ND	0.0050		mg/L	1	8/26/2012 1:19:35 PM
Sodium	18	1.0		mg/L	1	8/26/2012 1:19:35 PM
Zinc	0.031	0.010		mg/L	1	8/26/2012 1:19:35 PM
EPA METHOD 200.7: METALS						Analyst: ELS
Arsenic	ND	0.020		mg/L	1	8/27/2012 3:02:32 PM
Barium	0.080	0.0020		mg/L	1	8/27/2012 3:02:32 PM
Cadmium	ND	0.0020		mg/L	1	8/27/2012 3:02:32 PM
Chromium	ND	0.0060		mg/L	1	8/27/2012 3:02:32 PM
Lead	ND	0.0050		mg/L	1	8/27/2012 3:02:32 PM
Selenium	ND	0.050		mg/L	1	8/27/2012 3:02:32 PM
Silver	ND	0.0050		mg/L	1	8/27/2012 3:02:32 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	ND	0.0010		mg/L	1	8/27/2012 12:34:26 PM
Selenium	ND	0.0010		mg/L	1	8/27/2012 12:34:26 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208330

Date Reported: 11/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Down Stream

Project: San Juan River

Collection Date: 8/7/2012 8:15:00 AM

Lab ID: 1208330-002

Matrix: AQUEOUS

Received Date: 8/8/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	ND	0.0010		mg/L	1	8/27/2012 12:34:26 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		ug/L	1	8/10/2012 12:55:24 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: DJF
Benzene	ND	1.0		µg/L	1	8/13/2012 4:30:44 PM
Toluene	ND	1.0		µg/L	1	8/13/2012 4:30:44 PM
Ethylbenzene	ND	1.0		µg/L	1	8/13/2012 4:30:44 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/13/2012 4:30:44 PM
Xylenes, Total	ND	2.0		µg/L	1	8/13/2012 4:30:44 PM
Surr: 1,2-Dichloroethane-d4	95.0	70-130		%REC	1	8/13/2012 4:30:44 PM
Surr: 4-Bromofluorobenzene	192	70-130	S	%REC	1	8/13/2012 4:30:44 PM
Surr: Dibromofluoromethane	95.4	70-130		%REC	1	8/13/2012 4:30:44 PM
Surr: Toluene-d8	107	70-130		%REC	1	8/13/2012 4:30:44 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	74	1.0		mg CO2/L	1	8/15/2012 6:48:00 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	300	0.010		µmhos/cm	1	8/15/2012 6:48:29 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	83	20		mg/L CaCO3	1	8/15/2012 6:48:29 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/15/2012 6:48:29 PM
Total Alkalinity (as CaCO3)	83	20		mg/L CaCO3	1	8/15/2012 6:48:29 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	201	20.0		mg/L	1	8/11/2012 4:02:00 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208330

Date Reported: 11/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Outfall #2

Project: San Juan River

Collection Date: 8/7/2012 1:25:00 PM

Lab ID: 1208330-003

Matrix: AQUEOUS

Received Date: 8/8/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	0.22	0.10		mg/L	1	8/8/2012 9:07:56 PM
Chloride	2.5	0.50		mg/L	1	8/8/2012 9:07:56 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/8/2012 9:07:56 PM
Bromide	ND	0.10		mg/L	1	8/8/2012 9:07:56 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/8/2012 9:07:56 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/8/2012 9:07:56 PM
Sulfate	46	0.50		mg/L	1	8/8/2012 9:07:56 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	0.047	0.0020		mg/L	1	8/26/2012 1:27:10 PM
Cadmium	ND	0.0020		mg/L	1	8/26/2012 1:27:10 PM
Calcium	34	1.0		mg/L	1	8/26/2012 1:27:10 PM
Chromium	ND	0.0060		mg/L	1	8/26/2012 1:27:10 PM
Copper	ND	0.0060		mg/L	1	8/26/2012 1:27:10 PM
Iron	0.082	0.020		mg/L	1	8/26/2012 1:27:10 PM
Lead	ND	0.0050		mg/L	1	8/26/2012 1:27:10 PM
Magnesium	6.1	1.0		mg/L	1	8/26/2012 1:27:10 PM
Manganese	0.029	0.0020		mg/L	1	8/26/2012 1:27:10 PM
Potassium	1.2	1.0		mg/L	1	8/26/2012 1:27:10 PM
Silver	ND	0.0050		mg/L	1	8/26/2012 1:27:10 PM
Sodium	16	1.0		mg/L	1	8/26/2012 1:27:10 PM
Zinc	0.012	0.010		mg/L	1	8/26/2012 1:27:10 PM
EPA METHOD 200.7: METALS						Analyst: ELS
Arsenic	ND	0.020		mg/L	1	8/27/2012 3:05:17 PM
Barium	0.050	0.0020		mg/L	1	8/27/2012 3:05:17 PM
Cadmium	ND	0.0020		mg/L	1	8/27/2012 3:05:17 PM
Chromium	ND	0.0060		mg/L	1	8/27/2012 3:05:17 PM
Lead	ND	0.0050		mg/L	1	8/27/2012 3:05:17 PM
Selenium	ND	0.050		mg/L	1	8/27/2012 3:05:17 PM
Silver	ND	0.0050		mg/L	1	8/27/2012 3:05:17 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	ND	0.0010		mg/L	1	8/27/2012 12:46:17 PM
Selenium	ND	0.0010		mg/L	1	8/27/2012 12:46:17 PM
Uranium	ND	0.0010		mg/L	1	8/27/2012 12:46:17 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		ug/L	1	8/10/2012 12:57:10 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: DJF
Benzene	ND	1.0		µg/L	1	8/13/2012 4:59:18 PM
Toluene	ND	1.0		µg/L	1	8/13/2012 4:59:18 PM
Ethylbenzene	ND	1.0		µg/L	1	8/13/2012 4:59:18 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208330

Date Reported: 11/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Outfall #2

Project: San Juan River

Collection Date: 8/7/2012 1:25:00 PM

Lab ID: 1208330-003

Matrix: AQUEOUS

Received Date: 8/8/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: DJF
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/13/2012 4:59:18 PM
Xylenes, Total	ND	2.0		µg/L	1	8/13/2012 4:59:18 PM
Surr: 1,2-Dichloroethane-d4	99.9	70-130		%REC	1	8/13/2012 4:59:18 PM
Surr: 4-Bromofluorobenzene	175	70-130	S	%REC	1	8/13/2012 4:59:18 PM
Surr: Dibromofluoromethane	102	70-130		%REC	1	8/13/2012 4:59:18 PM
Surr: Toluene-d8	106	70-130		%REC	1	8/13/2012 4:59:18 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	91	1.0		mg CO2/L	1	8/15/2012 6:56:00 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	290	0.010		µmhos/cm	1	8/15/2012 6:56:37 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	100	20		mg/L CaCO3	1	8/15/2012 6:56:37 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/15/2012 6:56:37 PM
Total Alkalinity (as CaCO3)	100	20		mg/L CaCO3	1	8/15/2012 6:56:37 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	189	20.0		mg/L	1	8/13/2012 12:57:00 PM

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2
RL Reporting Detection Limit

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208330

Date Reported: 11/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Outfall #3

Project: San Juan River

Collection Date: 8/7/2012 1:45:00 PM

Lab ID: 1208330-004

Matrix: AQUEOUS

Received Date: 8/8/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	0.20	0.10		mg/L	1	8/8/2012 9:32:45 PM
Chloride	2.8	0.50		mg/L	1	8/8/2012 9:32:45 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/8/2012 9:32:45 PM
Bromide	ND	0.10		mg/L	1	8/8/2012 9:32:45 PM
Nitrogen, Nitrate (As N)	0.13	0.10		mg/L	1	8/8/2012 9:32:45 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/8/2012 9:32:45 PM
Sulfate	46	10		mg/L	20	8/8/2012 9:45:10 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	0.053	0.0020		mg/L	1	8/26/2012 1:34:44 PM
Cadmium	ND	0.0020		mg/L	1	8/26/2012 1:34:44 PM
Calcium	32	1.0		mg/L	1	8/26/2012 1:34:44 PM
Chromium	ND	0.0060		mg/L	1	8/26/2012 1:34:44 PM
Copper	ND	0.0060		mg/L	1	8/26/2012 1:34:44 PM
Iron	ND	0.020		mg/L	1	8/26/2012 1:34:44 PM
Lead	ND	0.0050		mg/L	1	8/26/2012 1:34:44 PM
Magnesium	5.7	1.0		mg/L	1	8/26/2012 1:34:44 PM
Manganese	ND	0.0020		mg/L	1	8/26/2012 1:34:44 PM
Potassium	1.5	1.0		mg/L	1	8/26/2012 1:34:44 PM
Silver	ND	0.0050		mg/L	1	8/26/2012 1:34:44 PM
Sodium	15	1.0		mg/L	1	8/26/2012 1:34:44 PM
Zinc	0.024	0.010		mg/L	1	8/26/2012 1:34:44 PM
EPA METHOD 200.7: METALS						Analyst: ELS
Arsenic	ND	0.020		mg/L	1	8/27/2012 3:08:44 PM
Barium	0.062	0.0020		mg/L	1	8/27/2012 3:08:44 PM
Cadmium	ND	0.0020		mg/L	1	8/27/2012 3:08:44 PM
Chromium	ND	0.0060		mg/L	1	8/27/2012 3:08:44 PM
Copper	ND	0.0060		mg/L	1	8/27/2012 3:08:44 PM
Iron	0.22	0.020		mg/L	1	8/27/2012 3:08:44 PM
Lead	ND	0.0050		mg/L	1	8/27/2012 3:08:44 PM
Manganese	0.0095	0.0020		mg/L	1	8/27/2012 3:08:44 PM
Selenium	ND	0.050		mg/L	1	8/27/2012 3:08:44 PM
Silver	ND	0.0050		mg/L	1	8/27/2012 3:08:44 PM
Zinc	ND	0.010		mg/L	1	8/27/2012 3:08:44 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	ND	0.0010		mg/L	1	8/27/2012 12:50:13 PM
Selenium	ND	0.0010		mg/L	1	8/27/2012 12:50:13 PM
Uranium	ND	0.0010		mg/L	1	8/27/2012 12:50:13 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		ug/L	1	8/10/2012 12:58:56 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208330

Date Reported: 11/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Outfall #3

Project: San Juan River

Collection Date: 8/7/2012 1:45:00 PM

Lab ID: 1208330-004

Matrix: AQUEOUS

Received Date: 8/8/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: DJF
Benzene	ND	1.0		µg/L	1	8/13/2012 5:27:53 PM
Toluene	ND	1.0		µg/L	1	8/13/2012 5:27:53 PM
Ethylbenzene	ND	1.0		µg/L	1	8/13/2012 5:27:53 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/13/2012 5:27:53 PM
Xylenes, Total	ND	2.0		µg/L	1	8/13/2012 5:27:53 PM
Surr: 1,2-Dichloroethane-d4	94.5	70-130		%REC	1	8/13/2012 5:27:53 PM
Surr: 4-Bromofluorobenzene	193	70-130	S	%REC	1	8/13/2012 5:27:53 PM
Surr: Dibromofluoromethane	93.4	70-130		%REC	1	8/13/2012 5:27:53 PM
Surr: Toluene-d8	106	70-130		%REC	1	8/13/2012 5:27:53 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	80	1.0		mg CO2/L	1	8/15/2012 7:04:00 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	280	0.010		µmhos/cm	1	8/15/2012 7:04:34 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	89	20		mg/L CaCO3	1	8/15/2012 7:04:34 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/15/2012 7:04:34 PM
Total Alkalinity (as CaCO3)	89	20		mg/L CaCO3	1	8/15/2012 7:04:34 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	183	20.0		mg/L	1	8/13/2012 12:57:00 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208330

Date Reported: 11/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: North of 45

Project: San Juan River

Collection Date: 8/7/2012 10:15:00 AM

Lab ID: 1208330-005

Matrix: AQUEOUS

Received Date: 8/8/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/12/2012 4:21:07 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/12/2012 4:21:07 PM
Surr: DNOP	131	69-152		%REC	1	8/12/2012 4:21:07 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/8/2012 8:01:13 PM
Surr: BFB	97.4	69.8-119		%REC	1	8/8/2012 8:01:13 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	0.16	0.10		mg/L	1	8/8/2012 9:57:34 PM
Chloride	2.5	0.50		mg/L	1	8/8/2012 9:57:34 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/8/2012 9:57:34 PM
Bromide	ND	0.10		mg/L	1	8/8/2012 9:57:34 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/8/2012 9:57:34 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/8/2012 9:57:34 PM
Sulfate	46	10		mg/L	20	8/8/2012 10:09:58 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	0.049	0.0020		mg/L	1	8/26/2012 1:53:29 PM
Cadmium	ND	0.0020		mg/L	1	8/26/2012 1:53:29 PM
Calcium	31	1.0		mg/L	1	8/26/2012 1:53:29 PM
Chromium	ND	0.0060		mg/L	1	8/26/2012 1:53:29 PM
Copper	ND	0.0060		mg/L	1	8/26/2012 1:53:29 PM
Iron	ND	0.020		mg/L	1	8/26/2012 1:53:29 PM
Lead	ND	0.0050		mg/L	1	8/26/2012 1:53:29 PM
Magnesium	5.2	1.0		mg/L	1	8/26/2012 1:53:29 PM
Manganese	0.0047	0.0020		mg/L	1	8/26/2012 1:53:29 PM
Potassium	1.6	1.0		mg/L	1	8/26/2012 1:53:29 PM
Silver	ND	0.0050		mg/L	1	8/26/2012 1:53:29 PM
Sodium	17	1.0		mg/L	1	8/26/2012 1:53:29 PM
Zinc	0.018	0.010		mg/L	1	8/26/2012 1:53:29 PM
EPA METHOD 200.7: METALS						Analyst: ELS
Arsenic	ND	0.020		mg/L	1	8/27/2012 3:19:42 PM
Barium	0.11	0.0020		mg/L	1	8/27/2012 3:19:42 PM
Cadmium	ND	0.0020		mg/L	1	8/27/2012 3:19:42 PM
Chromium	ND	0.0060		mg/L	1	8/27/2012 3:19:42 PM
Lead	ND	0.0050		mg/L	1	8/27/2012 3:19:42 PM
Selenium	ND	0.050		mg/L	1	8/27/2012 3:19:42 PM
Silver	ND	0.0050		mg/L	1	8/27/2012 3:19:42 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	ND	0.0010		mg/L	1	8/27/2012 12:54:08 PM
Selenium	ND	0.0010		mg/L	1	8/27/2012 12:54:08 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208330

Date Reported: 11/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: North of 45

Project: San Juan River

Collection Date: 8/7/2012 10:15:00 AM

Lab ID: 1208330-005

Matrix: AQUEOUS

Received Date: 8/8/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	ND	0.0010		mg/L	1	8/27/2012 12:54:08 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		ug/L	1	8/10/2012 1:04:21 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: DJF
Benzene	ND	1.0		µg/L	1	8/13/2012 5:56:14 PM
Toluene	ND	1.0		µg/L	1	8/13/2012 5:56:14 PM
Ethylbenzene	ND	1.0		µg/L	1	8/13/2012 5:56:14 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/13/2012 5:56:14 PM
Xylenes, Total	ND	2.0		µg/L	1	8/13/2012 5:56:14 PM
Surr: 1,2-Dichloroethane-d4	94.6	70-130		%REC	1	8/13/2012 5:56:14 PM
Surr: 4-Bromofluorobenzene	193	70-130	S	%REC	1	8/13/2012 5:56:14 PM
Surr: Dibromofluoromethane	99.3	70-130		%REC	1	8/13/2012 5:56:14 PM
Surr: Toluene-d8	105	70-130		%REC	1	8/13/2012 5:56:14 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	74	1.0		mg CO2/L	1	8/15/2012 7:12:00 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	280	0.010		µmhos/cm	1	8/15/2012 7:12:50 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	83	20		mg/L CaCO3	1	8/15/2012 7:12:50 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/15/2012 7:12:50 PM
Total Alkalinity (as CaCO3)	83	20		mg/L CaCO3	1	8/15/2012 7:12:50 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	197	20.0		mg/L	1	8/11/2012 4:02:00 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208330

Date Reported: 11/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: North of 46

Project: San Juan River

Collection Date: 8/7/2012 10:00:00 AM

Lab ID: 1208330-006

Matrix: AQUEOUS

Received Date: 8/8/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: JMP
Diesel Range Organics (DRO)	ND	0.20		mg/L	1	8/12/2012 4:47:48 PM
Motor Oil Range Organics (MRO)	ND	2.5		mg/L	1	8/12/2012 4:47:48 PM
Surr: DNOP	128	69-152		%REC	1	8/12/2012 4:47:48 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/8/2012 8:31:23 PM
Surr: BFB	108	69.8-119		%REC	1	8/8/2012 8:31:23 PM
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	0.16	0.10		mg/L	1	8/8/2012 10:22:23 PM
Chloride	2.5	0.50		mg/L	1	8/8/2012 10:22:23 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/8/2012 10:22:23 PM
Bromide	ND	0.10		mg/L	1	8/8/2012 10:22:23 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/8/2012 10:22:23 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	8/8/2012 10:22:23 PM
Sulfate	47	10		mg/L	20	8/8/2012 10:34:46 PM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Barium	0.049	0.0020		mg/L	1	8/26/2012 2:01:01 PM
Cadmium	ND	0.0020		mg/L	1	8/26/2012 2:01:01 PM
Calcium	31	1.0		mg/L	1	8/26/2012 2:01:01 PM
Chromium	ND	0.0060		mg/L	1	8/26/2012 2:01:01 PM
Copper	ND	0.0060		mg/L	1	8/26/2012 2:01:01 PM
Iron	ND	0.020		mg/L	1	8/26/2012 2:01:01 PM
Lead	ND	0.0050		mg/L	1	8/26/2012 2:01:01 PM
Magnesium	5.2	1.0		mg/L	1	8/26/2012 2:01:01 PM
Manganese	0.0045	0.0020		mg/L	1	8/26/2012 2:01:01 PM
Potassium	1.6	1.0		mg/L	1	8/26/2012 2:01:01 PM
Silver	ND	0.0050		mg/L	1	8/26/2012 2:01:01 PM
Sodium	17	1.0		mg/L	1	8/26/2012 2:01:01 PM
Zinc	0.013	0.010		mg/L	1	8/26/2012 2:01:01 PM
EPA METHOD 200.7: METALS						Analyst: ELS
Arsenic	ND	0.020		mg/L	1	8/27/2012 3:22:28 PM
Barium	0.087	0.0020		mg/L	1	8/27/2012 3:22:28 PM
Cadmium	ND	0.0020		mg/L	1	8/27/2012 3:22:28 PM
Chromium	ND	0.0060		mg/L	1	8/27/2012 3:22:28 PM
Lead	ND	0.0050		mg/L	1	8/27/2012 3:22:28 PM
Selenium	ND	0.050		mg/L	1	8/27/2012 3:22:28 PM
Silver	ND	0.0050		mg/L	1	8/27/2012 3:22:28 PM
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Arsenic	ND	0.0010		mg/L	1	8/27/2012 12:58:04 PM
Selenium	ND	0.0010		mg/L	1	8/27/2012 12:58:04 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208330

Date Reported: 11/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: North of 46

Project: San Juan River

Collection Date: 8/7/2012 10:00:00 AM

Lab ID: 1208330-006

Matrix: AQUEOUS

Received Date: 8/8/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA 200.8: DISSOLVED METALS						Analyst: DBD
Uranium	ND	0.0010		mg/L	1	8/27/2012 12:58:04 PM
EPA METHOD 245.1: MERCURY						Analyst: TES
Mercury	ND	0.00020		ug/L	1	8/10/2012 1:06:07 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: DJF
Benzene	ND	1.0		µg/L	1	8/13/2012 6:24:33 PM
Toluene	ND	1.0		µg/L	1	8/13/2012 6:24:33 PM
Ethylbenzene	ND	1.0		µg/L	1	8/13/2012 6:24:33 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/13/2012 6:24:33 PM
Xylenes, Total	ND	2.0		µg/L	1	8/13/2012 6:24:33 PM
Surr: 1,2-Dichloroethane-d4	96.5	70-130		%REC	1	8/13/2012 6:24:33 PM
Surr: 4-Bromofluorobenzene	200	70-130	S	%REC	1	8/13/2012 6:24:33 PM
Surr: Dibromofluoromethane	96.6	70-130		%REC	1	8/13/2012 6:24:33 PM
Surr: Toluene-d8	109	70-130		%REC	1	8/13/2012 6:24:33 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	74	1.0		mg CO2/L	1	8/15/2012 7:20:00 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	280	0.010		µmhos/cm	1	8/15/2012 7:20:59 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	83	20		mg/L CaCO3	1	8/15/2012 7:20:59 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/15/2012 7:20:59 PM
Total Alkalinity (as CaCO3)	83	20		mg/L CaCO3	1	8/15/2012 7:20:59 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	189	20.0		mg/L	1	8/11/2012 4:02:00 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208330

Date Reported: 11/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Seep 1

Project: San Juan River

Collection Date: 8/7/2012 12:55:00 PM

Lab ID: 1208330-007

Matrix: AQUEOUS

Received Date: 8/8/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	0.22	0.10		mg/L	1	8/8/2012 11:12:01 PM
Chloride	310	10		mg/L	20	8/8/2012 11:24:25 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/8/2012 11:12:01 PM
Bromide	2.8	0.10		mg/L	1	8/8/2012 11:12:01 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/8/2012 11:12:01 PM
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	8/8/2012 11:24:25 PM
Sulfate	1600	50		mg/L	100	8/11/2012 12:07:17 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Calcium	230	5.0		mg/L	5	8/26/2012 2:12:37 PM
Magnesium	64	1.0		mg/L	1	8/26/2012 2:08:34 PM
Potassium	2.7	1.0		mg/L	1	8/26/2012 2:08:34 PM
Sodium	710	10		mg/L	10	8/27/2012 11:17:16 AM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: DJF
Benzene	ND	1.0		µg/L	1	8/13/2012 6:52:50 PM
Toluene	ND	1.0		µg/L	1	8/13/2012 6:52:50 PM
Ethylbenzene	ND	1.0		µg/L	1	8/13/2012 6:52:50 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/13/2012 6:52:50 PM
Xylenes, Total	ND	2.0		µg/L	1	8/13/2012 6:52:50 PM
Surr: 1,2-Dichloroethane-d4	90.7	70-130		%REC	1	8/13/2012 6:52:50 PM
Surr: 4-Bromofluorobenzene	196	70-130	S	%REC	1	8/13/2012 6:52:50 PM
Surr: Dibromofluoromethane	96.5	70-130		%REC	1	8/13/2012 6:52:50 PM
Surr: Toluene-d8	106	70-130		%REC	1	8/13/2012 6:52:50 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	220	1.0		mg CO2/L	1	8/15/2012 7:29:00 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	4000	0.010		µmhos/cm	1	8/15/2012 7:29:12 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	250	20		mg/L CaCO3	1	8/15/2012 7:29:12 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/15/2012 7:29:12 PM
Total Alkalinity (as CaCO3)	250	20		mg/L CaCO3	1	8/15/2012 7:29:12 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	3270	40.0		mg/L	1	8/11/2012 4:02:00 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208330

Date Reported: 11/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Seep 1 DUup

Project: San Juan River

Collection Date: 8/7/2012 12:55:00 PM

Lab ID: 1208330-008

Matrix: AQUEOUS

Received Date: 8/8/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: SRM
Fluoride	0.23	0.10		mg/L	1	8/8/2012 11:36:50 PM
Chloride	310	10		mg/L	20	8/8/2012 11:49:15 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	8/8/2012 11:36:50 PM
Bromide	2.7	0.10		mg/L	1	8/8/2012 11:36:50 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	8/8/2012 11:36:50 PM
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	8/8/2012 11:49:15 PM
Sulfate	1600	50		mg/L	100	8/11/2012 12:19:42 AM
EPA METHOD 200.7: DISSOLVED METALS						Analyst: ELS
Calcium	230	5.0		mg/L	5	8/26/2012 2:20:22 PM
Magnesium	64	1.0		mg/L	1	8/26/2012 2:16:20 PM
Potassium	2.7	1.0		mg/L	1	8/26/2012 2:16:20 PM
Sodium	720	10		mg/L	10	8/27/2012 11:21:44 AM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: DJF
Benzene	ND	1.0		µg/L	1	8/13/2012 7:21:02 PM
Toluene	ND	1.0		µg/L	1	8/13/2012 7:21:02 PM
Ethylbenzene	ND	1.0		µg/L	1	8/13/2012 7:21:02 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/13/2012 7:21:02 PM
Xylenes, Total	ND	2.0		µg/L	1	8/13/2012 7:21:02 PM
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	1	8/13/2012 7:21:02 PM
Surr: 4-Bromofluorobenzene	196	70-130	S	%REC	1	8/13/2012 7:21:02 PM
Surr: Dibromofluoromethane	101	70-130		%REC	1	8/13/2012 7:21:02 PM
Surr: Toluene-d8	110	70-130		%REC	1	8/13/2012 7:21:02 PM
CARBON DIOXIDE						Analyst: IDC
Total Carbon Dioxide	230	1.0		mg CO2/L	1	8/15/2012 7:41:00 PM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: IDC
Conductivity	4100	0.010		µmhos/cm	1	8/15/2012 7:41:16 PM
SM2320B: ALKALINITY						Analyst: IDC
Bicarbonate (As CaCO3)	250	20		mg/L CaCO3	1	8/15/2012 7:41:16 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	8/15/2012 7:41:16 PM
Total Alkalinity (as CaCO3)	250	20		mg/L CaCO3	1	8/15/2012 7:41:16 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: KS
Total Dissolved Solids	3230	40.0		mg/L	1	8/11/2012 4:02:00 PM

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- RL Reporting Detection Limit

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1208330

Date Reported: 11/8/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Trip Blank

Project: San Juan River

Collection Date:

Lab ID: 1208330-009

Matrix: TRIP BLANK

Received Date: 8/8/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	8/8/2012 6:00:01 PM
Surr: BFB	92.6	69.8-119		%REC	1	8/8/2012 6:00:01 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: DJF
Benzene	ND	1.0		µg/L	1	8/13/2012 7:49:12 PM
Toluene	ND	1.0		µg/L	1	8/13/2012 7:49:12 PM
Ethylbenzene	ND	1.0		µg/L	1	8/13/2012 7:49:12 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	8/13/2012 7:49:12 PM
Xylenes, Total	ND	2.0		µg/L	1	8/13/2012 7:49:12 PM
Surr: 1,2-Dichloroethane-d4	95.8	70-130		%REC	1	8/13/2012 7:49:12 PM
Surr: 4-Bromofluorobenzene	202	70-130	S	%REC	1	8/13/2012 7:49:12 PM
Surr: Dibromofluoromethane	100	70-130		%REC	1	8/13/2012 7:49:12 PM
Surr: Toluene-d8	105	70-130		%REC	1	8/13/2012 7:49:12 PM

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2
RL Reporting Detection Limit

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208330

08-Nov-12

Client: Western Refining Southwest, Inc.

