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AGWMR

04/12/2012

Western Refining

LOGISTICS

3R258

WNR LISTED NYSE

April 12, 2012

Glen Von Gonten
Acting Environmental Bureau Chief
Environmental Bureau
New Mexico Energy, Minerals & Natural Resources Dept.
1220 South St. Francis Drive
Santa Fe, NM 87505

RECEIVED OCD
2012 APR 13 A 10:30

RE: 2011 Annual Report - Bloomfield Crude Station.

UPS Tracking #: 1Z 881 839 24 5457 5832

Dear Mr. Von Gonten;

Please find enclosed the 2011 Annual Report for the former Bloomfield Crude Station located in the NW ¼ of the NW ¼ of Section 22, Township 29 N, Range 11 W in Bloomfield, New Mexico.

If you should have any questions or require additional information, please do not hesitate to contact me at 505-632-4171 or at Randy.Schmaltz@wnr.com.

Sincerely,

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

Cc: Brandon Powell, NM OCD Aztec District Office
Allen Haines, Western Refining, El Paso
WNR File

BLOOMFIELD CRUDE STATION
BLOOMFIELD, NEW MEXICO

ANNUAL REPORT

March 2012

WESTERN REFINING SOUTHWEST, INC.

111 County Road 4990

Bloomfield, New Mexico 87413

2011 ANNUAL REPORT

BLOOMFIELD CRUDE STATION
BLOOMFIELD, NEW MEXICO

MARCH 2012

Prepared for:

WESTERN REFINING SOUTHWEST, INC.
111 COUNTY ROAD 4990
BLOOMFIELD, NEW MEXICO 87413

Prepared by:

LT ENVIRONMENTAL, INC.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
(970) 385-1096

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EXECUTIVE SUMMARY

LT Environmental, Inc. (LTE), on behalf of Western Refining Southwest, Inc. (Western), has prepared this report detailing work completed between April 2011 through March 2012 at the former Bloomfield Crude Station (Site) in Bloomfield, New Mexico.

The Site is located on the southwest corner of Blanco Boulevard and Fifth Street in the city of Bloomfield, New Mexico. The legal description of the Site is the northwest quarter of the northwest quarter of Section 22, Township 29 North, Range 11 West in San Juan County, New Mexico.

The scope of work includes mitigation of subsurface hydrocarbon impacts identified following removal of a 55,000 barrel crude oil storage tank in late 1995. Historical releases from this tank are believed to be the source for impacted soil and groundwater. During the time period covered by this report, Western utilized a bioventing system to reduce concentrations of hydrocarbons in the subsurface soil. LTE conducted regular operations and maintenance on the system hardware, and monitored subsurface airflow quarterly by measuring concentrations of oxygen and carbon dioxide gas. Soil samples were collected quarterly to examine effectiveness of the system. LTE monitored groundwater quality by sampling six monitoring wells in January 2012.

Bioventing is effectively reducing the concentrations of hydrocarbons in the subsurface soil. Progress for reduction of total petroleum hydrocarbons (TPH) in the soil has slowed more recently, most likely due to the presence of clay in the subsurface. Concentrations of benzene, toluene, ethylbenzene, and total xylenes (BTEX) in the groundwater have diminished except in monitoring well MW-7. Monitoring well MW-6 contains minor concentrations of ethylbenzene and total xylenes that are below New Mexico Water Quality Control Commission (NMWQCC) standards. Monitoring wells MW-6 and MW-7 are located cross-gradient of the source areas and the BTEX concentrations detected in those monitoring wells are not likely related to Western's activities. BTEX concentrations in groundwater from other monitoring wells have been below NMWQCC standards since January of 2007.

Western will continue bioventing to reduce TPH concentrations remaining in the soil. Based on mulitple years of analytical results demonstrating that BTEX and gasoline range organics concentrations in soil remain below New Mexico Oil Conservation Division soil standards. Western will consider removing these analytes from the soil sampling program. Lastly, Western will continue annual sampling of groundwater wells for laboratory analysis to monitor groundwater quality at the Site.

1.0 INTRODUCTION

LT Environmental, Inc. (LTE), on behalf of Western Refining Southwest, Inc. (Western), has prepared this report detailing work completed from April 2011 through March 2012 to mitigate hydrocarbon-impacted soil and groundwater at the former Bloomfield Crude Station (Site) in Bloomfield, New Mexico.

1.1 SITE DESCRIPTION

The Site is located on the southwest corner of West Blanco Boulevard and North Fifth Street in Bloomfield, New Mexico. It occupies approximately 5.5 acres within the northwest quarter of the northwest quarter of Section 22, Township 29 North, Range 11 West in San Juan County (Figure 1).

A 55,000 barrel crude oil storage tank (Tank 967-D) constructed in 1956 was previously located within an earthen berm at the Site (Figure 2). Tank 967-D and the earthen berm were removed between late 1995 and early 1996. Currently, the former tank location is unoccupied.

West of the Site is a City of Bloomfield electrical substation and two natural gas well sites owned and operated by Mañana Gas. West of the electrical substation and the Mañana well sites, on the corner of North Frontier Street and West Blanco Boulevard, is a vacant lot. There appears to be a well monument located on the lot and may indicate a previous well site that has been plugged and abandoned. Historical research of this area indicates that several oil wells, and possibly gas wells with associated unlined pits, were operational on this lot, such as the Bishop #1, Bishop #3, Hare #1 and Kittell #1 (Figure 2).

Site lithology consists of coarse to very coarse, well sorted and dry sand extending from the ground surface to depths between 4 feet to 11 feet below ground surface (bgs). The sand grades into clayey sands and sandy clays. These fine-grained layers consist of low plasticity clay that is medium dense or stiff and moist. Within the fine-grained clay layers are occasional coarse to very coarse well-graded saturated sand layers ranging from 2 inches to 8 inches thick. These sand layers are discontinuous, but appear to transport shallow groundwater beneath the Site. A sandy clay layer, which retards downward movement of perched water, occurs from 8 feet to 19 feet bgs. Depth to groundwater in the shallow saturated zone is approximately 15 feet bgs. The direction of groundwater flow varies from southwest to south-southeast. Recharge to this perched zone is most likely from direct infiltration of rainfall or from seasonal up-gradient irrigation. Natural groundwater quality, as measured in up-gradient and source area wells over time, consistently exhibits elevated total dissolved solids (TDS) and sulfate contents. Specific details on Site geography, hydrogeology, and geology are described in the report *Site Assessment for the Bloomfield Crude Station*, May 1995, previously submitted to the New Mexico Oil Conservation Division (NMOCD).

1.2 SITE HISTORY

When Tank 967-D and the earthern berm were removed in 1995 and 1996, approximately 12,924 cubic yards of hydrocarbon-impacted soil were excavated and disposed of at Western's Bisti landfarm. The excavation began on the east side of the tank pad and proceeded to the west.

Midway across the tank pad, phase-separated hydrocarbons (PSH) were observed on the groundwater along the southern edge of the excavation. This portion of the excavation was left open until 2001 to allow for recovery of PSH. Numerous subsurface investigations were conducted to define the limits of hydrocarbon migration and to design appropriate remedial systems. Historical accounts of soil boring and groundwater well installation activities are detailed in reports previously submitted to the NMOCD, including *Comprehensive Report for the Bloomfield Crude Station*, January 2000, and *Monitoring Well Installation, Groundwater Sampling and Bioventing Pilot Test*, July 2001.

Between 1994 and 2001, seven groundwater monitoring wells were installed, six of which are currently still in use (Figure 2). Monitoring well MW-1 was completed above the groundwater table and never produced sufficient volumes of water for sampling and was abandoned during excavation of the tank pad. Results from early sampling indicated that MW-2 was located in a PSH plume and monitoring wells MW-3, MW-4, MW-5, and MW-6 were outside of the plume. In addition, presence of dissolved phase hydrocarbons was confirmed in MW-2 and MW-7. It has been argued that MW-7, located cross-gradient of the Site, exhibits a different groundwater quality signature than other monitoring well data and may be related to a separate source area. Monitoring well MW-7 is not considered part of the contaminant plume at the Site.

Historic soil borings indicated that significant amounts of clean overburden would have to be removed to excavate additional hydrocarbon-impacted soil. Alternate remedial activities resulting from subsurface investigations have included manual removal of PSH from the water table, bioventing, air sparging, and groundwater monitoring. Details of these activities can be found in previous annual reports submitted by Western to the NMOCD.

1.2.1 Bioventing

Following a successful pilot test on June 20, 2001, bioventing was initiated at the Site on February 17, 2003. System installation included boring 3-inch diameter holes with a hand auger, collecting soil samples every 3 feet and screening the samples using NMOCD headspace techniques. Eight soil samples with the highest headspace readings were submitted for laboratory analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX), as well as total petroleum hydrocarbons (TPH).

One foot of 1-inch diameter polyvinyl chloride (PVC) 0.01-inch slotted well screen was set in each hole at approximately 12 feet bgs at 39 locations. The air was injected where field screening and laboratory analyses indicated elevated concentrations of hydrocarbons existed in the subsurface. Injection points have varied over time, in an effort to target problem areas. Twenty two points are currently used for monitoring subsurface gases, and seventeen points are used to inject air. Monitoring and injection point locations are depicted on Figure 3.

Injection air is supplied by a Gast™ oil-less rotary vane compressor that supplies approximately 90 standard cubic feet per minute air. The compressor is housed in a former office building at the Site and travels through 1 ½-inch PVC pipe to each injection point. The compressor operates from 0600 hours to 1800 hours Monday through Friday.

1.2.2 Groundwater Remediation

From 1999 through 2004, Giant Industries, Arizona (currently known as Western Refining Southwest, Inc.) regularly monitored PSH concentrations and manually purged groundwater and PSH from MW-2, as necessary, using a disposable bailer. PSH was also removed from the portion of the excavation left open from 1996 through 2001. After 2004, PSH was no longer observed in MW-2, but elevated concentrations of BTEX were detected in groundwater samples from MW-2. To address the elevated BTEX concentrations, an air sparge system was installed adjacent to MW-2 on October 9, 2006. BTEX concentrations from groundwater samples in MW-2 dropped below New Mexico Water Quality Control Commission (NMWQCC) standards by January 2007. Quarterly sampling of MW-2 was initiated in 2007 to more closely monitor BTEX concentrations. The air sparge system was turned off in March 2008 after 5 consecutive clean quarters to ascertain whether BTEX concentrations in the groundwater would remain below NMWQCC standards or rebound. By February 2010, eight consecutive quarters of groundwater samples from MW-2 were below NMWQCC standards for BTEX and MW-2 was placed on the same annual sampling schedule as other monitoring wells at the Site.

1.3 SCOPE OF WORK

The scope of work for this project included biweekly operations and maintenance of the bioventing system. Oxygen and carbon dioxide gases were monitored quarterly in the subsurface airflow system, and quarterly soil samples were collected to evaluate the effectiveness of the system. Annual groundwater sampling was conducted to monitor groundwater quality at the Site. A summary of field activities, subsurface airflow data, analytical results from soil and groundwater sampling, and conclusions are presented in the subsequent sections of this report.

2.0 METHODOLOGY

During the period covered in this report, bioventing continued as described in the *Bioventing Plan*, dated July 2002. Soil was sampled from monitoring and injection points associated with the bioventing system, and oxygen and carbon dioxide were measured in subsurface air flow. All groundwater monitoring wells were sampled to monitor overall groundwater quality.

2.1 BIOVENTING

Operations and maintenance activities were conducted bi-monthly on the bioventing system to ensure that the system was functioning properly. A technician conducts a site visit and inspects the compressor and timer. The technician then walks the Site visually inspecting PVC piping and valves for damages or problems, and addressing general housekeeping needs as required.

Oxygen and carbon dioxide concentrations in subsurface air flow were measured quarterly. Gases were measured through valves at each monitoring and injection point with a GEM 500 Gas Monitor. Each monitoring and injection point was evacuated until the gas reading stabilized, at which time gas concentrations were recorded.

2.2 SOIL SAMPLING

Soil samples were collected quarterly using a hand powered auger. Samples were collected from a location approximately 1 foot or less away from where the initial 8 soil samples were collected during system installation, and at the same depths as the original samples. Samples were collected in 1-gallon plastic bags and split for headspace and laboratory analysis. The soil samples were immediately placed in 4-ounce glass jars, sealed, labeled, stored on ice, and shipped under strict chain-of-custody procedures to Hall Environmental Analysis Laboratory (HEAL) in Albuquerque, New Mexico. HEAL analyzed the soil samples for BTEX and TPH by United States Environmental Protection Agency (USEPA) Methods 8021B and 8015B, respectively.

2.3 GROUNDWATER SAMPLING

LTE personnel sampled groundwater from MW-2 through MW-7 on January 4, 2012. MW-7 was sampled at the request of NMOCD; although, as discussed in previous reports, Western does not believe groundwater impact at this location is related to their operations.

Prior to sampling, depth to groundwater and total depth of each monitoring well were measured with a Keck oil-water interface probe. The interface probe was decontaminated with Alconox™ soap and rinsed with de-ionized water prior to each measurement. The volume of water in the monitoring wells was calculated, and a minimum of three casing volumes of water was purged from each monitoring well using a disposable bailer. As groundwater was extracted, pH, electric conductivity, and temperature were monitored. The monitoring wells were purged until these properties stabilized, indicating that the purge water was representative of aquifer conditions.

Once each monitoring well was purged, groundwater samples were collected by filling three 40-mililiter glass vials to be analyzed for BTEX by USEPA Method 8021B. The pre-cleaned and

pre-preserved vials were filled and capped with no air inside to prevent degradation of the sample. Additional groundwater was collected in plastic bottles with appropriate preservative for analysis of general chemistry, including major cations, anions, TDS, pH, specific conductance, recoverable metals, hardness, and alkalinity. All groundwater samples were labeled with the time and date of collection, as well as the origin of the sample. They were immediately sealed and packed on ice and shipped to HEAL under proper chain-of-custody procedures.

3.0 ANALYTICAL RESULTS

3.1 BIOVENTING

Table 1 shows the average yearly carbon dioxide and oxygen concentrations measured in subsurface air from the bioventing system. Monitoring was conducted at all injection and monitoring points since the bioventing system configuration has changed over time to target areas of highest hydrocarbon concentrations. The actual quarterly measurements are shown in Appendix A. Oxygen and carbon dioxide measurements have been consistent since 2007; however, minor changes were observed during this monitoring period. The amount of oxygen detected in IP6 increased and the amount of carbon dioxide detected in IP6 decreased as compared to previous years' data. Oxygen decreased and carbon dioxide increased in IP3, IP5, IP9, and IP10. Except for IP10, the average oxygen measured in each of these locations remained greater than 10 percent (%). The average oxygen measured in IP10 was 3.7 %. During April and October, no oxygen was detected at that location.

3.2 SOIL ANALYTICAL RESULTS

TPH concentrations in soil samples have generally decreased during bioventing operations as shown on Table 2 and depicted in Figure 4. The largest decreases in TPH concentrations were observed between 2002 and 2006. Since 2006, TPH concentrations in soil samples have been variable. During one or more monitoring events, soil samples collected from IP7, IP10, IP12, IP16, MP7, and MP11 exceeded NMOCD standards. The gasoline range organic (GRO) constituent was not detected in any of the soil samples. Monitoring Point MP7 is the only monitoring point that exceeded the NMOCD standard for TPH during all four quarterly sampling events. Soil samples from MP3 and MP8 were below NMOCD standards for all four quarters. Benzene and total BTEX concentrations in all soil samples have been below NMOCD standards since 2002 (Table 2 and Figure 5). Laboratory analytical reports and chain-of-custody documentation are found in Appendix B. Historical results are found in Appendix C.

3.3 GROUNDWATER ANALYTICAL RESULTS

LTE measured depth to groundwater in MW-2, MW-3, MW-4, MW-5, MW-6, and MW-7 on January 4, 2012. The depth to groundwater data were used to calculate groundwater elevations and prepare a potentiometric surface map for the site (Figure 6). Depth to groundwater and calculated groundwater elevations are presented in Table 3. Groundwater elevations ranged from 5,468.09 feet above mean sea level (amsl) in MW-5 to 5,475.36 feet amsl in MW-3. A groundwater elevation map is depicted in Figure 6. Groundwater flow direction is to the south-southwest in the northern portion of the Site and to the south in the southern portion of the Site. For the first time, mounding is present near MW-6.

BTEX concentrations in groundwater samples collected on January 4, 2012 were below NMWQCC standards from all monitoring wells except MW-7. The groundwater sample from MW-7 contained 62 micrograms per liter (µg/l) of benzene 3,500 µg/l of total xylenes. Laboratory analytical results for BTEX concentrations in groundwater samples collected on January 4, 2012 are presented in Table 4 and on Figure 7. Complete laboratory reports are

provided in Appendix D. Historical groundwater sampling results (1994-January 2011) are summarized in Appendix E.

Results of the general chemistry and metals analyses of groundwater samples are detailed in Table 5. Consistent with historic results, samples collected from MW-2, MW-3, MW-4, MW-5, and MW-6 exhibit TDS values and sulfate concentrations exceeding NMWQCC standards. The TDS and sulfate concentrations in MW-7 do not exceed the NMWQCC standards. The groundwater sample collected from MW-5 contained 510 mg/l of chloride, which exceeds the NMWQCC standard for chloride. Laboratory analytical results indicate metals concentrations are below NMWQCC standards in all monitoring wells, except for iron. All monitoring wells contain iron concentrations exceeding NMWQCC standards for domestic water supplies (Table 6).

4.0 CONCLUSIONS

During the past eight years of operations, TPH and BTEX concentrations in soil have decreased, indicating the bioventing is effectively reducing concentrations of hydrocarbons in the subsurface soil. Prior to initiation of bioventing activities in 2003, seven of eight soil samples exceeded NMOCD standards for TPH and four exceeded the NMOCD standard for total BTEX. TPH concentrations in soil decreased significantly through 2006, but remained above NMOCD standards one or more times during this monitoring period at IP7, IP10, IP12, IP16, MP7, and MP11. TPH concentrations in samples collected at MP3 and MP8 were below NMOCD standards during all four sampling events. The gasoline range organic (GRO) constituent was not detected in any of the soil samples. BTEX concentrations at all injection and monitoring points have been below NMOCD standards since 2002.

Soil type may be affecting progress for TPH concentration reductions in soil. Based on original borehole logs, the areas with TPH concentrations exceeding NMOCD standards include areas southeast (MP7 and IP10) and southwest of the excavation (IP12 and IP7) and the northwest corner of the excavation (IP16). The depths from which samples were taken in these areas are in or surrounded by sand containing a portion of clay within its matrix. The bioventing system quickly facilitated biodegradation of hydrocarbons within the pure sand layers; but hydrocarbon concentrations within the lithologic layers that contain clay are harder to reduce, as clay impedes efficient airflow. The bioventing system continues to reduce the overall TPH concentrations, but decreases in the clay layers will require additional time.

Concentrations of oxygen and carbon dioxide recorded through January 2012 indicate active biologic activity at the Site since bioventing began. Oxygen concentrations measured from 2002 through 2004 decreased, representing enhanced biologic activity during startup of operations. Oxygen concentrations began to rise in 2005, indicating less oxygen was being consumed as less hydrocarbon mass was available for biodegradation. A reverse trend is observed in carbon dioxide concentrations. Carbon dioxide concentrations peaked in 2004, when hydrocarbon mass and biologic activity was elevated; and have declined since 2004 as biological activity decreases the mass of hydrocarbons available for biodegradation.

Air sparging operations were successful in reducing BTEX concentrations in groundwater from MW-2. The air sparging system was shut down in March 2008, and MW-2 was placed on a quarterly sampling schedule for closure. Eight clean quarters of groundwater sampling were documented and included in the 2010 annual report. The absence of PSH on the groundwater table and the reduction in concentrations of BTEX in the groundwater from MW-2 indicates that contaminants of concern have been removed from the groundwater at the Site.

Groundwater from MW-7 contains concentrations of benzene and total xylenes exceeding NMWQCC standards. These impacts are not likely related to Western's activities at the Site due to MW-7's proximity to former off-site oil and gas wells and its location west of and cross-gradient to the Site. Groundwater sampled from MW-6 contains small concentrations of ethylbenzene and total xylenes. Based on groundwater flow direction, the contaminants have

most likely originated from somewhere other than the original source at the Site and may be related to a change in groundwater flow behavior that has resulted in mounding. Groundwater elevations and BTEX concentrations will require additional monitoring to confirm the changes observed at MW-6 this year.

Groundwater general chemistry and metals results, including those reported from an upgradient monitoring well (MW-3), indicate that the groundwater is not suitable for domestic use due to concentrations of TDS, sulfate, and iron that exceed the NMWQCC standards. Historical analytical sampling records indicate TDS and sulfate concentrations in groundwater at the Site have always been elevated. The lower concentrations of TDS and sulfate present in MW-7 compared to MW-2, MW-3, MW-4, MW-5, and MW-6 indicate a different general chemistry signature is present in the groundwater in MW-7; further evidence that the source for elevated BTEX concentrations in MW-7 are not from the Tank 967-D release at the Site.

5.0 RECOMMENDATIONS

Based on the data presented in this report, Western will continue bioventing to reduce the hydrocarbon concentrations in soil and monitor groundwater annually. Since multiple years of sampling results indicate that BTEX and GRO concentrations in soil have been remediated to below NMOCD standards, Western will consider removing analysis of BTEX and GRO from the soil monitoring program.

