



May 7, 2010

James P. Bearzi
Chief
Hazardous Waste Bureau
New Mexico Environment Department
2905 Rodeo Park Drive, East, Building 1
Santa Fe, NM, 87505-6303

Re: **Facility Wide Groundwater Monitoring Work Plan
Western Refining Company, Southwest, Inc., Gallup Refinery
EPA ID # NMD000333211
HWB-GRCC-0-001**

Dear Mr. Bearzi:

It is a pleasure to submit our revised new Monitoring Wells (OW-50 and OW-52) Installation Report, and this response letter to your Notice of Disapproval dated March 10, 2010. Please note, in the following responses when we reference a paragraph number we mean the paragraph's number for the specific section in which it is located. So, for example, section 1.1, paragraph 2, page 6 would be the second paragraph of section 1.1 located on Page 6.

We have also provided a red-line strike-out version of the report that highlights all changes, as well as a revised copy.

Comment 1

We will ensure that all drill cuttings will be sampled and then disposed of. In this project, the drilling sub-contractor used a PID and then disposed of the soil cuttings by applying them to the surface soils in the immediate vicinity of the drilling site. Details of the PID used have been provided in the revised report on page 8, paragraph 3. No drill cuttings were submitted for laboratory analyses.

Comment 2

The Permittee has added details of well completion, groundwater depth, etc. as required, on page 8, paragraphs 4 and 5.

Comment 3

A GPS-unit was used to obtain the coordinates and elevations of the wells. No professional survey has yet been done. Details are provided on page 9, paragraph 4.

Comment 4

This comment is addressed on page 12, paragraph 1. The Permittee will obtain sampling result that establish the water is clean before disposing off water onto the ground; or, dispose off the water upstream of the new API Oil-water Separator.

Comment 5

This comment is addressed on page 9, paragraph 3. Details of the development of the wells are provided.

If you have any further questions, or need more information, please do not hesitate to contact me or Dr. Gaurav Rajen of my staff at 505-722-3833.

Sincerely,



Ed Riege
Environmental Manager
Gallup Refinery, Western Refining

Cc: J. Kieling, NMED HWB
D. Colbrain, NMED HWB
H. Monzeglio, NMED HWB
K. Van-Horn, NMED HWB
C. Chavez, OCD
G. Rajen, Gallup Refinery

/Enclosure

New Monitoring Wells (OW-50 and OW-52) Installation Report and Initial Sampling Results: Gallup Refinery

**Western Refining
Gallup, New Mexico**

May 2010

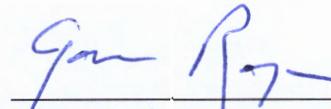


**New Monitoring Wells (OW-50 and OW-52) Installation Report and Initial
Sampling Results: Gallup Refinery**

**Western Refining
Gallup, New Mexico**

December 2009

Prepared by:



Gaurav Rajen, Ph.D.
Environmental Engineer

Reviewed by:



Ed Riege, M.P.H.
Environmental Manager

Executive Summary

This report, "New Monitoring Wells (OW-50 and OW-52) Installation Report and Initial Sampling results", has been prepared in response to requirements stated in a letter from the New Mexico Environment Department's Hazardous Waste Bureau dated May 28, 2009 (see Appendix 1). This report contains the well logs, well construction details, survey data, and initial sampling results.

New Well OW-50 is located north and slightly west of existing wells OW-29 and OW-30. (Please note: the driller's logs provided in Appendix 2 designate this well as MW-2A.) This well is located at coordinates - **N 35° 29' 44.9"** and **W 108° 25' 25.0"** This well is constructed to a depth of 63 feet. The water-bearing sand and gravel layer (of interest to this project and as mandated by NMED/HWB) was encountered at approximately 53 feet below the ground surface. A screen of 15 feet in length (screen size of 0.01 inches) exists from a depth (below ground surface) of 48 feet to 63 feet. This screen is located from 5 feet above and 10 feet below the groundwater upper surface.

New Well OW-52 is located farther west of OW-50, and almost due north from existing well OW-13. (Please note: the driller's logs provided in Appendix 2 designate this well as MW-1A.) This well is located at coordinates - **N 35° 29' 47.0"** and **W 108° 25' 31.1"**. This well is constructed to a depth of 79 feet. The water-bearing sand and gravel layer (of interest to this project and as mandated by NMED/HWB) was encountered at approximately a little less than 70 feet below the ground surface. A screen of 15 feet in length (screen size of 0.01 inches) exists from a depth (below ground surface) of 64 feet to 79 feet. This screen is located from approximately 5 feet above and approximately 10 feet below the groundwater upper surface.

Water samples were obtained on November 17, 2009, and tested for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), RCRA 8 metals, gasoline range organics (GRO), diesel range organics (DRO) extended. The data are presented in the report. No VOCs, SVOCs, GRO, or DRO were detected. Only the metal Barium was detected in the samples.

Table 1 presents the current sampling schedule for these wells. These two wells have been added to the facility-wide groundwater monitoring plan.

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Introduction

This report, "New Monitoring Wells (OW-50 and OW-52) Installation Report and Initial Sampling results", has been prepared in response to requirements stated in a letter from the New Mexico Environment Department's Hazardous Waste Bureau dated May 28, 2009 (see Appendix 1).

This report contains the well logs, well construction details, survey data, and initial sampling results.

These two wells have been installed as a part of groundwater monitoring program at the Gallup Refinery to assess the nature and extent of potential impacts to groundwater from historic refinery operations, as well as become quickly aware of any levels of contaminants found in groundwater that exceed compliance standards.

Facility Ownership and Operation

This Plan pertains to the Western Refining Southwest Inc. Gallup Refinery located at Exit 39 on Interstate I-40. This refinery is known as the Gallup Refinery and is located at Jamestown New Mexico, approximately 17 miles east of Gallup. Figure 1 shows the regional location of the Gallup Refinery.

The owner is:

Western Refining (parent corporation)
123 W. Mills Avenue
El Paso, TX 79901

Operator: Western Refining Southwest Inc (postal address)
Route 3, Box 7
Gallup, New Mexico 87301

Western Refining Southwest Inc (physical address)
I-40, Exit 39
Jamestown, New Mexico 87347

SIC code 2911 (petroleum refining) applies to the Gallup Refinery.

The following regulatory identification and permit governs the Gallup Refinery:

- U.S. EPA ID Number NMD000333211
- OCD Discharge Permit No. GW-032

The facility status is corrective action/compliance. Annual and quarterly groundwater sampling is conducted at the facility to evaluate present contamination.

The refinery is situated on an 810 acre irregular shaped tract of land that is substantially located within the lower one quarter of Section 28 and throughout Section 33 of Township 15 North, Range 15 West of the New Mexico Prime Meridian. A small

component of the property lies within the northeastern one quarter of Section 4 of Township 14 North, Range 15 West. Figure 2 is a topographic map showing the general layout of the refinery in comparison to the local topography.