Project: San Juan River

Sample ID	MB-3309	SampType:	MBLK	TestCode:	EPA Method 200.7: Metals					
Client ID:	PBW	Batch ID:	3309	RunNo:	5076					
Prep Date:	8/14/2012	Analysis Date:	8/23/2012	SeqNo:	143798	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.020								
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								
Iron	ND	0.020								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Selenium	ND	0.050								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID	LCS-3309	SampType:	LCS	TestCode:	EPA Method 200.7: Metals					
Client ID:	LCSW	Batch ID:	3309	RunNo:	5076					
Prep Date:	8/14/2012	Analysis Date:	8/23/2012	SeqNo:	143799	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.52	0.020	0.5000	0	103	85	115			
Barium	0.51	0.0020	0.5000	0	102	85	115			
Cadmium	0.50	0.0020	0.5000	0	101	85	115			
Chromium	0.51	0.0060	0.5000	0	101	85	115			
Copper	0.51	0.0060	0.5000	0	102	85	115			
Iron	0.51	0.020	0.5000	0	101	85	115			
Lead	0.52	0.0050	0.5000	0	103	85	115			
Manganese	0.50	0.0020	0.5000	0	99.8	85	115			
Selenium	0.51	0.050	0.5000	0	101	85	115			
Silver	0.086	0.0050	0.1000	0	85.6	85	115			
Zinc	0.49	0.010	0.5000	0	98.9	85	115			

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 200.7: Metals					
Client ID:	PBW	Batch ID:	R5114	RunNo:	5114					
Prep Date:		Analysis Date:	8/27/2012	SeqNo:	145150	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0								

Sample ID	LCS	SampType:	LCS	TestCode:	EPA Method 200.7: Metals					
Client ID:	LCSW	Batch ID:	R5114	RunNo:	5114					
Prep Date:		Analysis Date:	8/27/2012	SeqNo:	145151	Units:	mg/L			

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	53	1.0	50.00	0	107	85	115			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH greater than 2

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208330

08-Nov-12

Client: Western Refining Southwest, Inc.

Project: San Juan River

Sample ID	1208330-004CMS		SampType: MS			TestCode: EPA Method 200.7: Metals				
Client ID:	Outfall #3		Batch ID: 3309			RunNo: 5119				
Prep Date:	8/14/2012		Analysis Date: 8/27/2012			SeqNo: 145429		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.54	0.020	0.5000	0	107	70	130			
Barium	0.58	0.0020	0.5000	0.06233	104	70	130			
Cadmium	0.53	0.0020	0.5000	0	105	70	130			
Chromium	0.51	0.0060	0.5000	0	103	70	130			
Copper	0.54	0.0060	0.5000	0	107	70	130			
Iron	0.79	0.020	0.5000	0.2177	115	70	130			
Lead	0.53	0.0050	0.5000	0	105	70	130			
Manganese	0.53	0.0020	0.5000	0.009460	103	70	130			
Selenium	0.51	0.050	0.5000	0	103	70	130			
Zinc	0.50	0.010	0.5000	0	100	70	130			

Sample ID	1208330-004CMSD		SampType: MSD			TestCode: EPA Method 200.7: Metals				
Client ID:	Outfall #3		Batch ID: 3309			RunNo: 5119				
Prep Date:	8/14/2012		Analysis Date: 8/27/2012			SeqNo: 145430		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.53	0.020	0.5000	0	107	70	130	0.393	20	
Barium	0.58	0.0020	0.5000	0.06233	104	70	130	0.224	20	
Cadmium	0.53	0.0020	0.5000	0	105	70	130	0.0362	20	
Chromium	0.51	0.0060	0.5000	0	103	70	130	0.0738	20	
Copper	0.54	0.0060	0.5000	0	107	70	130	0.138	20	
Iron	0.82	0.020	0.5000	0.2177	121	70	130	3.79	20	
Lead	0.53	0.0050	0.5000	0	105	70	130	0.177	20	
Manganese	0.53	0.0020	0.5000	0.009460	103	70	130	0.0247	20	
Selenium	0.51	0.050	0.5000	0	102	70	130	0.856	20	
Zinc	0.50	0.010	0.5000	0	100	70	130	0.0219	20	

Sample ID	1208330-004CMSD		SampType: MSD			TestCode: EPA Method 200.7: Metals				
Client ID:	Outfall #3		Batch ID: 3309			RunNo: 5119				
Prep Date:	8/14/2012		Analysis Date: 8/27/2012			SeqNo: 145456		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	0.084	0.0050	0.1000	0	84.4	70	130	6.50	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208330

08-Nov-12

Client: Western Refining Southwest, Inc.

Project: San Juan River

Sample ID	MB		SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals				
Client ID:	PBW		Batch ID: R5100			RunNo: 5100				
Prep Date:			Analysis Date: 8/26/2012			SeqNo: 144522		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
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								
Silver	ND	0.0050								
Sodium	ND	1.0								
Zinc	ND	0.010								

Sample ID	LCS		SampType: LCS			TestCode: EPA Method 200.7: Dissolved Metals				
Client ID:	LCSW		Batch ID: R5100			RunNo: 5100				
Prep Date:			Analysis Date: 8/26/2012			SeqNo: 144523		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.50	0.0020	0.5000	0	100	85	115			
Cadmium	0.51	0.0020	0.5000	0	101	85	115			
Calcium	50	1.0	50.00	0	99.5	85	115			
Chromium	0.50	0.0060	0.5000	0	99.2	85	115			
Copper	0.51	0.0060	0.5000	0	102	85	115			
Iron	0.49	0.020	0.5000	0	98.0	85	115			
Lead	0.51	0.0050	0.5000	0	101	85	115			
Magnesium	50	1.0	50.00	0	99.9	85	115			
Manganese	0.50	0.0020	0.5000	0	99.0	85	115			
Potassium	48	1.0	50.00	0	96.4	85	115			
Silver	0.099	0.0050	0.1000	0	99.2	85	115			
Sodium	49	1.0	50.00	0	97.6	85	115			
Zinc	0.48	0.010	0.5000	0	97.0	85	115			

Sample ID	MB		SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals				
Client ID:	PBW		Batch ID: R5100			RunNo: 5100				
Prep Date:			Analysis Date: 8/26/2012			SeqNo: 144578		Units: mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	0.0020								
Cadmium	ND	0.0020								
Chromium	ND	0.0060								
Copper	ND	0.0060								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208330

08-Nov-12

Client: Western Refining Southwest, Inc.

Project: San Juan River

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID: R5100			RunNo: 5100					
Prep Date:		Analysis Date: 8/26/2012			SeqNo: 144578		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Iron	ND	0.020								
Lead	ND	0.0050								
Manganese	ND	0.0020								
Silver	ND	0.0050								
Zinc	ND	0.010								

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: R5100		RunNo: 5100					
Prep Date:			Analysis Date: 8/26/2012		SeqNo: 144579		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	0.53	0.0020	0.5000	0	105	85	115			
Cadmium	0.53	0.0020	0.5000	0	106	85	115			
Chromium	0.51	0.0060	0.5000	0	101	85	115			
Copper	0.54	0.0060	0.5000	0	108	85	115			
Iron	0.52	0.020	0.5000	0	104	85	115			
Lead	0.53	0.0050	0.5000	0	105	85	115			
Manganese	0.52	0.0020	0.5000	0	104	85	115			
Silver	0.10	0.0050	0.1000	0	103	85	115			
Zinc	0.50	0.010	0.5000	0	99.1	85	115			

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	PBW	Batch ID: R5114			RunNo: 5114					
Prep Date:		Analysis Date: 8/27/2012			SeqNo: 145373		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	ND	1.0								

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 200.7: Dissolved Metals					
Client ID:	LCSW		Batch ID: R5114		RunNo: 5114					
Prep Date:			Analysis Date: 8/27/2012		SeqNo: 145374		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	53	1.0	50.00	0	107	85	115			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208330

08-Nov-12

Client: Western Refining Southwest, Inc.

Project: San Juan River

Sample ID	1208330-006EMS		SampType: MS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	North of 46		Batch ID: R5117		RunNo: 5117					
Prep Date:			Analysis Date: 8/27/2012		SeqNo: 145340		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.026	0.0010	0.02500	0.0008686	101	70	130			
Selenium	0.026	0.0010	0.02500	0	102	70	130			
Uranium	0.025	0.0010	0.02500	0.0005329	98.1	70	130			

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: R5117		RunNo: 5117					
Prep Date:			Analysis Date: 8/27/2012		SeqNo: 145353		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	101	85	115			
Selenium	0.026	0.0010	0.02500	0	105	85	115			
Uranium	0.024	0.0010	0.02500	0	94.1	85	115			

Sample ID	LCS		SampType: LCS		TestCode: EPA 200.8: Dissolved Metals					
Client ID:	LCSW		Batch ID: R5117		RunNo: 5117					
Prep Date:			Analysis Date: 8/27/2012		SeqNo: 145354		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.025	0.0010	0.02500	0	101	85	115			
Selenium	0.026	0.0010	0.02500	0	104	85	115			
Uranium	0.024	0.0010	0.02500	0	95.9	85	115			

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R5117			RunNo: 5117					
Prep Date:		Analysis Date: 8/27/2012			SeqNo: 145356		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Sample ID	MB	SampType: MBLK			TestCode: EPA 200.8: Dissolved Metals					
Client ID:	PBW	Batch ID: R5117			RunNo: 5117					
Prep Date:		Analysis Date: 8/27/2012			SeqNo: 145357		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	0.0010								
Selenium	ND	0.0010								
Uranium	ND	0.0010								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208330

08-Nov-12

Client: Western Refining Southwest, Inc.

Project: San Juan River

Sample ID	MB-3259		SampType: MBLK		TestCode: EPA Method 245.1: Mercury					
Client ID:	PBW		Batch ID: 3259		RunNo: 4790					
Prep Date:	8/9/2012		Analysis Date: 8/10/2012		SeqNo: 135068		Units: ug/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-3259		SampType: LCS		TestCode: EPA Method 245.1: Mercury					
Client ID:	LCSW		Batch ID: 3259		RunNo: 4790					
Prep Date:	8/9/2012		Analysis Date: 8/10/2012		SeqNo: 135069		Units: ug/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0048	0.00020	0.005000	0	96.8	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208330

08-Nov-12

Client: Western Refining Southwest, Inc.

Project: San Juan River

Sample ID	MB		SampType:	MBLK		TestCode:	EPA Method 300.0: Anions			
Client ID:	PBW		Batch ID:	R4758		RunNo:	4758			
Prep Date:			Analysis Date:	8/8/2012		SeqNo:	134004		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID	LCS		SampType:	LCS		TestCode:	EPA Method 300.0: Anions			
Client ID:	LCSW		Batch ID:	R4758		RunNo:	4758			
Prep Date:			Analysis Date:	8/8/2012		SeqNo:	134005		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.46	0.10	0.5000	0	92.1	90	110			
Chloride	4.7	0.50	5.000	0	94.0	90	110			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	95.0	90	110			
Bromide	2.4	0.10	2.500	0	95.2	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.8	90	110			
Phosphorus, Orthophosphate (As P	4.8	0.50	5.000	0	96.8	90	110			
Sulfate	9.4	0.50	10.00	0	93.5	90	110			

Sample ID	1208330-001DMS		SampType:	MS		TestCode:	EPA Method 300.0: Anions			
Client ID:	Up Stream		Batch ID:	R4758		RunNo:	4758			
Prep Date:			Analysis Date:	8/8/2012		SeqNo:	134021		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.62	0.10	0.5000	0.1664	91.2	76.6	110			
Chloride	7.5	0.50	5.000	2.654	96.5	87.8	111			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	94.5	72.5	111			
Bromide	2.4	0.10	2.500	0	95.5	83.3	107			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	98.0	90.4	113			
Phosphorus, Orthophosphate (As P	4.9	0.50	5.000	0	97.7	74.5	115			

Sample ID	1208330-001DMSD		SampType:	MSD		TestCode:	EPA Method 300.0: Anions			
Client ID:	Up Stream		Batch ID:	R4758		RunNo:	4758			
Prep Date:			Analysis Date:	8/8/2012		SeqNo:	134022		Units: mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.63	0.10	0.5000	0.1664	91.9	76.6	110	0.610	20	
Chloride	7.5	0.50	5.000	2.654	96.8	87.8	111	0.256	20	
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	94.8	72.5	111	0.300	20	
Bromide	2.4	0.10	2.500	0	95.8	83.3	107	0.242	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH greater than 2

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208330

08-Nov-12

Client: Western Refining Southwest, Inc.

Project: San Juan River

Sample ID	1208330-001DMSD			SampType:	MSD		TestCode:	EPA Method 300.0: Anions			
Client ID:	Up Stream			Batch ID:	R4758		RunNo:	4758			
Prep Date:				Analysis Date:	8/8/2012		SeqNo:	134022		Units:	mg/L
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.7	90.4	113	0.714	20		
Phosphorus, Orthophosphate (As P)	4.9	0.50	5.000	0	98.9	74.5	115	1.20	20		

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID: R4758			RunNo: 4758					
Prep Date:		Analysis Date: 8/9/2012			SeqNo: 134056		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P	ND	0.50								
Sulfate	ND	0.50								

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSW		Batch ID: R4758		RunNo: 4758					
Prep Date:			Analysis Date: 8/9/2012		SeqNo: 134057		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.48	0.10	0.5000	0	97.0	90	110			
Chloride	4.6	0.50	5.000	0	92.5	90	110			
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	95.3	90	110			
Bromide	2.3	0.10	2.500	0	93.7	90	110			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	97.2	90	110			
Phosphorus, Orthophosphate (As P	5.0	0.50	5.000	0	99.0	90	110			
Sulfate	9.3	0.50	10.00	0	93.4	90	110			

Sample ID	MB	SampType: MBLK			TestCode: EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID: R4808			RunNo: 4808					
Prep Date:		Analysis Date: 8/10/2012			SeqNo: 135623		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	ND	0.50								

Sample ID	LCS		SampType: LCS		TestCode: EPA Method 300.0: Anions					
Client ID:	LCSW		Batch ID: R4808		RunNo: 4808					
Prep Date:			Analysis Date: 8/10/2012		SeqNo: 135624		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	9.5	0.50	10.00	0	95.0	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208330

08-Nov-12

Client: Western Refining Southwest, Inc.

Project: San Juan River

Sample ID	MB-3255		SampType: MBLK		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	PBW		Batch ID: 3255		RunNo: 4806					
Prep Date:	8/9/2012		Analysis Date: 8/12/2012		SeqNo: 135493		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.20								
Motor Oil Range Organics (MRO)	ND	2.5								
Surr: DNOP	0.65		0.5000		130	69	152			

Sample ID	LCS-3255		SampType: LCS		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	LCSW		Batch ID: 3255		RunNo: 4806					
Prep Date:	8/9/2012		Analysis Date: 8/12/2012		SeqNo: 135495		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.4	0.20	2.500	0	96.1	74	157			
Surr: DNOP	0.26		0.2500		104	69	152			

Sample ID	1208330-001BMS		SampType: MS		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	Up Stream		Batch ID: 3255		RunNo: 4806					
Prep Date:	8/9/2012		Analysis Date: 8/12/2012		SeqNo: 135508		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.5	0.20	2.500	0	99.8	71	161			
Surr: DNOP	0.27		0.2500		107	69	152			

Sample ID	1208330-001BMSD		SampType: MSD		TestCode: EPA Method 8015B: Diesel Range					
Client ID:	Up Stream		Batch ID: 3255		RunNo: 4806					
Prep Date:	8/9/2012		Analysis Date: 8/12/2012		SeqNo: 135510		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	2.5	0.20	2.500	0	101	71	161	1.64	23	
Surr: DNOP	0.27		0.2500		109	69	152	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208330

08-Nov-12

Client: Western Refining Southwest, Inc.

Project: San Juan River

Sample ID	5ML-RB		SampType: MBLK		TestCode: EPA Method 8015B: Gasoline Range					
Client ID:	PBW		Batch ID: R4744		RunNo: 4744					
Prep Date:			Analysis Date: 8/8/2012		SeqNo: 133630		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	17		20.00		87.3	69.8	119			

Sample ID	2.5UG GRO LCS	SampType: LCS			TestCode: EPA Method 8015B: Gasoline Range					
Client ID:	LCSW	Batch ID: R4744			RunNo: 4744					
Prep Date:		Analysis Date: 8/8/2012			SeqNo: 133633		Units: mg/L			
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	91.1	75.9	119			
Surr: BFB	21		20.00		107	69.8	119			

Sample ID	2.5UG GRO LCSD		SampType: LCSD		TestCode: EPA Method 8015B: Gasoline Range					
Client ID:	LCSS02		Batch ID: R4744		RunNo: 4744					
Prep Date:			Analysis Date: 8/8/2012		SeqNo: 133634		Units: mg/L			
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	85.8	75.9	119	6.01	17.1	
Surr: BFB	18		20.00		90.2	69.8	119	0	0	

Sample ID	1208330-001A DUP		SampType:	DUP		TestCode:	EPA Method 8015B: Gasoline Range				
Client ID:	Up Stream		Batch ID:	R4744		RunNo:	4744				
Prep Date:			Analysis Date:	8/8/2012		SeqNo:	133646		Units:	mg/L	
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	ND	0.050						0	20		
Surr: BFB	20		20.00		99.0	69.8	119	0	0		

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208330

08-Nov-12

Client: Western Refining Southwest, Inc.

Project: San Juan River

Sample ID	rb	SampType:	MBLK	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	PBW	Batch ID:	R4835	RunNo:	4835					
Prep Date:		Analysis Date:	8/13/2012	SeqNo:	136673	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 1,2-Dichloroethane-d4	9.6		10.00		95.5	70	130			
Surr: 4-Bromofluorobenzene	13		10.00		128	70	130			
Surr: Dibromofluoromethane	9.8		10.00		97.9	70	130			
Surr: Toluene-d8	10		10.00		101	70	130			

Sample ID	100ng lcsb	SampType:	LCS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	LCSW	Batch ID:	R4835	RunNo:	4835					
Prep Date:		Analysis Date:	8/13/2012	SeqNo:	136678	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	18	1.0	20.00	0	92.2	70	130			
Toluene	20	1.0	20.00	0	102	80	120			
Surr: 1,2-Dichloroethane-d4	9.6		10.00		96.4	70	130			
Surr: 4-Bromofluorobenzene	12		10.00		125	70	130			
Surr: Dibromofluoromethane	10		10.00		101	70	130			
Surr: Toluene-d8	9.8		10.00		98.1	70	130			

Sample ID	1208330-001ams	SampType:	MS	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	Up Stream	Batch ID:	R4835	RunNo:	4835					
Prep Date:		Analysis Date:	8/13/2012	SeqNo:	136679	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	21	1.0	20.00	0	105	66.8	128			
Toluene	21	1.0	20.00	0	103	70	130			
Surr: 1,2-Dichloroethane-d4	9.7		10.00		97.3	70	130			
Surr: 4-Bromofluorobenzene	19		10.00		191	70	130			S
Surr: Dibromofluoromethane	9.7		10.00		97.3	70	130			
Surr: Toluene-d8	10		10.00		104	70	130			

Sample ID	1208330-001amsd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	Up Stream	Batch ID:	R4835	RunNo:	4835					
Prep Date:		Analysis Date:	8/13/2012	SeqNo:	136680	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	20	1.0	20.00	0	98.4	66.8	128	6.68	16.7	
Toluene	19	1.0	20.00	0	94.2	70	130	8.58	18.7	
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.2	70	130	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208330

08-Nov-12

Client: Western Refining Southwest, Inc.

Project: San Juan River

Sample ID	1208330-001amsd	SampType:	MSD	TestCode:	EPA Method 8260: Volatiles Short List					
Client ID:	Up Stream	Batch ID:	R4835	RunNo:	4835					
Prep Date:		Analysis Date:	8/13/2012	SeqNo:	136680	Units:	µg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	19		10.00		189	70	130	0	0	S
Surr: Dibromofluoromethane	9.9		10.00		99.0	70	130	0	0	
Surr: Toluene-d8	11		10.00		107	70	130	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208330

08-Nov-12

Client: Western Refining Southwest, Inc.**Project:** San Juan River

Sample ID	Ics	SampType: Ics		TestCode: SM2320B: Alkalinity						
Client ID:	LCSW	Batch ID: R4882		RunNo: 4882						
Prep Date:		Analysis Date: 8/15/2012		SeqNo: 138751		Units: mg/L CaCO3				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	81	20	80.00	0	101	88.1	104			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208330

08-Nov-12

Client: Western Refining Southwest, Inc.