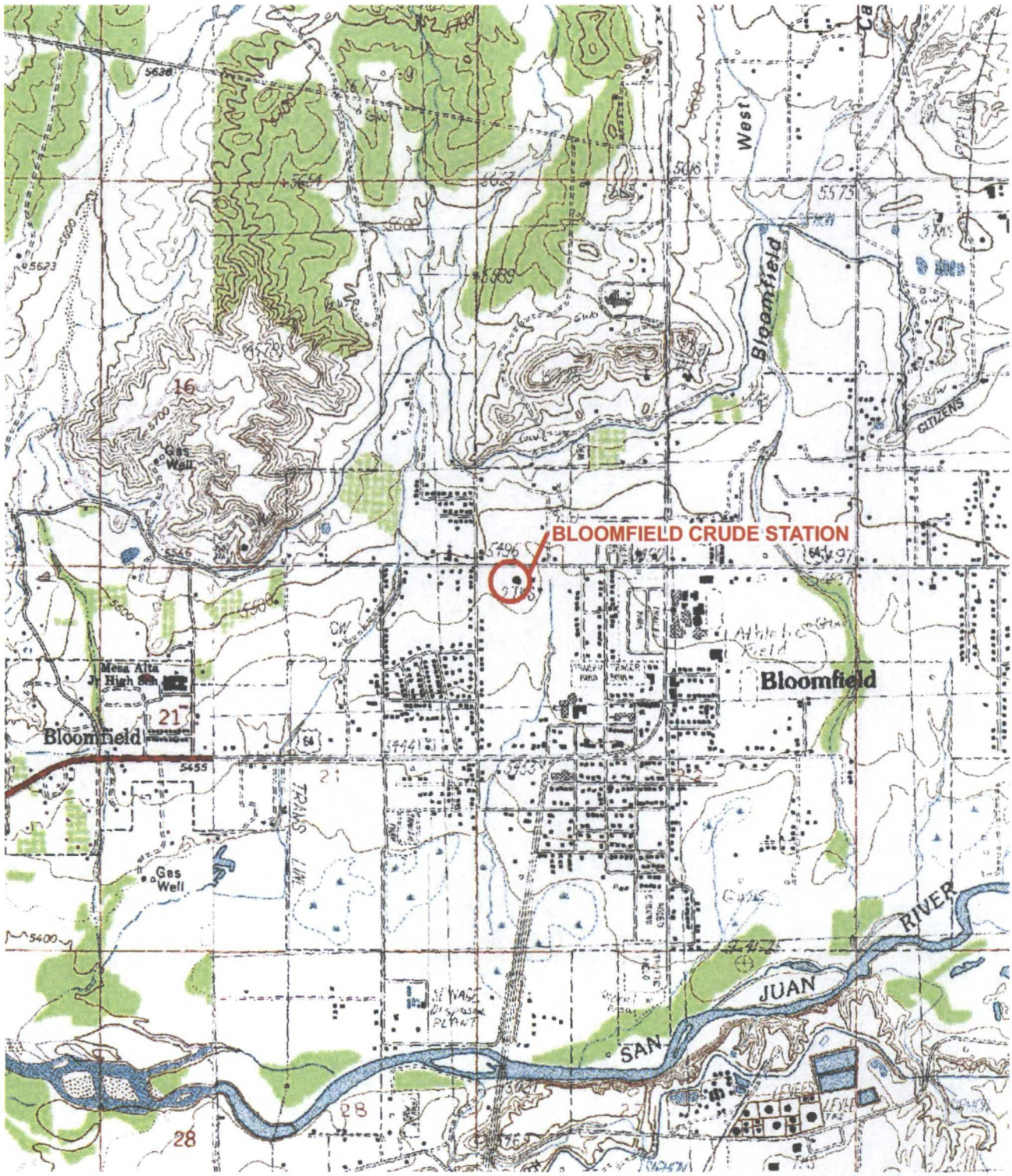


IMAGE COURTESY OF USDA/NRCS, VARIOUS DATES

LEGEND

SITE LOCATION

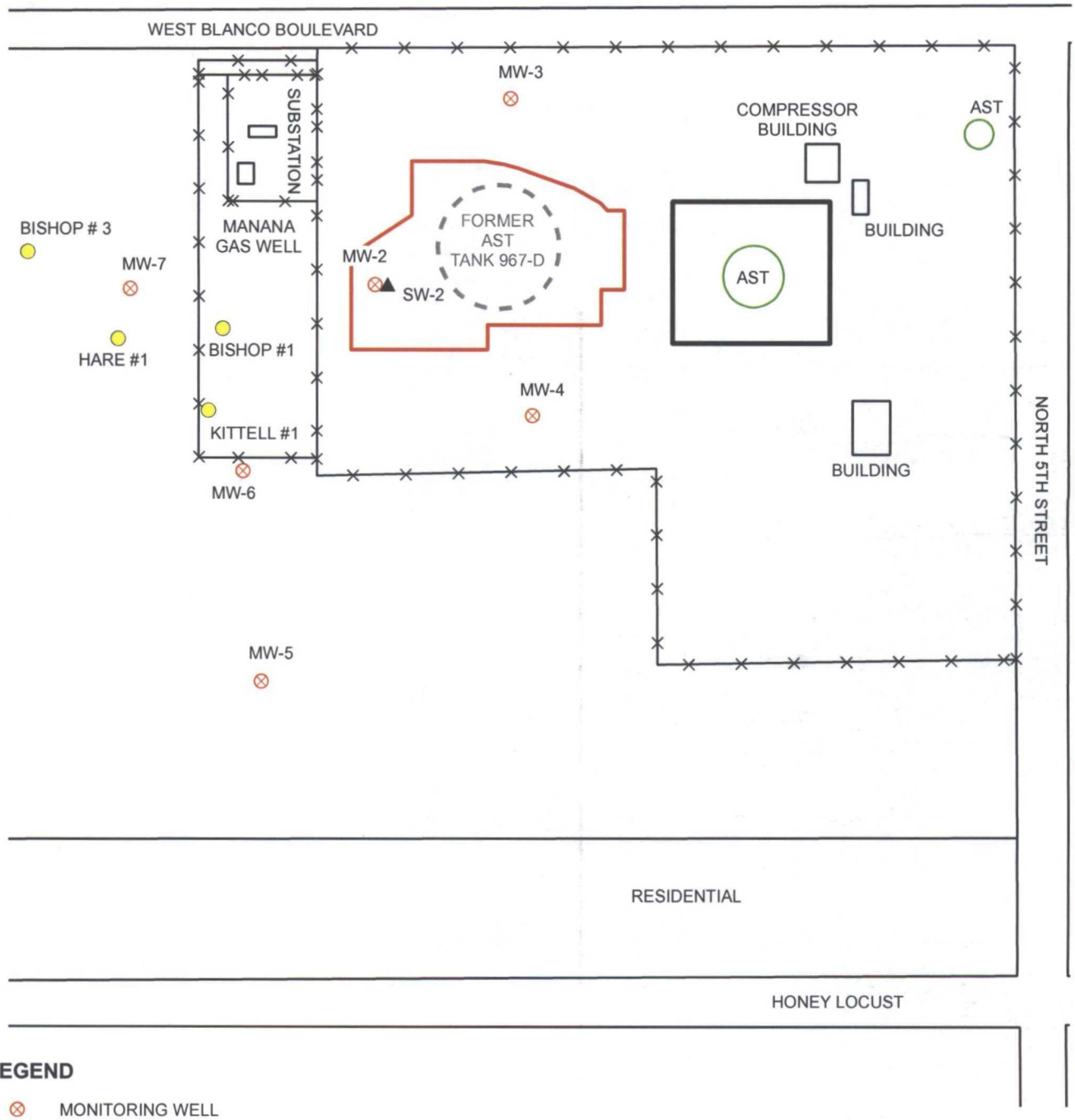
0 2,000 4,000

Feet

N

FIGURE 1
SITE LOCATION MAP
BLOOMFIELD CRUDE STATION
NWNW SEC 22 T29N R11W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING, SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1007 BLOOMFIELD CRUDE\WR1007_BLOOMFIELD_FIG01_SL.mxd



LEGEND

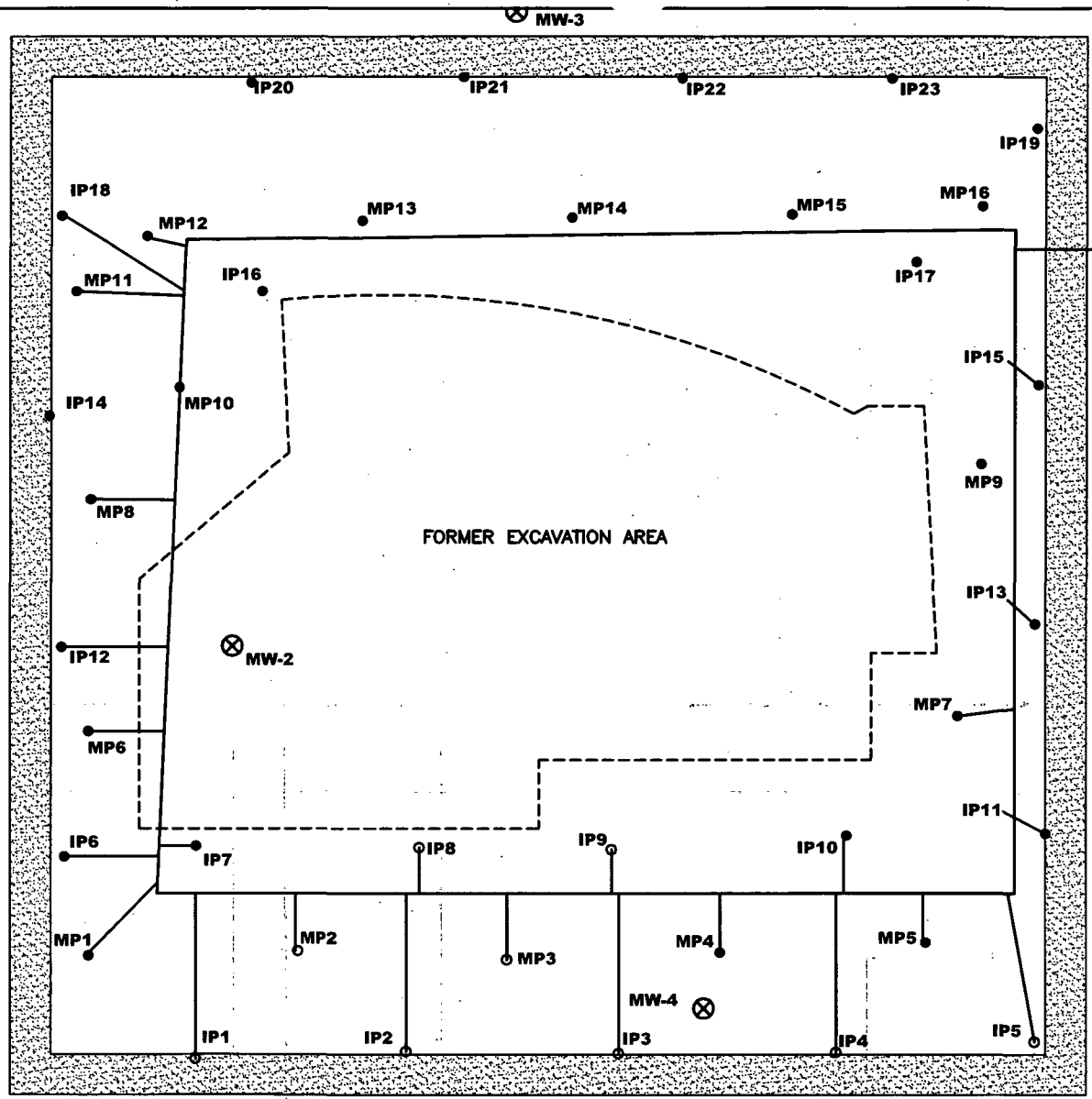
- MONITORING WELL
- HISTORIC OIL AND GAS WELL (APPROXIMATE)
- SPARGE WELL
- BERM
- FENCE
- ABOVEGROUND STORAGE TANK (AST)
- FORMER EXCAVATION PERIMETER
- FORMER AST

0 125 250
Feet

N

FIGURE 2
SITE MAP
BLOOMFIELD CRUDE STATION
NWNW SEC 22 T29N R11W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING, SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1007 BLOOMFIELD CRUDE\WR1007_BLOOMFIELD_FIG01_SL.mxd



NOT TO SCALE

LEGEND

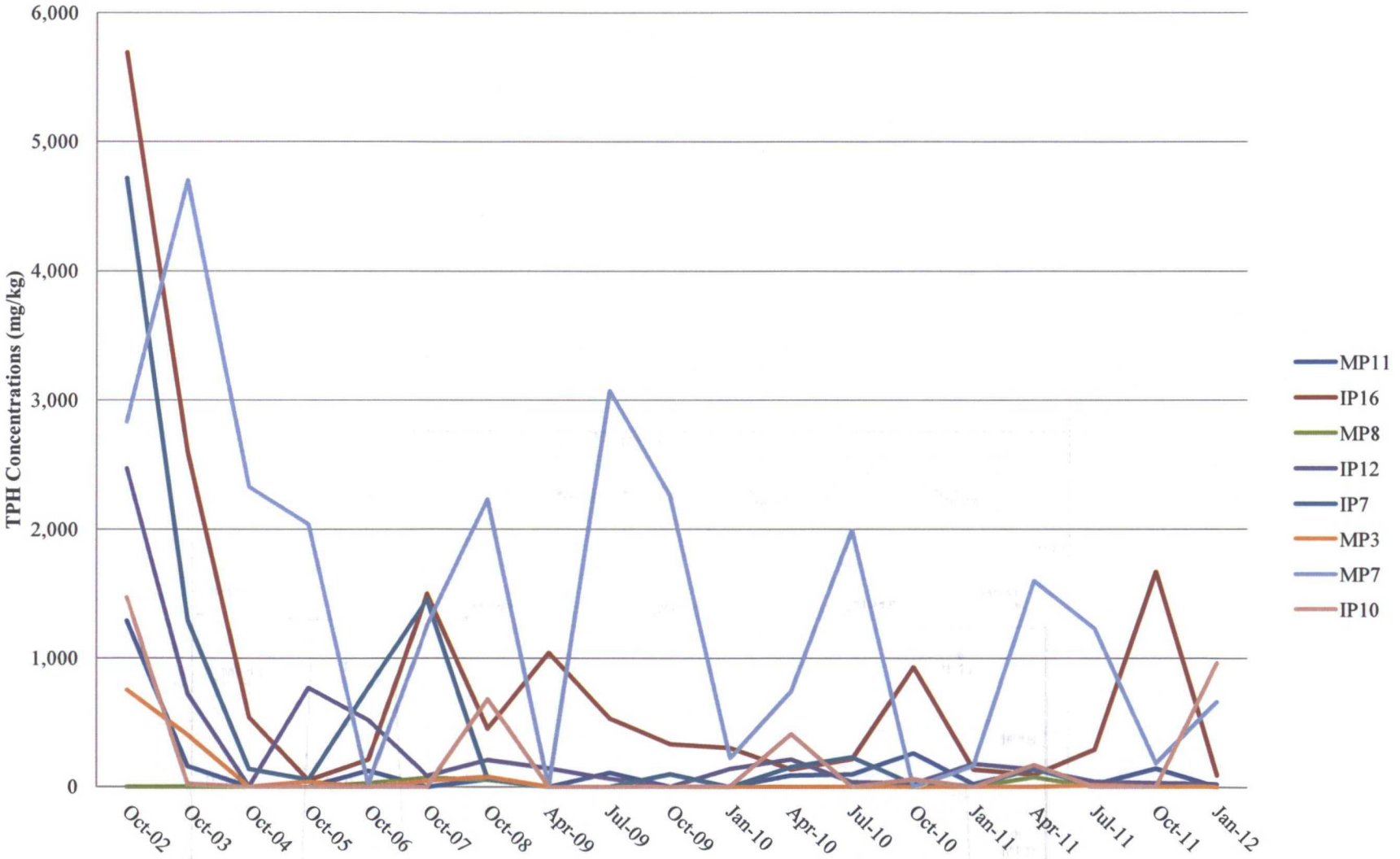
- MONITORING WELL
- INJECTION POINT
- MONITORING POINT
- FORMER BERM
- FORMER EXCAVATION PERIMETER
- AIR SUPPLY LINE

FIGURE 3
BIOVENT SYSTEM LAYOUT
BLOOMFIELD CRUDE STATION
NWNW SEC 22 T29 R11W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING, SOUTHWEST, INC.

WR100702 2/11

Figure 4

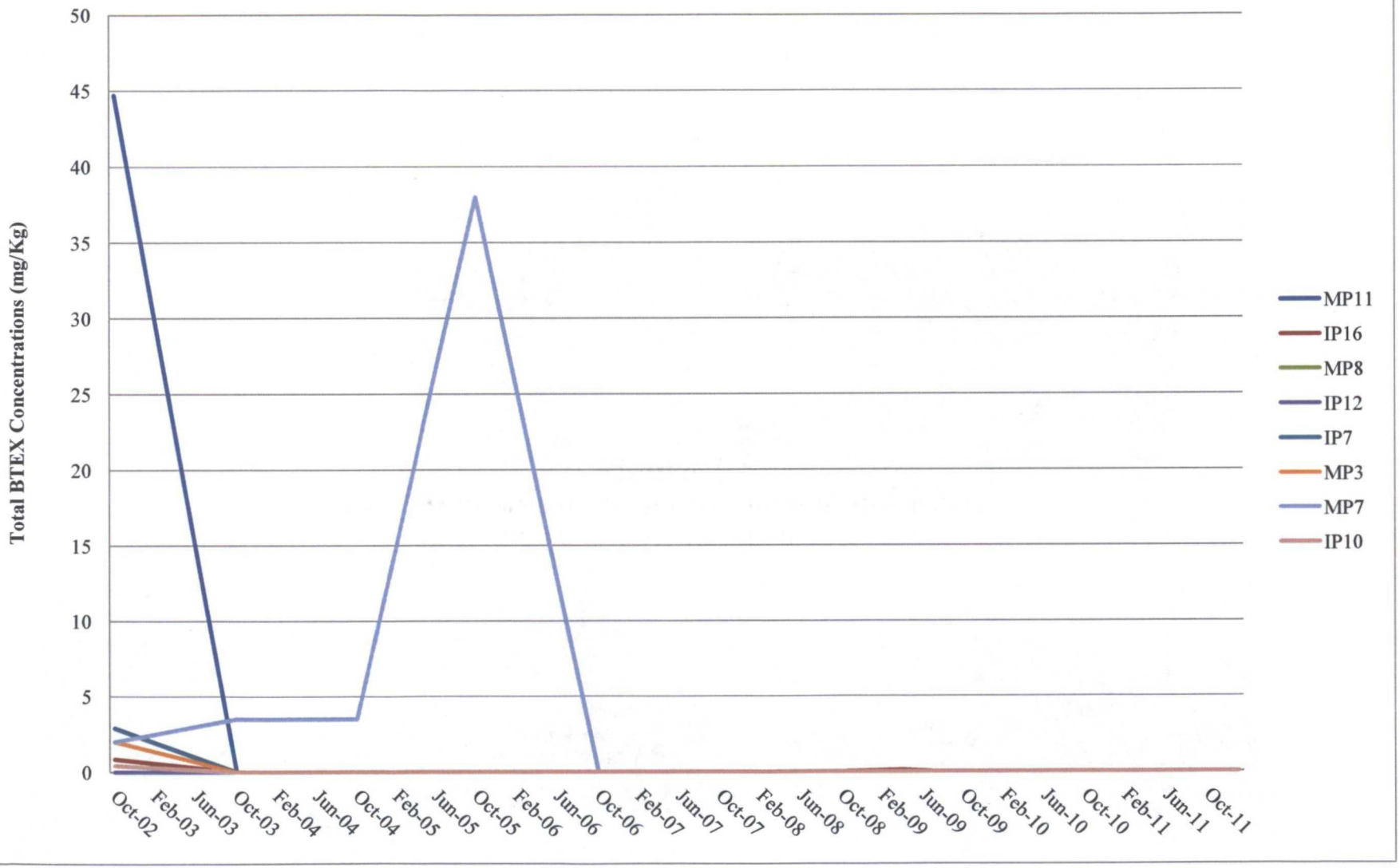
Soil TPH Results at Monitoring and Injection Points
Bloomfield Crude Station