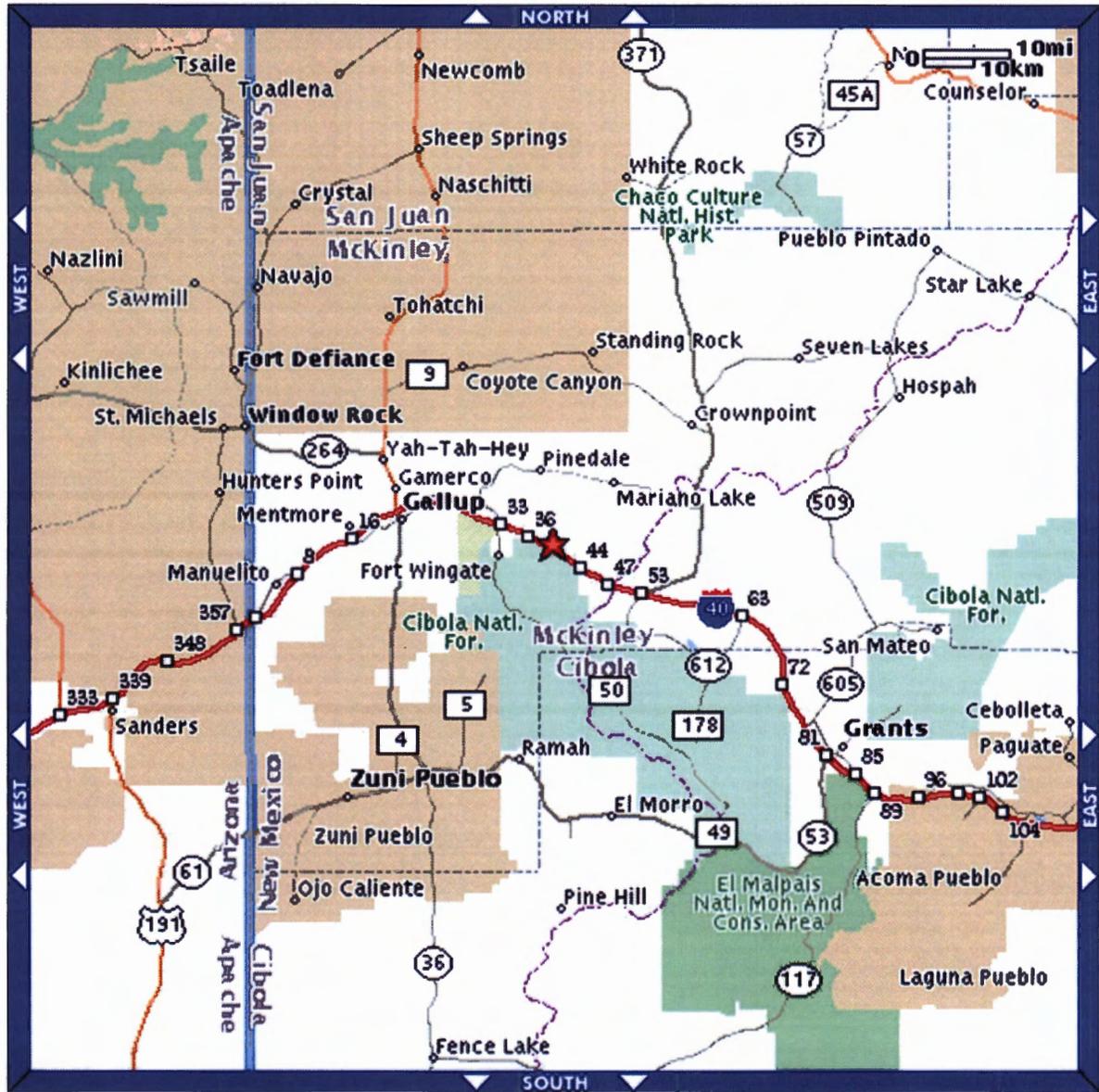
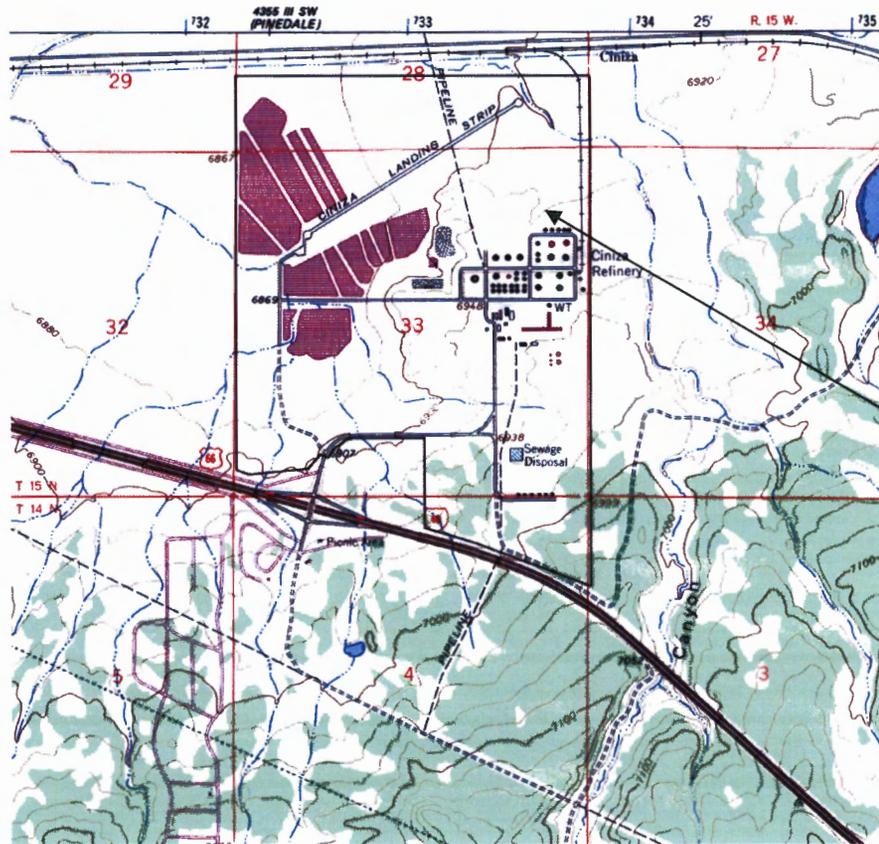


Figure 1: Regional map showing the location of the Gallup Refinery (red star along Interstate-40, 20 miles east of the City of Gallup).



General area
of wells

Figure 2: Topographic Map of the Gallup Refinery Site - USGS Topographical Map - Gallup Quadrangle (Revised 1980)

Well Locations, Installation and Construction Details

AMEC Earth and Environmental Inc. (AMEC) is the company contracted by Western Refining to carry out the well installation and initial sample collection. Two new monitoring wells have been installed. These wells have been designated as OW-50 and OW-52 (described below). A copy of the driller's logs and well construction details are provided in Appendix 2 in a report prepared by AMEC.¹

Initial drilling activities commenced on October 1, 2009. Drilling was completed on October 5, 2009, and the wells were fully developed within 10 days of being drilled (as mandated by the NMED/HWB) by October 9, 2009. Figure 3 depicts their locations. Adjacent to both of the completed wells, about 10 feet away, initial borings were abandoned because of difficulties encountered with swelling clay and the preliminary use of an air rotary drill with insufficient depth penetrating capability. Drilling was completed using a hollow stem auger and the CME-75 truck-mounted drill.

During drilling, cutting soils were tested with a photo-ionization detector (PID). There were non-detectable levels in all soils other than at the location of OW-50, at which location soils from 35-45 feet depth were found to give a vapor concentration of 1 ppm. As groundwater occurs at 53 feet it is possible that the PID was detecting methane from the decomposition of organic matter. The analytical results do not show any hydrocarbons, VOCs or SVOCs in groundwater. Given the low levels of hydrocarbons detected by the PID, soils were disposed on-site. A Thermo Environmental Instruments, Inc. Model 580B OVM Photoionization detector was used. Lamp= 10.0 eV. Soil cuttings from the boreholes were clayey and mounded up around the mouth of the borehole. A small amount of these cuttings were used in construction of the well pad and the rest were left in a pile in the vicinity of the well. No soil samples were submitted for laboratory analysis.

AMEC and Geomechanics Southwest, Inc. (GSI) mobilized to the Western Refining site on October 5, 2009 to advance two soil borings and install monitoring wells. GSI bored each hole with AMEC's supervision. Each boring was advanced using 6-inch diameter hollow-stem auger. Soil boring depths ranged from 63.5-feet below ground surface (bgs) to 79.5-feet bgs. Depth to groundwater ranged from approximately 52 feet to 70 feet bgs. Upon encountering groundwater in each boring, augers were advanced approximately one foot and water was allowed to stabilize in the borehole for up to two hours.

Each boring was completed as a 2-inch monitoring well using schedule 40 PVC casing with 15-feet of 0.010 slot screen. 10/20 silica sand was used as filter pack and placed from the bottom of the well to approximately two feet above the well screen. A pure bentonite plug approximately 4-feet thick was placed above the filter pack and allowed to hydrate before the remainder of the borehole was filled with a Portland cement/bentonite slurry. The wellhead completion consists of a 3-foot high steel monument with locking

¹ The drillers log describes OW-50 as MW-2A, and OW-52 as MW-1A.

lid. The well casing is capped with a J-plug (see attached well completion diagrams for OW-50 and OW-52 provided in Appendix 2).

For both of these completed wells the casing is made of Schedule 40 PVC of 2 inches diameter. The backfill is an expansive grout, the seal is bentonite, and the filter pack is 10/20 silica sand.

Well OW-50 is located north and slightly west of existing wells OW-29 and OW-30. This well is located at coordinates - **N 35° 29' 44.9"** and **W 108° 25' 25.0"** The ground surface elevation is 6929 feet. This well is constructed to a depth of 63 feet. The water-bearing sand and gravel layer (of interest to this project and as mandated by NMED/HWB) was encountered at approximately 53 feet below the ground surface. A screen of 15 feet in length (screen size of 0.01 inches) exists from a depth (below ground surface) of 48 feet to 63 feet. This screen is located from 5 feet above and 10 feet below the groundwater upper surface. Figure 4 shows some of the material from this location at 55 feet.

Well OW-52 is located farther west of OW-50, and almost due north from existing well OW-13. This well is located at coordinates - **N 35° 29' 47.0"** and **W 108° 25' 31.1"**. The ground surface elevation is 6823 feet. This well is constructed to a depth of 79 feet. The water-bearing sand and gravel layer (of interest to this project and as mandated by NMED/HWB) was encountered at approximately a little less than 70 feet below the ground surface. A screen of 15 feet in length (screen size of 0.01 inches) exists from a depth (below ground surface) of 64 feet to 79 feet. This screen is located from approximately 5 feet above and approximately 10 feet below the groundwater upper surface.

After construction, the wells were developed via surging and bailing. A surge block attached to a wire line of the drill rig was used to surge the well by raising and lowering the block within the well casing. Surging was focused in the well screen area to set the filter pack. Following surging, the wells were bailed using a 5-foot long stainless-steel bailer attached to the wire line of the drill rig. Water quality parameters (pH, specific conductivity, ORP, dissolved oxygen and temperature) were measured using a Yellow Springs Instruments (YSI) 556 water quality multi-meter during bailing operations until the readings had stabilized. An estimated minimum of five saturated well casing volumes were removed from the well during bailing operations. The wells were further developed prior to groundwater sampling on November 17, 2009 by purging at least three well casing volumes using a ProActive SS Monsoon 12-volt stainless steel pump.

The surface elevation and coordinates of the wells was not professionally surveyed. A Garmin eTrex 12 channel hand-held GPS receiver was used to determine the coordinates and elevations of the wells.