Project: San Juan River

Sample ID	MB-3265		SampType: MBLK		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW		Batch ID: 3265		RunNo: 4796					
Prep Date:	8/9/2012		Analysis Date: 8/11/2012		SeqNo: 135298		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	LCS-3265		SampType: LCS		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW		Batch ID: 3265		RunNo: 4796					
Prep Date:	8/9/2012		Analysis Date: 8/11/2012		SeqNo: 135299		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1010	20.0	1000	12.00	100	80	120			

Sample ID	1208330-002DMS	SampType:	MS	TestCode:	SM2540C MOD: Total Dissolved Solids					
Client ID:	Down Stream	Batch ID:	3265	RunNo:	4796					
Prep Date:	8/9/2012	Analysis Date:	8/11/2012	SeqNo:	135303	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1200	20.0	1000	201.0	99.4	80	120			

Sample ID	1208330-002DMSD		SampType: MSD		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	Down Stream		Batch ID: 3265		RunNo: 4796					
Prep Date:	8/9/2012		Analysis Date: 8/11/2012		SeqNo: 135304		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1220	20.0	1000	201.0	102	80	120	1.99	20	

Sample ID	MB-3279		SampType: MBLK		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	PBW		Batch ID: 3279		RunNo: 4823					
Prep Date:	8/10/2012		Analysis Date: 8/13/2012		SeqNo: 136285		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	ND	20.0								

Sample ID	LCS-3279		SampType: LCS		TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	LCSW		Batch ID: 3279		RunNo: 4823					
Prep Date:	8/10/2012		Analysis Date: 8/13/2012		SeqNo: 136286		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1020	20.0	1000	0	102	80	120			

Sample ID	1208330-004BMS	SampType: MS			TestCode: SM2540C MOD: Total Dissolved Solids					
Client ID:	Outfall #3	Batch ID: 3279			RunNo: 4823					
Prep Date:	8/10/2012	Analysis Date: 8/13/2012			SeqNo: 136289		Units: mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1200	20.0	1000	183.0	102	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2

- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1208330

08-Nov-12

Client: Western Refining Southwest, Inc.**Project:** San Juan River

Sample ID		1208330-004BMSD			SampType: MSD		TestCode: SM2540C MOD: Total Dissolved Solids				
Client ID:		Outfall #3			Batch ID: 3279		RunNo: 4823				
Prep Date:		8/10/2012			Analysis Date: 8/13/2012		SeqNo: 136290		Units: mg/L		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids		1200	20.0	1000	183.0	102	80	120	0.166	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
P Sample pH greater than 2

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
R RPD outside accepted recovery limits

Sample Log-In Check List

Client Name: **Western Refining Southwest, Inc Bloomfield** Work Order Number: **1208330**

Received by/date: **AG 08/08/12**
Logged By: **Lindsay Mangin** 8/8/2012 9:55:00 AM

Completed By: **Lindsay Mangin** 8/8/2012 10:52:23 AM

Reviewed By: **LMS 8/8/12**

Chain of Custody

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

Log In

4. Coolers are present? (see 19. for cooler specific information) Yes ☒ No ☐ NA
5. Was an attempt made to cool the samples? Yes ☒ No ☐ NA
6. Were all samples received at a temperature of $>0^{\circ}\text{C}$ to 6.0°C ? Yes ☒ No ☐ NA
7. Sample(s) in proper container(s)? Yes ☒ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
10. Was preservative added to bottles? Yes ☒ No ☒ NA **08/08/12**
11. VOA vials have zero headspace? Yes ☒ No ☐ No VOA Vials
12. Were any sample containers received broken? Yes ☐ No ☒
13. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐ # of preserved bottles checked for pH: **22**
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐ Adjusted? **YES**
15. Is it clear what analyses were requested? Yes ☒ No ☐
16. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐ Checked by: **[Signature]**

Special Handling (if applicable)

17. 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: _____

18. Additional remarks:

-007C, -008C - ~~POUR~~ FILTERED AND PRESERVED IN LAB **08/08/12**
-003, -004 - ANALYZE FOR WACC DISSOLVED METALS PER BOB K. **[Signature]**

19. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.0	Good	Yes			

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:

☒ Standard ☒ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☐ EDD (Type)

Sampler: Bob + Dave

On Ice: ☒ Yes ☐ No

Sample Temperature 20

Date Time Matrix Sample Request ID

8-7-12 12:55 H₂O Seep 1

1-500ml

8-7-12 12:55 Seep 1 Dup

1-500ml

TRIP BLANK

1-2.50ml H₂SO₄

3-000 HCl

Relinquished by: Robert Graham

Date: 8/7/12 16:15

Relinquished by: Dave also

Date: 8/7/12 16:15

Turn-Around Time:

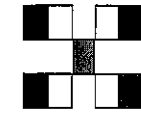
☒ Standard ☐ Rush

Project Name:

San Juan River Bluff

Project #:

Project Manager:



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 Method 8015B (Gas/Diesel)

TPH (Method 418.1)

EDB (Method 504.1)

8310 (PNA or PAH)

RCRA 8 Metals

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / 8082 PCBs

8260B (VOA) BTEX MTBE only

8270 (Semi-VOA)

Cation/Anion Balance

Alkalinity, CO₂

Air Bubbles (Y or N)

Remarks:

Received by: Dave also

Date: 8/7/12 15:50

Received by: Robert Graham

Date: 8/7/12 16:15

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package: ☒ Level 4 (Full Validation)

Accreditation: ☐ NELAP ☐ Other

☐ EDD (Type)

Date	Time	Matrix	Sample Request ID
8-7-12	1:25	H ₂ O	outfall # 2
8-7-12	1:45		outfall # 3

Date: 8-7-12 Time: 3:50 Relinquished by: Robert Graham

Date: 8/7/12 Time: 11:10 Relinquished by: Dave Diggs

Turn-Around Time: ☒ Standard ☐ Rush

Project Name: San Juan River Bluff

Project #:

Project Manager:

Sampler: Bob & Dave

On Ice: ☒ Yes ☐ No

Sample Temperature: 25.0

Preservative Type: HCl

Container Type and #

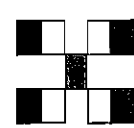
HEAL No. 1208330

Container Type and #	Preservative Type	HEAL No.
3-VOA	HCl	-003
1-500ml	HNO ₃	
1-250ml	HNO ₃	
1-250ml	H ₂ SO ₄	
1-500ml		
3-VOA	HCl	-004
1-500ml	HNO ₃	
1-250ml	HNO ₃	
1-250ml	H ₂ SO ₄	
1-500ml		

Received by: Dave Diggs Date: 8/7/12 Time: 1550

Received by: Chester Wale Date: 8/7/12 Time: 1210

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



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

(SEE LIST)

08/08/16

6099C

Analysis Request									
BTEX + MTBE + TMBs (8021)									
BTEX + MTBE + TPH (Gas only)									
TPH Method 8015B (Gas/Diesel)									
TPH (Method 418.1)									
EDB (Method 504.1)									
8310 (PNA or PAH)									
RCRA 8 Metals									
Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)									
8081 Pesticides / 8082 PCB's									
8260B (VOA) BTEX, MTBE only	X								
8270 (Semi-VOA)									
Alkalinity, CO ₂									
Dissolved Metals									
Air Bubbles (Y or N)									

Remarks:

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: 505-633-4135

email or Fax#: _____

QA/QC Package:

☒ Standard

☐ Other _____

☐ EDD (Type) _____

☒ Level 4 (Full Validation)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

SAN JUAN RIVER

Project #:

Project Manager:

Sampler: Bob + Dave

On Ice: ☒ Yes ☐ No

Sample Temperature: 20

Container Type and #

Preservative Type

HEAL No. 1208330

Sample Request ID

Date

Time

Matrix

upStream

9:00

3-7-12

H₂O

5-VOA

HCl

1-500ml

Amber

HNO₃

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

8-7-12 8:15

Down Stream

5-VOA

HCl

1-500ml

Amber

HNO₃

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

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HNO₃

HNO₃

H₂SO₄

HCl

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HNO₃

HNO₃

H₂SO₄

HCl

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HNO₃

H₂SO₄

HCl

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H₂SO₄

HCl

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H₂SO₄

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H₂SO₄

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H₂SO₄

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H₂SO₄

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HNO₃

H₂SO₄

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HNO₃

HNO₃

H₂SO₄

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HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml

Amber

HNO₃

HNO₃

H₂SO₄

HCl

1-500ml



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

May 07, 2012

Kelly Robinson

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX (505) 632-3911

RE: 4-19-12 San Juan River Bluff Seeps

OrderNo.: 1204833

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 4/20/2012 for the analyses presented in the following report.

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

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

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", with a stylized flourish at the end.

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

Workorder Sample Summary

WO#: 1204833

07-May-12

CLIENT: Western Refining Southwest, Inc.
Project: 4-19-12 San Juan River Bluff Seeps

Lab SampleID	Client Sample ID	Tag No	Date Collected	Date Received	Matrix
1204833-001	Seep #1		4/19/2012 8:40:00 AM	4/20/2012 10:00:00 AM	Aqueous
1204833-001	Seep #1		4/19/2012 8:40:00 AM	4/20/2012 10:00:00 AM	Aqueous
1204833-002	Seep #3		4/19/2012 8:50:00 AM	4/20/2012 10:00:00 AM	Aqueous
1204833-002	Seep #3		4/19/2012 8:50:00 AM	4/20/2012 10:00:00 AM	Aqueous
1204833-003	Seep #6		4/19/2012 8:20:00 AM	4/20/2012 10:00:00 AM	Aqueous
1204833-003	Seep #6		4/19/2012 8:20:00 AM	4/20/2012 10:00:00 AM	Aqueous
1204833-004	Seep #9		4/19/2012 9:00:00 AM	4/20/2012 10:00:00 AM	Aqueous
1204833-004	Seep #9		4/19/2012 9:00:00 AM	4/20/2012 10:00:00 AM	Aqueous

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204833

Date Reported: 5/7/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Seep #1

Project: 4-19-12 San Juan River Bluff Seeps

Collection Date: 4/19/2012 8:40:00 AM

Lab ID: 1204833-001

Matrix: AQUEOUS

Received Date: 4/20/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: BRM
Fluoride	0.17	0.10		mg/L	1	4/20/2012 5:33:56 PM
Chloride	190	10		mg/L	20	4/20/2012 5:46:21 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/20/2012 5:33:56 PM
Bromide	1.7	0.10		mg/L	1	4/20/2012 5:33:56 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	4/20/2012 5:33:56 PM
Phosphorus, Orthophosphate (As P)	ND	0.50		mg/L	1	4/20/2012 5:33:56 PM
Sulfate	1,700	25		mg/L	50	4/24/2012 5:36:17 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: BDH
Benzene	ND	1.0		µg/L	1	4/21/2012 5:23:20 PM
Toluene	ND	1.0		µg/L	1	4/21/2012 5:23:20 PM
Ethylbenzene	ND	1.0		µg/L	1	4/21/2012 5:23:20 PM
Methyl tert-butyl ether (MTBE)	27	1.0		µg/L	1	4/21/2012 5:23:20 PM
Xylenes, Total	ND	2.0		µg/L	1	4/21/2012 5:23:20 PM
Surr: 1,2-Dichloroethane-d4	83.9	70-130		%REC	1	4/21/2012 5:23:20 PM
Surr: 4-Bromofluorobenzene	81.5	70-130		%REC	1	4/21/2012 5:23:20 PM
Surr: Dibromofluoromethane	95.5	69.8-130		%REC	1	4/21/2012 5:23:20 PM
Surr: Toluene-d8	79.8	70-130		%REC	1	4/21/2012 5:23:20 PM
CARBON DIOXIDE						Analyst: JLF
Total Carbon Dioxide	360	1.0		mg CO2/L	1	4/23/2012 12:38:00 PM
SM2320B: ALKALINITY						Analyst: JLF
Bicarbonate (As CaCO3)	400	20		mg/L CaCO3	1	4/23/2012 12:38:09 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	4/23/2012 12:38:09 PM
Total Alkalinity (as CaCO3)	400	20		mg/L CaCO3	1	4/23/2012 12:38:09 PM

Qualifiers: */X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204833

Date Reported: 5/7/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Seep #3

Project: 4-19-12 San Juan River Bluff Seeps

Collection Date: 4/19/2012 8:50:00 AM

Lab ID: 1204833-002

Matrix: AQUEOUS

Received Date: 4/20/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: BRM
Fluoride	0.14	0.10		mg/L	1	4/20/2012 6:23:35 PM
Chloride	220	10		mg/L	20	4/20/2012 6:36:00 PM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	4/20/2012 6:23:35 PM
Bromide	1.9	0.10		mg/L	1	4/20/2012 6:23:35 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	4/20/2012 6:23:35 PM
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	4/20/2012 6:36:00 PM
Sulfate	2,100	50		mg/L	100	4/24/2012 6:13:32 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: BDH
Benzene	ND	1.0		µg/L	1	4/21/2012 5:50:49 PM
Toluene	ND	1.0		µg/L	1	4/21/2012 5:50:49 PM
Ethylbenzene	ND	1.0		µg/L	1	4/21/2012 5:50:49 PM
Methyl tert-butyl ether (MTBE)	3.7	1.0		µg/L	1	4/21/2012 5:50:49 PM
Xylenes, Total	ND	2.0		µg/L	1	4/21/2012 5:50:49 PM
Surr: 1,2-Dichloroethane-d4	81.7	70-130		%REC	1	4/21/2012 5:50:49 PM
Surr: 4-Bromofluorobenzene	83.6	70-130		%REC	1	4/21/2012 5:50:49 PM
Surr: Dibromofluoromethane	86.2	69.8-130		%REC	1	4/21/2012 5:50:49 PM
Surr: Toluene-d8	83.2	70-130		%REC	1	4/21/2012 5:50:49 PM
CARBON DIOXIDE						Analyst: JLF
Total Carbon Dioxide	290	1.0		mg CO2/L	1	4/23/2012 12:54:00 PM
SM2320B: ALKALINITY						Analyst: JLF
Bicarbonate (As CaCO3)	330	20		mg/L CaCO3	1	4/23/2012 12:54:35 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	4/23/2012 12:54:35 PM
Total Alkalinity (as CaCO3)	330	20		mg/L CaCO3	1	4/23/2012 12:54:35 PM

Qualifiers: * / X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204833

Date Reported: 5/7/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Seep #6

Project: 4-19-12 San Juan River Bluff Seeps

Collection Date: 4/19/2012 8:20:00 AM

Lab ID: 1204833-003

Matrix: AQUEOUS

Received Date: 4/20/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: BRM
Fluoride	ND	2.0		mg/L	20	4/20/2012 7:25:39 PM
Chloride	3,000	100		mg/L	200	4/24/2012 6:38:21 PM
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	4/20/2012 7:25:39 PM
Bromide	ND	2.0		mg/L	20	4/20/2012 7:25:39 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	4/20/2012 7:13:14 PM
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	4/20/2012 7:25:39 PM
Sulfate	2,100	25		mg/L	50	4/24/2012 6:25:56 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: BDH
Benzene	ND	1.0		µg/L	1	4/21/2012 6:46:05 PM
Toluene	ND	1.0		µg/L	1	4/21/2012 6:46:05 PM
Ethylbenzene	ND	1.0		µg/L	1	4/21/2012 6:46:05 PM
Methyl tert-butyl ether (MTBE)	2.6	1.0		µg/L	1	4/21/2012 6:46:05 PM
Xylenes, Total	ND	2.0		µg/L	1	4/21/2012 6:46:05 PM
Surr: 1,2-Dichloroethane-d4	86.4	70-130		%REC	1	4/21/2012 6:46:05 PM
Surr: 4-Bromofluorobenzene	80.5	70-130		%REC	1	4/21/2012 6:46:05 PM
Surr: Dibromofluoromethane	94.5	69.8-130		%REC	1	4/21/2012 6:46:05 PM
Surr: Toluene-d8	77.6	70-130		%REC	1	4/21/2012 6:46:05 PM
CARBON DIOXIDE						Analyst: JLF
Total Carbon Dioxide	320	1.0		mg CO2/L	1	4/23/2012 1:08:00 PM
SM2320B: ALKALINITY						Analyst: JLF
Bicarbonate (As CaCO3)	350	20		mg/L CaCO3	1	4/23/2012 1:08:41 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	4/23/2012 1:08:41 PM
Total Alkalinity (as CaCO3)	350	20		mg/L CaCO3	1	4/23/2012 1:08:41 PM

Qualifiers: * / X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 1204833

Date Reported: 5/7/2012

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Seep #9

Project: 4-19-12 San Juan River Bluff Seeps

Collection Date: 4/19/2012 9:00:00 AM

Lab ID: 1204833-004

Matrix: AQUEOUS

Received Date: 4/20/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: BRM
Fluoride	0.26	0.10		mg/L	1	4/20/2012 7:38:03 PM
Chloride	680	25		mg/L	50	4/24/2012 6:50:46 PM
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	4/20/2012 7:50:28 PM
Bromide	1.6	0.10		mg/L	1	4/20/2012 7:38:03 PM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	4/20/2012 7:38:03 PM
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	4/20/2012 7:50:28 PM
Sulfate	2,400	25		mg/L	50	4/24/2012 6:50:46 PM
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: BDH
Benzene	ND	1.0		µg/L	1	4/21/2012 7:13:33 PM
Toluene	ND	1.0		µg/L	1	4/21/2012 7:13:33 PM
Ethylbenzene	ND	1.0		µg/L	1	4/21/2012 7:13:33 PM
Methyl tert-butyl ether (MTBE)	71	1.0		µg/L	1	4/21/2012 7:13:33 PM
Xylenes, Total	ND	2.0		µg/L	1	4/21/2012 7:13:33 PM
Surr: 1,2-Dichloroethane-d4	83.1	70-130		%REC	1	4/21/2012 7:13:33 PM
Surr: 4-Bromofluorobenzene	80.3	70-130		%REC	1	4/21/2012 7:13:33 PM
Surr: Dibromofluoromethane	90.7	69.8-130		%REC	1	4/21/2012 7:13:33 PM
Surr: Toluene-d8	82.3	70-130		%REC	1	4/21/2012 7:13:33 PM
CARBON DIOXIDE						Analyst: JLF
Total Carbon Dioxide	320	1.0		mg CO2/L	1	4/23/2012 1:23:00 PM
SM2320B: ALKALINITY						Analyst: JLF
Bicarbonate (As CaCO3)	320	20		mg/L CaCO3	1	4/23/2012 1:23:45 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	4/23/2012 1:23:45 PM
Total Alkalinity (as CaCO3)	320	20		mg/L CaCO3	1	4/23/2012 1:23:45 PM

Qualifiers: * / X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits
S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204833

07-May-12

Client: Western Refining Southwest, Inc.
Project: 4-19-12 San Juan River Bluff Seeps

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R2295		RunNo: 2295							
Prep Date:	Analysis Date: 4/20/2012		SeqNo: 63593		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R2295		RunNo: 2295							
Prep Date:	Analysis Date: 4/20/2012		SeqNo: 63594		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.52	0.10	0.5000	0	103	90	110			
Chloride	4.8	0.50	5.000	0	96.2	90	110			
Nitrogen, Nitrite (As N)	0.96	0.10	1.000	0	95.5	90	110			
Bromide	2.4	0.10	2.500	0	96.8	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	99.6	90	110			
Phosphorus, Orthophosphate (As P)	4.9	0.50	5.000	0	98.1	90	110			

Sample ID MB	SampType: MBLK		TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R2350		RunNo: 2350							
Prep Date:	Analysis Date: 4/24/2012		SeqNo: 65368		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	0.50								
Sulfate	ND	0.50								

Sample ID LCS	SampType: LCS		TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R2350		RunNo: 2350							
Prep Date:	Analysis Date: 4/24/2012		SeqNo: 65369		Units: mg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.6	0.50	5.000	0	92.1	90	110			
Sulfate	9.5	0.50	10.00	0	94.7	90	110			

Qualifiers:

* / X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204833

07-May-12

Client: Western Refining Southwest, Inc.
Project: 4-19-12 San Juan River Bluff Seeps

Sample ID b13	SampType: MBLK		TestCode: EPA Method 8260: Volatiles Short List							
Client ID: PBW	Batch ID: R2296		RunNo: 2296							
Prep Date:	Analysis Date: 4/21/2012		SeqNo: 63657		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Methyl tert-butyl ether (MTBE)	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 1,2-Dichloroethane-d4	16		20.00		78.0	70	130			
Surr: 4-Bromofluorobenzene	16		20.00		81.0	70	130			
Surr: Dibromofluoromethane	17		20.00		86.5	69.8	130			
Surr: Toluene-d8	16		20.00		79.1	70	130			

Sample ID 100ng lcsb	SampType: LCS		TestCode: EPA Method 8260: Volatiles Short List							
Client ID: LCSW	Batch ID: R2296		RunNo: 2296							
Prep Date:	Analysis Date: 4/21/2012		SeqNo: 63658		Units: µg/L					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	25	1.0	20.00	0	126	84.1	126			
Toluene	23	1.0	20.00	0	117	80	120			
Surr: 1,2-Dichloroethane-d4	18		20.00		88.5	70	130			
Surr: 4-Bromofluorobenzene	16		20.00		80.5	70	130			
Surr: Dibromofluoromethane	20		20.00		98.7	69.8	130			
Surr: Toluene-d8	16		20.00		78.2	70	130			

Qualifiers:

* / X Value exceeds Maximum Contaminant Level.
E Value above quantitation range
J Analyte detected below quantitation limits
R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1204833

07-May-12

Client: Western Refining Southwest, Inc.**Project:** 4-19-12 San Juan River Bluff Seeps

Sample ID	mb-1	SampType:	MBLK	TestCode:	SM2320B: Alkalinity					
Client ID:	PBW	Batch ID:	R2316	RunNo:	2316					
Prep Date:		Analysis Date:	4/23/2012	SeqNo:	64277	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	ND	20								

Sample ID	lcs-1	SampType:	LCS	TestCode:	SM2320B: Alkalinity					
Client ID:	LCSW	Batch ID:	R2316	RunNo:	2316					
Prep Date:		Analysis Date:	4/23/2012	SeqNo:	64278	Units:	mg/L CaCO3			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	79	20	80.00	5.240	92.1	88.1	104			

Qualifiers:

*/X Value exceeds Maximum Contaminant Level.