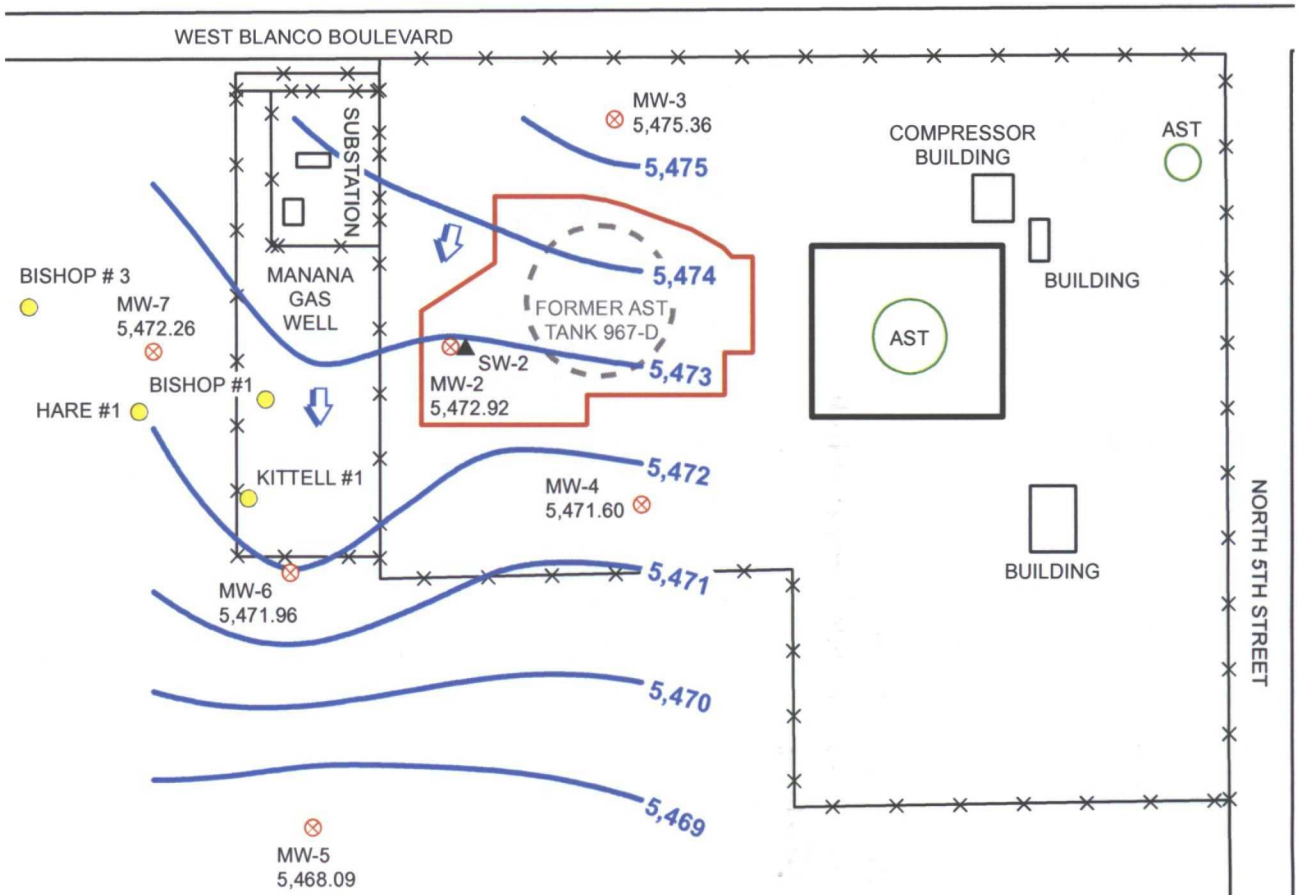


TPH - total petroleum hydrocarbons mg/kg - milligrams per kilogram

Figure 5

Soil Analytical Total BTEX Results at Monitoring and Inection Points
Bloomfield Crude Station





LEGEND

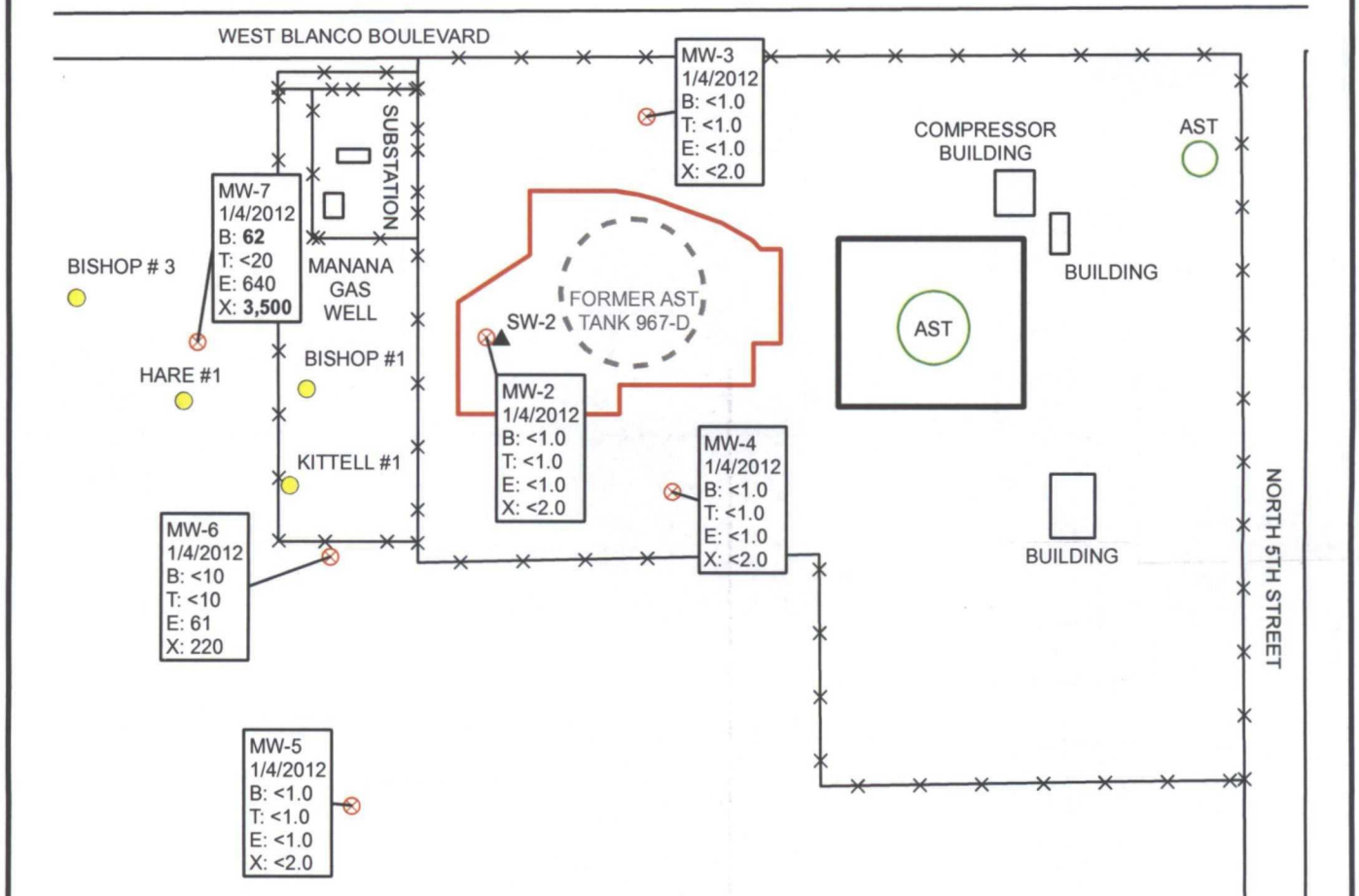
- MONITORING WELL
  GROUNDWATER ELEVATIONS MEASURED IN FEET
  ABOVE MEAN SEA LEVEL ON JANUARY 4, 2012
- HISTORIC OIL AND GAS WELL (APPROXIMATE)
- SPARGE WELL
- ESTIMATED GROUNDWATER FLOW DIRECTION
- BERM
- FENCE
- ABOVEGROUND STORAGE TANK (AST)
- FORMER EXCAVATION PERIMETER
- FORMER AST
- GROUNDWATER ELEVATION CONTOUR
  CONTOUR INTERVAL = 1 FOOT

0 125 250
Feet

N

FIGURE 6
GROUNDWATER ELEVATION MAP
BLOOMFIELD CRUDE STATION
NWNW SEC 22 T29N R11W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING, SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1007 BLOOMFIELD CRUDE\WR1007_BLOOMFIELD_FIG01_2012_Q1.mxd



LEGEND

- MONITORING WELL
- HISTORIC OIL AND GAS WELL (APPROXIMATE)
- SPARGE WELL
- BERM
- FENCE
- ABOVEGROUND STORAGE TANK (AST)
- FORMER EXCAVATION PERIMETER
- FORMER AST

SAMPLE ID
SAMPLE DATE
B: BENZENE
T: TOLUENE
E: ETHYLBENZENE
X: TOTAL XYLENES
TOC: TOP OF CASING IN FEET
ALL ANALYTICAL RESULTS ARE IN MICROGRAMS PER LITER
<: LESS THAN LABORATORY METHOD DETECTION LIMIT
BOLD INDICATES RESULT EXCEEDS NEW MEXICO WATER QUALITY CONTROL COMMISSION STANDARD

0 125 250
Feet

N

FIGURE 7
GROUNDWATER ANALYTICAL RESULTS
BLOOMFIELD CRUDE STATION
NWNW SEC 22 T29N R11W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING, SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1007 BLOOMFIELD CRUDE\WR1007_BLOOMFIELD_FIG01_2012_Q1.mxd

TABLE 1

AIR MONITORING RESULTS
BLOOMFIELD CRUDE STATION
WESTERN REFINING

Monitoring Point	Oxygen Percentage									
	Pre-test	2003 avg	2004 avg	2005 avg	2006 avg	2007 avg	2008 avg	2009 avg	2010 avg	2011 avg
IP1						17.1	19.1	18.9	19.5	17.5
IP2						20.5	12.4	20.7	20.7	19.7
IP3						20.2	20.2	18.0	20.5	16.0
IP4						20.5	20.3	20.5	20.2	18.0
IP5						19.2	20.3	19.9	19.3	14.3
IP6						15.1	19.6	15.3	12.4	20.2
IP7						18.0	20.0	20.6	20.9	20.2
IP8	20.2	3.3	4.8	0.0	0.0	20.5	10.8	20.7	20.9	20.2
IP9						18.1	20.2	20.0	17.0	13.5
IP10	17.2	3.2	12.4	4.8	7.2	14.5	14.6	13.8	5.1	3.7
IP11	20.9	9.5	8.6	13.5	19.6	20.4	20.4	18.2	21.0	20.0
IP12						18.4	18.8	20.8	20.8	19.9
IP13	20.9	8.6	19.0	18.3	17.9	19.5	18.9	18.5	14.1	16.8
IP14	19.9	5.8	4.5	3.4	15.6	18.5	14.4	14.3	13.4	16.5
IP15	20.9	0.1	19.9	20.3	20.0	20.3	20.2	20.4	20.3	19.4
IP16						20.5	14.3	21.2	21.0	20.3
IP17	20.9	0.4	19.2	19.0	19.4	17.6	20.4	20.0	19.8	18.5
IP18						17.6	19.2	21.2	21.0	20.2
IP19	20.9	9.3	16.2	18.1	19.4	19.1	19.7	20.2	19.0	17.2
IP20	20.5	5.9	7.2	13.5	17.8	19.0	19.7	19.4	19.9	19.3
IP21	20.9	8.3	18.1	19.7	18.7	20.0	20.2	20.1	19.9	19.0
IP22	20.9	0.1	17.5	18.3	19.2	20.0	20.3	19.7	19.2	18.1
IP23	20.9	0.7	19.3	18.7	19.4	20.2	20.7	19.9	19.8	18.4
MP1						17.9	19.5	20.7	20.9	20.2
MP2						20.4	20.2	15.9	17.8	15.6
MP3						17.0	18.2	18.1	19.0	17.4
MP4	19.0	1.9	6.2	2.0	0.0	20.5	13.4	17.9	11.1	19.8
MP5						20.5	18.7	20.4	21.0	19.8
MP6						15.7	19.9	20.8	20.9	20.2
MP7	18.6	6.6	7.9	14.2	18.5	20.5	14.1	20.7	21.1	20.0
MP8						18.1	20.1	20.7	20.7	20.1
MP9	20.5	13.1	18.9	19.3	18.9	19.6	20.1	19.6	18.5	19.6
MP10						16.8	20.5	21.4	20.7	20.0
MP11						17.2	16.0	21.4	20.8	20.0
MP12						19.7	15.7	21.4	20.9	20.2
MP13						17.3	19.0	17.6	19.8	20.0
MP14	19.2	14.2	8.3	14.1	15.9	19.1	18.8	19.8	17.4	15.7
MP15	20.9	18.4	14.9	14.2	18.4	19.2	20.5	20.0	16.4	14.8
MP16	20.9	20.1	19.0	19.5	19.3	19.3	19.7	20.2	18.3	17.2
Average	**20.2**	**13.9**	**13.4**	**13.9**	**15.8**	**19.1**	**18.4**	**19.5**	**18.7**	**18.1**

TABLE 1

AIR MONITORING RESULTS
BLOOMFIELD CRUDE STATION
WESTERN REFINING

Monitoring Point	Carbon Dioxide Percentage									
	Pre-test	2003 avg	2004 avg	2005 avg	2006 avg	2007 avg	2008 avg	2009 avg	2010 avg	2011 avg
IP1						2.8		1.8	1.1	2.0
IP2						0.0	1.9	0.0	0.2	0.4
IP3						0.0	0.4	1.5	0.7	3.9
IP4						0.0	0.1	0.0	0.2	1.2
IP5						1.1	0.1	0.9	1.7	2.9
IP6						5.4	0.2	3.2	6.3	0.1
IP7						2.5	0.1	0.0	0.1	0.1
IP8	0.8	13.4	10.6	3.5	14.4	0.0	1.5	0.0	0.1	0.1
IP9						0.2	0.1	0.7	4.7	4.5
IP10	1.8	6.5	11.0	4.9	14.1	6.5	5.7	3.8	14.5	16.4
IP11	0.0	1.0	11.9	4.5	1.3	0.0	0.2	0.1	0.1	0.1
IP12						1.4	0.2	0.0	0.1	0.1
IP13	0.2	1.7	1.4	2.1	2.2	0.5	1.4	1.1	2.8	2.7
IP14	1.0	6.8	10.1	13.7	4.8	2.0	4.0	5.4	5.5	2.7
IP15	0.8	1.2	0.3	0.5	0.6	0.1	0.1	0.5	0.6	0.6
IP16						0.0	0.4	0.0	0.1	0.1
IP17	1.0	1.1	1.3	2.1	1.0	0.2	0.3	0.8	1.2	1.7
IP18						2.9	0.2	0.0	0.1	0.1
IP19	0.4	1.2	3.5	2.4	0.9	1.4	1.0	1.5	1.9	1.9
IP20	0.6	6.4	8.4	5.8	1.8	1.0	0.9	1.4	1.3	0.8
IP21	1.4	1.2	2.2	4.1	0.9	0.2	0.4	0.8	1.4	1.5
IP22	0.4	0.9	1.9	2.3	1.1	0.4	0.2	1.0	1.5	2.2
IP23	0.6	0.7	0.8	2.0	0.9	0.2	0.2	0.3	1.1	1.9
MP1						2.1	0.3	0.0	0.1	0.1
MP2						0.2	0.1	0.0	0.5	2.0
MP3						0.5	1.6	2.2	1.6	1.9
MP4	1.2	12.1	14.5	6.3	14.9	0.0	1.7	3.0	8.2	0.1
MP5						0.0	0.2	0.0	0.1	0.1
MP6						4.6	0.2	0.0	0.1	0.1
MP7	1.4	5.6	8.3	4.2	0.7	0.0	0.3	0.0	0.1	0.1
MP8						2.2	0.2	0.0	0.1	0.1
MP9	1.0	1.9	1.0	1.5	1.3	0.3	0.3	1.1	1.8	1.4
MP10						3.2	0.0	0.0	0.1	0.1
MP11						3.3	0.5	0.0	0.1	0.1
MP12						0.3	0.6	0.0	0.1	0.1
MP13						2.1	0.2	0.5	1.0	0.1
MP14	1.0	3.3	8.0	5.3	3.5	1.1	1.2	1.8	3.0	3.7
MP15	0.6	1.8	3.7	3.4	1.5	1.5	0.2	0.5	3.3	4.2
MP16	0.1	1.0	1.4	1.4	1.2	1.2	1.0	0.4	2.4	2.9
Average	**0.8**	**3.8**	**5.6**	**3.5**	**3.7**	**1.3**	**0.7**	**0.9**	**1.8**	**1.7**

Notes:

2003 includes data from 2/03, 3/03, 10/03 and 1/ 04

2004 includes quarterly data from 4/04, 7/04, 10/04 and 1/05

2005 includes data from 4/05, 7/05, 10/05. The pump that injects air into the subsurface was being reparied during the 4th quarter monitoring event

2006 includes data from 4/06, 7/06, 10/06 and 1/07

2007 includes data from 4/07, 7/07, 10/07, and 1/08

2008 includes data from 4/08, 7/08, 10/08 and 1/09

2009 includes data from 4/09, 7/09, 10/09 and 1/10

2010 includes data from 4/10, 7/10, 10/10 and 1/11

2011 includes data from 4/11, 7/11, 10/11 and 1/12

TABLE 2
SOIL ANALYTICAL RESULTS
BLOOMFIELD CRUDE STATION
WESTERN REFINING SOUTHWEST, INC.

Sample ID	Sample Depth (ft)	Date Sampled	Field Headspace for VOCs (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	GRO (mg/kg)	Total TPH (mg/kg)
MP11	12	April 2011	0.0	<0.05	<0.05	<0.05	<0.10	0.0 - <0.250	36	100	<5.0	**136 - <141**
		July 2011	0.2	<0.049	<0.049	<0.049	<0.098	0.0 - <0.245	19	<49	<4.9	19 - <72.9
		October 2011	0.3	<0.049	<0.049	<0.049	<0.097	0.0 - <0.244	56	85	<4.9	**141 - <145.9**
		January 6, 2012	0.9	<0.05	<0.05	<0.05	<0.10	0.0 - <0.250	<9.7	<48	<5.0	0 - <62.7
IP16	9	April 2011	0.4	<0.05	<0.05	<0.05	<0.10	0.0 - <0.250	24	70	<5.0	94 - <99
		July 2011	1.1	<0.049	<0.049	<0.049	<0.098	0.0 - <0.245	150	140	<4.9	**290 - <294.9**
		October 2011	0.6	<0.047	<0.047	<0.047	<0.094	0.0 - <0.235	860	810	<4.7	**1670 - <1674.7**
		January 6, 2012	0.5	<0.047	<0.047	<0.047	<0.093	0.0 - <0.234	30	60	<4.7	90 - <94.7
MP8	9	April 2011	0.2	<0.05	<0.05	<0.05	<0.10	0.0 - <0.250	20	55	<5.0	75 - <80
		July 2011	0.2	<0.049	<0.049	<0.049	<0.098	0.0 - <0.245	<10	<51	<4.9	0 - <65.9
		October 2011	0.2	<0.046	<0.046	<0.046	<0.092	0.0 - <0.230	<10	<50	<4.6	0 - <64.6
		January 6, 2012	0.5	<0.049	<0.049	<0.049	<0.097	0.0 - <0.244	<10	<51	<4.9	0 - <65.9
IP12	12	April 2011	0.0	<0.05	<0.05	<0.05	<0.10	0.0 - <0.250	31	73	<5.0	**104 - <109**
		July 2011	0.6	<0.049	<0.049	<0.049	<0.098	0.0 - <0.245	39	<50	<4.9	39 - <93.9
		October 2011	0.1	<0.049	<0.049	<0.049	<0.097	0.0 - <0.244	29	<50	<4.9	29 - <83.9
		January 6, 2012	0.8	<0.048	<0.048	<0.048	<0.095	0.0 - <0.239	23	<51	<4.8	23 - <78.8
IP7	12	April 2011	0.1	<0.05	<0.05	<0.05	<0.10	0.0 - <0.250	60	94	<5.0	**154 - <159**
		July 2011	0.0	<0.05	<0.05	<0.05	<0.10	0.0 - <0.250	<9.9	<49	<5.0	0 - <63.9
		October 2011	0.4	<0.05	<0.05	<0.05	<0.10	0.0 - <0.250	<9.9	<50	<5.0	0 - <64.9
		January 6, 2012	0.7	<0.049	<0.049	<0.049	<0.097	0.0 - <0.244	<9.9	<49	<4.9	0 - <63.8
MP3	6	April 2011	0.1	<0.05	<0.05	<0.05	<0.10	0.0 - <0.250	16	<50	<5.0	16 - <71
		July 2011	0.0	<0.048	<0.048	<0.048	<0.095	0.0 - <0.239	12	<51	<4.8	12 - <67.8
		October 2011	0.2	<0.05	<0.05	<0.05	<0.10	0.0 - <0.250	<9.9	<50	<5.0	0 - <64.9
		January 6, 2012	4.7	<0.049	<0.049	<0.049	<0.098	0.0 - <0.245	<9.9	<50	<4.9	0 - <64.8
MP7	6	April 2011	0.3	<0.05	<0.05	<0.05	<0.10	0.0 - <0.250	670	930	<5.0	**1,600 - <1,605**
		July 2011	0.0	<0.049	<0.049	<0.049	<0.098	0.0 - <0.245	580	650	<4.9	**1,230 - <1,234.9**
		October 2011	0.4	<0.047	<0.047	<0.047	<0.094	0.0 - <0.235	180	<240**	<4.7	**420 - <424.7**
		January 6, 2012	0.3	<0.047	<0.047	<0.047	<0.095	0.0 - <0.236	230	340	<4.7	**570 - <574.7**
IP10	6	April 2011	0.0	<0.05	<0.05	<0.05	<0.10	0.0 - <0.250	59	110	<5.0	**169 - <174**
		July 2011	0.0	<0.049	<0.049	<0.049	<0.098	0.0 - <0.245	<10	<52	<4.9	0 - <66.9
		October 2011	0.2	<0.05	<0.05	<0.05	<0.10	0.0 - <0.250	<9.8	<49	<5.0	0 - <63.8
		January 6, 2012	0.8	<0.048	<0.048	<0.048	<0.096	0.0 - <0.240	340	620	<4.8	**960 - <964.8**
NMOCD Standard				**10**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**100**

Notes:
BTEX - benzene, toluene, ethylenzene, and total xylenes
DRO - Diesel Range Organics
ft - feet
GRO - Gasoline Range Organics
mg/kg - milligrams per kilogram
MRO - Motor Oil Range Organics
NE - Not established
NMOCD - New Mexico Oil Conservation Division
ppm - parts per million
TPH - Total Petroleum Hydrocarbons
VOC's - Volatile Organic Compounds
< indicates result is less than the stated laboratory method detection limit.
Bold indicates a value exceeds NMOCD standard.

TABLE 3

GROUNDWATER ELEVATION DATA
BLOOMFIELD CRUDE STATION
WESTERN REFINING SOUTHWEST, INC.