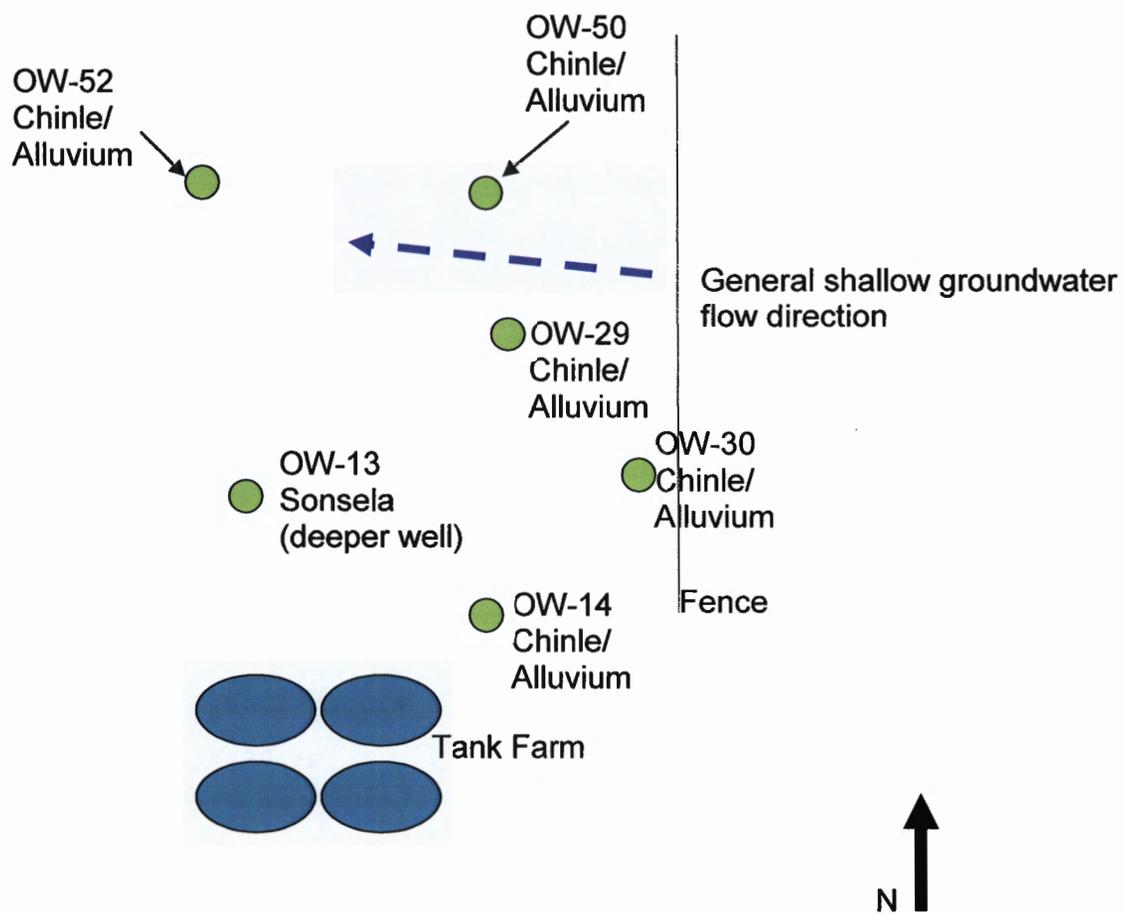


Figure 3: General locations of wells OW-50 and OW-52, including other nearby existing monitoring wells at the Gallup Refinery



Figure 4: A photograph of material from OW-50 of a water-bearing sandstone and gravel layer at 55 feet

Sampling Activities and Results

Groundwater sample collection was conducted on November 17, 2009, by AMEC personnel. Table 1 describes the analytical tests specified by the NMED/HWB. The field notes and logs are provided in Appendix 3. Purged groundwater was assumed clean and disposed at the well site by AMEC personnel. In the future, Western Refining will ensure that purged groundwater is disposed in the refinery's wastewater treatment system if it is of unknown quality. **For contaminated wells, purged groundwater will be placed into 55-gallon drums and poured into the process sewer system upstream of the New API Oil/Water Separator.**

Table 1: Summary of sampling locations, frequencies, and tests required

LOCATION	FREQUENCY	TEST METHOD
OW-50	Quarterly	VOCs (8260B) , SVOCs (8310), DRO extended, GRO(8015B), RCRA 8 metals, and GEN CHEM
OW-52	Quarterly	VOCs (8260B) , SVOCs (8310), DRO extended, GRO(8015B), RCRA 8 metals, and GEN CHEM

The analytical results are attached in Appendix 4. All the results have shown **non-detectable levels of hydrocarbons, VOCs, and SVOCs.** The only metal detected was **Barium – at 0.042 ppm in well OW-50, and 0.027 ppm in well OW-52.** **All other metals are at non-detectable levels.** Although AMEC personnel had planned to also test for general chemistry parameters, this was not specified as a required test due to an oversight. In the next quarter we will ensure that general chemistry parameters are also tested.

The levels of Barium are higher in OW-50 which is located at the edge of the refinery property and which is monitoring shallow groundwater flowing in from off-site. The levels of Barium are lower at OW-52 which is more within the refinery property. It is unlikely, therefore, that the trace levels of Barium we are finding are linked to the refinery's activities.

As stated by the US Environmental Protection Agency in a Technical fact Sheet on Barium², background levels in the US for soils range from 100-3000 ppm of barium. Barium occurs naturally in almost all (99.4%) surface waters examined, in concentrations of 0.002 to 0.340 ppm, with an average of 0.043 ppm. The drinking water Maximum Contaminant level is 2 ppm. The drinking water of many communities in New Mexico contains concentrations of barium that may be 10 times higher than the drinking water standard.

² US EPA, Technical fact Sheet – Barium
available at: <http://www.epa.gov/ogwdw000/pdfs/factsheets/ioc/tech/barium.pdf>

Conclusions

Two new monitoring wells have been established in a shallow sand and gravel layer as required by the NMED/HWB.

A set of sampling results have established that all levels of hydrocarbons, VOCs, and SVOCs are at non-detectable levels. All metals are at non-detectable levels, other than Barium at generally expected naturally-occurring levels.

Appendix 1
May 28, 2009 letter from NMED/HWB



BILL RICHARDSON
Governor

DIANE DENISH
Lieutenant Governor

NEW MEXICO
ENVIRONMENT DEPARTMENT

Hazardous Waste Bureau

2905 Rodeo Park Drive East, Building 1
Santa Fe, New Mexico 87505-6303
Phone (505) 476-6000 Fax (505) 476-6030
www.nmenv.state.nm.us



RON CURRY
Secretary

JON GOLDSTEIN
Deputy Secretary

CERTIFIED MAIL - RETURN RECEIPT REQUESTED

May 28, 2009

Mr. Ed Riege
Environmental Superintendent
Western Refining, Southwest Inc., Gallup Refinery
Route 3, Box 7
Gallup, New Mexico 87301

**RE: REQUIREMENT TO INSTALL MONITORING WELLS
WESTERN REFINING COMPANY, SOUTHWEST, INC., GALLUP REFINERY
HWB-GRCC-MISC
EPA ID # NMD000333211**

Dear Mr. Riege:

The New Mexico Environment Department (NMED) requires Western Refining Southwest Inc., (the Permittee) to install two monitoring wells. This requirement was addressed in Comment 14 of NMED's March 26, 2009 Notice of Disapproval (NOD) to the *Oil Conservation Division 2007 Annual Groundwater Report (and OCD Addendum)*, dated August 28, 2008. In Comment 14, NMED stated "[t]he Permittee must install another well(s) downgradient of OW-13 and OW-29 to determine if contamination has migrated north, northwest of the refinery and potentially offsite. NMED will address the installation of additional well(s) in a separate letter."

The Permittee must install two monitoring wells at the Gallup Refinery to meet the specifications described below:

- a. The Permittee must locate the extension of the sand/gravel water bearing layer that extends north of OW-29 and install one monitoring well at the approximate location specified in the attached Figure 1.

Ed Riege
Gallup Refinery
May 28, 2009
Page 2

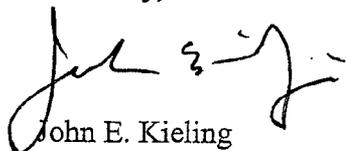
- b. The Permittee must locate and install a monitoring well intersecting the sand stringer that is generally oriented east/west that is anticipated to extend across the northern end of the facility. This relatively coarse-grained zone has been observed near the east end of the old landing strip and in the vicinity of the north ends of Evaporation Ponds 11 and 12. See the attached Figure 1 for the approximate well location.
- c. The monitoring wells must be screened to cross the water table with approximately five feet of screen above the water table no less than five and no more than ten feet of screen below the water table. This will accommodate seasonal fluctuations and detection of separate-phase hydrocarbons. The screened intervals in the wells must intersect a minimum water column of five feet, if possible.
- d. During drilling, if the Permittee achieves the approximate target depth but does not encounter water, the boring must be left open over night to allow for infiltration of groundwater. The Permittee must contact NMED prior to abandoning the boring or installing the well if these conditions are encountered.
- e. The monitoring wells must be developed within ten days of being installed and the initial sampling must analyzed for volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), RCRA 8 metals, gasoline range organics (GRO), diesel range organics (DRO) extended, and general chemistry parameters.
- f. The monitoring wells must be installed no later than October 30, 2009. Once installation is complete, the monitoring wells must be added to the annual update to the Facility Wide Groundwater Monitoring Plan. The Permittee must submit to NMED a summary well installation report that includes the well logs, well construction details, survey data, and initial groundwater monitoring and sampling data no later than December 31, 2009.

The approximate monitoring well locations are not based on specific knowledge of the presence of sand stringers. The Permittee will need to locate the sand stringers based on review of past drilling operations and well logs at the refinery.

Ed Riege
Gallup Refinery
May 28, 2009
Page 3

If you have questions regarding this letter please contact Hope Monzeglio of my staff at 505-476-6045.