E Value above quantitation range

J Analyte detected below quantitation limits

R RPD outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

RL Reporting Detection Limit



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87105
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining Southwest, Inc Bloomfield Work Order Number: 1204833

Received by/date: *lm* 04/20/12

Logged By: Ashley Gallegos 4/20/2012 10:00:00 AM *Ag*

Completed By: Ashley Gallegos 4/20/2012 12:22:09 PM *Ag*

Reviewed By: *mg* 04/20/12

Chain of Custody

1. Were seals intact? Yes No Not Present ☒
2. Is Chain of Custody complete? Yes ☒ No Not Present
3. How was the sample delivered? UPS

Log In

4. Coolers are present? (see 19. for cooler specific information) Yes ☒ No NA
5. Was an attempt made to cool the samples? Yes ☒ No NA
6. Were all samples received at a temperature of >0° C to 6.0°C Yes ☒ No NA
7. Sample(s) in proper container(s)? Yes ☒ No
8. Sufficient sample volume for indicated test(s)? Yes ☒ No
9. Are samples (except VOA and ONG) properly preserved? Yes ☒ No
10. Was preservative added to bottles? Yes No ☒ NA
11. VOA vials have zero headspace? Yes No No VOA Vials ☒
12. Were any sample containers received broken? Yes No ☒
13. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No # of preserved bottles checked for pH: 4
14. Are matrices correctly identified on Chain of Custody? Yes ☒ No
15. Is it clear what analyses were requested? Yes ☒ No Adjusted? ☒ (<2 or >12 unless noted)
16. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No Checked by: *Ag*

Special Handling (if applicable)

17. 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: _____

18. Additional remarks:

19. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.5	Good	Yes			

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990
Bloomfield, NM 87413
 Phone #: 505-632-4135

Email or Fax#:

QA/QC Package:
☐ Standard ☒ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush

Project Name: 4-19-12
SAN JUAN River Bluff Seeps

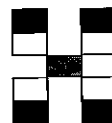
Project #:

Project Manager:

Sampler: Bob + Terry

On Ice: ☒ Yes ☐ No

Sample Temperature: 3.5



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)	8081 Pesticides / 8082 PCB's	8260B (VOA) BTEX, MTBE only	8270 (Semi-VOA)	Alkalinity, CO ₂	Air Bubbles (Y or N)
4-19-12	8:40	H ₂ O	Seep # 1	3-VOA	HCl	-001										X			
				1-250ml	H ₂ SO ₄	-001								X					
				1-500ml		-001												X	
4-19-12	8:50		Seep # 3	3-VOA	HCl	-002										X			
				1-250ml	H ₂ SO ₄	-002								X					
				1-500ml		-002												X	
4-19-12	8:20		Seep # 6	3-VOA	HCl	-003										X			
				1-250ml	H ₂ SO ₄	-003								X					
				1-500ml		-003												X	
4-19-12	9:00		Seep # 9	3-VOA	HCl	-004										X			
				1-250ml	H ₂ SO ₄	-004								X					
				1-500ml		-004												X	

Date: 4-19-12 Time: 3:00 Relinquished by: Robert Krabon

Date: 4-20-12 Time: 10:00 Received by: [Signature]

Remarks:

[illegible]

AT-0114813

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

Western Refining ☒ Standard ☐ Rush

Rush

Cross Gradient 8-14-12

Project #:

Project Manager:

☐ Standard ☒ Level 4 (Full Validation)

☒ Level 4 (Full Validation)

Sampler: Bob

15

☐ EDD (Type) _____

Sample Request ID

MW-13

1-505-1 amber

1-540m) HAD =

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Received by:

Date _____ Time _____

✓ha. #

1530

Received by:

Date Time

1

3

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

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:

☐ Standard ☒ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☐ EDD (Type)

Sampler: Bob & Dale



Container Type and #

Preservative Type

Sample Request ID

Date

Time

Matrix

Time

Matrix

Time

Matrix

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Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

Down Gradient 8-14-12

Project #:

Project Manager:

Analysis Request

BTEX + MTBE + TMB's (8021)

BTEX + MTBE + TPH (Gas only)

TPH Method 8015B (Gas/)

TPH (Method 418.1)

EDB (Method 504.1)

8310 (PNA or PAH)

RCRA 8 Metals TOTAL

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / 8082 PCB's

8260B (VOA)

8270 (Semi-VOA)

DRO - 8015B

WQC Dissolved Metals

Cation/Anion Balance

Alkalinity/CO₂

Remarks:

Received by:

Date

Time

Relinquished by:

Date

Time

Relinquished by:

Date

Time

Chain-of-Custody Record

Client: Western Refining ☒ Standard ☐ Rush

Project Name: Down Gradient 8-14-12

Project #: 8-14-12

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#: 505-632-4135

QA/QC Package: ☒ Level 4 (Full Validation)

Accreditation: ☐ NELAP ☐ Other

☐ EDD (Type)

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	TPH Method 8015B (Gas/TPH)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)	8081 Pesticides / 8082 PCB's	8260B (VOA) <u>8270 (Semi-VOA) 8/15/12</u>	8270 (Semi-VOA) 8/15/12	WQC Dissolved Metals	Carbon/Anion Balance	Alkalinity/CO ₂	Air Bubbles (Y or N)
8/14/12	1400	H ₂ O	MW-12	5-10A	HCl	-003												
				1-liter	amber													
				1-500ml	amber													
				1-500ml	HNO ₃													
				1-250ml	HNO ₃													
				1-500ml														
				1-250ml	H ₂ SO ₄													

Turn-Around Time: Standard ☐ Rush

Project Manager: Bob & Dave

Received by: Robert Kraker Date: 8/14/12 Time: 1500

Relinquished by: Christine Walter Date: 8/14/12 Time: 1747

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



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990
Bloomfield, NM87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☐ EDD (Type)

Date: Time

Matrix

Sample Request ID

Container Type and #

Preservative Type

Sampler: Bob & Dale

Project Manager:

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

Project #:

Analysis Request

BTEX + MTBE + TMB's (8021)

BTEX + MTBE + TPH (Gas only)

TPH Method 8015B (Gas)

TPH (Method 418.1)

EDB (Method 504.1)

B310 (PNA or PAH)

RCA 8 Metals (Total)

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / 8082 PCB's

8260B (VOA)

8270 (Semi-VOA)

WCC Dissolved Metals

Cation/Anion Balance

Air Pollution

Remarks:

Received by: Date Time

Relinquished by: Date Time

Received by: Date Time

Relinquished by: Date Time

Received by: Date Time

Relinquished by: Date Time

Received by: Date Time

Relinquished by: Date Time

Received by: Date Time

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Relinquished by: Date Time

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. Any sub-contract data will be clearly notated on the analysis.

Chain-of-Custody Record

Client: Western Refining

Project Name:

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:

☒ Standard ☒ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☐ EDD (Type)

Sampler: Bob & Dale

Container Type and #

Date Time Matrix Sample Request ID

8-14-12 1330 H₂O MW-35

1-500ml Amber

1-500ml HNO₃

1-250ml HNO₃

1-500ml

1-250ml H₂SO₄

5-VOA HCl

1-500ml Amber

1-500ml HNO₃

1-250ml HNO₃

1-500ml

1-250ml H₂SO₄

5-VOA HCl

1-500ml Amber

1-500ml HNO₃

1-250ml HNO₃

1-500ml

1-250ml H₂SO₄

5-VOA HCl

1-500ml Amber

1-500ml HNO₃

1-250ml HNO₃

1-500ml

1-250ml H₂SO₄

5-VOA HCl

1-500ml Amber

1-500ml HNO₃

1-250ml HNO₃

1-500ml

1-250ml H₂SO₄

5-VOA HCl

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1-250ml H₂SO₄

5-VOA HCl

1-500ml Amber

1-500ml HNO₃

1-250ml HNO₃

1-500ml

1-250ml H₂SO₄

5-VOA HCl

1-500ml Amber

1-500ml HNO₃

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1-250ml H₂SO₄

5-VOA HCl

1-500ml Amber

1-500ml HNO₃

1-250ml HNO₃

1-500ml

1-250ml H₂SO₄

5-VOA HCl

1-500ml Amber

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5-VOA HCl

1-500ml Amber

1-500ml HNO₃

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1-250ml H₂SO₄

5-VOA HCl

1-500ml Amber

1-500ml HNO₃

1-250ml HNO₃

1-500ml

1-250ml H₂SO₄

5-VOA HCl

1-500ml Amber

1-500ml HNO₃

1-250ml HNO₃

1-500ml

1-250ml H₂SO₄

5-VOA HCl

1-500ml Amber

1-500ml HNO₃

1-250ml HNO₃

1-500ml

1-250ml H₂SO₄

5-VOA HCl

1-500ml Amber

1-500ml HNO₃

1-250ml HNO₃

1-500ml

1-250ml H₂SO₄

5-VOA HCl

1-500ml Amber

1-500ml HNO₃

1-250ml HNO₃

1-500ml

1-250ml H₂SO₄

5-VOA HCl

1-500ml Amber

1-500ml HNO₃

1-250ml HNO₃

1-500ml

1-250ml H₂SO₄

5-VOA HCl

1-500ml Amber

1-500ml HNO₃

[illegible]

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories.



www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

[illegible]

Remarks:

Date:	Time:	Relinquished by:	Received by:	Date	Time
1/14/12	1500	Robert Krawiec	Christine Webster	8/14/12	1500
1/14/12	1747	Christine Webster	Christine Webster	8/15/12	1000

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

Observation Wells 8-8-12

Project #:

Project Manager:

Sampler: Bob & Dave

Container Type and #

Preservative Type

Sample Request ID

Date

Time

Matrix

8-8-12

8:30

H₂O

OW-16+60

5-10A

HCl

-001

8-8-12

9:50

OW-23+10

5-10A

HCl

-002

8-8-12

10:10

OW-23+90

5-10A

HCl

-003

8-8-12

10:30

OW-25+70

5-10A

HCl

-004

TRIP BLANK

1-500ml

-005

Date:

Time:

Relinquished by:

Received by:

Date

Time

Remarks:

8-8-12

12:40

Robert Krabben

8/8/12

12:46

8/8/12

Date:

Time:

Relinquished by:

Received by:

Date

Time

Remarks:

8/8/12

17:37

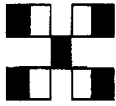
Industrie Waters

8/8/12

17:00

Remarks:

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



**HALL ENVIRONMENTAL
ANALYSIS LABORATORY**

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Ret)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)	8081 Pesticides / 8082 PCB's	8260B (NOA) BTEX, MTBE only	8270 (Semi-VOA)	TK20-8015B	Air Bubbles (Y or N)
		X							X		X	
		X							X		X	
		X							X		X	
		X							X		X	
		X							X		X	

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:
☒ Standard
☐ Level 4 (Full Validation)
☐ NELAP
☐ Other
☐ EDD (Type)

Project Manager:

Sampler: Bob & Dave

Date

Time

Matrix

Sample Request ID

Container Type and #

Preservative Type

8-8-12 7:45 H₂O CW 0+60 5-VOA HCl -001

10:45 CW 25+95 5-VOA HCl -002

10:30 CW 25+70 Dup 5-VOA HCl -003

1-500ml amber

1-500ml amber

1-500ml amber

Date: 8/8/12 1246

Relinquished by: Robert Khachan

Date: 8/8/12 1737

Relinquished by: Christine L. Decker

If need

samples submitted to Hall Environmental may be subcontracted to other accredited laboratories.

erves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytic



**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 Method 8015B (Gas/)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)	8081 Pesticides / 8082 PCB's	8260B (VOA) BTEX, MTBE, etc.	8270 (Semi-VOA)	DRO-8058
X		X							X		X
		X							X		X
		X							X		X

Remarks:

Turn-Around Time:

☒ Standard ☐ Rush _____
Project Name: RCRA Wells 8-15-12
Project #:

Project Manager:	
Sampler:	Bob & Felle
Sample Temperature:	

Container Type and #	Preservative Type	
5-VOA	HCl	-004
1-liter	amber	
1-500 ml	amber	
1-500 ml	HNO ₃	
1-250 ml	HNO ₃	
1-500 ml	—	
1-250 ml	H ₂ SO ₄	

Received by:	Date	Time
Christine Wether	8/15/12	1415
Received by:	Date	Time
Christine Wether	8/15/12	15:00

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



4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

[illegible]

Remarks:

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

1 um-Around 1 me:

☒ Standard ☐ Rush

Bloomfield, NM 87413

email or Fax#:

☒ Level 4 (Full Validation)

☐ EDD (Type)Preservative
Type

5-VOA	Hc/

- liter - Amb

15

2011	11

1-200 m	AVU3

1-250m HN03

1-500m

1-1501

Date	Time

Christine Weber 8/16/1934

Date	Time

08/16/2001

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



4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

[illegible]

Remarks:

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

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:

☒ Standard ☒ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

RCRA wells 8-16-12

Project #:

Project Manager:

Sampler: Bob + Steve

Date Time Matrix Sample Request ID

8-16-12 0730 H₂O MW-68

1-liter amber

1-500ml amber

1-500ml HNO₃

1-250ml HNO₃

1-500ml

1-250ml H₂SO₄

Container Type and #

5-Vol HCl

1-liter amber

1-500ml amber

1-500ml HNO₃

1-250ml HNO₃

1-500ml

1-250ml H₂SO₄

Preservative Type

-007

Analysis Request

BTEX + MTBE + TMB's (8021)

BTEX + MTBE + TPH (Gas only)

TPH Method 8015B (Gas)

TPH (Method 418.1)

EDB (Method 504.1)

8310 (PNA or PAH)

RCRA 8 Metals

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / 8082 PCB's

8260B (VOA)

8270 (Semi-VOA)

DPO - 8015B

Dissolved Metals

Cation/Anion Balance

Air Bubbles (if N)

Remarks:

Received by: Date Time

Christian Watson 8/16/12 1434

Received by: Date Time

Michelle Goss 8/16/12 1000

Date: Time: Relinquished by:

8/16/12 1434 Robert Krabon

Date: Time: Relinquished by:

8/16/12 1742 Christian Watson

Chain-of-Custody Record

Client: Western Refining

Turn-Around Time: ☒ Standard ☐ Rush

Project Name: Refinery Wells 8-9-12

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#: _____

QA/QC Package: ☒ Level 4 (Full Validation)

Accreditation: ☐ Standard ☐ NELAP ☐ Other

EDD (Type): _____

Project Manager: _____

Sampler: Bob & Dave

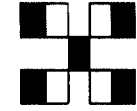
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type
8-9-12	9:20	H ₂ O	MW-30	5-10A	HCl
				1-500ml amber	-003
				1-500ml HNO ₃	-003
				1-250ml HNO ₃	-003
				1-500ml	-004
				1-250ml H ₂ SO ₄	-003
	1:30		MW-31	5-10A	HCl
				1-500ml amber	-004
				1-500ml HNO ₃	-004
				1-250ml HNO ₃	-004
				1-500ml	-004
				1-250ml H ₂ SO ₄	-004

Date: 8-9-12 Time: 1434 Relinquished by: Robert Krohn

Date: 8-9-12 Time: 1710 Relinquished by: Christina Wooten

Date: 8-10-12 Time: 1005 Received by: Christina Wooten

Remarks: _____



HALL ENVIRONMENTAL ANALYSIS LABORATORY

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4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

BTX + MTBE + TMB's (8021)		BTX + MTBE + TPH (Gas only)		TPH Method 8015B (Gas/)		TPH (Method 418.1)		EDB (Method 504.1)		8310 (PNA or PAH)		RCRA 8 Metals (Total)		Anions (F, Cl, NO ₃ , NO ₂ , PO ₄ , SO ₄)		8081 Pesticides / 8082 PCB's		8260B (VOA)	X	8270 (Semi-VOA)		DRD-8015B		Dissolved Metals		Cation/Anion Balance		alkalinity, CO ₂		Air Bubbles (Y or N)	

Chain-of-Custody Record

Client: Western Refining

☒ Standard ☐ Rush

Project Name:

Mailing Address: #50 CR 4990

Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:

☒ Standard ☒ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☐ EDD (Type)

Project Manager:

Sampler: Bob + Dave

☐ NELAP ☐ Other _____		Sample Information			
☐ EDD (Type) _____		Sample Information			
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type
8/9/12	1:00	H ₂ O	NW-4	5-VOA	HCl
				4-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
	0:45		NW-8	5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄
				5-VOA	HCl
				1-500ml	amber
				1-500ml	HNO ₃
				1-250ml	HNO ₃
				1-500ml	—
				1-250ml	H ₂ SO ₄

Chain-of-Custody Record

Client: Western Refining

Mailing Address: #50 CR 4990
Bloomfield, NM 87413

Phone #: 505-632-4135

email or Fax#:

QA/QC Package:

☐ Standard ☒ Level 4 (Full Validation)

Accreditation

☐ NELAP ☐ Other

☐ EDD (Type)

Sampler: Bob + Dave

Container Type and #

Date Time Matrix Sample Request ID

8-9-12 11:15 H₂O RW-9

1-500ml amber

1-500ml HNO₃

1-250ml HNO₃

1-500ml

1-250ml H₂SO₄

5-100 HCl

1-500ml amber

1-500ml H₂O₃

1-250ml HNO₃

1-500ml

1-250ml H₂SO₄

Relinquished by: Robert Krakow

Relinquished by: Christine Weller

Date: 8-9-12 1710

Date: 8/9/12 1434

Date: 8/9/12 1710

Date: 8/9/12 1434

Date: 8/9/12 1710

Date: 8/9/12 1434

Date: 8/9/12 1710

Date: 8/9/12 1434

Date: 8/9/12 1710

Date: 8/9/12 1434

Date: 8/9/12 1710

Turn-Around Time:

☒ Standard ☐ Rush

Project Name:

Refinery Wells 8-9-12

Project #:

Project Manager:

Analysis Request

BTEX + MTBE + TMB's (8021)

BTEX + MTBE + TPH (Gas only)

TPH Method 8015B (Gas)

TPH (Method 418.1)

EDB (Method 504.1)

8310 (PNA or PAH)

RCRA 8 Metals (Total)

Anions (F, Cl, NO₃, NO₂, PO₄, SO₄)

8081 Pesticides / 8082 PCB's

8260B (VOA)

8270 (Semi-VOA)

DRO-805B

Dissolved Metals

Cation/Anion Balance

Alkalinity, CO₂

Air Bubbles (Y or N)

Remarks:

TPH BLANK - 3 HOURS

☒ Standard ☐ Rush

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

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

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Appendix C

Continued



Hall Environmental Analysis Laboratory

QUALITY ASSURANCE PLAN

Effective Date: July 1st, 2011

Revision 9.4

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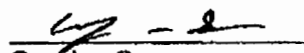
Control Number: 00000104

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Quality Assurance/Quality Control Officer

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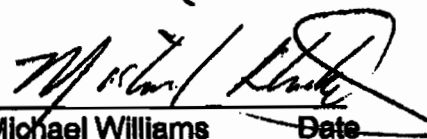
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Michael Williams Date
Microbiology Technical Director

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Appendix A Personnel List **Reserved, available upon request**

Appendix B ORELAP Accreditation **Reserved, available upon request**
 Full list of approved analytes, methods, analytical techniques and fields of testing

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Full list of approved analytes, methods, analytical techniques and fields of testing	
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3.0 Introduction

Purpose of Document

The purpose of this Quality Assurance Plan is to formally document the quality assurance policies and procedures of Hall Environmental Analysis Laboratory, Inc. (HEAL), for the benefit of its employees, clients, and accrediting organizations. HEAL continually implements all aspects of this plan as an essential and integral part of laboratory operations in order to ensure that high quality data is produced in an efficient and effective manner.

Objectives

The objective of HEAL is to achieve and maintain excellence in environmental testing. This is accomplished by developing, incorporating and documenting the procedures and policies specified by each of our accrediting authorities and outlined in this plan. These activities are carried out by a laboratory staff that is analytically competent, well-qualified, and highly trained. An experienced management team, knowledgeable in their area of expertise, monitors them. Finally, a comprehensive quality assurance program governs laboratory practices and ensures that the analytical results are valid, defensible, reproducible, reconstructable and of the highest quality.

HEAL establishes and thoroughly documents its activities to ensure that all data generated and processed will be scientifically valid and of known and documented quality. Routine laboratory activities are detailed in method specific standard operating procedures (SOP). All data reported meets the applicable requirements for the specific method that is referenced, ORELAP, TCEQ, EPA, client specific requirements and/or State Bureaus. In the event that these requirements are ever in contention with each other, it is HEAL's policy to always follow the most prudent requirement available. For specific method requirements refer to HEAL's Standard Operating Procedures (SOP's), EPA methods, Standard Methods 20th edition, ASTM methods or state specific methods.

HEAL management ensures that this document is correct in terms of required accuracy and data reproducibility, and that the procedures contain proper quality control measures. HEAL management additionally ensures that all equipment is reliable, well-maintained and appropriately calibrated. The procedures and practices of the laboratory are geared towards not only strictly following our regulatory requirements but also allowing the flexibility to conform to client specific specifications. Meticulous records are maintained for all samples and their respective analyses so that results are well-documented and defensible in a court of law.

The HEAL Quality Assurance/Quality Control Officer (QA/QCO) and upper management are responsible for supervising and administering this quality assurance program, and ensuring each individual is responsible for its proper implementation. All HEAL management remains committed to the encouragement of excellence in analytical testing and will continue to provide the necessary resources and environment conducive to its achievement.

Policies

Understanding that quality cannot be mandated, it is the policy of this laboratory to provide an environment that encourages all staff members to take pride in the quality of their work. In addition to furnishing proper equipment and supplies, HEAL stresses the importance of continued training and professional development. Further, HEAL recognizes the time required for data interpretation. Therefore, no analyst should feel pressure to sacrifice data quality for data quantity. Each staff member must perform with the highest level of integrity and professional competence, always being alert to problems that could compromise the quality of their technical work.

Management and senior personnel supervise analysts closely in all operations. Under no circumstance is the willful act or fraudulent manipulation of analytical data condoned. Such acts must be reported immediately to HEAL management. Reported acts will be assessed on an individual basis and resulting actions could result in dismissal. The laboratory staff is encouraged to speak with lab managers or senior management if they feel that there are any undue commercial, financial, or other pressures, which might adversely affect the quality of their work; or in the event that they suspect that data quality has been compromised in any way. HEAL's Quality Assurance/Quality Control Officer is available if any analyst and/or manager wishes to anonymously report any suspected or known breaches in data integrity.

Understanding the importance of meeting customer requirements in addition to the requirements set forth in statutory and regulatory requirements, HEAL shall periodically seek feedback from customers and evaluate the feedback in order to initiate improvements.

All proprietary rights and client information at HEAL (including national security concerns) are considered confidential. No information will be given out without the express verbal or written permission of the client. All reports generated will be held in the strictest of confidence.

HEAL shall continually improve the effectiveness of its management system through the use of the policies and procedures outlined in this Quality Assurance Plan. Quality control results, internal and external audit findings, management reviews, new and continual training and corrective and preventive actions are continually evaluated to identify possible improvements and to ensure that appropriate communication processes are taking place regarding the effectiveness of the management system. HEAL shall ensure that the integrity of the quality system is maintained when changes to the system are planned and implemented.

This is a controlled document. Each copy is assigned a unique tracking number and when released to a client or accrediting agency the QA/QCO keeps the tracking number on file. This document is reviewed on an annual basis to ensure that it is valid and representative of current practices at HEAL.

4.0 Organization and Responsibility

Company

HEAL is accredited in accordance with the 2009 TNI standard (see NELAC accredited analysis list in Appendix B and C), through ORELAP and TCEQ and by the Arizona Department of Health Services. Additionally, HEAL is qualified as defined under the State of New Mexico Water Quality Control Commission regulations and the New Mexico State Drinking Water Bureau. HEAL is a locally owned small business that was established in 1991. HEAL is a full service environmental analysis laboratory with analytical capabilities that include both organic and inorganic methodologies and has performed analyses of soil, water, and air as well as various other matrices for many sites in the region. HEAL's client base includes local, state and federal agencies, private consultants, commercial industries as well as individual homeowners. HEAL has performed as a subcontractor to the state of New Mexico and to the New Mexico Department of Transportation. HEAL has been acclaimed by its customers as producing quality results and as being adaptive to client-specific needs.

The laboratory is divided into an organic section and an inorganic section. Each section has a designated manager/technical director. The technical directors report directly to the laboratory manager, who oversees all operations.

Certifications

ORELAP – NELAC Oregon Primary accrediting authority.

TCEQ – NELAC Texas Secondary accrediting authority.

The Arizona Department of Health Services

The New Mexico Drinking Water Bureau

The New Mexico Department of Health

See Appendix B-F for copies of current licenses and licensed parameters, or refer to our current list of certifications online at www.hallenvironmental.com.

In the event of a certification being revoked or suspended, HEAL will notify, in writing, those clients that require the affected certification.

Personnel

HEAL management ensures the competence of all who operate equipment, perform environmental tests, evaluate results, and sign test reports. Personnel performing specific tasks shall be qualified on the basis of appropriate education, training, experience and /or demonstrated skills.

HEAL ensures that all personnel are aware of the relevance and importance of their activities and how each employee contributes to the achievement of the objectives defined throughout this document.

All personnel shall be responsible for complying with HEAL's quality assurance/quality control requirements that pertain to their technical function. Each technical staff member must have a combination of experience and education to adequately demonstrate specific knowledge of their particular function and a general knowledge of laboratory operations, test methods, quality assurance/quality control procedures, and records management.

All employees' training certificates and diplomas are kept on file with demonstrations of capability for each method they perform. An Organizational Chart can be found at the end of this section and a personnel list is available in Appendix A.

Laboratory Director

The Laboratory Director is responsible for overall technical direction and business leadership of HEAL. The Laboratory Manager, the Project Manager and Quality Assurance/Quality Control Officer report directly to the Laboratory Director. Someone with a minimum of 7 years of directly related experience and a bachelor's degree in a scientific or engineering discipline should fill this position.

Laboratory Manager/Lead Technical Director

The Laboratory Manager shall exercise day-to-day supervision of laboratory operations for the appropriate fields of accreditation and reporting of results. The Laboratory Manager shall be experienced in the fields of accreditation for which the laboratory is approved or seeking accreditation. The Laboratory Manager shall certify that personnel with appropriate educational and/or technical background perform all tests for which HEAL is accredited. Such certification shall be documented.