Well Number	Date	Casing Elevation (ft)	Depth to Water (ft BTOC)	Groundwater Elevation (ft)
MW-2	1/4/2012	5485.33	12.41	5472.92
MW-3	1/4/2012	5488.61	13.25	5475.36
MW-4	1/4/2012	5486.18	14.58	5471.6
MW-5	1/4/2012	5481.61	13.52	5468.09
MW-6	1/4/2012	5486.18	14.22	5471.96
MW-7	1/4/2012	5491.86	19.60	5472.26

Notes:

BTOC - Below Top of casing

ft - feet

Water level elevation is given in feet above mean sea level

TABLE 4

GROUNDWATER ANALYTICAL RESULTS - BTEX
BLOOMFIELD CRUDE STATION
WESTERN REFINING SOUTHWEST, INC

Well Number	Date Sampled	Benzene (µg/L)	Toluene (µg/L)	Ethylbenzene (µg/L)	Total Xylenes (µg/L)	Total BTEX (µg/L)
MW-2	1/4/2012	<1.0	<1.0	<1.0	<2.0	0 - <5.0
MW-3	1/4/2012	<1.0	<1.0	<1.0	<2.0	0 - <5.0
MW-4	1/4/2012	<1.0	<1.0	<1.0	<2.0	0 - <5.0
MW-5	1/4/2012	<1.0	<1.0	<1.0	<2.0	0 - <5.0
MW-6	1/4/2012	<10	<10	61	220	281 - <301
MW-7	1/4/2012	**62**	<20	640	**3,500**	4,202 - <4,222
NMWQCC STANDARD		**10**	**750**	**750**	**620**	

Notes:

Bold values indicate value exceeds NMWQCC standard

BTEX - Benzene, Toluene, Ethylbenzene, Total Xylenes

BTEX analyzed by EPA Method 8021b

NMWQCC - New Mexico Water Quaility Control Commission

µg/L - micrograms per liter

< indicates result is less than the stated laboratory method detection limit

TABLE 5

GROUNDWATER ANALYTICAL RESULTS - GENERAL CHEMISTY
BLOOMFIELD CRUDE STATION
WESTERN REFINING SOUTHWEST, INC.

Well Number	Date	Lab pH (su)	Conductivity (µmhos/cm)	TDS (mg/L)	Alkalinity (CaCO3) (mg/L)	Bicarbonate (HCO3) (mg/L)	Carbonate (CO3) (mg/L)	Chloride (mg/L)	Sulfate (mg/L)	Sodium (mg/L)	Calcium (mg/L)	Nitrite (mg/L)	Nitrate (mg/L)	Magnesium (mg/L)	Manganese (mg/L)	Potassium (mg/L)
MW-2	1/4/2012	7.80	3,500	**2,720**	1,300	1,300	<5.0	40	**890**	710	220	<2.0	0.13	26	**3.7**	2.5
MW-3	1/4/2012	7.75	4,000	**3,470**	560	560	<2.0	37	**2,400**	620	410	<0.1	14	39	**0.55**	2.3
MW-4	1/4/2012	7.62	4,500	**4,050**	470	470	<2.0	30	**2,700**	690	480	<0.1	0.18	51	**8.8**	6.6
MW-5	1/4/2012	7.12	4,700	**3,880**	680	680	<2.0	**510**	**1,900**	810	520	<2.0	2.6	45	**7.5**	5.9
MW-6	1/4/2012	7.62	3,400	**2,560**	1,100	1,100	<2.0	130	**970**	580	280	<0.1	4.0	37	**4.2**	6.4
MW-7	1/4/2012	7.75	1,300	800	720	720	<2.0	24	4.4	160	150	<0.1	<0.1	17	**0.89**	2.6
NMWQCC Standard		**6-9**	**NE**	**1,000**	**NE**	**NE**	**NE**	**250**	**600**	**NE**	**NE**	**NE**	**10.0**	**NE**	**0.2**	**NE**

Notes:
Bold values indicate value exceeds NMWQCC standard
mg/L - milligrams per liter
NE - not established
NMWQCC - New Mexico Water Quaility Control Commission
su - standard units
TDS - Total Dissolved Solids
µmhos/ cm - micromhos per centimeter
< indicates result is less than the stated laboratory method detection limit

TABLE 6

GROUNDWATER ANALYTICAL RESULTS - METALS
BLOOMFIELD CRUDE STATION
WESTERN REFINING SOUTHWEST, INC.

Well Number	Date	Arsenic (mg/L)	Cadmium (mg/L)	Chromium (mg/L)	Iron (mg/L)	Lead (mg/L)	Mercury (mg/L)	Selenium (mg/L)	Silver (mg/L)
MW-2	1/4/2012	<0.020	<0.0020	<0.0060	**7.6**	<0.0050	<0.00020	<0.050	<0.0050
MW-3	1/4/2012	<0.020	<0.0020	<0.0060	**2.9**	<0.0050	<0.00020	<0.050	<0.0050
MW-4	1/4/2012	<0.020	<0.0020	0.011	**15**	<0.0050	<0.00020	<0.050	<0.0050
MW-5	1/4/2012	<0.020	<0.0020	0.0062	**8.2**	<0.0050	<0.00020	<0.050	<0.0050
MW-6	1/4/2012	0.074	0.0023	0.011	**100**	0.0069	<0.00020	<0.050	<0.0050
MW-7	1/4/2012	<0.020	<0.0020	<0.0060	**22**	<0.0050	<0.00020	<0.050	<0.0050
NMWQCC Standard		**0.1**	**0.01**	**0.05**	**1.0**	**0.05**	**0.002**	**0.05**	**0.05**

Notes:
Bold values indicate value exceeds NMWQCC
mg/L - milligrams per liter
NMWQCC - New Mexico Water Quaility Control Commission
< indicates result is less than the stated laboratory

QUARTERLY GAS MONITORING DATA
BLOOMFIELD CRUDE STATION
WESTERN REFINING SOUTHWEST, INC.

Monitoring Point	Oxygen Percentage				Carbon Dioxide Percentage			
	4/5/2011	7/7/2011	10/4/2011	1/6/2012	4/5/2011	7/7/2011	10/4/2011	1/6/2012
IP1	18.8	16.9	15.6	18.5	1.8	3.1	1.7	1.5
IP2	21.6	20.5	16.0	20.8	0.1	0.1	1.3	0.1
IP3	19.6	16.6	10.3	17.4	1.3	4.0	6.6	3.6
IP4	20.4	18.8	13.0	19.8	0.4	1.1	2.3	1.0
IP5	18.9	17.6	12.2	8.4	2.0	2.9	4.8	2.0
IP6	21.6	20.7	17.8	20.8	0.1	0.0	0.0	0.1
IP7	21.6	20.8	17.6	20.8	0.1	0.0	0.0	0.1
IP8	21.6	20.7	17.7	20.9	0.1	0.0	0.0	0.1
IP9	15.1	14.6	8.4	15.9	5.4	3.6	5.7	3.2
IP10	0.0	0.8	0.0	14.1	18.3	19.0	23.3	5.0
IP11	21.5	20.5	16.9	20.9	0.1	0.1	0.0	0.1
IP12	21.5	20.5	17.0	20.6	0.1	0.1	0.0	0.1
IP13	16.0	16.8	13.8	20.7	3.8	2.9	3.8	0.3
IP14	16.9	18.8	11.9	18.3	3.6	1.5	3.6	2.0
IP15	21.3	20.3	15.5	20.6	0.2	0.5	1.0	0.5
IP16	21.3	20.8	18.5	20.7	0.0	0.0	0.1	0.1
IP17	20.5	19.1	14.5	19.7	1.3	1.4	2.3	1.7
IP18	21.4	20.8	18.1	20.6	0.1	0.0	0.0	0.1
IP19	18.6	16.5	16.3	17.4	2.7	3.6	0.0	1.4
IP20	20.2	20.2	16.1	20.8	1.3	0.7	1.0	0.2
IP21	20.5	19.4	15.7	20.2	1.4	1.5	1.7	1.2
IP22	19.9	18.8	14.3	19.2	1.8	1.8	3.1	2.0
IP23	20.4	18.8	14.0	20.2	1.5	1.8	2.9	1.3
MP1	21.6	20.6	17.7	20.8	0.1	0.0	0.0	0.2
MP2	18.9	12.4	13.2	17.9	1.3	2.8	2.0	2.0
MP3	19.8	19.8	10.9	18.9	1.3	0.7	4.2	1.4
MP4	21.6	20.5	16.1	20.8	0.1	0.1	0.0	0.1
MP5	21.5	20.4	16.3	20.9	0.1	0.0	0.0	0.1
MP6	21.6	20.8	17.7	20.7	0.1	0.0	0.0	0.2
MP7	21.5	20.7	17.0	20.9	0.1	0.1	0.0	0.1
MP8	21.5	20.7	17.3	20.7	0.1	0.1	0.0	0.1
MP9	19.8	18.4	**	20.7	2.0	2.0	**	0.3
MP10	21.5	20.7	17.2	20.7	0.1	0.0	0.0	0.1
MP11	21.4	20.9	17.1	20.7	0.1	0.0	0.0	0.1
MP12	21.4	20.8	18.1	20.6	0.1	0.0	0.0	0.1
MP13	21.3	20.7	17.0	20.8	0.1	0.1	0.0	0.2
MP14	17.9	14.5	10.4	19.9	3.4	4.6	5.7	1.1
MP15	17.4	15.1	9.3	17.5	3.3	4.4	5.9	3.3
MP16	18.8	17.3	12.9	19.7	2.9	3.0	4.4	1.4
Average	**19.7**	**18.6**	**14.7**	**19.5**	**1.6**	**1.7**	**2.3**	**1.0**

Note:
** MP9 could not be found

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

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

January 17, 2012

Kelly Robinson

Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4166
FAX (505) 632-3911

RE: Bloomfield Crude Station OrderNo.: 1201217

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 8 sample(s) on 1/10/2012 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued January 14, 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,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** IP16
Project: Bloomfield Crude Station **Collection Date:** 1/6/2012 11:54:00 AM
Lab ID: 1201217-001 **Matrix:** SOIL **Received Date:** 1/10/2012 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	30	9.8		mg/Kg	1	1/12/2012 12:48:13 PM
Motor Oil Range Organics (MRO)	60	49		mg/Kg	1	1/12/2012 12:48:13 PM
Surr: DNOP	117	77.4-131		%REC	1	1/12/2012 12:48:13 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/11/2012 2:47:57 PM
Surr: BFB	89.7	69.7-121		%REC	1	1/11/2012 2:47:57 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.047		mg/Kg	1	1/11/2012 2:47:57 PM
Toluene	ND	0.047		mg/Kg	1	1/11/2012 2:47:57 PM
Ethylbenzene	ND	0.047		mg/Kg	1	1/11/2012 2:47:57 PM
Xylenes, Total	ND	0.093		mg/Kg	1	1/11/2012 2:47:57 PM
Surr: 4-Bromofluorobenzene	91.5	85.3-139		%REC	1	1/11/2012 2:47:57 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** MP3
Project: Bloomfield Crude Station **Collection Date:** 1/6/2012 11:02:00 AM
Lab ID: 1201217-002 **Matrix:** SOIL **Received Date:** 1/10/2012 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	1/12/2012 2:32:27 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	1/12/2012 2:32:27 PM
Surr: DNOP	88.9	77.4-131		%REC	1	1/12/2012 2:32:27 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/11/2012 3:18:03 PM
Surr: BFB	96.9	69.7-121		%REC	1	1/11/2012 3:18:03 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.049		mg/Kg	1	1/11/2012 3:18:03 PM
Toluene	ND	0.049		mg/Kg	1	1/11/2012 3:18:03 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/11/2012 3:18:03 PM
Xylenes, Total	ND	0.098		mg/Kg	1	1/11/2012 3:18:03 PM
Surr: 4-Bromofluorobenzene	99.6	85.3-139		%REC	1	1/11/2012 3:18:03 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** IP7
Project: Bloomfield Crude Station **Collection Date:** 1/6/2012 10:48:00 AM
Lab ID: 1201217-003 **Matrix:** SOIL **Received Date:** 1/10/2012 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	1/11/2012 8:53:09 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	1/11/2012 8:53:09 PM
Surr: DNOP	91.9	77.4-131		%REC	1	1/11/2012 8:53:09 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/11/2012 3:48:22 PM
Surr: BFB	97.6	69.7-121		%REC	1	1/11/2012 3:48:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.049		mg/Kg	1	1/11/2012 3:48:22 PM
Toluene	ND	0.049		mg/Kg	1	1/11/2012 3:48:22 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/11/2012 3:48:22 PM
Xylenes, Total	ND	0.097		mg/Kg	1	1/11/2012 3:48:22 PM
Surr: 4-Bromofluorobenzene	98.9	85.3-139		%REC	1	1/11/2012 3:48:22 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.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** IP10
Project: Bloomfield Crude Station **Collection Date:** 1/6/2012 11:24:00 AM
Lab ID: 1201217-004 **Matrix:** SOIL **Received Date:** 1/10/2012 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: JMP
Diesel Range Organics (DRO)	340	100		mg/Kg	10	1/13/2012 12:49:16 AM
Motor Oil Range Organics (MRO)	620	500		mg/Kg	10	1/13/2012 12:49:16 AM
Surr: DNOP	0	77.4-131	S	%REC	10	1/13/2012 12:49:16 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/12/2012 4:42:49 PM
Surr: BFB	108	69.7-121		%REC	1	1/12/2012 4:42:49 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.048		mg/Kg	1	1/12/2012 4:42:49 PM
Toluene	ND	0.048		mg/Kg	1	1/12/2012 4:42:49 PM
Ethylbenzene	ND	0.048		mg/Kg	1	1/12/2012 4:42:49 PM
Xylenes, Total	ND	0.096		mg/Kg	1	1/12/2012 4:42:49 PM
Surr: 4-Bromofluorobenzene	96.9	85.3-139		%REC	1	1/12/2012 4:42:49 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** MP7
Project: Bloomfield Crude Station **Collection Date:** 1/6/2012 11:30:00 AM
Lab ID: 1201217-005 **Matrix:** SOIL **Received Date:** 1/10/2012 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	230	10		mg/Kg	1	1/13/2012 12:15:23 AM
Motor Oil Range Organics (MRO)	340	50		mg/Kg	1	1/13/2012 12:15:23 AM
Surr: DNOP	129	77.4-131		%REC	1	1/13/2012 12:15:23 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	1/12/2012 5:12:55 PM
Surr: BFB	86.8	69.7-121		%REC	1	1/12/2012 5:12:55 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.047		mg/Kg	1	1/12/2012 5:12:55 PM
Toluene	ND	0.047		mg/Kg	1	1/12/2012 5:12:55 PM
Ethylbenzene	ND	0.047		mg/Kg	1	1/12/2012 5:12:55 PM
Xylenes, Total	ND	0.095		mg/Kg	1	1/12/2012 5:12:55 PM
Surr: 4-Bromofluorobenzene	81.2	85.3-139	S	%REC	1	1/12/2012 5:12:55 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** MP8
Project: Bloomfield Crude Station **Collection Date:** 1/6/2012 10:36:00 AM
Lab ID: 1201217-006 **Matrix:** SOIL **Received Date:** 1/10/2012 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	1/11/2012 9:28:04 PM
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	1/11/2012 9:28:04 PM
Surr: DNOP	121	77.4-131		%REC	1	1/11/2012 9:28:04 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	1/11/2012 6:19:24 PM
Surr: BFB	90.1	69.7-121		%REC	1	1/11/2012 6:19:24 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.049		mg/Kg	1	1/11/2012 6:19:24 PM
Toluene	ND	0.049		mg/Kg	1	1/11/2012 6:19:24 PM
Ethylbenzene	ND	0.049		mg/Kg	1	1/11/2012 6:19:24 PM
Xylenes, Total	ND	0.097		mg/Kg	1	1/11/2012 6:19:24 PM
Surr: 4-Bromofluorobenzene	93.8	85.3-139		%REC	1	1/11/2012 6:19:24 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** MP11
Project: Bloomfield Crude Station **Collection Date:** 1/6/2012 1:06:00 PM
Lab ID: 1201217-007 **Matrix:** SOIL **Received Date:** 1/10/2012 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	1/12/2012 11:41:33 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	1/12/2012 11:41:33 PM
Surr: DNOP	87.0	77.4-131		%REC	1	1/12/2012 11:41:33 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	1/11/2012 6:52:39 PM
Surr: BFB	97.7	69.7-121		%REC	1	1/11/2012 6:52:39 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.050		mg/Kg	1	1/11/2012 6:52:39 PM
Toluene	ND	0.050		mg/Kg	1	1/11/2012 6:52:39 PM
Ethylbenzene	ND	0.050		mg/Kg	1	1/11/2012 6:52:39 PM
Xylenes, Total	ND	0.10		mg/Kg	1	1/11/2012 6:52:39 PM
Surr: 4-Bromofluorobenzene	99.3	85.3-139		%REC	1	1/11/2012 6:52:39 PM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** IP12
Project: Bloomfield Crude Station **Collection Date:** 1/6/2012 1:24:00 PM
Lab ID: 1201217-008 **Matrix:** SOIL **Received Date:** 1/10/2012 9:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	23	10		mg/Kg	1	1/11/2012 10:02:44 PM
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	1/11/2012 10:02:44 PM
Surr: DNOP	87.8	77.4-131		%REC	1	1/11/2012 10:02:44 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	1/12/2012 1:55:22 AM
Surr: BFB	101	69.7-121		%REC	1	1/12/2012 1:55:22 AM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.048		mg/Kg	1	1/12/2012 1:55:22 AM
Toluene	ND	0.048		mg/Kg	1	1/12/2012 1:55:22 AM
Ethylbenzene	ND	0.048		mg/Kg	1	1/12/2012 1:55:22 AM
Xylenes, Total	ND	0.095		mg/Kg	1	1/12/2012 1:55:22 AM
Surr: 4-Bromofluorobenzene	101	85.3-139		%REC	1	1/12/2012 1:55:22 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1201217

17-Jan-12

Client: Western Refining Southwest, Inc.

Project: Bloomfield Crude Station

Sample ID	MB-189	SampType:	MBLK		TestCode:	EPA Method 8015B: Diesel Range Organics					
Client ID:	PBS	Batch ID:	189		RunNo:	279					
Prep Date:	1/9/2012	Analysis Date:	1/10/2012		SeqNo:	8701	Units:	%REC			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP		8.9		10.00		89.3	77.4	131			

Sample ID	LCS-189	SampType:	LCS		TestCode:	EPA Method 8015B: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	189		RunNo:	279					
Prep Date:	1/9/2012	Analysis Date:	1/10/2012		SeqNo:	8765	Units:	%REC			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP		4.5		5.000		90.3	77.4	131			

Sample ID	MB-205	SampType:	MBLK		TestCode:	EPA Method 8015B: Diesel Range Organics					
Client ID:	PBS	Batch ID:	205		RunNo:	279					
Prep Date:	1/10/2012	Analysis Date:	1/11/2012		SeqNo:	9173	Units:	mg/Kg			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)		ND	10								
Motor Oil Range Organics (MRO)		ND	50								
Surr: DNOP		8.2		10.00		82.3	77.4	131			

Sample ID	LCS-205	SampType:	LCS		TestCode:	EPA Method 8015B: Diesel Range Organics					
Client ID:	LCSS	Batch ID:	205		RunNo:	279					
Prep Date:	1/10/2012	Analysis Date:	1/11/2012		SeqNo:	9279	Units:	mg/Kg			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)		41	10	50.00	0	81.3	62.7	139			
Surr: DNOP		6.4		5.000		127	77.4	131			

Sample ID	1201046-011AMS	SampType:	MS		TestCode:	EPA Method 8015B: Diesel Range Organics					
Client ID:	BatchQC	Batch ID:	189		RunNo:	279					
Prep Date:	1/9/2012	Analysis Date:	1/11/2012		SeqNo:	9652	Units:	%REC			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP		7.9		4.831		164	77.4	131			S

Sample ID	1201046-011AMSD	SampType:	MSD		TestCode:	EPA Method 8015B: Diesel Range Organics					
Client ID:	BatchQC	Batch ID:	189		RunNo:	279					
Prep Date:	1/9/2012	Analysis Date:	1/11/2012		SeqNo:	9887	Units:	%REC			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP		8.4		4.980		168	77.4	131	0	0	S

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1201217

17-Jan-12

Client: Western Refining Southwest, Inc.

Project: Bloomfield Crude Station

Sample ID MB-227	SampType: MBLK	TestCode: EPA Method 8015B: Diesel Range Organics
Client ID: PBS	Batch ID: 227	RunNo: 279
Prep Date: 1/11/2012	Analysis Date: 1/12/2012	SeqNo: 9902 Units: %REC

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.1		10.00		81.2	77.4	131			

Sample ID LCS-227	SampType: LCS	TestCode: EPA Method 8015B: Diesel Range Organics
Client ID: LCSS	Batch ID: 227	RunNo: 279
Prep Date: 1/11/2012	Analysis Date: 1/12/2012	SeqNo: 9839 Units: %REC

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.6		5.000		92.5	77.4	131			

Sample ID 1201217-001AMS	SampType: MS	TestCode: EPA Method 8015B: Diesel Range Organics
Client ID: IP16	Batch ID: 205	RunNo: 279
Prep Date: 1/10/2012	Analysis Date: 1/12/2012	SeqNo: 10351 Units: mg/Kg

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	65	10	51.23	29.92	68.8	57.2	146			
Surr: DNOP	4.9		5.123		96.5	77.4	131			

Sample ID 1201217-001AMSD	SampType: MSD	TestCode: EPA Method 8015B: Diesel Range Organics
Client ID: IP16	Batch ID: 205	RunNo: 279
Prep Date: 1/10/2012	Analysis Date: 1/12/2012	SeqNo: 10368 Units: mg/Kg

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	60	9.8	49.07	29.92	60.7	57.2	146	8.75	26.7	
Surr: DNOP	4.9		4.907		100	77.4	131	0	0	

Qualifiers:

- */X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- Analyte detected below quantitation limits
- 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#: **1201217**

17-Jan-12

Client: Western Refining Southwest, Inc.