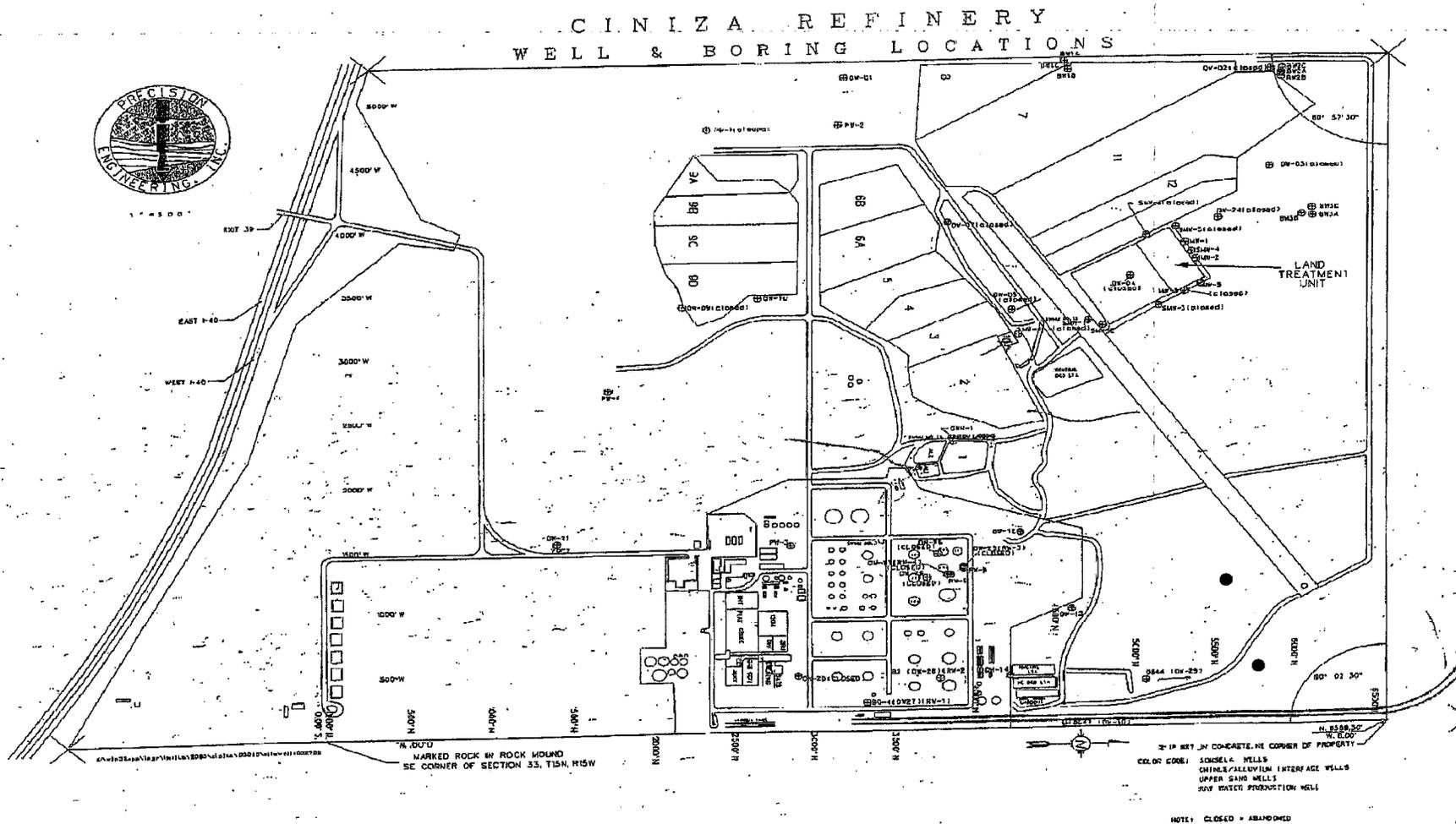
Sincerely,



John E. Kieling
Program Manager
Permits Management Program
Hazardous Waste Bureau

cc: D. Cobrain NMED HWB
H. Monzeglio NMED HWB
B. Jones, OCD
C. Chavez, OCD
R. Gaurav, Gallup
File: Reading File and GRCC 2009 File
HWB-GRCC-MISC

Figure 1
 Monitoring Well Location ●
 Monitoring well locations are approximate



Appendix 2
Report from AMEC on drilling logs and well
construction details



9 December 2009
AMEC Project No. 9-517-000057

Ms. Michelle Young
Western Refining: Gallup Refinery
Route 3, Box 7
Gallup, NM 87301

Re: Letter Report for Monitoring Well Construction

Dear Ms. Young:

AMEC Earth and Environmental, Inc. (AMEC) is pleased to submit this letter report documenting groundwater monitoring well activities at the Western Refinery facility located near Gallup, New Mexico.

Site Background

The project site is located at the Gallup Refinery located north of I-40. The area to the north of the existing refinery consists of an open area. Access roads run through these open areas in the northeast portion of the property. Previously constructed monitor wells are located throughout the property.

Investigation Activities Conducted

AMEC drilled two (2) groundwater monitor wells (MW-1A, MW-2A) to depths of between 50 and 79 feet using a CME-75 truck mounted drill rig in the northeast corner of the property. A site plan showing the location of the new monitoring wells is attached.

The original two monitor wells (MW-1, MW-2) were abandoned due to difficult subsurface conditions. Two replacement wells were drilled (MW-1A, MW-2A). Soil samples from MW-1 and MW-2 were obtained at several depth intervals and tested for VOC's with a photo ionization detector (PID). Results are shown in Table 1 below.

**Table 1
Photo Ionization Detector (PID) Results
Collected on October 1 and 2, 2009**

Sample Depth (ft)	MW-1	Sample Depth (ft)	MW-2
60	ND**	5	ND
65	ND	10	ND
70	ND	15	ND
		20	ND
		25	ND
		30	ND
		35	1.1*
		40	1.1
		45	1.1

* Concentration in parts per million (ppm)

** ND = Not detected within limits of PID

Western Refining
Groundwater Monitoring Wells
Gallup Refinery
AMEC Project No. 9-517-000057
9 December 2009



If you have questions regarding the information contained within this letter report, please do not hesitate to contact us at 505.821.1801. AMEC appreciates the opportunity to provide Phase 2 investigation and reporting services to Vigil and Associates and looks forward to working with you again.

Best Regards,

AMEC Earth and Environmental, Inc.

A handwritten signature in black ink that reads "Lee J. Mitchell for". The signature is fluid and cursive.

Lee J. Mitchell, P.E.
Project Engineer

A handwritten signature in black ink that reads "Ralph E. Crockett". The signature is fluid and cursive.

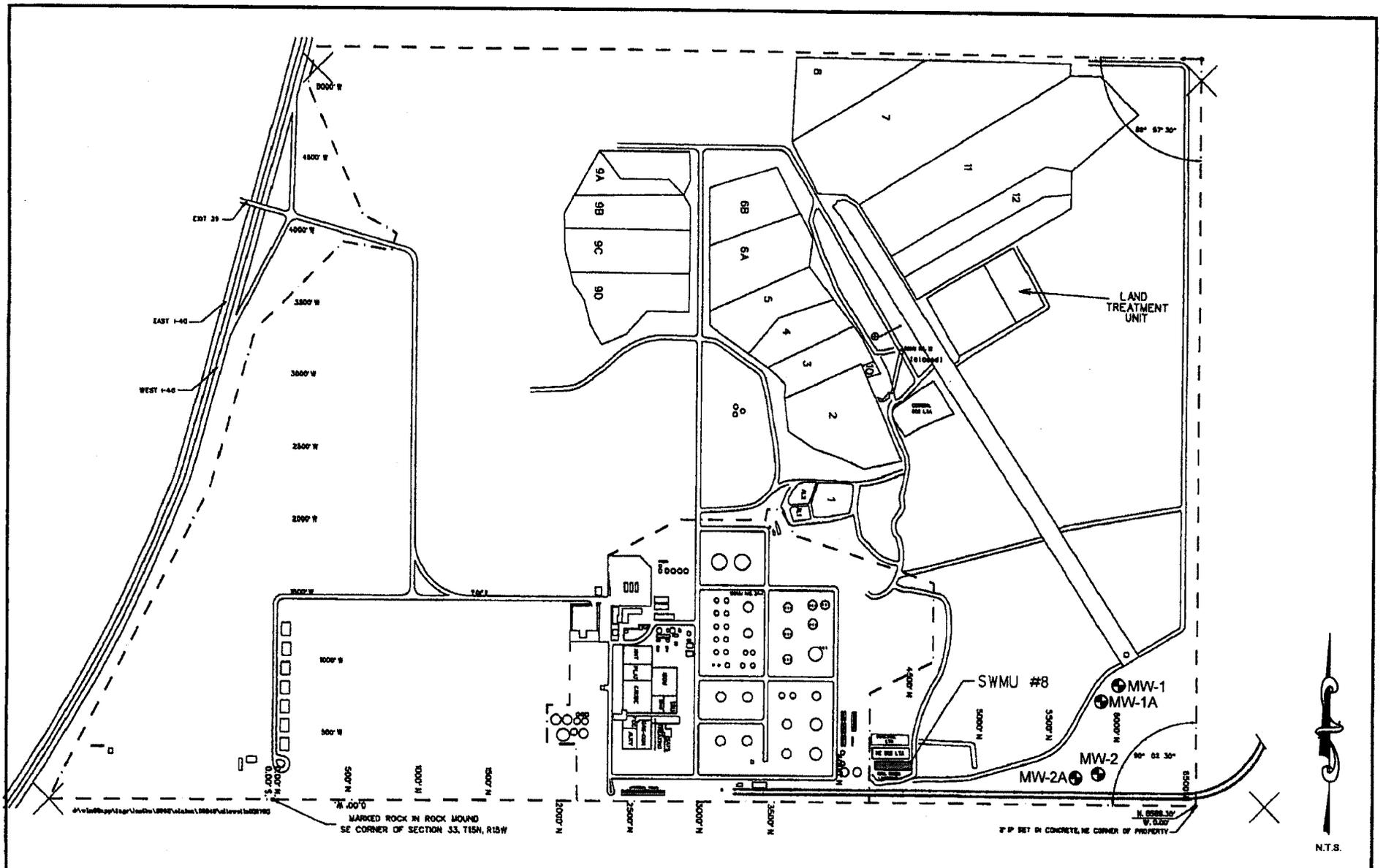
Ralph E. Crockett, P.E.
Senior Geotechnical Engineer