The Laboratory Manager shall monitor standards of performance in quality control and quality assurance and monitor the validity of the analyses performed and data generated at HEAL to assure reliable data.

The Laboratory Manager is responsible for the daily operations of the laboratory. The Laboratory Manager is the lead technical director of the laboratory and, in conjunction with the section technical directors, is responsible for coordinating activities within the

laboratory with the overall goal of efficiently producing high quality data within a reasonable time frame.

In events where employee scheduling or current workload is such that new work cannot be incorporated, without missing hold times, the Laboratory Manager has authority to modify employee scheduling, re-schedule projects or, when appropriate, allocate the work to approved subcontracting laboratories.

Additionally, the laboratory manager reviews and approves new analytical procedures and methods, and performs a final review of most analytical results. The Laboratory Manager provides technical support to both customers and HEAL staff.

The Laboratory Manager also observes the performance of supervisors to ensure that good laboratory practices and proper techniques are being taught and utilized, and to assist in overall quality control implementation and strategic planning for the future of the company. Other duties include assisting in establishing laboratory policies that lead to the fulfillment of requirements for various certification programs, assuring that all Quality Assurance and Quality Control documents are reviewed and approved, and assisting in conducting Quality Assurance Audits.

The laboratory manager addresses questions or complaints that cannot be answered by the section managers.

The Laboratory Manager shall have a bachelor's degree in a chemical, environmental, biological sciences, physical sciences or engineering field, and at least five years of experience in the environmental analysis of representative inorganic and organic analytes for which the laboratory seeks or maintains accreditation.

Quality Assurance Quality Control Officer

The Quality Assurance/Quality Control Officer (QA/QCO) serves as the focal point for QA/QC and shall be responsible for the oversight and/or review of quality control data. The QA/QCO functions independently from laboratory operations and shall be empowered to halt unsatisfactory work and/or prevent the reporting of results generated from an out-of-control measurement system. The QA/QCO shall objectively evaluate data and perform assessments without any outside/managerial influence. The QA/QCO shall have direct access to the highest level of management at which decisions are made on laboratory policy and/or resources. The QA/QCO shall notify laboratory management of deficiencies in the quality system in periodic, independent reports.

The QA/QCO shall have general knowledge of the analytical test methods for which data review is performed and have documented training and/or experience in QA/QC procedures and in the laboratory's quality system. The QA/QCO will have a minimum of a BS in a scientific or related field and a minimum of three years of related experience.

The QA/QCO shall schedule and conduct internal audits as per the Internal Audit SOP at least annually, monitor and trend Corrective Action Reports as per the Data Validation

SOP, periodically review control charts for out of control conditions, and initiate any appropriate corrective actions.

The QA/QCO shall oversee the analysis of proficiency testing in accordance with our standards and monitor any corrective actions issued as a result of this testing.

The QA/QCO reviews all standard operating procedures and statements of work in order to assure their accuracy and compliance to method and regulatory requirements.

The QA/QCO shall be responsible for maintaining and updating this quality manual.

Project Manager

The role of the project manager is to act as a liaison between HEAL and our clients. The Project Manager updates clients on the status of projects in-house, prepares quotations for new work, and is responsible for HEAL's marketing effort.

All new work is assessed by the Project Manager and reviewed with the other managers so as to not exceed the laboratory's capacity. In events where employee scheduling or current workload is such that new work cannot be incorporated without missing hold times, the Project Manager has authority to re-schedule projects.

It is also the duty of the project manager to work with the Laboratory Manager and QA/QCO to insure that before new work is undertaken, the resources required and accreditations requested are available to meet the client's specific needs.

Additionally, the Project Manager can initiate the review of the need for new analytical procedures and methods, and perform a final review of some analytical results. The Project Manager provides technical support to customers. Someone with a minimum of 2 years of directly related experience and a bachelor's degree in a scientific or engineering discipline should fill this position.

Technical Directors

Technical Directors are full-time members of the staff at HEAL who exercise day-to-day supervision of laboratory operations for the appropriate fields of accreditation and reporting of results for their department within HEAL. A Technical Director's duties shall include, but not be limited to, monitoring standards of performance in quality control and quality assurance, monitoring the validity of the analyses performed and the data generated in their sections to ensure reliable data, overseeing training and supervising departmental staff, scheduling incoming work for their sections, and monitoring laboratory personnel to ensure that proper procedures and techniques are being utilized. They supervise and implement new Quality Control procedures as directed by the QA/QCO, update and maintain quality control records including, but not limited to, training forms, IDOCs, ADOCPs, and MDLs, and evaluate laboratory personnel in their Quality Control activities.

In addition, technical directors are responsible for upholding the spirit and intent of HEAL's data integrity procedures.

As Technical Directors of their associated section, they review analytical data to acknowledge that data meets all criteria set forth for good Quality Assurance practices. Someone with a minimum of 2 years of experience in the environmental analysis of representative analytes for which HEAL seeks or maintains accreditation and a bachelor's degree in a scientific or related discipline should fill this position.

Section Supervisors

Section Supervisors are full time members of staff at HEAL who exercise day-to-day supervision of laboratory operations for the appropriate fields of accreditation and reporting of results for their department within HEAL. Section Supervisors report directly to their technical director. A Section Supervisor's duties shall include, but not be limited to, monitoring standards of performance in quality control and quality assurance, monitoring the validity of the analyses performed and the data generated in their sections to ensure reliable data, overseeing training and supervising departmental staff, scheduling incoming work for their sections, and monitoring laboratory personnel to ensure that proper procedures and techniques are being utilized. They supervise and implement new Quality Control procedures as directed by the QA/QCO, update and maintain quality control records including, but not limited to, training forms, IDOCs, ADOCPs, and MDLs, and evaluate laboratory personnel in their Quality Control activities. In addition, Section Supervisors are responsible for upholding the spirit and intent of HEAL's data integrity procedures. Section Supervisors update their Technical Director on the status and needs of their departments and submit all Quality Control documents to their technical director for their review, approval and signature.

As section supervisors, they review analytical data to acknowledge that data meets all criteria set forth for good Quality Assurance practices. Someone with a minimum of 2 years of experience in the environmental analysis of representative analytes for which HEAL seeks or maintains accreditation and a bachelor's degree, or equivalent experience in a scientific or related discipline should fill this position.

Health and Safety / Chemical Hygiene Officer

Refer to the most recent version of the Health and Safety and Chemical Hygiene Plans for the roles, responsibilities, and basic requirements of the Health and Safety Officer (H&SO) and the Chemical Hygiene Officer (CHO). These jobs can be executed by the same employee.

Analyst I, II and III

Analysts are responsible for the analysis of various sample matrices including, but not limited to, solid, aqueous, and air, as well as the generation of high quality data in

accordance with the HEAL SOPs and QA/QC guidelines in a reasonable time as prescribed by standard turnaround schedules or as directed by the Section Manager or Laboratory Manager.

Analysts are responsible for making sure all data generated is entered in the database in the correct manner and the raw data is reviewed, signed and delivered to the appropriate peer for review. An analyst reports daily to the section manager and will inform them as to material needs of the section specifically pertaining to the analyses performed by the analyst. Additional duties may include preparation of samples for analysis, maintenance of lab instruments or equipment, and cleaning and providing technical assistance to lower level laboratory staff.

The senior analyst in the section may be asked to perform supervisory duties as related to operational aspects of the section. The analyst may perform all duties of a lab technician.

The position of Analyst is a full or part time hourly position and is divided into three levels, Analyst I, II, and III. All employees hired into an Analyst position at HEAL must begin as an Analyst I and remain there at a minimum of three months regardless of their education and experience. Analyst I must have a minimum of an AA in a related field or equivalent experience (equivalent experience means years of related experience can be substituted for the education requirement). An Analyst I is responsible for analysis, instrument operation, including calibration and data reduction. Analyst II must have a minimum of an AA in a related field or equivalent experience and must have documented and demonstrated aptitude to perform all functions of an Analyst II. An Analyst II is responsible for the full analysis of their test methods, routine instrument maintenance, purchase of consumables as dictated by their Technical Director, advanced data reduction, and basic data review. Analyst II may also assist Analyst III in method development and, as dictated by their Technical Director, may be responsible for the review and/or revision of their method specific SOPs. Analyst III must have Bachelors degree or equivalent experience and must have documented and demonstrated aptitude to perform all functions of an Analyst III. An Analyst III is responsible for all tasks completed by an Analyst I and II as well as advanced data review, non-routine instrument maintenance, assisting their technical director in basic supervisory duties and method development.

Laboratory Technician

A laboratory technician is responsible for providing support to analysts in the organics, inorganics and disposal departments. Laboratory Technicians can assist analysts in basic sample preparation, general laboratory maintenance, glassware washing, chemical inventories, sample disposal and sample kit preparation. This position can be filled by someone without the education and experience necessary to obtain a position as an analyst.

Sample Control Manager

The sample control manager is responsible for receiving samples and reviewing the sample login information after it has been entered into the computer. The sample control manager also checks the samples against the chain-of-custody for any sample and/or labeling discrepancies prior to distribution.

The sample control manager is responsible for sending out samples to the sub-contractors along with the review and shipping of field sampling bottle kits. The sample control manager acts as a liaison between the laboratory and field sampling crew to ensure that the appropriate analytical test is assigned. If a discrepancy is noted, the sample control manager or sample custodian will contact the customer to resolve any questions or problems. The sample control manager is an integral part of the customer service team.

This position should be filled by someone with a high school diploma and a minimum of 2 years of related experience and can also be filled by a senior manager.

Sample Custodians

Sample Custodians work directly under the Sample Control Manager. They are responsible for sample intake into the laboratory and into the LIMS. Sample Custodians take orders from our clients and prepare appropriate bottle kits to meet the clients' needs. Sample Custodians work directly with the clients in properly labeling and identifying samples as well as properly filling out legal COCs. When necessary, Sample Custodians contact clients to resolve any questions or problems associated with their samples. Sample Custodians are responsible for distributing samples throughout the laboratory and are responsible for notifying analysts of special circumstances such as short holding times or improper sample preservation upon receipt.

Sample Disposal Custodian

The sample disposal custodian is responsible for characterizing and disposing of samples in accordance to the most recent version of the sample disposal SOP. The sample disposal custodian collects waste from the laboratory and transports it to the disposal warehouse for storage and eventual disposal. The sample disposal custodian is responsible for maintaining the disposal warehouse and following the requirements for documentation, integrity, chemical hygiene and health and safety as set forth in the various HEAL administrative SOPs. The sample disposal custodian is responsible for overseeing any laboratory technicians employed at the disposal warehouse.

This position should be filled by someone with a high school diploma and a minimum of 1 year of related experience.

Delegations in the Absence of Key Personnel

Planned absences shall be preceded by notification to the Laboratory Manager. The appropriate staff members shall be informed of the absence. In the case of unplanned absences, the superior shall either assume the responsibilities and duties or delegate the responsibilities and duties to another appropriately qualified employee.

In the event that the Laboratory Manager is absent for a period of time exceeding fifteen consecutive calendar days, another full-time staff member meeting the basic qualifications and competent to temporarily perform this function will be designated. If this absence exceeds thirty-five consecutive calendar days, HEAL will notify ORELAP in writing of the absence and the pertinent qualifications of the temporary laboratory manager.

Laboratory Personnel Qualification and Training

All personnel joining HEAL shall undergo orientation and training. During this period the new personnel shall be introduced to the organization and their responsibilities, as well as the policies and procedures of the company. They shall also undergo on-the-job training and shall work with trained staff. They will be shown required tasks and be observed while performing them.

When utilizing staff undergoing training, appropriate supervision shall be dictated and overseen by the appropriate section technical director. Prior to analyzing client samples, a new employee, or an employee new to a procedure, must meet the following basic requirements. The SOP and Method for the analysis must be read and signed by the employee indicating that they read, understand, and intend to comply with the requirements of the documents. The employee must undergo documented training. Training is conducted by a senior analyst familiar with the procedure and overseen by the section Technical Director. This training is documented by any means deemed appropriate by the trainer and section Technical Director, and kept on file in the employees file located in the QA/QCO's office. The employee must perform a successful Initial Demonstration of Proficiency (IDOC). See Appendix I for the training documents and checklists utilized at HEAL to ensure that all of these requirements are met. Once all of the above requirements are met it is incumbent upon the section Technical Director to determine at which point the employee can begin to perform the test unsupervised. A Certification to Complete Work Unsupervised (see Appendix I) is then filled out by the employee and technical director.

IDOCs are required for all new analysts and methods prior to sample analysis. IDOCs are also required any time there is a change in the instrument, analyte list or method. If more than twelve months have passed since an analyst performed an IDOC and they have not performed the method and/or have not met the continuing DOC requirements, the analyst must perform an IDOC prior to resuming the test.

All IDOCs shall be documented through the use of the certification form which can be found in Appendix I. IDOCs are performed by analyzing four Laboratory Control Spikes (LCSs). Using the results of the LCSs the mean recovery is calculated in the appropriate

reporting units and the standard deviations of the population sample (n-1) (in the same units) as well as the relative percent difference for each parameter of interest. When it is not possible or pertinent to determine mean and standard deviations HEAL assesses performance against established and documented criteria dictated in the method SOP. The mean and standard deviation are compared to the corresponding acceptance criteria for precision and accuracy in the test method (if applicable) or in laboratory-generated acceptance criteria. In the event that the HEAL SOP or test method fail to establish the pass/fail criteria the default limits of +/- 20% for calculated recovery and <20% relative percent difference based on the standard deviation will be utilized. If all parameters meet the acceptance criteria, the IDOC is successfully completed. If any one of the parameters do not meet the acceptance criteria, the performance is unacceptable for that parameter and the analyst must either locate and correct the source of the problem and repeat the test for all parameters of interest or repeat the test for all parameters that failed to meet criteria. Repeat failure, however, confirms a general problem with the measurement system. If this occurs the source of the problem must be identified and the test repeated for all parameters of interest.

New employees that do not have prior analysis experience will not be allowed to perform analysis until they have demonstrated attention to detail with minimal errors in the assigned tasks. To ensure a sustained level of quality performance among staff members, continuing demonstration of capability shall be performed at least once a year. These are as an Annual Documentation of Continued Proficiency (ADOCP).

At least once per year an ADOCP must be completed. This is achieved by the acceptable performance of a blind sample (typically by using a PT sample, but can be a single blind (to the analyst) sample), by performing another IDOC, or by summarizing the data of four consecutive laboratory control samples with acceptable levels of precision and accuracy (these limits are those currently listed in the LIMS for an LCS using the indicated test method.) ADOCPs are documented using a standard form and are kept on file in each analyst's employee folder.

Each new employee shall be provided with data integrity training as a formal part of their new employee orientation. Each new employee will sign an ethics and data integrity agreement to ensure that they understand that data quality is our main objective. Every HEAL employee recognizes that although turn around time is important, quality is put above any pressure to complete the task expediently. Analysts are not compensated for passing QC parameters nor are incentives given for the quantity of work produced. Data Integrity and Ethics training are performed on an annual basis in order to remind all employees of HEAL's policy on data quality. Employees are required to understand that any infractions of the laboratory data integrity procedures will result in a detailed investigation that could lead to very serious consequences including immediate termination, debarment, or civil/criminal prosecution.

Training for each member of HEAL's technical staff is further established and maintained through documentation that each employee has read, understood, and is using the latest version of this Quality Assurance Manual. Training courses or workshops on specific equipment, analytical techniques, or laboratory procedures are documented through attendance sheets, certificates of attendance, training forms, or quizzes. This training

documentation is located in analyst specific employee folders in the QA/QCO Office. On the front of all methods, SOPs, and procedures for HEAL, there is a signoff sheet that is signed by all pertinent employees, indicating that they have read, understand, and agree to perform the most recent version of the document.

The effectiveness of training will be evaluated during routine data review, annual employee reviews, and internal and external audits. Repetitive errors, complaints and audit findings serve as indicators that training has been ineffective. When training is deemed to have been ineffective a brief review of the training process will be completed and a re-training conducted as soon as possible.

5.0 Receipt and Handling of Samples

Sampling

Procedures

HEAL does not provide field sampling for any projects. Sample kits are prepared and provided for clients upon request. The sample kits contain the appropriate sampling containers (with a preservative when necessary), labels, blue ice (The use of "blue ice" by anyone except HEAL personnel is discouraged because it generally does not maintain the appropriate temperature of the sample. If blue ice is used, it should be completely frozen at the time of use, the sample should be chilled before packing, and special notice taken at sample receipt to be certain the required temperature has been maintained.), a cooler, chain-of-custody forms, plastic bags, bubble wrap, and any special sampling instructions. Sample kits are reviewed prior to shipment for accuracy and completeness.

Containers

Containers which are sent out for sampling are purchased by HEAL from a commercial source. Glass containers are certified "EPA Cleaned" QA level 1. Plastic containers are certified clean when required. These containers are received with a Certificate of Analysis verifying that the containers have been cleaned according to the EPA wash procedure. Containers are used once and discarded. If the samples are collected and stored in inappropriate containers the laboratory may not be able to accurately quantify the amount of the desired components. In this case, re-sampling may be required.

Preservation

If sampling for analyte(s) requires preservation, the sample custodians fortify the containers prior to shipment to the field, or provide the preservative for the sampler to add in the field. The required preservative is introduced into the vials in uniform amounts and done so rapidly to minimize the risk of contamination. Vials that contain a preservative are labeled appropriately. If the samples are stored with inappropriate preservatives, the laboratory may not be able to accurately quantify the amount of the desired components. In this case re-sampling may be required.

Refer to the current Login SOP and/or the current price book for detailed sample receipt and handling procedures, appropriate preservation and holding time requirements.

Sample Custody

Chain-of-Custody Form

A Chain-of-Custody (COC) form is used to provide a record of sample chronology from the field to receipt at the laboratory. HEAL's COC contains the client's name, address, phone and fax numbers, the project name and number, the project manager's name, and the field sampler's name. It also identifies the date and time of sample collection, sample matrix, field sample ID number, number/volume of sample containers, sample temperature upon receipt, and any sample preservative information.

There is also a space to record the HEAL ID number assigned to samples after they are received. Next to the sample information is a space for the client to indicate the desired analyses to be performed. There is a section for the client to indicate the data package level as well as any accreditation requirements. Finally, there is a section to track the actual custody of the samples. The custody section contains lines for signatures, dates and times when samples are relinquished and received. The COC form also includes a space to record special sample related instructions, sampling anomalies, time constraints, and any sample disposal considerations.

It is paramount that all COCs arrive at HEAL complete and accurate so that the samples can be processed and allocated for testing in a timely and efficient manner. A sample chain-of-custody form can be found in Appendix H or on line at www.hallenvironmental.com.

Receiving Samples

Samples are received by authorized HEAL personnel. Upon arrival, the COC is compared to the respective samples. After the samples and COC have been determined to be complete and accurate, the sampler signs over the COC. The HEAL staff member in turn signs the chain-of-custody, also noting the current date, time, and sample temperature. This relinquishes custody of the samples from the sampler and delegates sample custody to HEAL. The first (white) copy of the COC form is filed in the appropriate sample folder. The second (yellow) copy of the COC form is filed in the COC file in the sample control manager's office. The third (pink) copy of the COC form is given to the person who has relinquished custody of the samples.

Logging In Samples and Storage

Standard Operating Procedures have been established for the receiving and tracking of all samples (refer to the current HEAL Login SOP). These procedures ensure that samples are received and properly logged into the laboratory and that all associated documentation, including chain of custody forms, is complete and consistent with the samples received. Each sample set is given a unique HEAL tracking ID number.

Individual sample locations within a defined sample set are given a unique sample ID suffix-number. Labels with the HEAL numbers, and tests requested, are generated and placed on their respective containers. The pH of preserved, non-volatile samples is checked and noted if out of compliance. Due to the nature of the samples, the pHs of volatile samples are checked after analysis. Samples are reviewed prior to being distributed for analysis.

Samples are distributed for analysis based upon the requested tests. In the event that sample volume is limited and different departments at HEAL are required to share the sample, volatile work takes precedence and will always be analyzed first before the sample is sent to any other department for analysis.

All samples that require thermal preservation shall be acceptably stored at a temperature range just above freezing to 6°C.

Each project (sample set) is entered into the Laboratory Information Management System (LIMS) with a unique ID that will be identified on every container. The ID tag includes the Lab ID, Client ID, date and time of collection, and the analysis/analyses to be performed. The LIMS continually updates throughout the lab. Therefore, at any time, an analyst or manager may inquire about a project and/or samples status. For more information about the login procedures, refer to the Sample Login SOP.

Disposal of Samples

Samples are held at HEAL for a minimum of thirty days and then transferred to the HEAL warehouse for disposal. Analytical results are used to characterize their respective sample contamination level(s) so that the proper disposal can be performed. These wastes will be disposed of according to their hazard as well as their type and level of contamination. Refer to the Hall Environmental Analysis Laboratory Chemical Hygiene Plan and current Sample Disposal SOP for details regarding waste disposal.

Waste drums are provided by an outside agency. These drums are removed by the outside agency and disposed of in a proper manner.

The wastes that are determined to be non-hazardous are disposed of as non-hazardous waste in accordance with the Chemical Hygiene Plan and Sample Disposal SOP.

6.0 Analytical Procedures

All analytical methods used at HEAL incorporate necessary and sufficient Quality Assurance and Quality Control practices. A Standard Operating Procedure (SOP) is used for each method to provide the necessary criteria to yield acceptable results. These procedures are reviewed at least annually and revised as necessary and are attached as a pdf file in the Laboratory Information Management System (LIMS) for easy access by each analyst. The sample is often consumed or altered during the analytical process. Therefore, it is important that each step in the analytical process be correctly followed in order to yield valid data.

When unforeseen problems arise, the analyst, technical director, and, when necessary, laboratory manager meet to discuss the factors involved. The analytical requirements are evaluated and a suitable corrective action or resolution is established. The client is notified in the case narrative with the final report or before, if the validity of their result is in question.

List of Procedures Used

Typically, the procedures used by HEAL are EPA approved methodologies or 20th edition Standard Methods. However, proprietary methods for client specific samples are sometimes used. The following tables list EPA and Standard Methods Method numbers with their corresponding analytes and/or instrument classification.