Project: Bloomfield Crude Station

Sample ID **MB-202**	SampType: **MBLK**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **PBS**	Batch ID: **202**	RunNo: **335**
Prep Date: **1/10/2012**	Analysis Date: **1/11/2012**	SeqNo: **10267** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	970		1,000		96.7	69.7	121			

Sample ID **LCS-202**	SampType: **LCS**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **LCSS**	Batch ID: **202**	RunNo: **335**
Prep Date: **1/10/2012**	Analysis Date: **1/11/2012**	SeqNo: **10271** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	31	5.0	25.00	0	124	86.4	132			
Surr: BFB	1,000		1,000		103	69.7	121			

Sample ID **1201217-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **IP16**	Batch ID: **202**	RunNo: **335**
Prep Date: **1/10/2012**	Analysis Date: **1/11/2012**	SeqNo: **10272** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	32	4.9	24.49	0	132	72.4	149			
Surr: BFB	1,100		979.4		112	69.7	121			

Sample ID **1201217-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **IP16**	Batch ID: **202**	RunNo: **335**
Prep Date: **1/10/2012**	Analysis Date: **1/11/2012**	SeqNo: **10273** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	31	4.7	23.36	0	135	72.4	149	2.53	19.2	
Surr: BFB	970		934.6		104	69.7	121	0	0	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

WO#: 1201217

Hall Environmental Analysis Laboratory, Inc.

17-Jan-12

Client: Western Refining Southwest, Inc.
Project: Bloomfield Crude Station

Sample ID	MB-202	SampType:	MBLK	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	PBS	Batch ID:	202	RunNo:	335					
Prep Date:	1/10/2012	Analysis Date:	1/11/2012	SeqNo:	10330	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		101	85.3	139			

Sample ID	LCS-202	SampType:	LCS	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	LCSS	Batch ID:	202	RunNo:	335					
Prep Date:	1/10/2012	Analysis Date:	1/11/2012	SeqNo:	10334	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.050	1.000	0	98.6	83.3	107			
Toluene	0.96	0.050	1.000	0	96.0	74.3	115			
Ethylbenzene	1.0	0.050	1.000	0	102	80.9	122			
Xylenes, Total	3.2	0.10	3.000	0	107	85.2	123			
Surr: 4-Bromofluorobenzene	0.82		1.000		82.0	85.3	139			S

Sample ID	1201217-002A MS	SampType:	MS	TestCode:	EPA Method 8021B: Volatiles					
ent ID:	MP3	Batch ID:	202	RunNo:	335					
rep Date:		Analysis Date:	1/12/2012	SeqNo:	10335	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.050	1.000	0	109	67.2	113			
Toluene	1.1	0.050	1.000	0	108	62.1	116			
Ethylbenzene	1.2	0.050	1.000	0	116	67.9	127			
Xylenes, Total	3.5	0.10	3.000	0	118	60.6	134			
Surr: 4-Bromofluorobenzene	1.0		1.000		103	85.3	139			

Sample ID	1201217-002A MSD	SampType:	MSD	TestCode:	EPA Method 8021B: Volatiles					
Client ID:	MP3	Batch ID:	202	RunNo:	335					
Prep Date:		Analysis Date:	1/12/2012	SeqNo:	10336	Units:	mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.050	1.000	0	98.8	67.2	113	9.66	14.3	
Toluene	0.96	0.050	1.000	0	96.2	62.1	116	11.3	15.9	
Ethylbenzene	1.0	0.050	1.000	0	104	67.9	127	10.6	14.4	
Xylenes, Total	3.2	0.10	3.000	0	108	60.6	134	8.94	12.6	
Surr: 4-Bromofluorobenzene	1.1		1.000		110	85.3	139	0	0	

Qualifiers:

- */X Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit

Chain-of-Custody Record

Client: Western Refining
Kelly Robinson
Mailing Address: 111 CR 4990
Bloomfield, NM 87413
Phone #: 505-632-4166
Email or Fax#:
QA/QC Package: ☒ Standard ☐ Level 4 (Full Validation)
Accreditation: ☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time: ☒ Standard ☐ Rush
Project Name: Bloomfield Crude Station
Project #:
Project Manager: Ashley Ager
Sampler: Sam LaRue
On Ice: ☐ Yes ☐ No
Sample Temperature: 2

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	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)	8270 (Semi-VOA)	TPH 8015 Gro/Dro	BTEX 8021	7/10/12			Air Bubbles (Y or N)
6/12	11:54	soil	IP16	4oz jar	none	1												X	X				
6/12	11:02	soil	~~MP~~ SL MP3	2x4oz jar	none	2												X	X				
6/12	10:48	soil	IP7	2x4oz jar	none	3												X	X				
6/12	11:24	soil	IP10	2x4oz jar	none	4												X	X				
6/12	11:30	soil	MP7	2x4oz jar	none	5												X	X				
6/12	10:36	soil	MP8	2x4oz jar	none	6												X	X				
6/12	13:06	soil	MP11	2x4oz jar	none	7												X	X				
6/12	13:24	soil	IP12	2x4oz jar	none	8												X	X				

Date	Time	Relinquished by:	Received by:	Date	Time
6/12	11:44			1/9/12	
6/12	1632			1/10/12	950

Remarks:

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

HISTORICAL SOIL ANALYTICAL RESULTS
BLOOMFIELD CRUDE STATION
WESTERN REFINING, INC.

Sample ID	Sample Depth (ft)	Date Sampled	Field Headspace Reading (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	DRO* (mg/kg)	MRO* (mg/kg)	GRO* (mg/kg)	TPH (mg/kg)
MP11	12	10/2002	732	2.9	<0.05	5.8	36	44.70 - <44.75	-	-	-	**1,290**
		10/2003	191	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	**157**
		10/2004	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	ND
		10/2005	7.49	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	ND
		10/2006	3.2	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	**124**
		10/2007	0.1	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	ND
		10/2008	17.1	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	60	<5.0	60 - <75
		4/2009	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		7/2009	0.7	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	110	<5.0	**110 - <125**
		10/2009	0.3	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 -< 65
		1/2010	0.2	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		4/2010	0.3	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	89	<5.0	89 - **<104**
		7/2010	0.2	<0.05	<0.05	<0.05	<0.1	0 - <0.25	28	67	<5.0	95 - **<100**
		10/2010	0.1	<0.05	<0.05	<0.05	<0.1	0 - <0.25	110	150	<5.0	**260 - <265**
		1/2011	1.4	<0.05	<0.05	<0.05	<0.1	0 - <0.25	21	<50	<5.0	21 - <76
		4/2011	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	36	100	<5.0	**136 -<141**
		7/7/2011	0.2	<0.049	<0.049	<0.049	<0.098	0 - <0.245	19	<49	<4.9	19 - <72.9
		10/4/2011	0.3	<0.049	<0.049	<0.049	<0.097	0 - <0.244	56	85	<4.9	**141 - <145.9**
		1/6/2012	0.9	<0.050	<0.050	<0.050	<0.10	0 - <0.25	<9.7	<48	<5.0	0 - <62.7
IP16	9	10/2002	728	0.85	<0.05	<0.05	<0.1	0.85 - <1.05	-	-	-	**5,690**
		10/2003	110	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	**2,600**
		10/2004	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	**540**
		10/2005	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	52
		10/2006	5	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	**210**
		10/2007	0.2	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	**1,500**
		10/2008	4.2	<0.05	<0.05	<0.05	<0.1	0 - <0.25	140	310	<5.0	**450 - <455**
		4/2009	3.8	0.10	<0.05	<0.05	<0.1	0.1 - <0.30	380	660	<5.0	**1,040 - <1,045**
		7/2009	1.6	<0.05	<0.05	<0.05	<0.1	0 - <0.25	220	310	<5.0	**530 - <535**
		10/2009	0.9	<0.05	<0.05	<0.05	<0.1	0 - <0.25	130	200	<5.0	**330 - <335**
		1/2010	0.5	<0.05	<0.05	<0.05	<0.1	0 - <0.25	100	200	<5.0	**300 - <305**
		4/2010	2.7	<0.05	<0.05	<0.05	<0.1	0 - <0.25	25	110	<5.0	**135 - <140**
		7/2010	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	95	120	<5.0	**215 - <220**
		10/2010	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	360	570	<5.0	**930 - <935**
		1/2011	0.3	<0.05	<0.05	<0.05	<0.1	0 - <0.25	58	75	<5.0	**133 -< 138**
		4/2011	0.4	<0.05	<0.05	<0.05	<0.1	0 - <0.25	24	70	<5.0	94 - <99
		7/7/2011	1.1	<0.049	<0.049	<0.049	<0.098	0 - <0.245	150	140	<4.9	**290 - <294.9**
		10/4/2011	0.6	<0.047	<0.047	<0.047	<0.094	0 - <0.235	860	810	<4.7	**1,670 - <1,674.7**
		1/6/2012	0.5	<0.047	<0.047	<0.047	<0.093	0 - <0.234	30	60	<5.0	90 - <95
MP8	9	10/2002	772	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	ND
		10/2003	149	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	ND
		10/2004	149	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	ND
		10/2005	56.2	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	ND
		10/2006	4.6	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	28
		10/2007	0.6	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	70
		10/2008	3.7	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	55	<5.0	55 - <70
		4/2009	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		7/2009	0.4	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		10/2009	0.1	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		1/2010	0.2	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		4/2010	0.2	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		7/2010	0.2	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		10/2010	0.4	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		1/2011	1.3	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		4/2011	0.2	<0.05	<0.05	<0.05	<0.1	0 - <0.25	20	55	<5.0	75 - <80
		7/7/2011	0.2	<0.049	<0.049	<0.049	<0.098	0 - <0.245	<10	<51	<4.9	0 - <65.9
		10/4/2011	0.2	<0.046	<0.046	<0.046	<0.092	0 - <0.23	<10	<50	<4.6	0 - <64.6
		1/6/2012	0.5	<0.049	<0.049	<0.049	<0.097	0 - <0.244	<10	<51	<4.9	0 - <65.9
IP12	12	10/2002	616	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	**2,470**
		10/2003	190	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	**720**
		10/2004	253	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	ND
		10/2005	120	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	**770**
		10/2006	3.3	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	**520**
		10/2007	0.3	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	84
		10/2008	3.3	<0.05	<0.05	<0.05	<0.1	0 - <0.25	49	160	<5.0	**209 - <214**
		4/2009	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	55	80	<5.0	**135 - <140**

HISTORICAL SOIL ANALYTICAL RESULTS
BLOOMFIELD CRUDE STATION
WESTERN REFINING, INC.

Sample ID	Sample Depth (ft)	Date Sampled	Field Headspace Reading (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	DRO* (mg/kg)	MRO* (mg/kg)	GRO* (mg/kg)	TPH (mg/kg)
		7/2009	0.2	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	62	<5.0	62 - <77
		10/2009	0.2	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		1/2010	0.2	<0.05	<0.05	<0.05	<0.1	0 - <0.25	45	94	<5.0	**139 - <144**
		4/2010	0.1	<0.05	<0.05	<0.05	<0.1	0 - <0.25	52	160	<5.0	**212 - <217**
		7/2010	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	35	<50	<5.0	35 - <90
		10/2010	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	100	160	<5.0	260 - <265
		1/2011	1.8	<0.05	<0.05	<0.05	<0.1	0 - <0.25	81	97	<5.0	**178 - <183**
		4/2011	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	31	73	<5.0	**104 - <109**
		7/7/2011	0.6	<0.049	<0.049	<0.049	<0.098	0 - <0.245	39	<50	<4.9	39 - <93.9
		10/4/2011	0.1	<0.049	<0.049	<0.049	<0.097	0 - <0.244	29	<50	<4.9	29 - <83.9
		1/6/2012	0.8	<0.048	<0.048	<0.048	<0.095	0 - <0.239	23	<51	<4.8	23 - <78.8
IP7	12	10/2002	676	2.9	<0.05	<0.05	<0.1	2.9 - <3.1	-	-	-	**4,720**
		10/2003	287	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	**1,299**
		10/2004	123	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	**139**
		10/2005	6.2	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	55
		10/2006	7.4	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	**770**
		10/2007	0.5	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	**1,460**
		10/2008	3.1	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	64	<5.0	64 - <79
		4/2009	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		7/2009	0.2	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		10/2009	0.1	<0.05	<0.05	<0.05	<0.1	0 - <0.25	16	81	<5.0	97 - **<102**
		1/2010	0.2	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		4/2010	0.1	<0.05	<0.05	<0.05	<0.1	0 - <0.25	32	120	<5.0	**152 - <157**
		7/2010	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	110	120	<5.0	**230 - <235**
		10/2010	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	21	<50	<5.0	21 - <76
		1/2011	1.4	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		4/2011	0.1	<0.05	<0.05	<0.05	<0.1	0 - <0.25	60	94	<5.0	**154 - <159**
		7/7/2011	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<9.9	<49	<5.0	0 - <63.9
		10/4/2011	0.4	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<9.9	<50	<5.0	0 - <64.9
		1/6/2012	0.7	<0.049	<0.049	<0.049	<0.097	0 - <0.244	<9.9	<49	<4.9	0 - <63.8
MP3	6	10/2002	777	2.0	<0.05	<0.05	<0.1	2.0 - <2.2	-	-	-	**750**
		10/2003	314	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	**400**
		10/2004	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	ND
		10/2005	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	39
		10/2006	4.7	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	ND
		10/2007	0.4	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	45
		10/2008	3.9	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	78	<5.0	78 - <93
		4/2009	0.9	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		7/2009	0.5	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		10/2009	0.5	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		1/2010	0.4	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		4/2010	1.9	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		7/2010	0.4	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		10/2010	1.3	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		1/2011	0.9	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		4/2011	0.1	<0.05	<0.05	<0.05	<0.1	0 - <0.25	16	<50.0	<5.0	16 - <71
		7/7/2011	0.0	<0.048	<0.048	<0.048	<0.095	0 - <0.239	12	<51	<4.8	12 - <67.8
		10/4/2011	0.2	<0.050	<0.050	<0.050	<0.10	0 - <0.25	<9.9	<50	<5.0	0 - <64.9
		1/6/2012	4.7	<0.049	<0.049	<0.049	<0.098	0 - <0.245	<9.9	<50	<4.9	0 - <64.8
MP7	6	10/2002	872	2.0	<0.05	<0.05	<0.1	2.0 - <2.2	-	-	-	**2,830**
		10/2003	3946	3.5	<0.05	<0.05	<0.1	3.5 - <3.7	-	-	-	**4,700**
		10/2004	994	3.5	<0.05	<0.05	<0.1	3.5 - <3.7	-	-	-	**2,330**
		10/2005	443	< 0.13	< 0.13	6	32	38 - <38.26	-	-	-	**2,040**
		10/2006	4.9	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	22
		10/2007	0.5	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	**1,250**
		10/2008	4.1	<0.05	<0.05	<0.05	<0.1	0 - <0.25	730	1,500	<5.0	**2,230 - <2,235**
		4/2009	9.2	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		7/2009	2.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	460	350	<5.0	**810 - <815**
		10/2009	1.3	<0.05	<0.05	<0.05	<0.1	0 - <0.25	960	1,300	<5.0	**2,260 - <2,265**
		1/2010	0.3	<0.05	<0.05	<0.05	<0.1	0 - <0.25	91	130	<5.0	**221 - <226**
		4/2010	0.6	<0.05	<0.05	<0.05	<0.1	0 - <0.25	400	340	<5.0	**740 - <745**
		7/2010	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	890	1,100	<5.0	**1,990 - <1,995**
		10/2010	1.4	<0.05	<0.05	<0.05	<0.1	0 - <0.25	28	<50	<5.0	28 - <83
		1/2011	1.3	<0.05	<0.05	<0.05	<0.1	0 - <0.25	62	99	<5.0	**161 - <166**
		4/2011	0.3	<0.05	<0.05	<0.05	<0.1	0 - <0.25	670	930	<5.0	**1,600 - <1,605**
		7/7/2011	0.0	<0.049	<0.049	<0.049	<0.098	0 - <0.24	580	650	<4.9	**1,230 - <1,234.9**
		10/4/2011	0.4	<0.047	<0.047	<0.047	<0.094	0 - <0.235	180	<240**	<4.7	**180 - <424.7**
		1/6/2012	0.3	<0.047	<0.047	<0.047	<0.095	0 - <0.236	230	340	<4.7	**570 - <574.7**

HISTORICAL SOIL ANALYTICAL RESULTS
BLOOMFIELD CRUDE STATION
WESTERN REFINING, INC.

Sample ID	Sample Depth (ft)	Date Sampled	Field Headspace Reading (ppm)	Benzene (mg/kg)	Toluene (mg/kg)	Ethyl-benzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	DRO* (mg/kg)	MRO* (mg/kg)	GRO* (mg/kg)	TPH (mg/kg)
IP10	6	10/2002	756	0.42	<0.05	<0.05	<0.1	0.42 - <0.62	-	-	-	**1,470**
		10/2003	311	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	21
		10/2004	262	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	ND
		10/2005	30.3	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	ND
		10/2006	13.8	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	ND
		10/2007	0.5	<0.05	<0.05	<0.05	<0.1	0 - <0.25	-	-	-	ND
		10/2008	25.1	<0.05	<0.05	<0.05	<0.1	0 - <0.25	240	440	<5.0	**680 - <685**
		4/2009	6.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		7/2009	2.4	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		10/2009	0.9	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		1/2010	0.2	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	5.2	5.2 - <65.2
		4/2010	0.1	<0.05	<0.05	<0.05	<0.1	0 - <0.25	200	210	<5.0	**410 - <415**
		7/2010	0.5	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		10/2010	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	60	<50	<5.0	60 - **<115**
		1/2011	1.9	<0.05	<0.05	<0.05	<0.1	0 - <0.25	<10	<50	<5.0	0 - <65
		4/2011	0.0	<0.05	<0.05	<0.05	<0.1	0 - <0.25	59	110	<5.0	**169 - <174**
		7/7/2011	0.0	<0.049	<0.049	<0.049	<0.098	0 - <0.24	<10	<52	<4.9	0 - <66.9
		10/4/2011	0.2	<0.050	<0.050	<0.050	<0.10	0 - <0.25	<9.8	<49	<5.0	0 - <63.8
		1/6/2012	0.8	<0.048	<0.048	<0.048	<0.096	0 - <0.24	340	620	<4.8	**960 - <964.8**
NMOCD Standard				**10**	**NE**	**NE**	**NE**	**50**	**NE**	**NE**	**NE**	**100**

Notes:
DRO - Diesel Range Organics
ft - feet
GRO - Gasoline Range Organics
mg/kg - milligrams per kilogram
MRO - Motor Oil Range Organics
NE - not established
ND - not detected
NMOCD - New Mexico Oil Conservation Commission
ppm - parts per million
TPH - total petroleum hydrocarbons
< indicates result is less than the stated laboratory method detection limit
* - only TPH results are available prior to October 2008
** - laboratory PQL exceeds NMOCD standard

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

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

January 31, 2012

Kelly Robinson
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4166
FAX (505) 632-3911

RE: Bloomfield Crude Station OrderNo.: 1201116

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 6 sample(s) on 1/5/2012 for the analyses presented in the following report.

There were no problems with the analytical events associated with this report unless noted in the Case Narrative. Analytical results designated with a "J" qualifier are estimated and represent a detection above the Method Detection Limit (MDL) and less than the Reporting Limit (PQL). These analytes are not reviewed nor narrated as to whether they are laboratory artifacts.