Copies: Addressee (3)

AMEC Earth & Environmental, Inc.
8519 Jefferson, N.E.
Albuquerque, New Mexico 87113
Telephone: 505/821-1801
Fax: 505/821-7371
www.amec.com



APPENDIX A
SITE PLAN
SOIL BORING LOGS
WELL CONSTRUCTION DIAGRAMS



CLIENT LOGO	CLIENT WESTERN REFINERIES	DWN BY: BDP	PROJECT GALLUP REFINERY	REV. NO.: A
		CHK'D BY: N/A		DATE: NOV 2009
		DATUM: N/A	TITLE SOIL BORING LOCATION PLAN	PROJECT NO: 9-517-000057
AMEC Earth & Environmental 3519 Jefferson Rd NE Albuquerque, New Mexico 87113		PROJECTION: N/A		FIGURE No.
		SCALE: AS SHOWN		1

PROJECT Gallup Refinery Monitoring Wells
Gallup, New Mexico

JOB NO. 9517-000057 DATE 10/5/09

LOG OF TEST BORING NO. MW-1

LOCATION See Site Plan
 RIG TYPE CME-75
 BORING TYPE Air Rotary
 SURFACE ELEV. _____
 DATUM _____

Depth in Feet	Continuous Penetration Resistance	Graphic Soil Log	Sample	Sample Type	Blows/6-in. 140 lb. 30" free-fall drop hammer	Downhole LEL/PID	Headspace PID (ppm)	Unified Soil Classification	ANALYTICAL SAMPLE NUMBER		VISUAL CLASSIFICATION
									ANALYTICAL SAMPLE NUMBER		
0								SM			SILTY SAND, fine grained, reddish-brown
5				BS				CH	PID - 0		CLAY, high plasticity, red-brown, moist
10				BS							
15				BS							
20				BS							
25				BS							
30				BS							
35				BS							
40				BS				CH	PID - 0		CLAY, trace of silt and sand, high plasticity, dark brown, moist trace of gravel at 41', gravel up to 1/4"
45				BS				CH	PID - 0		CLAY, some silt, high plasticity, pink-brown, moist
50											

ENV BH NO WELL 9517-057 GALLUP REFINERY GFJ AGRA_ALB.GDT 12/6/09

GROUNDWATER		
DEPTH	HOUR	DATE
70.7	16:30	10/1/09
25.4	7:30	10/2/09

SAMPLE TYPE
 A-ANALYTICAL SAMPLE
 BS-BULK SAMPLE

PROJECT Gallup Refinery Monitoring Wells
Gallup, New Mexico

JOB NO. 9517-000057 DATE 10/5/09

LOG OF TEST BORING NO. MW-1

LOCATION See Site Plan
 RIG TYPE CME-75
 BORING TYPE Air Rotary
 SURFACE ELEV. _____
 DATUM _____

Depth in Feet	Continuous Penetration Resistance	Graphic Soil Log	Sample	Sample Type	Blows/6-in. 140 lb. 30" free-fall drop hammer	Downhole LEL/PID	Headspace PID (ppm)	Unified Soil Classification	ANALYTICAL SAMPLE NUMBER		VISUAL CLASSIFICATION
									ANALYTICAL SAMPLE NUMBER		
50				BS				CH	PID - 0.0		CLAY, some silt, high plasticity, pink-brown, moist trace of calcareous cementation nodules at 50' - 59'
55				BS							
60					BS				CH	PID - 0.0	
65									PID - 0.0		
70									PID - 0.0		SILTY SAND TO SAND, fine grained, nonplastic, light purple and white, some calcareous cementation nodules, very moist at 72' - 74'
75											End of boring at 74'
80											
85											
90											
95											
100											

ENV/BH NO WELL 9517-057 GALLUP REFINERY.GPJ AGRA_ALB.GDT 12/9/09

GROUNDWATER			SAMPLE TYPE		
DEPTH	HOUR	DATE			
70.7	16:30	10/1/09	A-ANALYTICAL SAMPLE		
25.4	7:30	10/2/09	BS-BULK SAMPLE		

PROJECT Gallup Refinery Monitoring Wells

Gallup, New Mexico

LOG OF TEST BORING NO. MW-1A

JOB NO. 9517-000057 DATE 10/5/09

LOCATION See Site Plan

RIG TYPE CME-75

BORING TYPE HSA

SURFACE ELEV. 6823.00

DATUM _____

Depth in Feet	Continuous Penetration Resistance	Graphic Soil Log	Sample	Sample Type	Blows/ft. 140 lb. 30" free-fall drop hammer	Downhole LEL/PID	Headspace PID (ppm)	Unified Soil Classification	ANALYTICAL SAMPLE NUMBER	VISUAL CLASSIFICATION
0								SM		SILTY SAND, fine, reddish-brown, dry (0' - 3')
5								CH		CLAY, some silt, high plasticity, reddish-brown, dry (5' - 20')
10										
15										
20										some silt, dry (20' - 30')
25										
30										damp @ (30' - 40')
35										
40										CLAY, trace medium gravel, reddish-brown, high to medium plasticity, dry (40' - 50')
45										
50										

ENV BH NO WELL: 9517-057 GALLUP REFINERY GPJ AGRA, ALB.GDT. 12/9/08

GROUNDWATER

SAMPLE TYPE

DEPTH	HOUR	DATE
72.0		

A-ANALYTICAL SAMPLE
BS-BULK SAMPLE

PROJECT Gallup Refinery Monitoring Wells
Gallup, New Mexico

JOB NO. 9517-000057 DATE 10/5/09

LOG OF TEST BORING NO. MW-1A

LOCATION See Site Plan
 RIG TYPE CME-75
 BORING TYPE HSA
 SURFACE ELEV. 6823.00
 DATUM _____

Depth in Feet	Continuous Penetration Resistance	Graphic Soil Log	Sample	Sample Type	Blows/6-in. 140 lb. 30" free-fall drop hammer	Downhole LEL/PID	Headspace PID (ppm)	Unified Soil Classification	ANALYTICAL SAMPLE NUMBER	VISUAL CLASSIFICATION
50										
55										
60										
65										CLAY< (shale), with calcareous cementation nodules, reddish-brown, dry (60' - 68')
70								split spoon sample		SHALE, reddish-brown, calcareous cementation nodules, dry (BGS 68' - 70') fine to medium silty sand, fine gravel, gray, reddish-brown, wet at 70' bgs (70' - 72' 5") SILTY SAND, gravel, calcareous cementation nodules, wet (72' 5" - 79')
75										
80										Stopped boring at 79'
85										
90										
95										
100										

ENV/BH NO WELL 9517-057 GALLUP REFINERY.GPJ AGRA_ALB.GDT 12/9/08

GROUNDWATER			SAMPLE TYPE	
DEPTH	HOUR	DATE	A-ANALYTICAL SAMPLE	BS-BULK SAMPLE
72.0				

PROJECT Gallup Refinery Monitoring Wells
Gallup, New Mexico

JOB NO. 9517-000057 DATE 10/2/09

LOG OF TEST BORING NO. MW-2

LOCATION N35° 29' 45.1", W 108° 25' 25"
 RIG TYPE CME-75
 BORING TYPE Air Rotary
 SURFACE ELEV. 6748.00
 DATUM _____

Depth in Feet	Continuous Penetration Resistance	Graphic Soil Log	Sample	Sample Type	Blows/6-in. 140 lb. 30" free-fall drop hammer	Downhole LEL/PID	Headspace PID (ppm)	Unified Soil Classification	ANALYTICAL SAMPLE NUMBER	VISUAL CLASSIFICATION
0								CH		CLAY, high plasticity, reddish-brown
5				BS				PID - 0.0		
10				BS				PID - 0.0		
15				BS				PID - 0.0		
20				BS				PID - 0.0		
25				BS				PID - 0.0		
30				BS				PID - 0.0		
35				BS				PID - 1.1 ppm		
40				BS				PID - 1.0 ppm		trace of calcareous cementation at 40', dark brown
45				BS				PID - 1.1 ppm		
50										

ENV BH NO WELL_9517-057 GALLUP REFINERY.GPJ_AGRA_ALB.GDT 12/8/08

GROUNDWATER

SAMPLE TYPE

DEPTH	HOUR	DATE
none		

A-ANALYTICAL SAMPLE
 BS-BULK SAMPLE

PROJECT Gallup Refinery Monitoring Wells
Gallup, New Mexico

JOB NO. 9517-000057 DATE 10/2/09

LOG OF TEST BORING NO. MW-2

LOCATION N35° 29' 45.1", W 108° 25' 25"
 RIG TYPE CME-75
 BORING TYPE Air Rotary
 SURFACE ELEV. 6748.00
 DATUM _____

Depth in Feet	Continuous Penetration Resistance	Graphic Soil Log	Sample	Sample Type	Blows/6-in. 140 lb. 30" free-fall drop hammer	Downhole LEL/PID	Headspace PID (ppm)	Unified Soil Classification	ANALYTICAL SAMPLE NUMBER	VISUAL CLASSIFICATION
50									Borehole plugged at 50' due to swelling clay	
55										
60										
65										
70										
75										
80										
85										
90										
95										
100										