Methods Utilized at HEAL

Drinking Water(DW) Non-Potable Water (NPW) Solids (S)

Methodology	Matrix	Title of Method
120.1	DW NPW	"Conductance(Specific Conductance, μ ohms at 25 ° C)"
180.1	DW NPW	"Turbidity (Nephelometric)"
200.2	DW NPW	"Sample Preparation Procedure For Spectrochemical Determination of Total Recoverable Elements"
200.7	DW NPW	"Determination of Metals and Trace Elements in Water and Wastes by Inductively Coupled Plasma-Atomic Emission Spectrometry"
200.8	DW NPW	"Determination of Trace Elements in Waters and Wastes by Inductively Coupled Plasma-Mass Spectrometry."
245.1	DW NPW	"Mercury (Manual Cold Vapor Technique)"
300	DW NPW S	"Determination of Inorganic Anions by Ion Chromatography"

413.2	NPW	"Oil and Grease"
	S	
418.1	NPW S	"Petroleum Hydrocarbons (Spectrophotometric, Infrared)"
504.1	DW	"EDB, DBCP and 123TCP in Water by Microextraction and Gas Chromatography"
505	DW	"Analysis of Organohalide Pesticides and Commercial Polychlorinated Biphenyl (PCB) Products in Water by Microextraction and Gas Chromatography"
515.1	DW	"Determination of Chlorinated Acids in Water by Gas Chromatography with an Electron Capture Detector"
524.2	DW	"Measurement of Purgeable Organic Compounds in Water by Capillary Column Gas Chromatography/Mass Spectrometry"
531.1	DW	"Measurement of N-Methylcarbomoyloximes and N-Methylcarbamates in Water by Direct Aqueous Injection HPLC with Post Column Dervivatization"
547	DW	"Determination of Glyphosate in Drinking Water by Direct-Aqueous Injection HPLC, Post-Column Derivatization, and Fluorescence Detection"
552.1	DW	"Determination of Haloacetic Acids and Dalapon in Drinking Water by Ion-Exchange Liquid-Solid Extraction and Gas Chromatography with an Electron Capture Detector"
624	DW	Appendix A to Part 136 Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater Method 624-Purgeables"
625	DW	Appendix A to Part 136 Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater Method 625-Base/Neutrals and Acids"
1311	S	"Toxicity Characteristic Leaching Procedure"
1311ZHE	S	"Toxicity Characteristic Leaching Procedure"
1164A	NPW	"N-Hexane Extractable Material (HEM; Oil and Grease) and Silica Gel Treated N-Hexane Extractable Material) by Extraction and Gravimetry"
3005A	NPW	"Acid Digestion of Waters for Total Recoverable or Dissolved Metals for Analysis by FLAA or ICP Spectroscopy"
3010A	S	"Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by FLAA or ICP Spectroscopy"
3050B	S	"Acid Digestion of Sediment, Sludge, and Soils"
3510C	DW	"Separatory Funnel Liquid-Liquid Extraction"
	NPW	

3540	S	"Soxhlet Extraction"
3545	S	"Pressurized Fluid Extraction(PFE)"
3665	NPW S	"Sulfuric Acid/Permanganate Cleanup"
5030B	NPW	"Purge-and-Trap for Aqueous Samples"
5035	S	"Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples"
6010B	NPW S	"Inductively Coupled Plasma-Atomic Emission Spectrometry"
6020	NPW S	"Inductively Coupled Plasma-Mass Spectrometry"
7470A	NPW	"Mercury in Liquid Waste (Manual Cold-Vapor Technique)"
7471A	S	"Mercury in Solid or Semisolid Waste (Manual Cold Vapor Technique)"
8021B	NPW S	"Aromatic and Halogenated Volatiles By Gas Chromatography Using Photoionization and/or Electrolytic Conductivity Detectors"
8015B	NPW S	"Nonhalogenated Volatile Organics by Gas Chromatography" (Gasoline Range and Diesel Range Organics)
8015AZ	S	"C10-C32 Hydrocarbons in Soil-8015AZ"
8081A	NPW S	"Organochlorine Pesticides by Gas Chromatography"
8082	NPW S	"Polychlorinated Biphenyls (PCBs) by Gas Chromatography"
8260B	NPW S	"Volatile Organic Compounds by Gas Chromatography/ Mass Spectrometry (GC/MS)"
8270C	NPW S	"Semivolatile Organic Compounds by Gas Chromatography/ Mass Spectrometry (GC/MS)"
8310	NPW S	"Polynuclear Aromatic Hydrocarbons"
9045C	S	"Soil and Waste pH"
9060	NPW	"Total Organic Carbon"
9067	NPW S	"Phenolics (Spectrophotometric, MBTH With Distillation)"
9095	S	Paint Filter
Walkley/Black	S	FOC/TOC WB
SM2320 B	DW NPW	"Alkalinity"
SM2540 B	NPW	"Total Solids Dried at 103-105° C"

SM2540 C	DW	"Total Dissolved Solids Dried at 180° C"
	NPW	
SM2540 D	NPW	"Total Suspended Solids Dried at 103-105° C"
SM4500-CL G	DW	"Chlorine (Residual) 4500-CL G. DPD Colorimetric Method"
SM4500-H+B	DW	"pH Value"
	NPW	
SM4500-NH3 C	NPW S	"4500-NH3" Ammonia
SM4500-Norg C	NPW S	"4500-Norg" Total Kjeldahl Nitrogen (TKN)
SM5210 B	NPW	"5210 B. 5-day BOD Test"
SM5310 B	DW	"5310" Total Organic Carbon (TOC)
8000B	NPW S	"Determinative Chromatographic Separations"
8000C	NPW S	"Determinative Chromatographic Separations"

Criteria for Standard Operating Procedures

HEAL has Standard Operating Procedures (SOPs) for each of the test methods listed above. These SOPs are based upon the listed methods and detail the specific procedure and equipment utilized as well as the quality requirements necessary to prove the integrity of the data. SOPs are reviewed or revised every twelve months or sooner if necessary. The review/revision is documented in the Master SOP Logbook filed in the QA/QC Office. All SOPs are available in the LIMS linked under the specific test method. Administrative SOPs, which are not linked in the LIMS, are available on desktops throughout the laboratory in the link to administrative SOPs folder.

Hand written corrections or alterations to SOPs are not permitted. In the event that a correction is needed and a revision is not immediately possible, a corrective action report will be generated documenting the correction or alteration, signed by the section Technical Director and the QA/QC Officer and will be scanned into the current SOP and will document the change until a new revision is possible.

Each HEAL test method SOP shall include or reference the following topics where applicable:

- Identification of the test method;
- Applicable matrix or matrices;
- Limits of detection and quantitation;
- Scope and application, including parameters to be analyzed;
- Summary of the test method;
- Definitions;
- Interferences;
- Safety;
- Equipment and supplies;
- Reagents and standards;
- Sample collection, preservation, shipment and storage;
- Quality control parameters;
- Calibration and standardization;
- Procedure;
- Data analysis and calculations;
- Method performance;
- Pollution prevention;
- Data assessment and acceptance criteria for quality control measures;
- Corrective actions for out-of-control data;
- Contingencies for handling out-of-control or unacceptable data;
- Waste management;
- References; and
- Any tables, diagrams, flowcharts and validation data.

7.0 Calibration

All equipment and instrumentation used at HEAL are operated, maintained and calibrated according to manufacturers' guidelines, as well as criteria set forth in applicable analytical methodology. Personnel who have been properly trained in their procedures perform the operation and calibration. Brief descriptions of the calibration processes for our major laboratory equipment and instruments are found below.

Thermometers

The thermometers in the laboratory are used to measure the temperatures of the refrigerators/freezers, ovens, water baths, hot blocks, ambient laboratory conditions, TCLP Extractions, digestion blocks, and samples at the time of log-in. All NIST traceable thermometers are either removed from use upon their documented expiration date or they are checked annually with a NIST-certified thermometer and a correction factor is noted on each thermometer log. See the most current Login SOP for detailed procedures on this calibration procedure.

Dickson Data Loggers are used to record sample and standard storage refrigerators over the weekend when the appropriate staff is not available to record the temperatures. These data loggers are shipped back to the manufacturer once a year to be re-calibrated.

Refrigerators/Freezers

Each laboratory refrigerator or freezer contains a thermometer capable of measuring to a minimum precision of 0.1°C. The thermometers are kept with the bulb immersed in liquid. Each day of use, the temperatures of the refrigerators are recorded to insure that the refrigerators are within the required designated range. Samples are stored separately from the standards to reduce the risk of contamination.

See the current Catastrophic Failure SOP for the procedure regarding how to handle failed refrigerators or freezers.

Ovens

The ovens contain thermometers graduated by 1° C. The ovens are calibrated quarterly against NIST thermometers and checked each day of use as required and in whatever way is dictated by or appropriate for the method in use.

Analytical and Table Top Balances

The table top balances are capable of weighing to a minimum precision of 0.01 grams. The analytical balances are capable of weighing to a minimum precision of 0.0001 grams. Records are kept of daily calibration checks for the balances in use. Working weights are used in these checks. The balances are annually certified by an outside source and the certifications are on file with the QA/QCO.

Balances, unless otherwise indicated by method specific SOPs, will be checked each day of use with at least two weights that will bracket the working range of the balance for the day. Daily balance checks will be done using working weights that are calibrated annually against Class S weights. Class S weights are calibrated by an external provider as required. The Class S weights are used once a year, or more frequently if required, to assign values to the Working Weights. During the daily balance checks, the working weights are compared to their assigned values and must pass in order to validate the calibration of the balance. The assigned values, as well as the daily checks, for the working weights are recorded in the balance logbook for each balance.

Instrument Calibration

An instrument calibration is the relationship between the known concentrations of a set of calibration standards introduced into an analytical instrument and the measured response they produce. Calibration curve standards are a prepared series of aliquots at various known concentration levels from a primary source reference standard. Specific mathematical types of calibration techniques are outlined in SW-846 8000B and/or 8000C. The entire initial calibration must be performed prior to sample analyses.

The lowest standard in the calibration curve must be at or below the required reporting limit.

Refer to the current SOP to determine the minimum requirement for calibration points.

Most compounds tend to be linear and a linear approach should be favored when linearity is suggested by the calibration data. Non-linear calibration should be considered only when a linear approach cannot be applied. It is not acceptable to use an alternate calibration procedure when a compound fails to perform in the usual manner. When this occurs, it is indicative of instrument issues or operator error.

If a non-linear calibration curve fit is employed, a minimum of six calibration levels must be used for second-order (quadratic) curves.

When more than 5 levels of standards are analyzed in anticipation of using second-order calibration curves, all calibration points **MUST** be used regardless of the calibration option employed. The highest or lowest calibration point may be excluded for the purpose of

narrowing the calibration range and meeting the requirements for a specific calibration option. Otherwise, unjustified exclusion of calibration data is expressly forbidden.

Analytical methods vary in QC acceptance criteria. HEAL follows the method specific guidelines for QC acceptance. The specific acceptance criteria are outlined in the analytical methods and their corresponding SOPs.

pH Meter

The pH meter measures to a precision of 0.01 pH units. The pH calibration logbook contains the calibration before each use, or each day of use, if used more than once per day. It is calibrated using a minimum of 3 certified buffers. Also available with the pH meter is a magnetic stirrer with a temperature sensor. See the current pH SOP (SM4500 H+ B) for specific details regarding calibration of the pH probe.

Other Analytical Instrumentation and Equipment

The conductivity probe is calibrated as needed and checked daily when in use.

Eppendorf (or equivalent brands) pipettes are checked gravimetrically prior to use.

Standards

All of the source reference standards used are ordered from a reliable commercial vendor. A Certificate of Analysis (CoA), which verifies the quality of the standard, accompanies the standards from the vendor. The Certificates of Analysis are dated and stored on file by the Technical Directors or their designee. These standards are traceable to the National Institute of Standards (NIST). When salts are purchased and used as standards the certificate of purity must be obtained from the vendor and filed with the CoAs.

All standard solutions, calibration curve preparations, and all other quality control solutions are labeled in a manner that can be traced back to the original source reference standard. All source reference standards are entered into the LIMS with an appropriate description of the standard. Dilutions of the source reference standard (or any mixes of the source standards) are fully tracked in the LIMS. Standards are labeled with the date opened for use and with an expiration date.

As part of the quality assurance procedures at HEAL, analysts strictly adhere to manufacturer recommendations for storage times/expiration dates and policies of analytical standards and quality control solutions.

Reagents

HEAL ensures that the reagents used are of acceptable quality for their intended purpose. This is accomplished by ordering high quality reagents and adhering to good laboratory practices so as to minimize contamination or chemical degradation. All reagents must meet any specifications noted in the analytical method. Refer to the current Purchase of Consumables SOP for details on how this is accomplished and documented.

Upon receipt, all reagents are assigned a separate ID number, and logged into the LIMS. All reagents shall be labeled with the date received into the laboratory and again with the date opened for use. Recommended shelf life, as defined by the manufacturer, shall be documented and controlled. Dilutions or solutions prepared shall be clearly labeled, dated, and initialed. These solutions are traceable back to their primary reagents and do not extend beyond the expiration date listed for the primary reagent.

All gases used with an instrument shall meet specifications of the manufacturer. All safety requirements that relate to maximum and/or minimum allowed pressure, fitting types, and leak test frequency, shall be followed. When a new tank of gas is placed in use, it shall be checked for leaks and the date put in use will be written in the instrument maintenance logbook.

HEAL continuously monitors the quality of the reagent water and provides the necessary indicators for maintenance of the purification systems in order to assure that the quality of laboratory reagent water meets established criteria for all analytical methods.

Reagent blank samples are also analyzed to ensure that no contamination is present at detectable levels. The frequency of reagent blank analysis is typically the same as calibration verification samples. Refrigerator storage blanks are stored in the volatiles refrigerator for a period of one week and analyzed and replaced once a week.

8.0 Maintenance

Maintenance logbooks are kept for each major instrument and all support equipment in order to document all repair and maintenance. In the front of the logbook, the following information is included:

Unique Name of the Item or Equipment
Manufacturer
Type of Instrument
Model Number
Serial Number
Date Received and Date Placed into Service
Location of Instrument
Condition of Instrument Upon Receipt

For routine maintenance, the following information shall be included in the log:

Maintenance Date
Maintenance Description
Maintenance Performed by Initials

A manufacturer service agreement (or equivalent) covers most major instrumentation to assure prompt and reliable response to maintenance needs beyond HEAL instrument operator capabilities.

Refer to the current Maintenance and Troubleshooting SOP for each section in the laboratory for further information.

9.0 Data Integrity

For HEAL's policy on ethics and data integrity, see section 3.0 of this document. Upon being hired, and annually thereafter, all employees at HEAL undergo documented data integrity training. All new employees sign an Ethics and Data Integrity Agreement, documenting their understanding of the high standards of integrity required at HEAL and outlining their responsibilities in regards to ethics and data integrity. See Appendix I for a copy of this agreement.

In instances of ethical concern, analysts are required to report the known or suspected concern to their Technical Director, the Laboratory Manager, or the QA/QCO. This will be done in a confidential and receptive environment, allowing all employees to privately discuss ethical issues or report items of ethical concern.

Once reported and documented, the ethical concern will be immediately elevated to the Laboratory Manager and the need for an investigation, analyst remediation, or termination will be determined on a case-by-case basis.

All reported instances of ethical concern will be thoroughly documented and handled in a manner sufficient to rectify any breaches in data integrity with an emphasis on preventing similar incidences from happening in the future.

10.0 Quality Control

Internal Quality Control Checks

HEAL utilizes various internal quality control checks, including duplicates, matrix spikes, matrix spike duplicates, method blanks, laboratory control spikes, laboratory control spike duplicates, surrogates, internal standards, calibration standards, quality control charts, proficiency tests and calculated measurement uncertainty.

Refer to the current method SOP to determine the frequency and requirements of all quality controls. In the event that the frequency of analysis is not indicated in the method specific SOP, duplicate samples, laboratory control spikes (LCS), Method Blanks (MB), and matrix spikes and matrix spike duplicates (MS/MSD) are analyzed for every batch of twenty samples.

When sample volume is limited on a test that requires an MS/MSD an LCSD shall be analyzed to demonstrate precision and accuracy and when possible a sample duplicate will be analyzed.

Duplicates are identical tests repeated for the same sample or matrix spike in order to determine the precision of the test method. A Relative Percent Difference (RPD) is calculated as a measure of this precision. Unless indicated in the SOP, the default acceptance limit is $\leq 20\%$.

Matrix Spikes and Matrix Spike Duplicates are spiked samples (MS/MSD) that are evaluated with a known added quantity of a target compound. This is to help determine the accuracy of the analyses and to determine the matrix effects on analyte recovery. A percent recovery is calculated to assess the quality of the accuracy. In the event that the acceptance criteria is not outlined in the SOP, a default limits of 70-130% will be utilized. When an MSD is employed an RPD is calculated and when not indicated in the SOP shall be acceptable at $\leq 20\%$.

When appropriate for the method, a Method Blank should be analyzed with each batch of samples processed to assess contamination levels in the laboratory. MBs consist of all the reagents measured and treated as they are with samples, except without the samples. This enables the laboratory to ensure clean reagents and procedures. Guidelines should be in place for accepting or rejecting data based on the level of contamination in the blank. In the event that these guidelines are not dictated by the SOP or in client specific work plans, the MB should be less than the MDL reported for the analyte being reported. Blanks shall be no more negative than the negative of the PQL for that test and instrument unless otherwise stated in the SOP/method. Corrective action must be initiated if negative blanks are out of control.

A Laboratory Control Spike and Laboratory Control Spike Duplicate (LCS/LCSD) are reagent blanks, free from the analytes of interest, spiked with verified known amounts of

analytes or a material containing known and verified amounts of analytes. It is generally used to establish intra-laboratory or analyst-specific precision and bias or to assess the performance of all or a portion of the measurement system. Guidelines are outlined in each SOP for the frequency and pass/fail requirements for LCS and LCSDs. These limits can be set utilizing control charts as discussed below.

Surrogates are utilized when dictated by method and are substances with properties that mimic the analytes of interest. The surrogate is an analyte that is unlikely to be found in environmental samples. Refer to the appropriate Method and SOP for guidelines on pass/fail requirements for surrogates.

Internal Standards are utilized when dictated by the method and are known amounts of standard added to a test portion of a sample as a reference for evaluating and controlling the precision and bias of the applied analytical method. Refer to the appropriate Method and SOP for guidelines on pass/fail requirements for Internal Standards.

Proficiency Test (PT) Samples are samples provided by an unbiased third party. They are typically analyzed twice a year, between five and seven months apart, or at any other interval as defined in the method SOP. They contain a pre-determined concentration of the target compound, which is unknown to HEAL. HEAL's management and all analysts shall ensure that all PT samples are handled in the same manner as real environmental samples utilizing the same staff, methods, procedures, equipment, facilities and frequency of analysis as used for routine analysis of that analyte. When analyzing a PT, HEAL shall employ the same calibration, laboratory quality control and acceptance criteria, sequence of analytical steps, number of replicates and other procedures as used when analyzing routine samples. PT results are reported as normal samples, within the working range of the associated calibration curve. In the event an analyte concentration is less than the PQL, the result shall be reported as less than the PQL.

With regards to analyzing PT Samples HEAL shall not send any PT sample, or portion of a PT sample, to another laboratory for any analysis for which we seek accreditation, or are accredited. HEAL shall not knowingly receive any PT sample or portion of a PT sample from another laboratory for any analysis for which the sending laboratory seeks accreditation, or is accredited. Laboratory management or staff will not communicate with any individual at another laboratory concerning the PT sample. Laboratory management or staff shall not attempt to obtain the assigned value of any PT sample from the PT Provider.

Upon receiving a Not Acceptable PT result for any analyte, a root cause analysis is conducted and the cause of the failure determined and corrected. As defined by TNI, two out of the past three PTs must be acceptable to maintain accreditation for any given analyte. If this requirement is not met a successful history will be reestablished by the analysis of an additional PT sample. For accredited tests, the PT provider will be notified, when the PT is for corrective action purposes. The analysis dates of successive PT samples for the same accredited analyte shall be at least fifteen days apart.

Calibration standards are standards run to calibrate. Once the calibration is established the same standards can be analyzed as Continuing Calibration Verifications (CCV), used to confirm the consistency of the instrumentation. Calibration standards can be utilized at the beginning and end of each batch, or more frequently as required. Typically Continuing Calibration Blanks (CCB) are run in conjunction with CCVs. Refer to the current method SOP for frequency and pass/fail requirements of CCVs and CCBs.

Control Limits are limits of acceptable ranges of the values of quality control checks. The control limits approximate a 99% confidence interval around the mean recovery. Any matrix spike, surrogate, or LCS results outside of the control limits require further evaluation and assessment. This should begin with the comparison of the results from the samples or matrix spike with the LCS results. If the recoveries of the analytes in the LCS are outside of the control limits, then the problem may lie with the application of the extraction, with cleanup procedures, or with the chromatographic procedure. Once the problem has been identified and addressed, corrective action may include reanalysis of samples or re-extraction followed by reanalysis. When the LCS results are within the control limits, the issue may be related to the sample matrix or to the use of an inappropriate extraction, cleanup, and/or determinative method for the matrix. If the results are to be used for regulatory compliance monitoring, then steps must be taken to demonstrate that the analytes of concern can be determined in the sample matrix at the levels of interest. Data generated with laboratory control samples that fall outside of the established control limits are judged to be generated during an "out-of-control" situation. These data are considered suspect and shall be repeated or reported with qualifiers.

Control limits are to be updated only by Technical Directors, Section Supervisors or the Quality Assurance Officer. Control limits should be established and updated according to the requirements of the method being utilized. When the method does not specify, and control limits are to be generated or updated for a test, the following guidelines shall be utilized.

Limits should typically be generated utilizing the most recent 20-40 data values. In order to obtain an even distribution across multiple instruments and to include more than a single day's worth of data, surrogate limits should be generated using around 100 data values. The data values used shall not reuse values that were included in the previous Control Limit update. The data values shall also be reviewed by the LIMS for any Grubbs Outliers, and if identified, the outliers must be removed prior to generating new limits. The results used to update control limits should meet all other QC criteria associated with the determinative method. For example, MS/MSD recoveries from a GC/MS procedure should be generated from samples analyzed after a valid tune and a valid initial calibration that includes all analytes of interest. Additionally, no analyte should be reported when it is beyond the working range of the calibration currently in use. MS/MSD and surrogate limits should be generated using the same set of extraction, cleanup, and analysis procedures.

All generated limits should be evaluated for appropriateness. Where limits have been established for MS/MSD samples, the LCS/LCSD limits should fall within those limits, as the LCS/LCSD are prepared in a clean matrix. Surrogate limits should be updated using all

sample types and should be evaluated to ensure that all instruments as well as a reasonable dispersion across days are represented by the data. LCS/LCSD recovery limits should be evaluated to verify that they are neither inappropriately wide nor unreasonably tight. The default LCS/LCSD acceptance limits of 70-130% and RPD of 20% (or those limits specified by the method for LCS/LCSD and/or CCV acceptability), should be used to help make this evaluation. Technical directors may choose to use warning limits when they feel their generated limits are too wide, or default LCS limits when they feel their limits have become arbitrarily tight.

Once new Control Limits have been established and updated in the LIMS, the Control Charts shall be printed and reviewed by the appropriate section supervisor and primary analyst performing the analysis for possible trends and compared to the previous Control Charts. The technical director initials the control charts, indicating that they have been reviewed and that the updated Limits have been determined to be accurate and appropriate. Any manual alterations to the limits will be documented and justified on the printed control chart. These initialed charts are then filed in the QA/QCO office.

Once established, control limits should be reviewed after every 20-30 data values and updated at least every six months, provided that there are sufficient points to do so. The limits used to evaluate results shall be those in place at the time that the sample was analyzed. Once limits are updated, those limits apply to all subsequent analyses.

When updating surrogate control limits, all data, regardless of sample/QC type, shall be updated together and assigned one set of limits for the same method/matrix.

In the event that there are insufficient data points to update limits that are over a year old, the default limits, as established in the method or SOP, shall be re-instated. Refer to the requirements in SW-846 method 8000B and 8000C for further guidance on generating control limits.

Calculated Measurement Uncertainty is calculated annually using LCSs in order to determine the laboratory specific uncertainty associated with each test method. These uncertainty values are available to our clients upon request and are utilized as a trending tool internally to determine the effectiveness of new variables introduced into the procedure over time.

Precision, Accuracy, Detection Levels

Precision

The laboratory uses sample duplicates, laboratory control spike duplicates, and matrix spike duplicates to assess precision in terms of relative percent difference (RPD). HEAL requires the RPD to fall within the 99% confidence interval of established control charts or an RPD of less than 30% if control charts are not

available. RPD's greater than these limits are considered out-of-control and require an appropriate response.

$$RPD = 2 \times \frac{(\text{Sample Result} - \text{Duplicate Result})}{(\text{Sample Result} + \text{Duplicate Result})} \times 100$$

Accuracy

The accuracy of an analysis refers to the difference between the calculated value and the actual value of a measurement. The accuracy of a laboratory result is evaluated by comparing the measured amount of QC reference material recovered from a sample and the known amount added. Control limits can be established for each analytical method and sample matrix. Recoveries are assessed to determine the method efficiency and/or the matrix effect.

Analytical accuracy is expressed as the Percent Recovery (%R) of an analyte or parameter. A known amount of analyte is added to an environmental sample before the sample is prepared and subsequently analyzed. The equation used to calculate percent recovery is:

$$\% \text{Recovery} = \{(\text{concentration} \times \text{recovered}) / (\text{concentration} \times \text{added})\} \times 100$$

*or amount

HEAL requires that the Percent Recovery to fall within the 99 % confidence interval of established control limits. A value that falls outside of the confidence interval requires a warning and process evaluation. The confidence intervals are calculated by determining the mean and sample standard deviation. If control limits are not available, the range of 80 to 120% is used unless the specific method dictates otherwise. Percent Recoveries outside of this range mandate additional action such as analyses by Method of Standard Additions, additional sample preparation(s) where applicable, method changes, and out-of-control action or data qualification.