Quality control data is within laboratory defined or method specified acceptance limits except if noted.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** MW-2
Project: Bloomfield Crude Station **Collection Date:** 1/4/2012 11:31:00 AM
Lab ID: 1201116-001 **Matrix:** AQUEOUS **Received Date:** 1/5/2012 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	1.0		µg/L	1	1/7/2012 12:48:03 AM
Toluene	ND	1.0		µg/L	1	1/7/2012 12:48:03 AM
Ethylbenzene	ND	1.0		µg/L	1	1/7/2012 12:48:03 AM
Xylenes, Total	ND	2.0		µg/L	1	1/7/2012 12:48:03 AM
Surr: 4-Bromofluorobenzene	102	76.5-115		%REC	1	1/7/2012 12:48:03 AM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Chloride	40	10		mg/L	20	1/6/2012 2:23:25 AM
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	1/6/2012 2:23:25 AM
Nitrogen, Nitrate (As N)	0.13	0.10		mg/L	1	1/6/2012 2:06:00 AM
Sulfate	890	10		mg/L	20	1/6/2012 2:23:25 AM
EPA METHOD 7470: MERCURY						Analyst: **ELS**
Mercury	ND	0.00020		mg/L	1	1/9/2012 11:14:31 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **ELS**
Arsenic	ND	0.020		mg/L	1	1/9/2012 6:39:54 AM
Barium	0.079	0.020		mg/L	1	1/9/2012 6:39:54 AM
Cadmium	ND	0.0020		mg/L	1	1/9/2012 6:39:54 AM
Calcium	220	5.0		mg/L	5	1/9/2012 6:41:59 AM
Chromium	ND	0.0060		mg/L	1	1/9/2012 6:39:54 AM
Iron	7.6	0.50		mg/L	10	1/9/2012 7:43:11 AM
Lead	ND	0.0050		mg/L	1	1/9/2012 6:39:54 AM
Magnesium	26	1.0		mg/L	1	1/9/2012 6:39:54 AM
Manganese	3.7	0.010		mg/L	5	1/9/2012 6:41:59 AM
Potassium	2.5	1.0		mg/L	1	1/9/2012 6:39:54 AM
Selenium	ND	0.050		mg/L	1	1/9/2012 6:39:54 AM
Silver	ND	0.0050		mg/L	1	1/9/2012 6:39:54 AM
Sodium	710	10		mg/L	10	1/9/2012 7:43:11 AM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **IDC**
Conductivity	3,500	0.010		µmhos/cm	1	1/6/2012 6:10:42 PM
SM4500-H+B: PH						Analyst: **IDC**
pH	7.80	1.68	H	pH units	1	1/6/2012 6:10:42 PM
SM2320B: ALKALINITY						Analyst: **IDC**
Bicarbonate (As CaCO3)	1,300	50		mg/L CaCO3	2.5	1/11/2012 10:30:00 AM
Carbonate (As CaCO3)	ND	5.0		mg/L CaCO3	2.5	1/11/2012 10:30:00 AM
Total Alkalinity (as CaCO3)	1,300	50		mg/L CaCO3	2.5	1/11/2012 10:30:00 AM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	2,720	40.0		mg/L	1	1/10/2012 11:10:00 AM

Qualifiers:

- */X Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** MW-3
Project: Bloomfield Crude Station **Collection Date:** 1/4/2012 10:05:00 AM
Lab ID: 1201116-002 **Matrix:** AQUEOUS **Received Date:** 1/5/2012 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	1.0		µg/L	1	1/7/2012 1:16:47 AM
Toluene	ND	1.0		µg/L	1	1/7/2012 1:16:47 AM
Ethylbenzene	ND	1.0		µg/L	1	1/7/2012 1:16:47 AM
Xylenes, Total	ND	2.0		µg/L	1	1/7/2012 1:16:47 AM
Surr: 4-Bromofluorobenzene	99.2	76.5-115		%REC	1	1/7/2012 1:16:47 AM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Chloride	37	10		mg/L	20	1/6/2012 2:58:13 AM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	1/6/2012 2:40:49 AM
Nitrogen, Nitrate (As N)	14	2.0	*	mg/L	20	1/6/2012 2:58:13 AM
Sulfate	2,400	25		mg/L	50	1/9/2012 10:18:04 PM
EPA METHOD 7470: MERCURY						Analyst: **ELS**
Mercury	ND	0.00020		mg/L	1	1/9/2012 11:16:19 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **ELS**
Arsenic	ND	0.020		mg/L	1	1/9/2012 6:45:26 AM
Barium	0.033	0.020		mg/L	1	1/9/2012 6:45:26 AM
Cadmium	ND	0.0020		mg/L	1	1/9/2012 6:45:26 AM
Calcium	410	5.0		mg/L	5	1/9/2012 6:47:34 AM
Chromium	ND	0.0060		mg/L	1	1/9/2012 6:45:26 AM
Iron	2.9	0.25		mg/L	5	1/9/2012 6:47:34 AM
Lead	ND	0.0050		mg/L	1	1/9/2012 6:45:26 AM
Magnesium	39	1.0		mg/L	1	1/9/2012 6:45:26 AM
Manganese	0.55	0.0020		mg/L	1	1/9/2012 6:45:26 AM
Potassium	2.3	1.0		mg/L	1	1/9/2012 6:45:26 AM
Selenium	ND	0.050		mg/L	1	1/9/2012 6:45:26 AM
Silver	ND	0.0050		mg/L	1	1/9/2012 6:45:26 AM
Sodium	820	10		mg/L	10	1/9/2012 7:45:06 AM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **IDC**
Conductivity	4,000	0.010		µmhos/cm	1	1/6/2012 6:43:24 PM
SM4500-H+B: PH						Analyst: **IDC**
pH	7.75	1.68	H	pH units	1	1/6/2012 6:43:24 PM
SM2320B: ALKALINITY						Analyst: **IDC**
Bicarbonate (As CaCO3)	560	20		mg/L CaCO3	1	1/6/2012 6:43:24 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	1/6/2012 6:43:24 PM
Total Alkalinity (as CaCO3)	560	20		mg/L CaCO3	1	1/6/2012 6:43:24 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	3,470	100		mg/L	1	1/10/2012 11:10:00 AM

Qualifiers:

- */X Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** MW-4
Project: Bloomfield Crude Station **Collection Date:** 1/4/2012 12:30:00 PM
Lab ID: 1201116-003 **Matrix:** AQUEOUS **Received Date:** 1/5/2012 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	1.0		µg/L	1	1/7/2012 1:45:40 AM
Toluene	ND	1.0		µg/L	1	1/7/2012 1:45:40 AM
Ethylbenzene	ND	1.0		µg/L	1	1/7/2012 1:45:40 AM
Xylenes, Total	ND	2.0		µg/L	1	1/7/2012 1:45:40 AM
Surr: 4-Bromofluorobenzene	99.0	76.5-115		%REC	1	1/7/2012 1:45:40 AM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Chloride	30	10		mg/L	20	1/6/2012 3:33:01 AM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	1/6/2012 3:15:37 AM
Nitrogen, Nitrate (As N)	0.18	0.10		mg/L	1	1/6/2012 3:15:37 AM
Sulfate	2,700	50		mg/L	100	1/9/2012 10:30:29 PM
EPA METHOD 7470: MERCURY						Analyst: **ELS**
Mercury	ND	0.00020		mg/L	1	1/9/2012 11:18:06 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **ELS**
Arsenic	ND	0.020		mg/L	1	1/9/2012 6:49:21 AM
Barium	0.11	0.020		mg/L	1	1/9/2012 6:49:21 AM
Cadmium	ND	0.0020		mg/L	1	1/9/2012 6:49:21 AM
Calcium	480	20		mg/L	20	1/9/2012 7:47:05 AM
Chromium	0.011	0.0060		mg/L	1	1/9/2012 6:49:21 AM
Iron	15	1.0		mg/L	20	1/9/2012 7:47:05 AM
Lead	ND	0.0050		mg/L	1	1/9/2012 6:49:21 AM
Magnesium	51	1.0		mg/L	1	1/9/2012 6:49:21 AM
Manganese	8.8	0.040		mg/L	20	1/9/2012 7:47:05 AM
Potassium	6.6	1.0		mg/L	1	1/9/2012 6:49:21 AM
Selenium	ND	0.050		mg/L	1	1/9/2012 6:49:21 AM
Silver	ND	0.0050		mg/L	1	1/9/2012 6:49:21 AM
Sodium	690	20		mg/L	20	1/9/2012 7:47:05 AM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **IDC**
Conductivity	4,500	0.010		µmhos/cm	1	1/6/2012 7:04:21 PM
SM4500-H+B: PH						Analyst: **IDC**
pH	7.62	1.68	H	pH units	1	1/6/2012 7:04:21 PM
SM2320B: ALKALINITY						Analyst: **IDC**
Bicarbonate (As CaCO3)	470	20		mg/L CaCO3	1	1/6/2012 7:04:21 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	1/6/2012 7:04:21 PM
Total Alkalinity (as CaCO3)	470	20		mg/L CaCO3	1	1/6/2012 7:04:21 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	4,050	100		mg/L	1	1/10/2012 11:10:00 AM

Qualifiers:

- */X Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** MW-6
Project: Bloomfield Crude Station **Collection Date:** 1/4/2012 3:20:00 PM
Lab ID: 1201116-004 **Matrix:** AQUEOUS **Received Date:** 1/5/2012 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	10		µg/L	10	1/7/2012 2:14:30 AM
Toluene	ND	10		µg/L	10	1/7/2012 2:14:30 AM
Ethylbenzene	61	10		µg/L	10	1/7/2012 2:14:30 AM
Xylenes, Total	220	20		µg/L	10	1/7/2012 2:14:30 AM
Surr: 4-Bromofluorobenzene	103	76.5-115		%REC	10	1/7/2012 2:14:30 AM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Chloride	130	10		mg/L	20	1/6/2012 4:07:50 AM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	1/6/2012 3:50:26 AM
Nitrogen, Nitrate (As N)	4.0	0.10		mg/L	1	1/6/2012 3:50:26 AM
Sulfate	970	10		mg/L	20	1/6/2012 4:07:50 AM
EPA METHOD 7470: MERCURY						Analyst: **ELS**
Mercury	ND	0.00020		mg/L	1	1/9/2012 11:19:54 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **ELS**
Arsenic	0.074	0.020		mg/L	1	1/9/2012 6:53:28 AM
Barium	0.50	0.020		mg/L	1	1/9/2012 6:53:28 AM
Cadmium	0.0023	0.0020		mg/L	1	1/9/2012 6:53:28 AM
Calcium	280	5.0		mg/L	5	1/9/2012 6:55:46 AM
Chromium	0.011	0.0060		mg/L	1	1/9/2012 6:53:28 AM
Iron	100	10		mg/L	200	1/9/2012 8:04:23 AM
Lead	0.0069	0.0050		mg/L	1	1/9/2012 6:53:28 AM
Magnesium	37	1.0		mg/L	1	1/9/2012 6:53:28 AM
Manganese	4.2	0.010		mg/L	5	1/9/2012 6:55:46 AM
Potassium	6.4	1.0		mg/L	1	1/9/2012 6:53:28 AM
Selenium	ND	0.050		mg/L	1	1/9/2012 6:53:28 AM
Silver	ND	0.0050		mg/L	1	1/9/2012 6:53:28 AM
Sodium	580	10		mg/L	10	1/9/2012 7:49:01 AM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **IDC**
Conductivity	3,400	0.010		µmhos/cm	1	1/6/2012 7:23:30 PM
SM4500-H+B: PH						Analyst: **IDC**
pH	7.62	1.68	H	pH units	1	1/6/2012 7:23:30 PM
SM2320B: ALKALINITY						Analyst: **IDC**
Bicarbonate (As CaCO3)	1,100	20		mg/L CaCO3	1	1/6/2012 7:23:30 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	1/6/2012 7:23:30 PM
Total Alkalinity (as CaCO3)	1,100	20		mg/L CaCO3	1	1/6/2012 7:23:30 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	2,560	100		mg/L	1	1/10/2012 11:10:00 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.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** MW-7
Project: Bloomfield Crude Station **Collection Date:** 1/4/2012 4:15:00 PM
Lab ID: 1201116-005 **Matrix:** AQUEOUS **Received Date:** 1/5/2012 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	62	20		µg/L	20	1/7/2012 3:12:06 AM
Toluene	ND	20		µg/L	20	1/7/2012 3:12:06 AM
Ethylbenzene	640	20		µg/L	20	1/7/2012 3:12:06 AM
Xylenes, Total	3,500	40		µg/L	20	1/7/2012 3:12:06 AM
Surr: 4-Bromofluorobenzene	111	76.5-115		%REC	20	1/7/2012 3:12:06 AM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Chloride	24	10		mg/L	20	1/6/2012 5:52:18 AM
Nitrogen, Nitrite (As N)	ND	0.10		mg/L	1	1/6/2012 5:00:03 AM
Nitrogen, Nitrate (As N)	ND	0.10		mg/L	1	1/6/2012 5:00:03 AM
Sulfate	4.4	0.50		mg/L	1	1/6/2012 5:00:03 AM
EPA METHOD 7470: MERCURY						Analyst: **ELS**
Mercury	ND	0.00020		mg/L	1	1/9/2012 11:21:39 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **ELS**
Arsenic	ND	0.020		mg/L	1	1/9/2012 7:03:48 AM
Barium	2.1	0.10		mg/L	5	1/9/2012 7:05:46 AM
Cadmium	ND	0.0020		mg/L	1	1/9/2012 7:03:48 AM
Calcium	150	5.0		mg/L	5	1/9/2012 7:05:46 AM
Chromium	ND	0.0060		mg/L	1	1/9/2012 7:03:48 AM
Iron	22	2.5		mg/L	50	1/9/2012 8:00:31 AM
Lead	ND	0.0050		mg/L	1	1/9/2012 7:03:48 AM
Magnesium	17	1.0		mg/L	1	1/9/2012 7:03:48 AM
Manganese	0.89	0.0020		mg/L	1	1/9/2012 7:03:48 AM
Potassium	2.6	1.0		mg/L	1	1/9/2012 7:03:48 AM
Selenium	ND	0.050		mg/L	1	1/9/2012 7:03:48 AM
Silver	ND	0.0050		mg/L	1	1/9/2012 7:03:48 AM
Sodium	160	5.0		mg/L	5	1/9/2012 7:05:46 AM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **IDC**
Conductivity	1,300	0.010		µmhos/cm	1	1/6/2012 7:59:31 PM
SM4500-H+B: PH						Analyst: **IDC**
pH	7.75	1.68	H	pH units	1	1/6/2012 7:59:31 PM
SM2320B: ALKALINITY						Analyst: **IDC**
Bicarbonate (As CaCO3)	720	20		mg/L CaCO3	1	1/6/2012 7:59:31 PM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	1/6/2012 7:59:31 PM
Total Alkalinity (as CaCO3)	720	20		mg/L CaCO3	1	1/6/2012 7:59:31 PM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	800	40.0		mg/L	1	1/10/2012 11:10:00 AM

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** MW-5
Project: Bloomfield Crude Station **Collection Date:** 1/4/2012 1:48:00 PM
Lab ID: 1201116-006 **Matrix:** AQUEOUS **Received Date:** 1/5/2012 2:35:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	1.0		µg/L	1	1/7/2012 4:09:46 AM
Toluene	ND	1.0		µg/L	1	1/7/2012 4:09:46 AM
Ethylbenzene	ND	1.0		µg/L	1	1/7/2012 4:09:46 AM
Xylenes, Total	ND	2.0		µg/L	1	1/7/2012 4:09:46 AM
Surr: 4-Bromofluorobenzene	100	76.5-115		%REC	1	1/7/2012 4:09:46 AM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Chloride	510	25		mg/L	50	1/9/2012 10:42:54 PM
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	1/6/2012 6:27:07 AM
Nitrogen, Nitrate (As N)	0.26	0.10		mg/L	1	1/6/2012 6:09:42 AM
Sulfate	1,900	25		mg/L	50	1/9/2012 10:42:54 PM
EPA METHOD 7470: MERCURY						Analyst: **ELS**
Mercury	ND	0.00020		mg/L	1	1/9/2012 11:23:31 AM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: **ELS**
Arsenic	ND	0.020		mg/L	1	1/9/2012 7:07:33 AM
Barium	0.086	0.020		mg/L	1	1/9/2012 7:07:33 AM
Cadmium	ND	0.0020		mg/L	1	1/9/2012 7:07:33 AM
Calcium	520	10		mg/L	10	1/9/2012 8:02:36 AM
Chromium	0.0062	0.0060		mg/L	1	1/9/2012 7:07:33 AM
Iron	8.2	0.50		mg/L	10	1/9/2012 8:02:36 AM
Lead	ND	0.0050		mg/L	1	1/9/2012 7:07:33 AM
Magnesium	45	1.0		mg/L	1	1/9/2012 7:07:33 AM
Manganese	7.5	0.020		mg/L	10	1/9/2012 8:02:36 AM
Potassium	5.9	1.0		mg/L	1	1/9/2012 7:07:33 AM
Selenium	ND	0.050		mg/L	1	1/9/2012 7:07:33 AM
Silver	ND	0.0050		mg/L	1	1/9/2012 7:07:33 AM
Sodium	810	10		mg/L	10	1/9/2012 8:02:36 AM
EPA 120.1: SPECIFIC CONDUCTANCE						Analyst: **IDC**
Conductivity	4,700	0.010		µmhos/cm	1	1/11/2012 11:07:34 AM
SM4500-H+B: PH						Analyst: **IDC**
pH	7.12	1.68	H	pH units	1	1/11/2012 11:07:34 AM
SM2320B: ALKALINITY						Analyst: **IDC**
Bicarbonate (As CaCO3)	680	20		mg/L CaCO3	1	1/11/2012 11:07:34 AM
Carbonate (As CaCO3)	ND	2.0		mg/L CaCO3	1	1/11/2012 11:07:34 AM
Total Alkalinity (as CaCO3)	680	20		mg/L CaCO3	1	1/11/2012 11:07:34 AM
SM2540C MOD: TOTAL DISSOLVED SOLIDS						Analyst: **KS**
Total Dissolved Solids	3,880	100		mg/L	1	1/10/2012 11:10:00 AM

Qualifiers:

- */X Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit
- S Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1201116

31-Jan-12

Client: Western Refining Southwest, Inc.

Project: Bloomfield Crude Station

Sample ID MB	SampType: MBLK	TestCode: EPA Method 300.0: Anions							
Client ID: PBW	Batch ID: R247	RunNo: 247							
Prep Date:	Analysis Date: 1/5/2012	SeqNo: 7642	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								
Nitrogen, Nitrate (As N)	ND	0.10								
Sulfate	ND	0.50								

Sample ID LCS	SampType: LCS	TestCode: EPA Method 300.0: Anions							
Client ID: LCSW	Batch ID: R247	RunNo: 247							
Prep Date:	Analysis Date: 1/5/2012	SeqNo: 7643	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	4.9	0.50	5.000	0	97.2	90	110			
Nitrogen, Nitrite (As N)	0.99	0.10	1.000	0	98.7	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	98.6	90	110			
Sulfate	9.8	0.50	10.00	0	97.6	90	110			

Sample ID 1201117-002AMS	SampType: MS	TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R247	RunNo: 247							
Prep Date:	Analysis Date: 1/5/2012	SeqNo: 7645	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	1.1	0.10	1.000	0.1877	91.8	77.6	111			
Nitrogen, Nitrate (As N)	2.4	0.10	2.500	0	96.8	82.8	116			

Sample ID 1201117-002AMSD	SampType: MSD	TestCode: EPA Method 300.0: Anions							
Client ID: BatchQC	Batch ID: R247	RunNo: 247							
Prep Date:	Analysis Date: 1/5/2012	SeqNo: 7646	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	1.1	0.10	1.000	0.1877	95.0	77.6	111	2.81	20	
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	100	82.8	116	3.22	20	

Sample ID 1201116-005BMS	SampType: MS	TestCode: EPA Method 300.0: Anions							
Client ID: MW-7	Batch ID: R247	RunNo: 247							
Prep Date:	Analysis Date: 1/6/2012	SeqNo: 7667	Units: mg/L						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.95	0.10	1.000	0	94.6	77.6	111			
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0.02984	104	82.8	116			
Sulfate	15	0.50	10.00	4.372	103	80.5	119			

Qualifiers:

- */X Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1201116

31-Jan-12

Client: Western Refining Southwest, Inc.

Project: Bloomfield Crude Station

Sample ID	1201116-005BMSD	SampType:	MSD	TestCode:	EPA Method 300.0: Anions					
Client ID:	MW-7	Batch ID:	R247	RunNo:	247					
Prep Date:		Analysis Date:	1/6/2012	SeqNo:	7668	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.92	0.10	1.000	0	92.2	77.6	111	2.59	20	
Nitrogen, Nitrate (As N)	2.6	0.10	2.500	0.02984	102	82.8	116	2.54	20	
Sulfate	15	0.50	10.00	4.372	102	80.5	119	0.824	20	

Sample ID	MB	SampType:	MBLK	TestCode:	EPA Method 300.0: Anions					
Client ID:	PBW	Batch ID:	R281	RunNo:	281					
Prep Date:		Analysis Date:	1/9/2012	SeqNo:	8620	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:	R281	RunNo:	281					
Prep Date:		Analysis Date:	1/9/2012	SeqNo:	8621	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	5.1	0.50	5.000	0	102	90	110			
fate	10	0.50	10.00	0	103	90	110			

Sample ID	1201178-001AMS	SampType:	MS	TestCode:	EPA Method 300.0: Anions					
Client ID:	BatchQC	Batch ID:	R281	RunNo:	281					
Prep Date:		Analysis Date:	1/9/2012	SeqNo:	8623	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	0.50	5.000	9.463	107	78	107			

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#: 1201116

31-Jan-12

Client: Western Refining Southwest, Inc.

Project: Bloomfield Crude Station

Sample ID 5ML-RB	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles
Client ID: PBW	Batch ID: R262	RunNo: 262
Prep Date:	Analysis Date: 1/6/2012	SeqNo: 8203 Units: µg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	2.5								
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
1,2,4-Trimethylbenzene	ND	1.0								
1,3,5-Trimethylbenzene	ND	1.0								
Surr: 4-Bromofluorobenzene	19		20.00		97.3	76.5	115			

Sample ID 100NG BTEX LCS	SampType: LCS	TestCode: EPA Method 8021B: Volatiles
Client ID: LCSW	Batch ID: R262	RunNo: 262
Prep Date:	Analysis Date: 1/6/2012	SeqNo: 8207 Units: µg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	17	2.5	20.00	0	85.4	44.7	148			
Benzene	19	1.0	20.00	0	94.4	80	120			
Toluene	19	1.0	20.00	0	96.9	80	120			
Ethylbenzene	19	1.0	20.00	0	96.8	80	120			
Xylenes, Total	58	2.0	60.00	0	97.0	78.6	121			
1,2,4-Trimethylbenzene	18	1.0	20.00	0	92.4	75.1	120			
1,3,5-Trimethylbenzene	19	1.0	20.00	0	96.2	76.4	122			
Surr: 4-Bromofluorobenzene	20		20.00		98.7	76.5	115			

Sample ID 1201122-003A MS	SampType: MS	TestCode: EPA Method 8021B: Volatiles
Client ID: BatchQC	Batch ID: R262	RunNo: 262
Prep Date:	Analysis Date: 1/6/2012	SeqNo: 8208 Units: µg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	38	5.0	40.00	0.4316	94.1	74.6	120			
Benzene	36	2.0	40.00	0	89.8	76.6	119			
Toluene	35	2.0	40.00	0	87.9	77.3	118			
Ethylbenzene	36	2.0	40.00	0	89.8	76.6	114			
Xylenes, Total	110	4.0	120.0	0	90.5	82	113			
1,2,4-Trimethylbenzene	35	2.0	40.00	0	86.9	69.2	110			
1,3,5-Trimethylbenzene	36	2.0	40.00	0	89.8	76.4	120			
Surr: 4-Bromofluorobenzene	42		40.00		104	76.5	115			

Sample ID 1201122-003A MSD	SampType: MSD	TestCode: EPA Method 8021B: Volatiles
Client ID: BatchQC	Batch ID: R262	RunNo: 262
Prep Date:	Analysis Date: 1/6/2012	SeqNo: 8210 Units: µg/L

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

Qualifiers:

- */X Value exceeds Maximum Contaminant Level.
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- J Analyte detected below quantitation limits
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- RL Reporting Detection Limit

QC SUMMARY REPORT

WO#: 1201116

Hall Environmental Analysis Laboratory, Inc.