ENV.BH.NO.WELL 9517-057 GALLUP REFINERY.GPJ AGRA_ALB.GDT 12/9/09

GROUNDWATER SAMPLE TYPE

DEPTH	HOUR	DATE
none		

A-ANALYTICAL SAMPLE
 BS-BULK SAMPLE

PROJECT Gallup Refinery Monitoring Wells
Gallup, New Mexico

JOB NO. 9517-000057 DATE 10/5/09

LOG OF TEST BORING NO. MW-2A

LOCATION See Site Plan

RIG TYPE CME-75

BORING TYPE HSA

SURFACE ELEV. 6748.00

DATUM

Depth in Feet	Continuous Penetration Resistance	Graphic Soil Log	Sample	Sample Type	Blows/6-in. 140 lb. 30" free-fall drop hammer	Downhole LEL/PID	Headspace PID (ppm)	Unified Soil Classification	ANALYTICAL SAMPLE NUMBER		VISUAL CLASSIFICATION	
0								SM			FINE SILTY SAND, reddish clay nodules (0' - 5')	
5								CH			CLAY, high plasticity, red, damp (5' - 10')	
10											some silt, damp (10' - 20')	
15												
20												
25												
30												
35												
40												
45												
50												

pull 5' auger out of hole, knock out wood plug, let set over night
time: 15:45

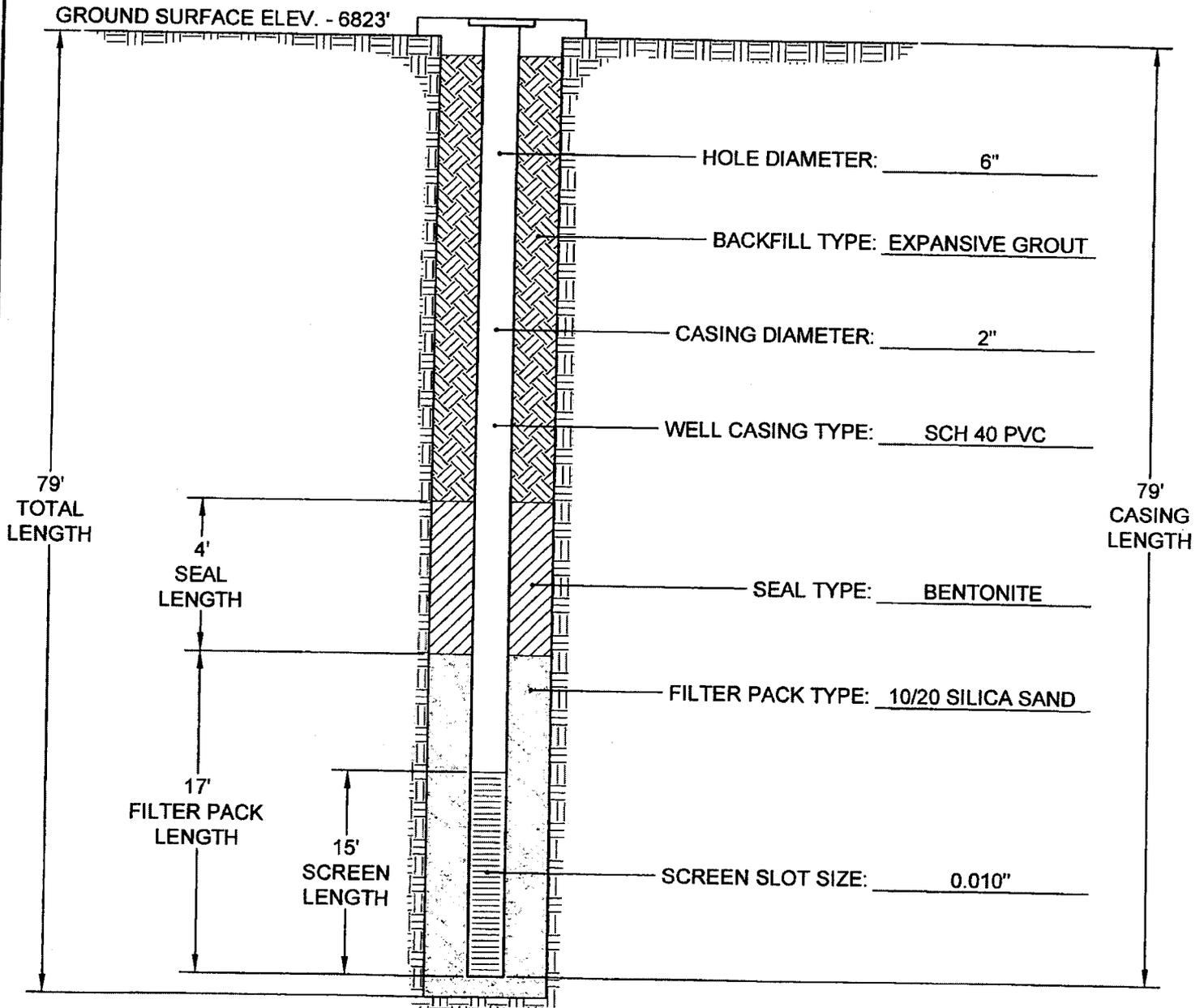
ENV BH NO WELL 9517-057 GALLUP REFINERY.GPJ AGRALB.GDT 12/9/08

GROUNDWATER		
DEPTH	HOUR	DATE
▽ none		
▼		

SAMPLE TYPE
A-ANALYTICAL SAMPLE
BS-BULK SAMPLE

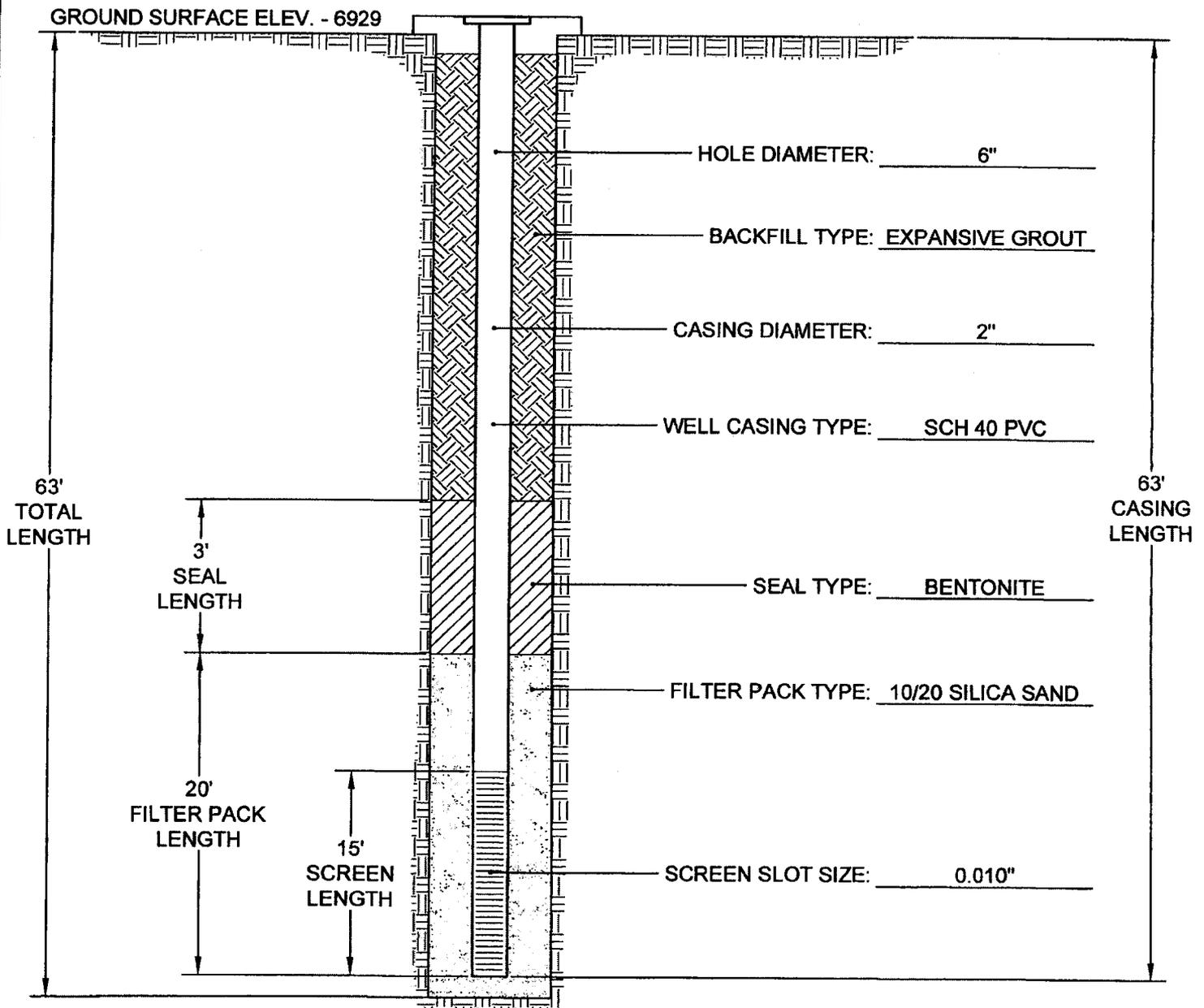
WELL COMPLETION LOG

PROJECT: <u>GALLUP REFINERY</u>	WELL NUMBER: <u>MW-1A</u>
JOB NO.: <u>9-517-000057</u>	DATE INSTALLED: <u>10.06.09</u>
DEVELOPMENT: <u>BAILER</u>	DRILLING METHOD: <u>HOLLOW STEM AUGER</u>
FORMATION OF COMPLETION: <u>SILTY SAND / GRAVEL FORM</u>	DRILLER: <u>GLENN SANDERS</u>
COMMENTS: <u>WATER DRILL DEPTH ~ 70' ROSE TO ~ 30' WIN 1HR S/G LAYER</u> <u>ENCOUNTERED ~ 70' BGS</u>	