Detection Limit

Current practices at HEAL define the Detection Limit (DL) as the smallest amount that can be detected above the baseline noise in a procedure within a stated confidence level.

HEAL presently utilizes an Instrument Detection Limit (IDL), a Method Detection Limit (MDL), and a Practical Quantitation Limit (PQL). The relationship between these levels is approximately
IDL: MDL: PQL = 1:5:5.

The IDL is a measure of the sensitivity of an analytical instrument. The IDL is the amount which, when injected, produces a detectable signal in 99% of the analyses at that concentration. An IDL can be considered the minimum level of analyte concentration that is detectable above random baseline noise.

The MDL is a measure of the sensitivity of an analytical method. MDL studies are required annually for each quality system matrix, technology and analyte, unless indicated otherwise in the referenced method. An MDL determination (as required in 40CFR part 136 Appendix B) consists of replicate spiked samples carried through all necessary preparation steps. The spike concentration is three times the standard deviation of three replicates of spikes. At least seven replicates are spiked and analyzed and their standard deviation(s) calculated. Routine variability is critical in passing the 10 times rule and is best achieved by running the MDLs over different days and when possible over several calibration events. The Manual for the Certification of Laboratories Analyzing Drinking Water, 5th edition Chapter IV section 7.2.11 recommends that MDLs be performed over a period of at least three days in order to include the day to day variations. The method detection limit (MDL) can be calculated using the standard deviation according to the formula:

$$MDL = s * t(99\%),$$

where t (99%) is the Student's t-value for the 99% confidence interval. The t-value depends on the number of trials used in calculating the sample standard deviation, so choose the appropriate value according to the number of trials.

Number of Trials	t(99%)
6	3.36
7	3.14
8	3.00
9	2.90

The calculated MDL must not be less than 10 times the spiked amount or the study must be performed again with a lower concentration.

Where there are multiple MDL values for the same test method in the LIMS the highest MDL value is utilized.

The PQL is significant because different laboratories can produce different MDLs although they may employ the same analytical procedures, instruments and sample matrices. The PQL is about two to five times the MDL and represents a practical, and routinely achievable, reporting level with a good certainty that the reported value is reliable. It is often determined by regulatory limits. The reported PQL for a sample is dependent on the dilution factor utilized during sample analysis.

In the event that an analyte will not be reported less than the PQL, an MDL study is not required and a PQL check shall be done, at least annually, in place of the MDL

study. The PQL check shall consist of a QC sample spiked at or below the PQL. All sample-processing and analysis steps of the analytical method shall be included in the PQL check and shall be done for each quality system matrix, technology, and analyte. A successful check is one where the recovery of each analyte is within the established method acceptance criteria. When this criterion is not defined by the method or SOP, a default limit of +/-50% shall be utilized.

Quality Control Parameter Calculations

Mean

The sample mean is also known as the arithmetic average. It can be calculated by adding all of the appropriate values together, and dividing this sum by the number of values.

$$\text{Average} = (\sum x_i) / n$$

x_i = the value x in the i^{th} trial
 n = the number of trials

Standard Deviation

The sample standard deviation, represented by s , is a measure of dispersion. The dispersion is considered to be the difference between the average and each of the values x_i . The variance, s^2 , can be calculated by summing the squares of the differences and dividing by the number of differences. The sample standard deviation, s , can be found by taking the square root of the variance.

$$\text{Standard deviation} = s = \left[\frac{\sum (x_i - \text{average})^2}{(n - 1)} \right]^{1/2}$$

Percent Recovery (LCS and LCSD)

$$\text{Percent Recovery} = \frac{(\text{Spike Sample Result})}{(\text{Spike Added})} \times 100$$

Percent Recovery (MS, MSD)

$$\text{Percent Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{(\text{Spike Added})} \times 100$$

Control Limits

Control Limits are calculated by the LIMS using the average percent recovery (x), and the standard deviation (s).

$$\text{Upper Control Limit} = x + 3s$$

$$\text{Lower Control Limit} = x - 3s$$

These control limits approximate a 99% confidence interval around the mean recovery.

RPD (Relative Percent Difference)

Analytical precision is expressed as a percentage of the difference between the results of duplicate samples for a given analyst. Relative percent difference (RPD) is calculated as follows:

$$\text{RPD} = 2 \times \frac{(\text{Sample Result} - \text{Duplicate Result})}{(\text{Sample Result} + \text{Duplicate Result})} \times 100$$

Uncertainty Measurements

Uncertainty, as defined by ISO, is the parameter associated with the result of a measurement that characterizes the dispersion of the values that could reasonably be attributed to the measurement. Ultimately, uncertainty measurements are used to state how good a test result is and to allow the end user of the data to properly interpret their reported data. All procedures allow for some uncertainty. For most analyses, the components and estimates of uncertainty are reduced by following well-established test methods. To further reduce uncertainty, results generally are not reported below the lowest calibration point (PQL) or above the highest calibration point (UQL). Understanding that there are many influential quantities affecting a measurement result, so many in fact that it is impossible to identify all of them, HEAL calculates measurement uncertainty at least annually using LCSs. These estimations of measurement uncertainty are kept on file in the method folders in the QA/QC office.

Measurement Uncertainty contributors are those that may be determined statistically. These shall be generated by estimating the overall uncertainty in the entire analytical process by measuring the dispersion of values obtained from laboratory control samples over time. At least 20 of the most recent LCS data points are gathered.

The standard deviation(s) is calculated using these LCS data points. Since it can be assumed that the possible estimated values of the spikes are approximately normally distributed with approximate standard deviation(s), the unknown value of the spike is believed to lie in 95% confidence interval, corresponding to an uncertainty range of +/- 2(s).

Calculate standard deviation (s) and 95% confidence interval according to the following formulae:

$$s = \sqrt{\frac{\sum (x - \bar{x})^2}{(n-1)}}$$

Where: s = standard deviation

x = number in series

$\bar{x}$ = calculated mean of series

n = number of samples taken

$$95\% \text{ confidence} = 2 \times s$$

Example: Assuming that after gathering 20 of the most recent LCS results for Bromide, we have calculated the standard deviations of the values and achieved a result of 0.0326, our measurement uncertainty for Bromide (at 95% confidence = 2 x s) is 0.0652.

Total Nitrogen

Total nitrogen is calculated as follows:

$$\text{Total Nitrogen} = \text{TKN} + \text{NO}_2 + \text{NO}_3$$

Calibration Calculations

1. Response Factor or Calibration Factor:

$$\text{RF} = ((A_x)(C_{is})) / ((A_{is})(C_x))$$

$$\text{CF} = (A_x) / (C_x)$$

a. Average RF or CF

$$\text{RF}_{\text{AVE}} = \sum \text{RF}_i / n$$

b. Standard Deviation

$$s = \text{SQRT} \{ [\sum (\text{RF}_i - \text{RF}_{\text{AVE}})^2] / (n-1) \}$$

c. Relative Standard Deviation

$$RSD = s / RF_{AVE}$$

Where:

A_x = Area of the compound

C_x = Concentration of the compound

A_{is} = Area of the internal standard

C_{is} = Concentration of the internal standard

n = number of pairs of data

RF_i = Response Factor (or other determined value)

RF_{AVE} = Average of all the response factors

Σ = the sum of all the individual values

2. Linear Regression

$$y = mx + b$$

a. Slope (m)

$$m = (n \Sigma x_i y_i - (\Sigma x_i)(\Sigma y_i)) / (n \Sigma x_i^2 - (\Sigma x_i)^2)$$

b. Intercept (b)

$$b = y_{AVE} - m(x_{AVE})$$

c. Correlation Coefficient (cc)

$$CC(r) = \{ \Sigma((x_i - x_{AVE})(y_i - y_{AVE})) \} / \{ \text{SQRT}((\Sigma(x_i - x_{AVE})^2)(\Sigma(y_i - y_{AVE})^2)) \}$$

Or

$$CC(r) = [(\Sigma w * \Sigma wxy) - (\Sigma wx * \Sigma wy)] / (\text{sqrt}(([\Sigma w * \Sigma wx^2] - (\Sigma wx * \Sigma wx)) * ([\Sigma w * \Sigma wy^2] - (\Sigma wy * \Sigma wy))))]$$

d. Coefficient of Determination

$$COD(r^2) = CC * CC$$

Where:

y = Response (Area) Ratio A_x/A_{is}

x = Concentration Ratio C_x/C_{is}

m = slope

b = intercept

n = number of replicate x,y pairs
x_i = individual values for independent variable
y_i = individual values for dependent variable
Σ = the sum of all the individual values
x_{ave} = average of the x values
y_{ave} = average of the y values
w = weighting factor, for equal weighting w=1

3. Quadratic Regression

$$y = ax^2 + bx + c$$

a. Coefficient of Determination

$$\text{COD } (r^2) = (\Sigma(y_i - y_{\text{ave}})^2 - \{[(n-1)/(n-p)] * [\Sigma(y_i - Y_i)^2]\}) / \Sigma(y_i - y_{\text{ave}})^2$$

Where:

y = Response (Area) Ratio A_w/A_{18}

x = Concentration Ratio C_x/C_{18}

a = x^2 coefficient

b = x coefficient

c = intercept

y_i = individual values for each dependent variable

x_i = individual values for each independent variable

y_{ave} = average of the y values

n = number of pairs of data

p = number of parameters in the polynomial equation (i.e., 3 for third order, 2 for second order)

$$Y_i = ((2*a*(C_x/C_{18})^2) - b^2 + b + (4*a*c)) / (4a)$$

b. Coefficients (a,b,c) of a Quadratic Regression

$$a = S_{(x_2y)}S_{(xx)} - S_{(xy)}S_{(xx2)} / S_{(xx)}S_{(x_2x_2)} - [S_{(xx2)}]^2$$

$$b = S_{(xy)}S_{(x_2x_2)} - S_{(x_2y)}S_{(xx2)} / S_{(xx)}S_{(x_2x_2)} - [S_{(xx2)}]^2$$

$$c = [(\Sigma yw)/n] - b * [(\Sigma xw)/n] - a * [\Sigma(x^2w)/n]$$

Where:

n = number of replicate x,y pairs

x = x values

y = y values

$$w = S^{-2} / (\Sigma S^{-2}/n)$$

$$S_{(xx)} = (\Sigma x^2w) - [(\Sigma xw)^2 / n]$$

$$\begin{aligned}
S_{(xy)} &= (\Sigma xyw) - [(\Sigma xw)(\Sigma yw) / n] \\
S_{(xx2)} &= (\Sigma x^3w) - [(\Sigma xw)(\Sigma x^2w) / n] \\
S_{(x2y)} &= (\Sigma x^2yw) - [(\Sigma x^2w)(\Sigma yw) / n] \\
S_{(x2x2)} &= (\Sigma x^4w) - [(\Sigma x^2w)^2 / n] \\
\text{Or If unweighted calibration, } w &= 1 \\
S_{(xx)} &= (\Sigma x^2) - [(\Sigma x)^2 / n] \\
S_{(xy)} &= (\Sigma xy) - [(\Sigma x)(\Sigma y) / n] \\
S_{(xx2)} &= (\Sigma x^3) - [(\Sigma x)(\Sigma x^2) / n] \\
S_{(x2y)} &= (\Sigma x^2y) - [(\Sigma x^2)(\Sigma y) / n] \\
S_{(x2x2)} &= (\Sigma x^4) - [(\Sigma x^2)^2 / n]
\end{aligned}$$

Concentration Calculations

On-Column Concentration for Average RRF Calibration using Internal Standard

$$\text{On-Column Concentration } C_x = ((A_x)(C_{is})) / ((A_{is})(RF_{AVE}))$$

On-Column Concentration for Average CF Calibration using External Standard

$$\text{On-Column Concentration } C_x = (A_x) / (CF_{AVE})$$

On-Column Concentration for Linear Calibration

If determining an external standard, then exclude the A_{is} and C_{is} for internal standards

$$\text{On-Column Concentration } C_x = ((\text{Absolute}[(A_x)/(A_{is})] - b) / m) * C_{is}$$

Where: m = slope

b = intercept

A_x = Area of the Sample

C_{is} = Concentration of the Internal Standard

A_{is} = Area of the Internal Standard

On-Column Concentration for Quadratic Calibration

If determining an external standard, then exclude the A_{is} and C_{is} for internal standards

$$\text{On-Column Concentration} = [(+ \text{SQRT}(b^2 - (4*a*(c-y))) - b) / (2*a)] * C_{is}$$

Where: a = x^2 coefficient

b = x coefficient

c = intercept

y = Area Ratio = A_x/A_{is}

C_{is} = Concentration of the Internal Standard

Final Concentration (Wet Weight)

$$\text{Concentration for Extracted Samples} = \frac{(\text{On-Column Conc})(\text{Dilution})(\text{Final Volume})}{(\text{Initial Amount})(\text{Injection Volume})}$$

$$\text{Concentration for Purged Samples} = \frac{(\text{On-Column Conc})(\text{Purged Amount})(\text{Dilution})}{(\text{Purged Amount})}$$

Dry Weight Concentration

$$\text{Dry Weight Concentration} = \frac{\text{Final Concentration Wet Weight}}{\text{Total Solids}}$$

Percent Difference

$$\% \text{ Difference} = \frac{\text{Absolute(Continuing Calibration RRF - Average RRF)}}{\text{Average RRF}} \cdot 100$$

Percent Drift

$$\% \text{ Drift} = \frac{\text{Absolute(Calculated Concentration - Theoretical Concentration)}}{\text{Theoretical Concentration}} \cdot 100$$

Dilution Factor

$$\text{Dilution Factor} = (\text{Volume of Solvent} + \text{Solute}) / \text{Volume of Solute}$$

Relative Retention Time

$$\text{RRT} = \text{RT of Compound} / \text{RT of ISTD}$$

Breakdown Percent

$$\text{Breakdown} = \frac{\text{Area of DDD} + \text{Area of DDE}}{\text{Average (DDT, DDE and DDD)}}$$

-or-

$$\frac{\text{Area of Endrin Ketone} + \text{Area of Endrin Aldehyde}}{\text{Average (Endrin, Endrin Ketone, Endrin Aldehyde)}}$$

11.0 Data Reduction, Validation, Reporting, and Record Keeping

All data reported must be of the highest possible accuracy and quality. During the processes of data reduction, validation, and report generation, all work is thoroughly checked to insure that error is minimized.

Data Reduction

The analyst who generated the data usually performs the data reduction. The calculations include evaluation of surrogate recoveries (where applicable), and other miscellaneous calculations related to the sample quantitation.

If the results are computer generated, then the formulas must be confirmed by hand calculations, at minimum, one per batch.

See the current Data Validation SOP for details regarding data reduction.

Validation

A senior analyst, most often the section supervisor, validates the data. All data undergoes peer review. If an error is detected, it is brought to the analyst's attention so that he or she can rectify the error, and perform further checks to ensure that all data for that batch is sound. Previous and/or common mistakes are stringently monitored throughout the validation process. Data is reported using appropriate significant figure criteria. In most cases, two significant digits are utilized, but three significant digits can be used in QC calculations. Significant digits are not rounded until after the last step of a sample calculation. All final reports undergo a review by the laboratory manager, the project manager, or their designee, to provide a logical review of all results before they are released to the client.

If data is to be manually transferred between media, the transcribed data is checked by a peer. This includes data typing, computer data entry, chromatographic data transfer, data table inclusion to a cover letter, or when data results are combined with other data fields.

All hand-written data from run logs, analytical standard logbooks, hand-entered data logbooks, or on instrument-generated chromatograms, are systematically archived should the need for future retrieval arise.

See the current Data Validation SOP for details regarding data validation.

Reports and Records

All records at HEAL are retained and maintained through the procedures outlined in the most recent version of the Records Control SOP.

The reports are compiled by the Laboratory Information Management System (LIMS). Most data is transferred directly from the instruments to the LIMS. After being processed by the analyst and reviewed by a data reviewer, final reports are approved and signed by the senior laboratory management. A comparative analysis of the data is performed at this point. For example, if TKN and NH₃ are analyzed on the same sample, the NH₃ result should never be greater than the TKN result. Lab results and reports are released only to appropriately designated individuals. Release of the data can be by fax, email, electronic deliverables, or mailed hard copy.

When a project is completed, the final report, chain of custody, any relevant supporting data, and the quality assurance/control worksheets are scanned as a .pdf file onto the main server. Original client folders are kept on file and are arranged by project number. Additionally, all electronic data is backed up routinely on the HEAL main server. The backup includes raw data, chromatograms, and report documents. Hard copies of chromatograms are stored separately according to the instrument and the analysis date. All records and analytical data reports are retained in a secure location as permanent records for a minimum period of five years (unless specified otherwise in a client contract). Access to archived information shall be documented with an access log. Access to archived electronic reports and data will be password protected. In the event that HEAL transfers ownership or terminates business practices, complete records will be maintained or transferred according to the client's instructions.

After issuance, the original report shall remain unchanged. If a correction to the report is necessary, then an additional document shall be issued. This document shall have a title of "Addendum to Test Report or Correction to Original Report", or equivalent. Demonstration of original report integrity comes in two forms. First, the report date is included on each page of the final report. Second, each page is numbered in sequential order, making the addition or omission of any data page(s) readily detectable.

12.0 Corrective Action

Refer to the most recent version of the Data Validation SOP for the procedure utilized in filling out a Corrective Action Report. A blank copy of the corrective action report is available in Appendix I.

The limits that have been defined for data acceptability also form the basis for corrective action initiation. Initiation of corrective action occurs when the data generated from continuing calibration standard, sample surrogate recovery, laboratory control spike, matrix spike, or sample duplicates exceed acceptance criteria. If corrective action is necessary, the analyst or the section supervisor will coordinate to take the following guidelines into consideration in order to determine and correct the measurement system deficiency:

Check all calculations and data measurements systems (Calibrations, reagents, instrument performance checks, etc.).

Assure that proper procedures were followed.

Unforeseen problems that arise during sample preparation and/or sample analysis that lead to treating a sample differently from documented procedures shall be documented with a corrective action report. The section supervisor and laboratory manager shall be made aware of the problem at the time of the occurrence. See the appropriate SOP regarding departures from documented procedures.

Continuing calibration standards below acceptance criteria can not be used for reporting analytical data unless method specific criteria states otherwise.

Continuing calibration standards above acceptance criteria can be used to report data as long as the failure is isolated to a single standard and the corresponding samples are non-detect for the failing analyte.

Samples with non-compliant surrogate recoveries should be reanalyzed, unless deemed unnecessary by the supervisor for matrix, historical data, or other analysis-related anomalies.

Laboratory and Matrix Spike acceptance criteria vary significantly depending on method and matrix. Analysts and supervisors meet and discuss appropriate corrective action measures as spike failures occur.

Sample duplicates with RPD values outside control limits require supervisor evaluation and possible reanalysis.

A second mechanism for initiation of corrective action is that resulting from Quality Assurance performance audits, system audits, inter- and intra-laboratory comparison studies. Corrective Actions initiated through this mechanism will be monitored and coordinated by the laboratory QA/QCO.

All corrective action forms are entered in the LIMS and included with the raw data for peer review, signed by the technical director of the section and included in the case narrative to the client whose samples were affected. All Corrective action forms in the LIMS are reviewed by the QA/QCO.

13.0 Quality Assurance Audits, Reports and Complaints

Internal/External Systems' Audits, Performance Evaluations, and Complaints

Several procedures are used to assess the effectiveness of the quality control system. One of these methods includes internal performance evaluations, which are conducted by the use of control samples, replicate measurements, and control charts. External performance audits, which are conducted by the use of inter-laboratory checks, such as participation in laboratory evaluation programs and performance evaluation samples available from a NELAC-accredited Proficiency Standard Vendor, are another method.

Proficiency samples will be obtained twice per year from an appropriate vendor for all tests and matrices for which we are accredited and for which PTs are available. HEAL participates in soil, waste water, drinking water, and underground storage tank PT studies. Copies of results are available upon request. HEAL's management and all analysts shall ensure that all PT samples are handled in the same manner as real environmental samples utilizing the same staff, methods, procedures, equipment, facilities, and frequency of analysis as used for routine analysis of that analyte. When analyzing a PT, HEAL shall employ the same calibration, laboratory quality control and acceptance criteria, sequence of analytical steps, number of replicates, and other procedures as used when analyzing routine samples.

With regards to analyzing PT Samples, HEAL shall not send any PT sample, or portion of a PT sample, to another laboratory for any analysis for which we seek accreditation, or are accredited. HEAL shall not knowingly receive any PT sample or portion of a PT sample from another laboratory for any analysis for which the sending laboratory seeks accreditation, or is accredited. Laboratory management or staff will not communicate with any individual at another laboratory concerning the PT sample. Laboratory management or staff shall not attempt to obtain the assigned value of any PT sample from the PT Provider.

Internal Audits are performed annually by the QA/QCO in accordance with the current Internal Audit SOP. The system audit consists of a qualitative inspection of the QA system in the laboratory and an assessment of the adequacy of the physical facilities for sampling, calibration, and measurement. This audit includes a careful evaluation and review of laboratory quality control procedures. Internal audits are performed using the guidelines outlined below, which include, but are not limited to:

1. Review of staff qualifications, demonstration of capability, and personnel training programs
2. Storage and handling of reagents, standards, and samples
3. Standard preparation logbook and LIMS procedures
4. Extraction logbooks
5. Raw data logbooks
6. Analytical logbooks or batch printouts and instrument maintenance logbooks
7. Data review procedures

8. Corrective action procedures
9. Review of data packages, which is performed regularly by the lab manager/QA Officer.

The QA/QCO will conduct these audits on an annual basis.

Management Reviews

HEAL management shall periodically, and at least annually, conduct a review of the laboratory's quality system and environmental testing activities to ensure their continuing suitability and effectiveness, and to introduce necessary changes or improvements. The review shall take account of:

1. the suitability and implementation of policies and procedures
2. reports from managerial and supervisory personnel
3. the outcome of recent internal audits
4. corrective and preventive actions
5. assessments by external bodies
6. the results of inter-laboratory comparisons or proficiency tests
7. changes in volume and type of work
8. client feed back
9. complaints
10. other relevant factors, such as laboratory health and safety, QC activities, resources, and staff training.

Findings from management reviews and the actions that arise from them shall be recorded and any corrective actions that arise shall be completed in an appropriate and agreed upon timescale.

Complaints

Complaints from clients are documented and given to the laboratory manager. The lab manager shall review the information and contact the client. If doubt is raised concerning the laboratory's policies or procedures, then an audit of the section or sections may be performed. All records of complaints and subsequent actions shall be maintained in the client compliant logbook for five years unless otherwise stated.

Internal and External Reports

The QA/QCO is responsible for preparation and submission of quality assurance reports to the appropriate management personnel as problems and issues arise. These reports include the assessment of measurement systems, data precision and accuracy, and the results of performance and system audits. Additionally, they include significant QA

problems, corrective actions, and recommended resolution measures. Reports of these Quality Assurance Audits describe the particular activities audited, procedures utilized in the examination and evaluation of laboratory records, and data validation procedures. Finally, there are procedures for evaluating the performance of Quality Control and Quality Assurance activities, and laboratory deficiencies and the implementation of corrective actions with the review requirements.