31-Jan-12

Client: Western Refining Southwest, Inc.

Project: Bloomfield Crude Station

Sample ID 1201122-003A MSD	SampType: MSD	TestCode: EPA Method 8021B: Volatiles
Client ID: BatchQC	Batch ID: R262	RunNo: 262
Prep Date:	Analysis Date: 1/6/2012	SeqNo: 8210 Units: µg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	36	5.0	40.00	0.4316	88.1	74.6	120	6.46	15.2	
Benzene	34	2.0	40.00	0	85.2	76.6	119	5.27	16.4	
Toluene	35	2.0	40.00	0	87.3	77.3	118	0.697	13.9	
Ethylbenzene	35	2.0	40.00	0	87.4	76.6	114	2.74	13.5	
Xylenes, Total	110	4.0	120.0	0	87.6	82	113	3.20	12.9	
1,2,4-Trimethylbenzene	33	2.0	40.00	0	81.4	69.2	110	6.45	13.5	
1,3,5-Trimethylbenzene	34	2.0	40.00	0	85.6	76.4	120	4.82	13.7	
Surr: 4-Bromofluorobenzene	42		40.00		104	76.5	115	0	0	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1201116

31-Jan-12

Client: Western Refining Southwest, Inc.

Project: Bloomfield Crude Station

Sample ID	1201059-001a dup	SampType:	DUP		TestCode:	EPA 120.1: Specific Conductance				
Client ID:	BatchQC	Batch ID:	R263		RunNo:	263				
Prep Date:		Analysis Date:	1/6/2012		SeqNo:	8220	Units:	µmhos/cm		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	3,200	0.010						0.186	20	

Sample ID	1201109-001d dup	SampType:	DUP		TestCode:	EPA 120.1: Specific Conductance				
Client ID:	BatchQC	Batch ID:	R263		RunNo:	263				
Prep Date:		Analysis Date:	1/6/2012		SeqNo:	8242	Units:	µmhos/cm		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	450	0.010						0.355	20	

Sample ID	1201116-006b dup	SampType:	DUP		TestCode:	EPA 120.1: Specific Conductance				
Client ID:	MW-5	Batch ID:	R338		RunNo:	338				
Prep Date:		Analysis Date:	1/11/2012		SeqNo:	10386	Units:	µmhos/cm		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	4,800	0.010						0.168	20	

Sample ID	1201261-002a dup	SampType:	DUP		TestCode:	EPA 120.1: Specific Conductance				
Client ID:	BatchQC	Batch ID:	R338		RunNo:	338				
Prep Date:		Analysis Date:	1/11/2012		SeqNo:	10393	Units:	µmhos/cm		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Conductivity	870	0.010						0.609	20	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1201116

31-Jan-12

Client: Western Refining Southwest, Inc.

Project: Bloomfield Crude Station

Sample ID	MB-178	SampType:	MBLK	TestCode:	EPA Method 7470: Mercury					
Client ID:	PBW	Batch ID:	178	RunNo:	266					
Prep Date:	1/9/2012	Analysis Date:	1/9/2012	SeqNo:	8297	Units:	ug/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.00020								

Sample ID	LCS-178	SampType:	LCS	TestCode:	EPA Method 7470: Mercury					
Client ID:	LCSW	Batch ID:	178	RunNo:	266					
Prep Date:	1/9/2012	Analysis Date:	1/9/2012	SeqNo:	8298	Units:	ug/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0051	0.00020	0.005000	0	101	80	120			

Sample ID	1201118-001CMS	SampType:	MS	TestCode:	EPA Method 7470: Mercury					
Client ID:	BatchQC	Batch ID:	178	RunNo:	266					
Prep Date:	1/9/2012	Analysis Date:	1/9/2012	SeqNo:	8308	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	106	75	125			

Sample ID	1201118-001CMSD	SampType:	MSD	TestCode:	EPA Method 7470: Mercury					
Client ID:	BatchQC	Batch ID:	178	RunNo:	266					
Prep Date:	1/9/2012	Analysis Date:	1/9/2012	SeqNo:	8309	Units:	mg/L			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.0052	0.00020	0.005000	0	104	75	125	1.86	20	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1201116

31-Jan-12

Client: Western Refining Southwest, Inc.

Project: Bloomfield Crude Station

Sample ID MB-171	SampType: MBLK	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: PBW	Batch ID: 171	RunNo: 256
Prep Date: 1/8/2012	Analysis Date: 1/9/2012	SeqNo: 7881 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								
Calcium	ND	1.0								
Chromium	ND	0.0060								
Iron	ND	0.050								
Lead	ND	0.0050								
Magnesium	ND	1.0								
Manganese	ND	0.0020								
Potassium	ND	1.0								
Selenium	ND	0.050								
Silver	ND	0.0050								
Sodium	ND	1.0								

Sample ID LCS-171	SampType: LCS	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: LCSW	Batch ID: 171	RunNo: 256
Prep Date: 1/8/2012	Analysis Date: 1/9/2012	SeqNo: 7882 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	105	80	120			
Barium	0.48	0.020	0.5000	0	96.5	80	120			
Cadmium	0.50	0.0020	0.5000	0	99.1	80	120			
Calcium	51	1.0	50.00	0	102	80	120			
Chromium	0.49	0.0060	0.5000	0	97.6	80	120			
Iron	0.48	0.050	0.5000	0	95.1	80	120			
Lead	0.47	0.0050	0.5000	0.003210	94.2	80	120			
Magnesium	52	1.0	50.00	0	104	80	120			
Manganese	0.47	0.0020	0.5000	0	94.6	80	120			
Potassium	50	1.0	50.00	0	99.6	80	120			
Selenium	0.54	0.050	0.5000	0	107	80	120			
Silver	0.10	0.0050	0.1000	0	99.5	80	120			
Sodium	51	1.0	50.00	0	102	80	120			

Sample ID 1201118-001CMS	SampType: MS	TestCode: EPA 6010B: Total Recoverable Metals
Client ID: BatchQC	Batch ID: 171	RunNo: 256
Prep Date: 1/8/2012	Analysis Date: 1/9/2012	SeqNo: 7899 Units: mg/L

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.49	0.020	0.5000	0	97.5	75	125			
Barium	0.46	0.020	0.5000	0	92.6	75	125			
Cadmium	0.47	0.0020	0.5000	0	93.4	75	125			
Chromium	0.47	0.0060	0.5000	0	93.5	75	125			

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#: 1201116

31-Jan-12

Client: Western Refining Southwest, Inc.

Project: Bloomfield Crude Station

Sample ID	1201118-001CMS	SampType:	MS		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	BatchQC	Batch ID:	171		RunNo:	256				
Prep Date:	1/8/2012	Analysis Date:	1/9/2012		SeqNo:	7899	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	0.45	0.0050	0.5000	0	90.0	75	125			
Selenium	0.50	0.050	0.5000	0	99.5	75	125			
Silver	0.094	0.0050	0.1000	0	93.7	75	125			

Sample ID	1201118-001CMSD	SampType:	MSD		TestCode:	EPA 6010B: Total Recoverable Metals				
Client ID:	BatchQC	Batch ID:	171		RunNo:	256				
Prep Date:	1/8/2012	Analysis Date:	1/9/2012		SeqNo:	7900	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	0.50	0.020	0.5000	0	100	75	125	2.73	20	
Barium	0.47	0.020	0.5000	0	93.9	75	125	1.42	20	
Cadmium	0.48	0.0020	0.5000	0	96.5	75	125	3.26	20	
Chromium	0.48	0.0060	0.5000	0	95.0	75	125	1.67	20	
Lead	0.46	0.0050	0.5000	0	93.0	75	125	3.20	20	
Selenium	0.51	0.050	0.5000	0	102	75	125	2.64	20	
Silver	0.095	0.0050	0.1000	0	95.5	75	125	1.93	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#: 1201116

31-Jan-12

Client: Western Refining Southwest, Inc.

Project: Bloomfield Crude Station

Sample ID	1201059-001a dup	SampType: DUP		TestCode: SM4500-H+B: pH					
Client ID:	BatchQC	Batch ID: R263		RunNo: 263					
Prep Date:		Analysis Date: 1/6/2012		SeqNo: 8175		Units: pH units			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.82	1.68								H

Sample ID	1201109-001d dup	SampType: DUP		TestCode: SM4500-H+B: pH					
Client ID:	BatchQC	Batch ID: R338		RunNo: 338					
Prep Date:		Analysis Date: 1/11/2012		SeqNo: 10371		Units: pH units			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.96	1.68								H

Sample ID	1201116-006b dup	SampType: DUP		TestCode: SM4500-H+B: pH					
Client ID:	MW-5	Batch ID: R338		RunNo: 338					
Prep Date:		Analysis Date: 1/11/2012		SeqNo: 10373		Units: pH units			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.08	1.68								H

Sample ID	1201261-002a dup	SampType: DUP		TestCode: SM4500-H+B: pH					
Client ID:	BatchQC	Batch ID: R338		RunNo: 338					
Prep Date:		Analysis Date: 1/11/2012		SeqNo: 10382		Units: pH units			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.77	1.68						0.257		H

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#: 1201116

31-Jan-12

Client: Western Refining Southwest, Inc.

Project: Bloomfield Crude Station

Sample ID mb-1	SampType: mblk	TestCode: SM2320B: Alkalinity							
Client ID: PBW	Batch ID: R263	RunNo: 263							
Prep Date:	Analysis Date: 1/6/2012	SeqNo: 8251	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: R263	RunNo: 263							
Prep Date:	Analysis Date: 1/6/2012	SeqNo: 8252	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	5.680	93.3	88.1	104			

Sample ID 1201109-001d ms	SampType: ms	TestCode: SM2320B: Alkalinity							
Client ID: BatchQC	Batch ID: R263	RunNo: 263							
Prep Date:	Analysis Date: 1/6/2012	SeqNo: 8266	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	260	20	80.00	191.9	79.5	37.1	121			

Sample ID 1201109-001d msd	SampType: msd	TestCode: SM2320B: Alkalinity							
Client ID: BatchQC	Batch ID: R263	RunNo: 263							
Prep Date:	Analysis Date: 1/6/2012	SeqNo: 8267	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	260	20	80.00	191.9	82.2	37.1	121	0.826	7.21	

Sample ID lcs-1	SampType: LCS	TestCode: SM2320B: Alkalinity							
Client ID: LCSW	Batch ID: R338	RunNo: 338							
Prep Date:	Analysis Date: 1/11/2012	SeqNo: 10397	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	100	88.1	104			

Sample ID 1201116-006b ms	SampType: MS	TestCode: SM2320B: Alkalinity							
Client ID: MW-5	Batch ID: R338	RunNo: 338							
Prep Date:	Analysis Date: 1/11/2012	SeqNo: 10399	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	750	20	80.00	684.9	79.4	37.1	121			

Sample ID 1201116-006b msd	SampType: MSD	TestCode: SM2320B: Alkalinity							
Client ID: MW-5	Batch ID: R338	RunNo: 338							
Prep Date:	Analysis Date: 1/11/2012	SeqNo: 10400	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	750	20	80.00	684.9	76.2	37.1	121	0.343	7.21	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1201116

31-Jan-12

Client: Western Refining Southwest, Inc.

Project: Bloomfield Crude Station

Sample ID mb-1 rr	SampType: MBLK	TestCode: SM2320B: Alkalinity							
Client ID: PBW	Batch ID: R338	RunNo: 338							
Prep Date:	Analysis Date: 1/11/2012	SeqNo: 10413	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: R338	RunNo: 338							
Prep Date:	Analysis Date: 1/11/2012	SeqNo: 10421	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-2	SampType: LCS	TestCode: SM2320B: Alkalinity							
Client ID: LCSW	Batch ID: R338	RunNo: 338							
Prep Date:	Analysis Date: 1/11/2012	SeqNo: 10422	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			

Sample ID 1201261-002a ms	SampType: MS	TestCode: SM2320B: Alkalinity							
Client ID: BatchQC	Batch ID: R338	RunNo: 338							
Prep Date:	Analysis Date: 1/11/2012	SeqNo: 10428	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	230	20	80.00	173.1	73.6	37.1	121			

Sample ID 1201261-002a msd	SampType: MSD	TestCode: SM2320B: Alkalinity							
Client ID: BatchQC	Batch ID: R338	RunNo: 338							
Prep Date:	Analysis Date: 1/11/2012	SeqNo: 10429	Units: mg/L CaCO3						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Alkalinity (as CaCO3)	230	20	80.00	173.1	68.7	37.1	121	1.74	7.21	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 1201116

31-Jan-12

Client: Western Refining Southwest, Inc.

Project: Bloomfield Crude Station

Sample ID	MB-163	SampType:	MBLK		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	PBW	Batch ID:	163		RunNo:	288				
Prep Date:	1/6/2012	Analysis Date:	1/10/2012		SeqNo:	8793	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-163	SampType:	LCS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	LCSW	Batch ID:	163		RunNo:	288				
Prep Date:	1/6/2012	Analysis Date:	1/10/2012		SeqNo:	8794	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	1,020	20.0	1,000	7.000	101	80	120			

Sample ID	1201105-003AMS	SampType:	MS		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	BatchQC	Batch ID:	163		RunNo:	288				
Prep Date:	1/6/2012	Analysis Date:	1/10/2012		SeqNo:	8801	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	2,060	20.0	1,000	1,057	100	80	120			

Sample ID	1201105-003AMSD	SampType:	MSD		TestCode:	SM2540C MOD: Total Dissolved Solids				
Client ID:	BatchQC	Batch ID:	163		RunNo:	288				
Prep Date:	1/6/2012	Analysis Date:	1/10/2012		SeqNo:	8802	Units:	mg/L		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids	2,060	20.0	1,000	1,057	100	80	120	0.0486	20	

Qualifiers:

*/X	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Receipt Checklist

Client Name Western Refining Southwest, I | Date and Time Receive 1/5/2012 2:35:00 PM

Work Order Number 1201116 | RcptNo: 1 | Received by: Lindsay Mangin

Checklist Completed By: [signature] | Checked by: [signature]

Completed Date: 1/5/2012 2:56:06 PM | Checked Date: 1/6/2012

Carrier name: Courier

Shipping cooler present and in acceptable condition?	Yes ☑	No ☐	NA ☐
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	Not Present ☐
Are matrices correctly identified on Chain of custody?	Yes ☑	No ☐	
Is it clear what analyses were requested?	Yes ☑	No ☐	
Custody Seals present on cooler?	Yes ☐	No ☐	
Custody Seals intact on sample bottles?	Yes ☐	No ☐	NA ☑
Samples in proper container/bottle?	Yes ☑	No ☐	
Were correct preservatives used and noted?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
Were container lables complete (ID, Pres, Date)?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Was an attempt made to cool the samples?	Yes ☑	No ☐	
All samples received at a temp. of > 0° C to 6.0° C?	Yes ☑	No ☐	
Response when temperature is outside of range:			
Preservative added to bottles:			
Sample Temp. taken and recorded upon receipt?	Yes ☑	No ☐	2.4 °C
Water - Were bubbles absent in VOC vials?	Yes ☑	No ☐	NA ☐
Water - pH acceptable upon receipt?	Yes ☑	No ☐	NA ☐
Sample Condition?	Intact ☑	Broken ☐	Leaking ☐

Number of preserved bottles checked for pH: 12

(<2 or >12 unless noted)

Adjusted? added 1ML HNO3 to DIC, DOC, & DOC | Checked by [signature]

Client Contacted? ☐ Yes ☐ No ☑ NA Person Contacted: Comments:

Contact Mode: ☐ Phone: ☐ Fax: ☐ Email: ☐ In Person:

Date Contacted: Contacted By:

Regarding:

CorrectiveAction:

Chain-of-Custody Record

Client: Western Refining

Mailing Address: Kelly Robinson
111 CR4990 Bloomfield, NM 87413

Phone #: 505-632-4166

email or Fax#:

QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: Bloomfield Crude Station

Project #:

Project Manager: Ashley Ager

Sampler: Sam LaRue

On Ice: ☐ Yes ☐ No

Sample Temperature: _____

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)	8270 (Semi-VOA)					Air Bubbles (Y or N)
1/4/12	11:31	AQ	MW-2	Varias	Varias	-1	See	Attached														
1/4/12	10:05	AQ	MW-3	Varias	Varias	-2	See	Attached														
1/4/12	12:30	AQ	MW-4	Varias	Varias	-3	See	Attached														
1/4/12	15:20	AQ	MW-6	Varias	Varias	-4	See	Attached														
1/4/12	16:15	AQ	MW-7	Varias	Varias	-5	See	Attached														
1/4/12	13:48	AQ	MW-5	Varias	Varias	-6	See	Attached														

Date:	Time:	Relinquished by:	Received by:	Date	Time
1/4/12	1740			1/4/12	1746
1/5/12	649			1/5/12	1435

Remarks: Copy results to Ashley Ager

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.

HISTORICAL GROUNDWATER ANALYTICAL RESULTS - GENERAL CHEMISTRY
BLOOMFIELD CRUDE STATION
WESTERN REFINING SOUTHWEST, INC

Well Number	YEAR	Lab pH (su)	Conductivity (umhos/cm)	TDS (mg/l)	Alkalinity (CaCO3) (mg/l)	Hardness (CaCO3) (mg/l)	Sodium Absorption Ratio	Bicarbonate (HCO3) (mg/l)	Carbonate (CO3) (mg/l)	Hydroxide (mg/l)	Chloride (mg/l)	Sulfate (mg/l)	Calcium (mg/l)	Magnesium (mg/l)	Potassium (mg/l)	Sodium (mg/l)	Barium (mg/l)	Iron (mg/l)	Manganese (mg/l)	Nitrate/ Nitrite (mg/l)
MW-2	1994	6.60	4,920	**3,049**	957	NT	11.78	1,170	0	0	**1,050**	24	325	30	1.4	828	NT	NT	NT	NT
	2001	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NT	NSP	NSP	NSP
	2002	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NSP	NT	NSP	NSP	NSP
	2003	7.00	3,230	**3,220**	1,520	416	NT	1,850	<1	<1	51	369	133	20	1	660	NT	NT	NT	NT
	2004	7.00	3,100	**2,000**	1,500	420	NT	1,500	<1	<1	85	130	140	18	3	680	NT	**11**	**3.1**	<0.10
	2005	7.60	3,000	**2,000**	1,300	430	NT	1,300	7	<1	110	58	140	19	3.8	620	NT	**11**	**3.1**	<0.10
	2006	7.40	3,400	**2,000**	1,400	440	NT	1,400	4.3	<1	130	150	150	18	2.4	610	NT	**4**	**1.3**	<0.10
	2007	7.40	5,490	**4,580**	726	1,190	NT	724	2.57	<1	43.5	**2,460**	476	59.5	12.5	869	NT	**16.3**	**5.0**	NT
	2008	7.50	5,100	**4,350**	543	1,220	NT	534	<1	<1	42.3	**2,468**	463	49.5	2.93	739	NT	**10.7**	**6.76**	ND
	2009	7.34	4,300	**3,900**	760	NT	NT	760	ND	NT	42	**2,000**	380	42	2.3	720	0.038	BDL	**0.25**	ND
	2010	7.39	3,700	**3,160**	900	870	NT	900	ND	NT	60	**1,500**	290	34	1.8	690	0.18	**1.2**	**7.4**	ND
	2011	7.49	3,700	**2,750**	1,300	880	NT	1,300	<5.0	NT	52	**920**	290	34	6.9	740	0.21	**32**	**6.1**	NT
	2012	7.80	3,500	**2,720**	1,300	NT	NT	1,300	<5.0	NT	40	**890**	220	26	2.5	710	0.079	**7.6**	**3.7**	0.13
MW-3	1994	7.10	4,250	**3,413**	521	NT	8.14	635	0	0	48	**1,920**	439	37	1.4	661	NT	NT	NT	NT
	2001	7.30	4,500	**3,960**	459	1,220	NT	559	<1	<1	78	**2,250**	423	40.4	2.5	711	NT	NT	NT	NT
	2002	7.00	4,440	**3,820**	358	1,290	NT	437	<1	<1	46	**2,520**	446	43	0.6	705	NT	NT	NT	NT
	2003	7.00	4,320	**3,660**	560	1,230	NT	683	<1	<1	56	**2,330**	428	39.4	1.6	671	NT	NT	NT	NT
	2004	7.30	4,500	**4,000**	560	1,400	NT	560	1	<1	44	**2,300**	320	44	3.6	780	NT	**3.9**	**0.79**	<0.10
	2005	7.40	4,700	**2,000**	560	1,400	NT	560	1	<1	37	**2,100**	450	47	3.9	690	NT	**3.9**	**0.79**	<0.10
	2006	7.50	5,400	**3,600**	580	1,300	NT	580	1.5	<1	37	**2,200**	450	47	3.7	680	NT	**4.4**	**0.38**	0.36
	2007	7.50	4,780	**3,750**	565	1,120	NT	563	1.92	<1	36.2	**1,920**	449	43	10.36	649	NT	**1.28**	**0.41**	NT
	2008	7.50	4,330	**3,600**	627	1,090	NT	626	1.32	<1	34.8	**1,690**	419	39.8	2.36	594	NT	**1.91**	**0.394**	ND
	2009	7.33	4,000	**3,700**	580	NT	NT	580	ND	NT	37	**2,000**	390	37	2.2	600	0.049	**3.2**	**6.6**	3.1
	2010	7.47	3,500	**3,430**	530	1,100	NT	530	ND	NT	35	**1,800**	370	36	1.5	600	0.024	ND	0.15	5.8
	2011	7.39	4,100	**3,400**	560	1,300	NT	560	<2.0	NT	39	**2,000**	450	39	4.2	660	0.075	**7**	**1.2**	NT
	2012	7.75	4,000	**3,470**	560	NT	NT	560	<2.0	NT	37	**2,400**	410	39	2.3	620	0.033	**2.9**	**0.55**	14
MW-4	1994	7.00	5,420	**4,389**	576	NT	10.88	703	0	0	175	**2,470**	439	53	3.5	907	NT	NT	NT	NT
	2001	7.10	5,090	**4,630**	490	1,460	NT	597	<1	<1	77	**2,680**	500	52.5	4.2	900	NT	NT	NT	NT
	2002	6.90	5,140	**4,420**	358	1,310	NT	437	<1	<1	47	**2,930**	449	47	2.6	873	NT	NT	NT	NT
	2003	7.00	4,460	**3,850**	400	1,070	NT	488	<1	<1	40	**2,570**	361	40.8	2.8	667	NT	NT	NT	NT
	2004	7.30	4,500	**3,900**	400	1,200	NT	400	3	<1	27	**2,500**	390	44	6.7	810	NT	**18**	**5.2**	<0.10
	2005	7.30	4,900	**4,000**	420	1,300	NT	420	1	<1	30	**2,200**	450	49	10	740	NT	**18**	NT	<0.10
	2006	7.40	5,400	**3,700**	450	1,200	NT	450	5.9	<1	31	**2,500**	410	47	7	790	NT	**3.8**	**5.4**	<0.10
	2007	7.20	4,700	**3,690**	455	1,020	NT	454	1.17	<1	54.5	**1,730**	410	43.3	12.1	678	NT	**0.56**	**5.73**	NT
	2008	7.60	4,500	**3,710**	458	1,040	NT	457	<1	<1	<5	**1,790**	394	41.2	3.55	637	NT	**2.72**	**5.41**	ND
	2009	7.19	4,400	**4,000**	450	NT	NT	450	ND	NT	36	**2,400**	400	42	3.7	670	0.037	ND	**4.7**	ND
	2010	7.49	4,300	**4,060**	490	1,200	NT	490	ND	NT	50	**2,400**	420	45	3.2	740	0.024	ND	**4.9**	ND
	2011	7.33	4,600	**4,010**	460	1,600	NT	460	<2.0	NT	36	**2,600**	540	55	5.4	760	0.026	**1.8**	**8.2**	NT
	2012	7.62	4,500	**4,050**	470	NT	NT	470	<2.0	NT	30	**2,700**	480	51	6.6	690	**0.11**	**15**	**8.8**	0.18