WELL COMPLETION LOG

PROJECT: GALLUP REFINERY WELL NUMBER: MW-2A
JOB NO.: 9-517-000057 DATE INSTALLED: 10.07.09
DEVELOPMENT: BAILER DRILLING METHOD: HOLLOW STEM AUGER
FORMATION OF COMPLETION: SANDSTONE/GRAVEL
COMMENTS: WATER BEARING S/G LAYER ENCOUNTERED AT ~ 53' BGS DRILLER: GLENN SANDERS



8519 Jefferson NE
Albuquerque, New Mexico 87113

Appendix 3
Field investigation notes

GROUNDWATER PURGE AND SAMPLING FIELD DATA SHEET

1. PROJECT INFORMATION						WELL ID: OW-50				
Project Number: <u>9-517-057</u> Task Number: _____			Date: <u>11/17/09</u>			Time: <u>12:30</u>				
Client: <u>Western Refinery</u>			Personnel: <u>J. Cotter</u>							
Project Location: <u>Western Refinery - Cellar</u>			Weather: <u>Clear 50°F</u>							
2. WELL DATA										
Casing Diameter: <u>2"</u> Inches			Type of Casing: <u>PVC</u>							
Screen Diameter: <u>2"</u> Inches (d)			Type of Screen: <u>PVC</u>			Screen Length: <u>15</u>				
Total Depth of Well from TOC: <u>63</u> feet										
Depth to Static Water from TOC: <u>18.20</u> feet										
Depth to Product from TOC: <u>NA</u> feet										
Length of Water Column (h): <u>44.8</u> feet			Calculated Casing Volume: <u>7.6</u> gal (3 to 5 times one well volume)							
Purge Volume Calculation (one casing volume = 0.041d ² h): <div style="text-align: center; font-size: 1.5em; margin-top: 10px;">23 9915</div>										
Note: 2-inch well = 0.167 gal/ft 4-inch well = 0.687 gal/ft										
3. PURGE DATA										
Purge Method: <u>Monsoon Pump</u>						Equipment Model(s)				
Materials: Pump/Bailer _____						1. _____				
Materials: Rope/Tubing _____						2. _____				
Was well purged dry? <input type="checkbox"/> Yes <input type="checkbox"/> No						Pumping Rate: _____ gal/min				
Time	Cum. Gallons Removed	pH	Temp (Units)	Spec. Cond. (Units)	Eh (Units)	DO (Units)	Turbidity (NTU)	Other: <u>ORP</u>	Comments	
<u>12:56</u>	<u>3</u>	<u>7.79</u>	<u>12.47</u>	<u>638</u>		<u>0.56</u>		<u>-22.9</u>	<u>Purge</u>	<u>START</u>
<u>13:03</u>	<u>7</u>	<u>7.82</u>	<u>12.50</u>	<u>661</u>		<u>0.06</u>		<u>-23.3</u>	<u>Clear</u>	
<u>13:08</u>	<u>12</u>	<u>7.83</u>	<u>12.50</u>	<u>668</u>		<u>0.04</u>		<u>-22.2</u>	<u>mostly</u>	<u>Clear</u>
<u>13:10</u>	<u>22</u>	<u>7.84</u>	<u>12.50</u>	<u>674</u>		<u>0.03</u>		<u>-21.3</u>	<u>Clear</u>	
<u>13:14</u>	<u>23</u>	<u>7.84</u>	<u>12.50</u>	<u>674</u>		<u>0.03</u>		<u>-21.3</u>	<u>Sample</u>	<u>END.</u>
4. SAMPLING DATA										
Method(s): <u>Monsoon + Flowcell</u>						Analyses Requested:				
Materials: Pump/Bailer _____						<u>6010C</u>				
Materials: Tubing/Rope: <u>2014 Tubing</u>						<u>8260B</u>				
Depth to Water at Time of Sampling: _____						<u>8270</u>				
Field Filtered? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No						<u>8015B - GR0</u>				
Sample ID: <u>OW-50</u>		Sample Time: <u>13:20</u>		# of Containers: <u>8</u>		<u>DRO</u>				
Duplicate Sample Collected? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ID: _____										
5. COMMENTS										

GROUNDWATER PURGE AND SAMPLING FIELD DATA SHEET

1. PROJECT INFORMATION		WELL ID: OW-52							
Project Number: <u>9-517-057</u> Task Number: _____		Date: <u>11/17/09</u> Time: <u>11:17</u>							
Client: <u>Western Refinery</u>		Personnel: <u>J. Carter</u>							
Project Location: <u>Gallup, NM</u>		Weather: <u>Clear 40°F</u>							
2. WELL DATA									
Casing Diameter: <u>2</u> inches	Type of Casing: <u>PVC</u>								
Screen Diameter: <u>2</u> inches (ø)	Type of Screen: <u>Co 10 PVC</u>	Screen Length: <u>15'</u>							
Total Depth of Well from TOC: <u>79'</u> feet									
Depth to Static Water from TOC: <u>16.75</u> feet									
Depth to Product from TOC: <u>NA</u> feet									
Length of Water Column (h): <u>62.25</u> feet		Calculated Casing Volume: <u>10</u> gal (3 to 5 times one well volume)							
Purge Volume Calculation (one casing volume = 0.041d ² h): <div style="text-align: center; font-size: 1.5em;">319915</div>									
Note: 2-inch well = 0.167 gal/ft 4-inch well = 0.667 gal/ft									
3. PURGE DATA									
Purge Method: <u>Monsoon Pump</u>		Equipment Model(s): _____							
Materials: Pump/Beller _____		1. _____							
Materials: Rope/Tubing _____		2. _____							
Was well purged dry? <input type="checkbox"/> Yes <input type="checkbox"/> No		Pumping Rate: <u>1.5</u> gal/min							
Time	Cum. Gallons Removed	pH	Temp (Units)	Spec. Cond. (Units)	Eh (Units)	DO (Units)	Turbidity (NTU)	Other <u>ORP</u>	Comments
<u>11:45</u>	<u>5</u>	<u>7.97</u>	<u>12.24</u>	<u>665</u>		<u>0.20</u>		<u>-87.5</u>	<u>Muddy START</u>
<u>11:55</u>	<u>15</u>	<u>7.89</u>	<u>12.21</u>	<u>667</u>		<u>0.05</u>		<u>-60.6</u>	<u>Clear</u>
<u>12:05</u>	<u>25</u>	<u>7.84</u>	<u>12.19</u>	<u>471</u>		<u>0.03</u>		<u>-58.1</u>	<u>Clear</u>
<u>12:10</u>	<u>30</u>	<u>7.83</u>	<u>12.19</u>	<u>674</u>				<u>-56.5</u>	<u>" End Purge</u>
4. SAMPLING DATA				Analyses Requested:					
Method(s): <u>Monsoon + Flow Cell</u>				<u>8260 B- VOCs</u>					
Materials: Pump/Beller _____				<u>8270- SVOCs</u>					
Materials: Tubing/Rope: <u>POLY-TUBING</u>				<u>RCRA Metals 60cc</u>					
Depth to Water at Time of Sampling: _____				Field Filtered? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					
Sample ID: <u>OW-52</u>		Sample Time: <u>12:30</u>		# of Containers: <u>8</u>		<u>DRG 8015</u>			
Duplicate Sample Collected? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No ID: _____									
5. COMMENTS <u>16 AMBER = 8270 SVOCs</u>									

Appendix 4
Analytical results from Hall Environmental Analytical
Laboratory



COVER LETTER

Thursday, December 03, 2009

Gaurav Rajen
Western Refining Southwest, Gallup
Rt. 3 Box 7
Gallup, NM 87301

TEL: (505) 722-0227
FAX (505) 722-0210

RE: New Monitoring Wells

Order No.: 0911331

Dear Gaurav Rajen:

Hall Environmental Analysis Laboratory, Inc. received 3 sample(s) on 11/17/2009 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. Below is a list of our accreditations. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites.

Reporting limits are determined by EPA methodology. No determination of compounds below these (denoted by the ND or < sign) has been made.

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

Sincerely,

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

Andy Freeman, Laboratory Manager

NM Lab # NM9425 NM0901
AZ license # AZ0682
ORELAP Lab # NM100001
Texas Lab# T104704424-08-TX



Hall Environmental Analysis Laboratory, Inc.