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Appendix D

13.0 BLOOMFIELD REFINERY UNDERGROUND PROCESS AND WASTEWATER LINES - Inspection & Repair Schedule

Line Number	Description (Service)	Line Size	Line Length L/F	Starting Location	End Location	Drawing Reference	Construction Material	Next Inspection Scheduled	Last Inspection Date	Inspection Results Pass/Fail	Test/ Inspection Method	Repairs/M aint Needed	Repairs-Maint Completion date
1	Effluent Wtr. Transfer Line	6	3250	Effluent Pond Outlet Pump P-616	Effluent Transfer P-671	D-500-800-031	PVC	2015	Jul-10	Pass	Hydrostatic	None	N/A
2	Effluent Wtr. Trans. Pump	6	908	North Evaporation Pond Outlet	Effluent Transfer Pump P-671	D-500-800-031	PVC	2013					
3	Effluent Wtr. Pump Disch.	6	2797	Effluent Transfer P-671	Injection Well Building	D-500-800-031	PVC	2014	Oct-09	Pass	Hydrostatic	None	N/A
4	Injection Well Recir. Line	6	2512	Injection Well Building	North Evaporation Pond	D-500-800-031	PVC	2013					
5	River Terrace Transfer Line	2	277	River Terrace Processing Skid	River Pump Building Water Basin	D-500-800-043	PVC	2016	Aug-11	Pass	Hydrostatic	None	N/A
6	Crude Transfer Line	10	215	Pipe Rack East Of LPG Sigs Tks.	Pipe Rack Southwest of Tk. # 31	D-700-800-106 (F-2)	Carbon steel	2013	May-08	Pass	Praxair	None	N/A
7	Steam Header at Terminals	6	215	Pipe Rack Southwest of Tk. # 31	Pipe Rack East Of LPG Sigs Tks.	N/A	Carbon steel	2013					
8	Condensate Return Header	4	215	Pipe Rack East Of LPG Sigs Tks.	Pipe Rack Southwest of Tk. # 31	N/A	Carbon steel	2013					
9	Premium Receipts to Tk 32/36	4	218	Pipe Rack East Of LPG Bullets	Pipe Rack Southwest of Tk. # 31	D-600-800-118 (H-17)	Carbon steel	2017	May-12	Pass	Hydrostatic		
10	ULSD Sales Line	10	218	Pipe Rack Southwest of Tk. # 31	Filter Pad Area North Of Loading Pad	D-700-800-100 (D-2)	Carbon steel	2017	Praxair 2012	Pass	Praxair	None	N/A
11	Unteaded Gasoline Sales	10	218	Pipe Rack Southwest of Tk. # 31	Filter Pad Area North Of Loading Pad	D-700-800-100 (C-2)	Carbon steel	2017	Praxair 2012	Pass	Praxair	None	N/A
12	Transmix Sales from Tk. #30	10	218	Pipe Rack Southwest of Tk. # 31	Filter Pad Area North Of Loading Pad	D-700-800-100 (C-2)	Carbon steel	2013					
13	Subgrade receipts to tanks 13, 14	4	218	Pipe Rack Southwest of Tk. # 31	Area Northeast of B-21	D-600-800-118 (G-17)	Carbon steel	2017	Apr-12	Pass	Hydrostatic		
14	VRU Effluent	3	275	Pipe Rack Southwest of Tk. # 31	East of B-21	D-600-800-114 (D-1)	Carbon steel	2015	Aug-10	Pass	Hydrostatic	None	N/A
26	VRU Effluent	4	410	East of B-21	Manifold @ VRU Unit	D-700-800-106 (D-17)	Carbon steel	2013	May-08			None	N/A
15	VRU Return (Former Poly Feed Lines)	2		Area Northeast of B-21	Pipe Rack Southwest of Tk. # 31	N/A	Carbon steel			*Temporarily Out of Service			
16	LPG Return Line	2		Area Northeast of B-21	Pipe Rack Southwest of Tk. # 31	N/A	Carbon steel			*Temporarily Out of Service			
17	Saturate To Storage	2		Pipe Rack Southwest of Tk. # 31	Area Northeast of B-21	N/A	Carbon steel			*Temporarily Out of Service			
18	C-4 To Storage	2		Pipe Rack Southwest of Tk. # 31	Area Northeast of B-21	N/A	Carbon steel			*Temporarily Out of Service			
19	C-3 To Storage	2		Pipe Rack Southwest of Tk. # 31	Area Northeast of B-21	N/A	Carbon steel			*Temporarily Out of Service			
20	Sour Naphtha sales From Tk. 23	8	534	Pipe Rack Southwest of Tk. # 31	Filter Pad Area North Of Loading Pad	D-700-800-100 (C-3)	Carbon steel	2017	Praxair 2012	Pass	Praxair	None	N/A
21	Dyed Diesel Sales From Tk. 18	6	534	Pipe Rack Southwest of Tk. # 31	Filter Pad Area North Of Loading Pad	D-700-800-100 (C-2)	Carbon steel	2017	praxair 2012	Pass	Praxair	None	N/A
22	Slop-Line-To-Tk.-#22	4		Area Northeast of B-21	Out of Service	N/A	Carbon-steel			*Temporarily Out of Service			
23	ULSD/Naphtha receipts	6	750	South West Of Tk. # 25	West of truck unload rack	D-600-800-118 (J-1)	Carbon steel	2017	Dec-12	Pass	Hydrostatic	None	N/A
24	blinded	8	392	Pipe Rack West Of Tk. # 36	Filter Pad Area North Of Loading Pad	D-700-800-100 (E-3)	Carbon steel			*Temporarily Out of Service			
25	Premium Sales from Tk. 32	6	392	Pipe Rack West Of Tk. # 36	Filter Pad Area North Of Loading Pad	D-700-800-100 (E-3)	Carbon steel	2017	praxair 2012	Pass	Praxair	None	N/A
27	Naphtha Feed To VRU Unit	4		Transfer Pump @ Tk. # 44	Manifold @ VRU Unit	NewTech 595-M-601	Carbon steel			*Temporarily Out of Service			
28	blinded	4		Manifold @ VRU Unit	Naphtha Fill Line To Tk. # 44	NewTech 595-M-601	Carbon steel			*Temporarily Out of Service			
29	Off-Road Diesel To Bays #1 & 2	8	150	From F-706 Filter Piping	To Meter Spools @ Bays # 1&2	D-700-800-100 (C-17)	Carbon steel	2017	praxair 2012	Pass	Praxair	None	N/A
30	Off road diesel To Bay # 3	6	150	From F-706 Filter Piping	To Meter Spools @ Bays # 3	D-700-800-100 (C-17)	Carbon steel	2017	praxair 2012	Pass	Praxair	None	N/A

*All lines that are temporarily out of service due to suspension of refining operations were steamed out and are hydrocarbon free

13.0 BLOOMFIELD REFINERY UNDERGROUND PROCESS AND WASTEWATER LINES - Inspection & Repair Schedule

Line Number	Description (Service)	Line Size	Line Length L/F	Starting Location	End Location	Drawing Reference	Construction Material	Next Inspection Scheduled	Last Inspection Date	Inspection Results Pass/Fail	Test/ Inspection Method	Repairs/ Maint Needed	Repairs- Maint Completion date
31	Premium Sales Line	10	150	From F-705 Filter Piping	To Meter Spools @ Bays # 1, 2 & 3	D-700-800-100 (C-17)	Carbon steel	2017	praxair 2012	Pass	Praxair	None	N/A
32	Unleaded Gasoline Sales Line	10	150	From F-704 Filter Piping	To Meter Spools @ Bays # 1, 2 & 3	D-700-800-100 (C-17)	Carbon steel	2017	praxair 2012	Pass	Praxair	None	N/A
33	ULSD To Bay # 4	8	150	From F-703 Filter Piping	To Meter Spool @ Bay # 4	D-700-800-100 (D-17)	Carbon steel	2017	praxair 2012	Pass	Praxair	None	N/A
34	Ethanol Pump Suction Line	8	160	From Tk. # 45 Outlet Nozzle	To P-707 & P-707A Pump Suction	D-700-800-007	Carbon steel	2017	praxair 2012	Pass	Praxair	None	N/A
35	Ethanol Unloading Line	4	160	From P-706 Pump Discharge	To Tk. # 45 Inlet Nozzle	D-700-800-007	Carbon steel	2017	praxair 2012	Pass	Praxair	None	N/A
36	Naphtha Unloading Line	6		Suction Manifold @ P-607A	Unloading line @ Tk. #18 and 19	B-600-500-296	Carbon steel			*Temporarily Out of Service			
37	Naphtha Run Down To Tk. # 35	3		Line From North Pipe Rack Area	To Tk. # 35 Fill Nozzle	B-600-500-232	Carbon steel			*Temporarily Out of Service			
38	Naphtha Feed Line to Unit	4		From P-607A Pump Discharge	To North Pipe Rack Feed To Units	B-600-500-236	Carbon steel			*Temporarily Out of Service			
39	Cooling Water Supply Line	12		From # 1 Cooling Tower Pumps	To Rack Area @ Reform Unit	D-500-500-011	Carbon steel			*Temporarily Out of Service			
40	Cooling Water Return Line	12		From Rack Area @ Reformer	To #1 Cooling Tower Water Inlet	D-500-500-011	Carbon steel			*Temporarily Out of Service			
41	Cooling Water Supply Line	20		From # 2 Cooling Tower Pumps @ Twr. 207 Area	To S. End of FCC Unit	D-201-500-123	Carbon steel			*Temporarily Out of Service			
42	Cooling Water Return Line	20		From South End of FCC Unit	To # 2 Cooling Tower Water Inlet	D-201-500-123	Carbon steel			*Temporarily Out of Service			
43	Sewer Transfer Line	10	54	From Main Sewer Box # 12	To Main Sewer Box # 11	D-500-500-402	Carbon steel	2013					
44	Sewer Transfer Line	10	46	From Main Sewer Box # 11	To Observation Access Can # 10	D-500-500-402	Carbon steel	2015	Jul-10	Pass	Hydrostatic	None	N/A
45	Sewer Transfer Line	12	33	From Observation Access Can #10	To Observation Access Can # 6	D-500-500-402	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	N/A
46	Sewer Transfer Line	12	73	From Observation Access Can # 6	To Main Sewer Box # 5	D-500-500-402	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	N/A
47	Sewer Transfer Line	14	69	From Main Sewer Box # 5	To Observation Access Can # 4	D-500-500-402	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	N/A
48	Sewer Transfer Line	14	86	From Observation Access Can #4	To Main Sewer Box # 3	D-500-500-402	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	N/A
49	Sewer Transfer Line	12	62	From Main Sewer Box # 8	To main Sewer Box # 8	D-500-500-402	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	N/A
50	Sewer Transfer Line	12	66	From Main Sewer Box # 8	To Main Sewer Box # 7	D-500-500-402	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	N/A
51	Sewer Transfer Line	14	86	From Main Sewer Box # 7	To Main Sewer Box # 3	D-500-500-402	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	N/A
52	Sewer Transfer Line	14	145	From Main Sewer Box # 3	To Observation Access Can #2	D-500-500-402	Carbon steel	2013					
53	Sewer Transfer Line	14	100	From Observation Access Can #2	To Main Sewer Box # 1	D-500-500-402	Carbon steel	2013					
54	Sewer Transfer Line	12/10	56	From Observation Access Can # 1	To Inlet @ API Separator	D-500-500-106	Carbon steel	2013					
55	Sewer Collection Manifold	8>4	56	Area East Side of # 4 Boiler	To North Side of Sewer Box # 12	D-500-500-402	Carbon steel	2015	Jul-10	Pass	Hydrostatic	None	N/A
56	Sewer Collection Manifold	10>4	164	Area @ & Around Guide Twr.	To North Side Of Sewer Box # 11	D-500-500-402	Carbon steel	2015	Jul-10	Pass	Hydrostatic	None	N/A
57	Sewer Collection Manifold	8>4	100	Area @ & Around E-106A & B	To Northwest Of Sewer Box # 10	D-500-500-402	Carbon steel	2015	Jul-10	Pass	Hydrostatic	None	N/A
58	Sewer Collection Manifold	6	10	Area @ V-101A Desalter	To East Side Of Sewer Box # 10	D-500-500-402	Carbon steel	2015	Jul-10	Pass	Hydrostatic	None	N/A

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13.0 BLOOMFIELD REFINERY UNDERGROUND PROCESS AND WASTEWATER LINES - Inspection & Repair Schedule

Line Number	Description (Service)	Line Size	Line Length L/F	Starting Location	End Location	Drawing Reference	Construction Material	Next Inspection Scheduled	Last Inspection Date	Inspection Results Pass/Fail	Test/ Inspection Method	Repairs/ Maint Needed	Repairs-Maint Completion date
59	Sewer Collection Manifold	10>4	452	Area Thru Refiner Pump Row	To Observation Access Can #6	D-500-500-098	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	N/A
60	Sewer Collection Manifold	10>4	316	Area Along East Side of Refiner	To Observation Access Can #6	D-500-500-098	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	N/A
61	Sewer Collection Manifold	8>4	60	Area @ & Around V101	To Observation Access Can #4	D-500-500-402	Carbon steel	2015	Jul-10	Pass	Hydrostatic	None	N/A
62	Sewer Collection Manifold	8>4	140	Area @ & Around T-101 Tower	To West Side Of Sewer Box #9	D-500-500-402	Carbon steel	2015	Jul-10	Pass	Hydrostatic	None	N/A
63	Sewer Collection Manifold	8>4	104	Area @ & Around P101	To North Side Of Sewer Box #9	D-500-500-402	Carbon steel	2015	Jul-10	Pass	Hydrostatic	None	N/A
64	Sewer Collection Manifold	8>4	88	Area @ & Around T-103 Tower	To Northwest Side Of Sewer Box #8	D-500-500-402	Carbon steel	2015	Jul-10	Pass	Hydrostatic	None	N/A
65	Sewer Collection Manifold	8>4	92	Area @ & Around Heavy Oil Exch	To North Side Of Sewer Box #8	D-500-500-402	Carbon steel	2015	Jul-10	Pass	Hydrostatic	None	N/A
66	Sewer Collection Manifold	8>4	41	Area @ & Around Main Air Blower	To Northwest Side Of Sewer Box #3	D-500-500-134	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	N/A
67	Sewer Collection Manifold	6>3	324	Area @ Burner Fuel Loading and Manifold	To Observation Access Can (Precipitator)	D-600-500-127	Carbon steel	2013					
68	Sewer Collection Manifold	4	141	Area Drains @ Air Building	To Sewer Transfer Line (Lined Box #1 to API)	D-500-500-180	Carbon steel	2013					
69	Sewer Collection Manifold	4	86	P-224 Pump & Cat Surface Drain	To Sewer Transfer Line From FCC Process	D-201-500-001	Carbon steel	2014	Jul-09	Pass	Hydrostatic	None	N/A
70	Sewer Collect./Transfer Line	6	896	Gas Con Unit Collection M.H.	To FCC Sewer Box Manhole #13	D-201-500-001	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	N/A
71	Sewer Transfer Line	10	35	From FCC Sewer Box M.H. #13	To FCC Sewer Box #14 (Roadway)	D-201-500-001	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	N/A
72	Sewer Transfer Line	10	235	From FCC Sewer Box M.H. #14	To 20" Inlet @ API	D-500-500-106	Carbon steel	2013					
73	Sewer Collection Manifold	6/4	335	Area @ & Around Gas Con. Unit	To Gas Con. Unit Sewer Collection	D-200-200-233	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	N/A
74	Sewer Transfer Line	10	159	From Treater Main Sewer Box #16	To Sewer Box #15 - S.E. Of C-204	D-500-500-186	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	N/A
75	Sewer Transfer Line	10	162	Sewer Box #15 - S.E. Of C-204	To 20" Inlet @ API	D-500-500-105	Carbon steel	2013					
76	Sewer Collection Manifold	10>4	411	Area In & Around Treater Unit	To Treater Sewer Box At South Side Of Unit	D-500-500-122	Carbon steel	2016	Aug-11	Pass	Hydrostatic	None	N/A
77	Sewer Collection Manifold	6>2		Area In & Around Poly Unit	To Inlet Bay @ API	D-500-500-126	Carbon steel	out of service	May-09	Pass	Hydrostatic	None	N/A
78	Sewer Transfer Line	10	130	From Sewer Box #17 @ DHT Unit	To Sewer Box #18 @ S.E. Corner of Poly	D-500-500-097	Carbon steel	2016	Aug-11	Pass	Replaced with Stainless Steel Piping	None	N/A
79	Sewer Transfer Line	12	35	From Sewer Box #18	To Inlet Manifold @ API Basin Area		Carbon steel	2013					
80	Sewer Collection Manifold	10>4	635	Area In & Around DHT/Latex Unit	To Sewer Box #18 @ S.E. Corner of DHT		Carbon steel	2016	Aug-11	Pass	Hydrotest	None	N/A
81	Crude Transfer Line	12	99	Pipe Rack East Of LPG Sto Tks.	Pipe Rack South of Crude Unloading Bays	D-000-900-023	Carbon steel	2013	May-08	Pass	Praxair	None	N/A
82	Crude Transfer Line	12	194	Pipe Rack South of Crude Unloading Bays	Berm South of Tank #43	D-000-900-023	Carbon steel	2013	May-08	Pass	Praxair	None	N/A
83	Sewer Transfer Line	4	822	Discharge at Tk #37	Valve box at corner Northeast of DHT	AMEC 617	Carbon Steel/PVC	2015	Jun-10	Pass	Hydrostatic	None	N/A
84	Sales Line from Tk #3 & 4	8	300	Area West of API Separator	DHT Option City		Carbon Steel	2013	Nov-07	Pass	Praxair	None	N/A
85	Diesel Receipts (truck)	6	25	Roadway SW of Tk #17	Piperack btwn Tk #34 and Tk #25	D-800-600-104(F-1)	Carbon Steel	2015	Jun-10	Pass	Hydrotest	None	N/A
86	Premium/Unleaded Receipts	6	25	Roadway SW of Tk #17	Piperack btwn Tk #24 and Tk #25	D-600-800-099 D-600-800-113	Carbon Steel	2015	Jun-10	Pass	Hydrotest	None	N/A
87	Groundwater Recovery Transfer Line	3	970	Tk #38	Slop Line NE of Tk #31	D-600-800-121	Carbon Steel	2015	Aug-10	Pass	Hydrotest	None	N/A
88	Injection Well Transfer	4	45	Injection Well Building	Downhole Injection Well	D-500-800-031	Carbon Steel	2015	Oct-10	Pass	Hydrotest	None	N/A

*All lines that are temporarily out of service due to suspension of refining operations were steamered out and are hydrocarbon free

13.0 BLOOMFIELD REFINERY UNDERGROUND PROCESS AND WASTEWATER LINES - Inspection & Repair Schedule

Line Number	Description (Service)	Line Size	Line Length L/F	Starting Location	End Location	Drawing Reference	Construction Material	Next Inspection Scheduled	Last Inspection Date	Inspection Results Pass/Fail	Test/ Inspection Method	Repairs/ Maint Needed	Repairs-Maint Completion date
89	VRU Return to Tanks 13 and 14	3	32	Pipe Bridge South of Tanks 13 and 14	Exits inside South Wall of Containment Berm	B-600-500-532	Carbon Steel	2016	Jan-11	Pass	Hydrostatic	None	N/A
90	Tie-in Tank 11 Crude to LACT	6	116	Pipe Bridge North of LACT Unit	10 ft East of Tie-in to LACT Unit	B-600-500-561	Carbon Steel	2016	Dec-11	Pass	Hydrostatic	None	N/A
91	Crude to Tank 11	6	34	Under Pipe Rack South of Tank 11	Exits Berm South of Tank 11	B-600-500-558	Carbon Steel	2016	11-Nov	Pass	Hydrostatic	None	N/A

Total Linear Feet of Lines

23509 Does not include out of service piping

*All lines that are temporarily out of service due to suspension of refining operations were steamed out and are hydrocarbon free

Total in 2011 - 4626 feet

BLOOMFIELD REFINERY SUMPS - Inspection & Repair Schedule

Sump Number	Location	Type Material	Drawing Reference	Actual Inspection Date	Inspection results Pass/Fail	Repairs/Maint Needed	Repairs/Maint Completion date
16	Sump @ S.W. Side Of Tk. 3	Concrete	D-000-900-023	11/8/2012	Pass	None	N/A
17	Sump Between Tk. 3 & 4	Concrete	D-000-900-023	11/8/2012	Pass	None	N/A
18	Sump Between Tk. 4 & 5	Concrete	D-000-900-023	11/8/2012	Pass	None	N/A
19	Sump @ N.Side Of Tk. 5	Concrete	D-000-900-023	11/8/2012	Pass	None	N/A
20	Sump Between Tk. 11 & 12	Concrete	D-000-900-023	11/8/2012	Pass	None	N/A
21	Sump Between Tk. 13 & 14	Concrete	D-000-900-023	11/8/2012	Pass	None	N/A
22	Sump @ N. Side Of Tk. 17	Sump Removed	D-000-900-023	11/9/2012	N/A	N/A	N/A
23	Sump @ N.E. Side Of Tk. 18	Concrete	D-000-900-023	11/9/2012	Pass	None	N/A
24	Sump @ N.E. Side Of Tk. 19	Concrete	D-000-900-023	11/9/2012	Pass	None	N/A
25	Sump @ S.W. Side Of Tk. 20	DW Steel	D-000-900-023	11/8/2012	Pass	None	N/A
26	Sump @ S. Side Of Tk. 23	Concrete	D-000-900-023	11/9/2012	Pass	None	N/A
27	Sump @ E. Side Of Tk. 24	DW Steel	D-000-900-023	11/9/2012	Pass	None	N/A
28	Sump @ E. Side Of Tk. 25	DW Steel	D-000-900-023	11/9/2012	Pass	None	N/A
29	Sump @ N.W. Side Of Tk. 26	Concrete	D-000-900-023	11/9/2012	Pass	None	N/A
30	Sump @ S.E. Side Of Tk. 27	Concrete	D-000-900-023	11/9/2012	Pass	None	N/A
31	Sump @ West Side Of Tk. 28	Concrete	D-000-900-023	11/9/2012	Pass	None	N/A
32	Sump @ N.E. Side Of Tk. 29	Concrete	D-000-900-023	11/9/2012	Pass	None	N/A
33	Sump @ S.W. Side Of Tk. 30	Concrete	D-000-900-023	11/9/2012	Pass	None	N/A
34	Sump @ N.W. Side Of Tk. 31	Concrete	D-000-900-023	11/9/2012	Pass	None	N/A
35	Sump @ S.E. Side Of Tk. 31	Concrete	D-000-900-023	11/8/2012	Pass	None	N/A
36	Sump @ East Side Of Tk. 32	Concrete	D-000-900-023	11/8/2012	Pass	None	N/A
37	Sump @ N.E. Side Of Tk. 35	DW Steel	D-000-900-023	11/9/2012	Pass	None	N/A
38	Sump @ N.E. Side Of Tk. 36	DW Steel	D-000-900-023	11/8/2012	Pass	None	N/A
39	Sump @ S. Side Of Tk. 18	Concrete	D-000-900-023	11/9/2012	Pass	None	N/A
40	Sump @ S. Side Of Tk. 19	Concrete	D-000-900-023	11/9/2012	Pass	None	N/A
41	Sump @ S. Side Of Flare	Concrete	D-000-900-023	Not in Service	Pass	None	N/A
42	Sump @ N.W. Of Precipitator	Concrete	D-000-900-023	Not in Service	Pass	None	N/A

Appendix E

APPENDIX E

Waste 2012

Pick-up Date	Manifest #	Description	Containers		Quantity	Destination	Treatment	Cert. of Disposal/ Consumption
			No.	Type				
1/18/2012	004878429 FLE	NA3077, Hazardous Waste, Solid (Main Column Bottoms Sludge) D-006, D-009, K-170	1	DM	400 P	US Ecology Idaho, Inc. 20400 Lemley Road Grand View, ID 83624	Incineration	Yes
6/25/2012	005170926 FLE	NA3077, Hazardous Waste, Solid (Gasoline Impacted Soil) D-018	1	DM	700 P	Clean Harbors Aragonite, LLC 11600 N. Aftus Road Aragonite, UT, 84209	Incineration	Yes
6/25/2012	005170925 FLE	NA3077, Hazardous Waste, Solid (Crude Bottoms Impacted PPE)	2	CY	1,140 P	US Ecology Idaho, Inc. 20400 Lemley Road Grand View, ID 83624	Incineration	Yes

DM = Metal Drum

P = Pounds

CY = Cubic Yard Box