HISTORICAL GROUNDWATER ANALYTICAL RESULTS - GENERAL CHEMISTRY
BLOOMFIELD CRUDE STATION
WESTERN REFINING SOUTHWEST, INC

Well Number	YEAR	Lab pH (su)	Conductivity (umhos/cm)	TDS (mg/l)	Alkalinity (CaCO3) (mg/l)	Hardness (CaCO3) (mg/l)	Sodium Absorption Ratio	Bicarbonate (HCO3) (mg/l)	Carbonate (CO3) (mg/l)	Hydroxide (mg/l)	Chloride (mg/l)	Sulfate (mg/l)	Calcium (mg/l)	Magnesium (mg/l)	Potassium (mg/l)	Sodium (mg/l)	Barium (mg/l)	Iron (mg/l)	Manganese (mg/l)	Nitrate/ Nitrite (mg/l)
MW-5	1994	6.90	6,000	**4,410**	775	NT	8.84	945	0	0	**996**	**1,390**	634	51	6.6	861	NT	NT	NT	NT
	2001	6.70	7,000	**5,230**	757	2,010	NT	923	<1	<1	**1,320**	**1,230**	700	63.2	5.6	924	NT	NT	NT	NT
	2002	6.50	6,880	**4,810**	567	1,880	NT	692	<1	<1	**1,200**	**1,230**	661	55.3	4.9	855	NT	NT	NT	NT
	2003	6.60	6,910	**5,080**	830	1,780	NT	1,010	<1	<1	**1,090**	**1,330**	616	58.1	4.8	829	NT	NT	NT	NT
	2004	6.80	6,700	**4,600**	840	2,000	NT	840	1	<1	**1,300**	**1,400**	690	57	11	1,000	NT	**4.3**	**11**	<0.10
	2005	7.00	6,800	**4,800**	870	1,900	NT	870	<1	<1	**1,100**	**1,200**	670	60	10	910	NT	**4.3**	**11**	<0.10
	2006	7.10	8,000	**4,300**	990	1,800	NT	990	<1	<1	**1,000**	**1,200**	630	58	12	920	NT	**11**	**58**	<0.10
	2007	7.30	6,630	**4,750**	915	1,320	NT	914	1.11	<1	**884**	**1,800**	621	57.6	16.6	896	NT	**0.5**	**10.8**	NT
	2008	7.10	6,750	**4,780**	933	1,510	NT	932	<1	<1	109	**1,310**	585	51.5	5.11	834	NT	**1.32**	**10.7**	ND
	2009	6.80	6,200	**5,700**	840	NT	NT	840	ND	840	**1,000**	**1,900**	570	50	5.6	860	0.07	NT	**10**	ND
	2010	7.26	5,600	**4,760**	770	1,600	NT	770	ND	NT	**880**	**1,900**	560	52	4.9	850	0.054	**0.22**	**9.7**	ND
	2011	7.18	5,800	**4,370**	780	1,600	NT	780	<2.0	NT	**350**	**900**	570	48	5.6	850	0.038	**1.7**	**9.4**	NT
	2012	7.12	4,700	**3,880**	680	NT	NT	680	<2.0	NT	**510**	**1,900**	520	45	5.6	810	0.086	**8.2**	**7.5**	0.26
MW-6	2001	6.90	5,470	**4,508**	740	1,550	NT	903	<1	<1	80	**2,780**	534	53.3	6.3	1,030	NT	NT	NT	NT
	2002	6.80	4,460	**3,560**	669	932	NT	816	<1	<1	55	**1,900**	319	33	2.5	830	NT	NT	NT	NT
	2003	7.00	3,070	**2,180**	1,140	602	NT	1,390	<1	<1	79	540	203	23.1	2.1	514	NT	NT	NT	NT
	2004	7.20	4,100	**3,000**	1,000	1,100	NT	1,000	<1	<1	96	**1,400**	390	63	29	870	NT	**23**	**4**	<0.10
	2005	7.20	4,100	**3,000**	1,100	670	NT	1,100	2	<1	93	**940**	220	28	6.7	670	NT	**23**	**4**	<0.10
	2006	7.20	7,000	**4,500**	800	1,400	NT	800	3.6	<1	82	**2,600**	440	68	24	1,200	NT	**87**	**11**	<0.10
	2007	7.10	7,460	**6,070**	678	1,320	NT	676	2.23	<1	57.5	**3,140**	529	65.1	17.3	1,500	NT	**17.7**	**13.8**	NT
	2008	7.50	2,840	**1,920**	1,140	533	NT	1,140	1.25	1.25	<1	312	195	25.6	2.83	442	NT	**24.5**	**2.62**	ND
	2009	7.14	2,800	**1,900**	1,100	NT	NT	1,100	ND	NT	180	260	180	23	2.2	430	1.2	**9.1**	**1.9**	ND
	2010	7.53	2,900	**2,130**	1,000	630	NT	1,000	ND	NT	170	500	210	26	1.6	510	2.3	**6.8**	**3.1**	ND
	2011	7.50	3,100	**1,890**	1,100	980	NT	1,100	<2.0	NT	150	490	320	46	12	570	4.9	**99**	**5.1**	NT
	2012	7.62	3,400	**2,560**	1,100	NT	NT	1,100	<2.0	NT	130	**970**	280	37	6.4	580	**0.5**	**100**	**4.2**	4.0
MW-7	2001	6.70	2,160	**1,710**	600	843	NT	732	<1	<1	52	**642**	296	25.6	1.6	234	NT	NT	NT	NT
	2002	6.80	1,870	**1,570**	432	758	NT	527	<1	<1	20	**700**	258	27.8	2.2	151	NT	NT	NT	NT
	2003	6.70	1,310	810	696	531	NT	849	<1	<1	35	57	152	36.8	1	126	NT	NT	NT	NT
	2004	6.80	1,400	920	720	520	NT	720	<1	<1	13	120	170	23	7	170	NT	**27**	**3**	<0.10
	2005	7.00	1,500	930	740	540	NT	740	1	<1	15	190	180	20	3.3	150	NT	**27**	**0.3**	<0.10
	2006	7.40	1,800	**1,200**	750	660	NT	750	3.2	<1	16	310	220	23	3.3	170	NT	**49**	**2.9**	<0.10
	2007	7.10	1,460	858	638	402	NT	636	1.8	<1	22.4	127	161	20.2	8.84	124	NT	**32.7**	**2.34**	NT
	2008	7.30	1,320	810	748	369	NT	747	<1	<1	18.1	50.9	139	15.4	1.2	120	NT	**14.4**	**1.6**	ND
	2009	7.03	1,200	750	680	NT	NT	680	ND	NT	22	6.8	150	17	0.9	140	1.4	**11**	**1.5**	ND
	2010	7.63	1,200	762	650	390	NT	650	ND	NT	24	6.5	130	15	ND	130	2.4	**8.4**	**1.2**	ND
	2011	7.50	1,300	734	670	460	NT	670	<2.0	NT	26	7.8	150	19	1.3	130	2.7	**47**	**1.3**	NT
	2012	7.75	1,300	800	720	NT	NT	720	<2.0	NT	24	4.4	150	17	2.6	160	**2.1**	**22**	**0.89**	<0.20
NMWQCC Standard		**6-9**	**NE**	**1,000**	**NE**	**NE**	**NE**	**NE**	**NE**	**NE**	**250**	**600**	**NE**	**NE**	**NE**	NE	**0.1**	**1**	**0.2**	NE

Notes:
mg/l - milligrams per liter
ND - not detected
NMWQCC - New Mexico Water Quality Control Commission
NT - not tested
NSP - not sampled due to product in the well
SU - standard units
TDS - Total Dissolved Solids
umhos/cm - microhms per centimeter
Bold indicates value exceed NMWQCC standard

HISTORICAL GROUNDWATER ANALYTICAL RESULTS - BTEX
BLOOMFIELD CRUDE STATION
WESTERN REFINING SOUTHWEST, INC

Well Number	Date Sampled	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
MW-2	Sep-94	**640**	600	82	**690**
	Apr-95	**220**	280	53	430
	Sep-99	NSP	NSP	NSP	NSP
	Dec-99	NSP	NSP	NSP	NSP
	May-01	NSP	NSP	NSP	NSP
	May-02	NSP	NSP	NSP	NSP
	Jan-03	**1700**	ND	650	**3200**
	Jan-04	**1100**	ND	340	**1800**
	Jan-05	**430**	ND	360	**1000**
	Jan-06	**250**	ND	410	**790**
	Sep-06	**230**	50	290	**640**
	Jan-07	8.7	9.7	16	55
	Apr-07	7.8	6	61	110
	Jul-07	4.2	20	30	68
	Oct-07	0.87	18	120	180
	Jan-08	4.4	45	24	100
	May-08	0.86	12.3	<0.5	16.6
	Aug-08	1.1	7.3	14	28
	Nov-08	1.7	2	7.3	15
	Jan-09	1.6	ND	2.1	6.9
	Feb-09	<1.0	<1.0	2.3	7.7
	May-09	1.1	2.1	1.0	6.8
	Aug-09	1.2	<1.0	<1.0	2.0
	Nov-09	<1.0	<1.0	<1.0	<2.0
	Jan-10	<1.0	<1.0	<1.0	<2.0
	Feb-10	<1.0	<1.0	<1.0	<2.0
	Jan-11	<1.0	<1.0	<1.0	2.5
	Jan-12	<1.0	<1.0	<1.0	<2.0
MW-3	Sep-94	ND	ND	ND	ND
	Apr-95	ND	ND	ND	ND
	Sep-99	ND	ND	ND	ND
	Dec-99	ND	ND	ND	ND
	May-01	ND	ND	ND	ND
	May-02	ND	ND	ND	ND
	Jan-03	ND	ND	ND	ND
	Jan-04	ND	ND	ND	ND
	Jan-05	ND	ND	ND	ND
	Jan-06	ND	ND	ND	ND
	Jan-07	0.8	ND	ND	ND
	Jan-08	ND	ND	ND	ND
	Jan-09	ND	ND	ND	ND
	Jan-10	<1.0	<1.0	<1.0	<2.0
	Jan-11	<1.0	<1.0	<1.0	<2.0
	Jan-12	<1.0	<1.0	<1.0	<2.0
MW-4	Sep-94	2.1	ND	ND	1.2
	Apr-95	ND	ND	ND	ND
	Sep-99	ND	ND	ND	ND
	Dec-99	ND	ND	ND	ND
	May-01	ND	ND	ND	ND
	May-02	ND	ND	ND	ND
	Jan-03	ND	ND	ND	ND
	Jan-04	ND	ND	ND	ND
	Jan-05	ND	ND	ND	ND
	Jan-06	ND	ND	ND	ND
	Jan-07	ND	ND	ND	ND
	Jan-08	ND	ND	ND	ND
	Jan-09	ND	ND	ND	ND
	Jan-10	<1.0	<1.0	<1.0	<2.0
	Jan-11	<1.0	<1.0	<1.0	<2.0
	Jan-12	<1.0	<1.0	<1.0	<2.0

HISTORICAL GROUNDWATER ANALYTICAL RESULTS - BTEX
BLOOMFIELD CRUDE STATION
WESTERN REFINING SOUTHWEST, INC

Well Number	Date Sampled	Benzene (ug/l)	Toluene (ug/l)	Ethylbenzene (ug/l)	Total Xylenes (ug/l)
MW-5	Sep-94	NS	NS	NS	NS
	Apr-95	ND	ND	ND	ND
	Sep-99	ND	ND	ND	ND
	Dec-99	ND	ND	ND	ND
	May-01	ND	ND	ND	ND
	May-02	ND	ND	ND	ND
	Jan-03	ND	ND	ND	ND
	Jan-04	ND	ND	ND	1.1
	Jan-05	ND	ND	ND	ND
	Jan-06	ND	ND	ND	ND
	Jan-07	ND	ND	ND	ND
	Jan-08	ND	ND	ND	ND
	Jan-09	ND	ND	ND	ND
	Jan-10	<1.0	<1.0	<1.0	<2.0
	Jan-11	<1.0	<1.0	<1.0	<2.0
	Jan-12	<1.0	<1.0	<1.0	<2.0
MW-6	May-01	**12**	15	13	83
	May-02	ND	ND	0.53	1.4
	Oct-02	ND	ND	ND	3.2
	Jan-03	6	20	87	350
	Jul-03	ND	2.7	3.2	16
	Sep-03	0.8	3.7	4	24
	Jan-04	0.9	0.6	2.9	16
	Jan-05	ND	ND	ND	ND
	Jan-06	ND	ND	14	32
	Jan-07	ND	ND	3.6	9.1
	Jan-08	0.9	11	130	**930**
	Jan-09	ND	ND	66	510
	Jan-10	<5.0	<5.0	<5.0	<10
	Jan-11	<10.0	<10.0	140	**960**
	Jan-12	<10.0	<10.0	61	220
MW-7	May-01	**2,400**	ND	380	**2,800**
	Jun-02	**2,000**	ND	140	**1,100**
	Oct-02	**1,100**	ND	79	490
	Jan-03	**3,200**	ND	400	**3,100**
	Jan-04	**3,300**	ND	460	**3,300**
	Jan-05	**1,600**	ND	220	**1,500**
	Jan-06	**1,400**	ND	280	**1,500**
	Jan-07	**1,200**	ND	450	**2,500**
	Jan-08	**750**	ND	520	**3,100**
	Jan-09	**570**	ND	450	**2,800**
	Jan-10	**270**	<20	460	**2,500**
	Jan-12	**140**	<20	470	**2,400**
	Jan-12	**62**	<20	640	**3,500**
NMWQCC Standard		**10**	**750**	**750**	**620**

Notes:

ug/L - micrograms per liter

NSP - not sampled due to product in well

NS - not sampled

ND - not detected

< indicates result is less than the stated laboratory method detection limit

NMWQCC - New Mexico Water Quality Control Commission

BTEX analyzed by EPA Method 8021.

Bold indicates value exceeds NMWQCC standard

HISTORICAL GROUNDWATER ANALYTICAL RESULTS - METALS
BLOOMFIELD CRUDE STATION
WESTERN REFINING SOUTHWEST, INC.

Well Number	Year	Silver (mg/l)	Arsenic (mg/l)	Beryllium (mg/l)	Cadmium (mg/l)	Chromium (mg/l)	Copper (mg/l)	Mercury (mg/l)	Nickel (mg/l)	Lead (mg/l)	Antimony (mg/l)	Selenium (mg/l)	Thallium (mg/l)	Zinc (mg/l)
MW-2	1994	<0.01	<0.005	<0.004	<0.0005	0.01	0.012	<0.0002	<0.02	<0.002	<0.05	<0.005	<0.005	0.032
	2011	<0.0050	<0.020	NT	<0.0020	0.011	NT	<0.0002	NT	0.017	NT	<0.050	NT	NT
	2012	<0.0050	<0.020	NT	<0.0020	<0.0060	NT	<0.00020	NT	<0.0050	NT	<0.050	NT	NT
MW-3	1994	<0.01	<0.005	<0.004	<0.0005	<0.01	<0.01	<0.0002	<0.02	<0.002	<0.05	<0.005	<0.005	0.023
	2011	<0.0050	<0.020	NT	<0.0020	<0.0060	NT	<0.0002	NT	<0.0050	NT	<0.050	NT	NT
	2012	<0.0050	<0.020	NT	<0.0020	<0.0060	NT	<0.00020	NT	<0.0050	NT	<0.050	NT	NT
MW-4	1994	<0.01	<0.005	<0.004	<0.0005	<0.01	<0.01	<0.0002	<0.02	<0.002	<0.05	<0.005	<0.005	0.026
	2011	<0.0050	<0.020	NT	<0.0020	<0.0060	NT	<0.0002	NT	<0.0050	NT	<0.050	NT	NT
	2012	<0.0050	<0.020	NT	<0.0020	0.011	NT	<0.00020	NT	<0.0050	NT	<0.050	NT	NT
MW-5	1994	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	2011	<0.0050	<0.020	NT	<0.0020	<0.0060	NT	<0.0002	NT	<0.0050	NT	<0.050	NT	NT
	2012	<0.0050	<0.020	NT	<0.0020	0.0062	NT	<0.0020	NT	<0.0050	NT	<0.050	NT	NT
MW-6	1994	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	2011	<0.0050	0.039	NT	<0.0020	0.042	NT	<0.0002	NT	0.023	NT	<0.050	NT	NT
	2012	<0.0050	0.074	NT	0.0023	0.011	NT	<0.00020	NT	0.0069	NT	<0.050	NT	NT
MW-7	1994	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT	NT
	2011	<0.0050	<0.020	NT	<0.0020	<0.0060	NT	<0.0002	NT	0.0072	NT	<0.050	NT	NT
	2012	<0.0050	<0.020	NT	<0.0020	<0.0060	NT	<0.00020	NT	<0.0050	NT	<0.050	NT	NT
NMWQCC		**0.05**	**0.1**	**NE**	**0.01**	**0.05**	**1**	**0.002**	**0.2**	**0.05**	**NE**	**0.05**	**NE**	**10**

Notes:
mg/l - milligrams per liter
NE - not established
NMWQCC - New Mexico Water Quality Control Commission
NT- not tested
< - indicates value is less than laboratory detection limit.
Bold indicates value exceeds NMWQCC standard.

HISTORICAL GROUNDWATER ANALYTICAL RESULTS - SEMI VOLATILE ORGANICS
BLOOMFIELD CRUDE STATION
WESTERN REFINING SOUTHWEST, INC

Well Number	NMWQCC Standard	MW-2	MW-3	MW-4
YEAR	NE	1994	1994	1994
Indeno(1,2,3-cd) Pyrene (µg/l)	NE	<0.10	<0.10	<0.10
Acenaphthylene (µg/l)	NE	<1.0	<1.0	<1.0
Acenaphthene (µg/l)	NE	<0.5	<0.5	<0.5
Fluorene (µg/l)	NE	1.2	<1.0	<1.0
Phenanthrene (µg/l)	NE	1.8	<0.05	<0.05
Anthracene (µg/l)	NE	<0.05	<0.05	<0.05
Fluoranthene (µg/l)	NE	1.2	<0.10	<0.10
Pyrene (µg/l)	NE	<0.10	<0.10	<0.10
Benzo(a)Anthracene (µg/l)	NE	<0.10	<0.10	<0.10
Chrysene (µg/l)	NE	0.17	<0.10	<0.10
Benzo(b)Fluoranthene (µg/l)	NE	<0.10	<0.10	<0.10
Benzo(k)Fluoranthene (µg/l)	NE	<0.10	<0.10	<0.10
Benzo(a)Pyrene (µg/l)	0.7	<0.10	<0.10	<0.10
Di-benzo(a,h)Anthracene (µg/l)	NE	<0.20	<0.20	<0.20
Benzo(g,h,l)Perylene (µg/l)	NE	<0.10	<0.10	<0.10
Naphthalene (µg/l)	Combined to 30	8.9	<0.50	<0.50
1-Methylnaphthalene (µg/l)		5.9	<0.30	<0.30
1-Methylnaphthalene (µg/l)		5.8	<0.30	<0.30

Notes:
Bold indicates value exceed NMWQCC standard.
NE - not established
NMWQCC - New Mexico Water Quality Control Commission
µg/l - micrograms per liter
< - inidicates value is less than laboratory detection limit.