Date: 03-Dec-09

CLIENT: Western Refining Southwest, Gallup **Client Sample ID:** OW-52
Lab Order: 0911331 **Collection Date:** 11/17/2009 12:20:00 PM
Project: New Monitoring Wells **Date Received:** 11/17/2009
Lab ID: 0911331-01 **Matrix:** AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/29/2009 9:10:06 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/29/2009 9:10:06 PM
Surr: DNOP	129	58-140		%REC	1	11/29/2009 9:10:06 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/20/2009 3:14:17 PM
Surr: BFB	97.0	55.2-107		%REC	1	11/20/2009 3:14:17 PM
EPA METHOD 7470: MERCURY						Analyst: IC
Mercury	ND	0.00020		mg/L	1	11/25/2009 4:59:27 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: SNV
Arsenic	ND	0.020		mg/L	1	12/1/2009 3:22:37 PM
Barium	0.027	0.020		mg/L	1	12/2/2009 7:11:21 PM
Cadmium	ND	0.0020		mg/L	1	12/1/2009 3:22:37 PM
Chromium	ND	0.0060		mg/L	1	12/1/2009 3:22:37 PM
Lead	ND	0.0050		mg/L	1	12/1/2009 3:22:37 PM
Selenium	ND	0.050		mg/L	1	12/1/2009 3:22:37 PM
Silver	ND	0.0050		mg/L	1	12/1/2009 3:22:37 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: LBJ
Acenaphthene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Acenaphthylene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Aniline	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Anthracene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Azobenzene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Benz(a)anthracene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Benzo(a)pyrene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Benzo(b)fluoranthene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Benzo(g,h,i)perylene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Benzo(k)fluoranthene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Benzoic acid	ND	20		µg/L	1	11/25/2009 12:56:30 PM
Benzyl alcohol	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Bis(2-chloroethyl)ether	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	11/25/2009 12:56:30 PM
4-Bromophenyl phenyl ether	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Butyl benzyl phthalate	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Carbazole	ND	10		µg/L	1	11/25/2009 12:56:30 PM
4-Chloro-3-methylphenol	ND	10		µg/L	1	11/25/2009 12:56:30 PM
4-Chloroaniline	ND	10		µg/L	1	11/25/2009 12:56:30 PM

Qualifiers: * Value exceeds Maximum Contaminant Level B Analyte detected in the associated Method Blank
 E Estimated value H Holding times for preparation or analysis exceeded
 J Analyte detected below quantitation limits MCL Maximum Contaminant Level
 ND Not Detected at the Reporting Limit RL Reporting Limit
 S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: 03-Dec-09

CLIENT: Western Refining Southwest, Gallup
Lab Order: 0911331
Project: New Monitoring Wells
Lab ID: 0911331-01

Client Sample ID: OW-52
Collection Date: 11/17/2009 12:20:00 PM
Date Received: 11/17/2009
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: LBJ
2-Chloronaphthalene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
2-Chlorophenol	ND	10		µg/L	1	11/25/2009 12:56:30 PM
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Chrysene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Di-n-butyl phthalate	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Di-n-octyl phthalate	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Dibenz(a,h)anthracene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Dibenzofuran	ND	10		µg/L	1	11/25/2009 12:56:30 PM
1,2-Dichlorobenzene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
1,3-Dichlorobenzene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
1,4-Dichlorobenzene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
3,3'-Dichlorobenzidine	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Diethyl phthalate	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Dimethyl phthalate	ND	10		µg/L	1	11/25/2009 12:56:30 PM
2,4-Dichlorophenol	ND	20		µg/L	1	11/25/2009 12:56:30 PM
2,4-Dimethylphenol	ND	10		µg/L	1	11/25/2009 12:56:30 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	11/25/2009 12:56:30 PM
2,4-Dinitrophenol	ND	20		µg/L	1	11/25/2009 12:56:30 PM
2,4-Dinitrotoluene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
2,6-Dinitrotoluene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Fluoranthene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Fluorene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Hexachlorobenzene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Hexachlorobutadiene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Hexachlorocyclopentadiene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Hexachloroethane	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Isophorone	ND	10		µg/L	1	11/25/2009 12:56:30 PM
2-Methylnaphthalene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
2-Methylphenol	ND	10		µg/L	1	11/25/2009 12:56:30 PM
3+4-Methylphenol	ND	10		µg/L	1	11/25/2009 12:56:30 PM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	11/25/2009 12:56:30 PM
N-Nitrosodimethylamine	ND	10		µg/L	1	11/25/2009 12:56:30 PM
N-Nitrosodiphenylamine	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Naphthalene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
2-Nitroaniline	ND	10		µg/L	1	11/25/2009 12:56:30 PM
3-Nitroaniline	ND	10		µg/L	1	11/25/2009 12:56:30 PM
4-Nitroaniline	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Nitrobenzene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
2-Nitrophenol	ND	10		µg/L	1	11/25/2009 12:56:30 PM
4-Nitrophenol	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Pentachlorophenol	ND	20		µg/L	1	11/25/2009 12:56:30 PM

Qualifiers:
 * Value exceeds Maximum Contaminant Level
 E Estimated value
 J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 MCL Maximum Contaminant Level
 RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 03-Dec-09

CLIENT: Western Refining Southwest, Gallup
 Lab Order: 0911331
 Project: New Monitoring Wells
 Lab ID: 0911331-01

Client Sample ID: OW-52
 Collection Date: 11/17/2009 12:20:00 PM
 Date Received: 11/17/2009
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: LBJ
Phenanthrene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Phenol	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Pyrene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Pyridine	ND	10		µg/L	1	11/25/2009 12:56:30 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	1	11/25/2009 12:56:30 PM
2,4,5-Trichlorophenol	ND	10		µg/L	1	11/25/2009 12:56:30 PM
2,4,6-Trichlorophenol	ND	10		µg/L	1	11/25/2009 12:56:30 PM
Surr: 2,4,6-Tribromophenol	67.2	16.6-150		%REC	1	11/25/2009 12:56:30 PM
Surr: 2-Fluorobiphenyl	43.8	19.6-134		%REC	1	11/25/2009 12:56:30 PM
Surr: 2-Fluorophenol	25.4	9.54-113		%REC	1	11/25/2009 12:56:30 PM
Surr: 4-Terphenyl-d14	36.6	22.7-145		%REC	1	11/25/2009 12:56:30 PM
Surr: Nitrobenzene-d5	41.0	14.6-134		%REC	1	11/25/2009 12:56:30 PM
Surr: Phenol-d5	19.5	10.7-80.3		%REC	1	11/25/2009 12:56:30 PM
EPA METHOD 8260B: VOLATILES						Analyst: HL
Benzene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
Toluene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
Ethylbenzene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
Naphthalene	ND	2.0		µg/L	1	11/18/2009 8:18:48 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	11/18/2009 8:18:48 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	11/18/2009 8:18:48 PM
Acetone	ND	10		µg/L	1	11/18/2009 8:18:48 PM
Bromobenzene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
Bromodichloromethane	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
Bromoform	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
Bromomethane	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
2-Butanone	ND	10		µg/L	1	11/18/2009 8:18:48 PM
Carbon disulfide	ND	10		µg/L	1	11/18/2009 8:18:48 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
Chlorobenzene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
Chloroethane	ND	2.0		µg/L	1	11/18/2009 8:18:48 PM
Chloroform	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
Chloromethane	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
2-Chlorotoluene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
4-Chlorotoluene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
cis-1,2-DCE	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
 E Estimated value
 J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 MCL Maximum Contaminant Level
 RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 03-Dec-09

CLIENT: Western Refining Southwest, Gallup
Lab Order: 0911331
Project: New Monitoring Wells
Lab ID: 0911331-01

Client Sample ID: OW-52
Collection Date: 11/17/2009 12:20:00 PM
Date Received: 11/17/2009
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: HL
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	11/18/2009 8:18:48 PM
Dibromochloromethane	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
Dibromomethane	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	11/18/2009 8:18:48 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
2-Hexanone	ND	10		µg/L	1	11/18/2009 8:18:48 PM
Isopropylbenzene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	11/18/2009 8:18:48 PM
Methylene Chloride	ND	3.0		µg/L	1	11/18/2009 8:18:48 PM
n-Butylbenzene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
n-Propylbenzene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
sec-Butylbenzene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
Styrene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
tert-Butylbenzene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	11/18/2009 8:18:48 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
trans-1,2-DCE	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	11/18/2009 8:18:48 PM
Vinyl chloride	ND	1.0		µg/L	1	11/18/2009 8:18:48 PM
Xylenes, Total	ND	1.5		µg/L	1	11/18/2009 8:18:48 PM
Surr: 1,2-Dichloroethane-d4	97.7	54.6-141		%REC	1	11/18/2009 8:18:48 PM
Surr: 4-Bromofluorobenzene	110	60.1-133		%REC	1	11/18/2009 8:18:48 PM
Surr: Dibromofluoromethane	95.3	78.5-130		%REC	1	11/18/2009 8:18:48 PM
Surr: Toluene-d8	105	79.5-126		%REC	1	11/18/2009 8:18:48 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
 E Estimated value
 J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 MCL Maximum Contaminant Level
 RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 03-Dec-09

CLIENT:	Western Refining Southwest, Gallup	Client Sample ID:	OW-52
Lab Order:	0911331	Collection Date:	11/17/2009 12:20:00 PM
Project:	New Monitoring Wells	Date Received:	11/17/2009
Lab ID:	0911331-01	Matrix:	AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: HL

Qualifiers:	*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
	E	Estimated value	H	Holding times for preparation or analysis exceeded
	J	Analyte detected below quantitation limits	MCL	Maximum Contaminant Level
	ND	Not Detected at the Reporting Limit	RL	Reporting Limit
	S	Spike recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

Date: 03-Dec-09

CLIENT: Western Refining Southwest, Gallup
 Lab Order: 0911331
 Project: New Monitoring Wells
 Lab ID: 0911331-02

Client Sample ID: OW-50
 Collection Date: 11/17/2009 1:20:00 PM
 Date Received: 11/17/2009
 Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE						Analyst: SCC
Diesel Range Organics (DRO)	ND	1.0		mg/L	1	11/29/2009 9:45:46 PM
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	11/29/2009 9:45:46 PM
Surr: DNOP	127	58-140		%REC	1	11/29/2009 9:45:46 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/20/2009 4:11:57 PM
Surr: BFB	98.0	55.2-107		%REC	1	11/20/2009 4:11:57 PM
EPA METHOD 7470: MERCURY						Analyst: IC
Mercury	ND	0.00020		mg/L	1	11/25/2009 5:01:10 PM
EPA 6010B: TOTAL RECOVERABLE METALS						Analyst: SNV
Arsenic	ND	0.020		mg/L	1	12/1/2009 3:29:43 PM
Barium	0.042	0.020		mg/L	1	12/2/2009 8:23:22 PM
Cadmium	ND	0.0020		mg/L	1	12/1/2009 3:29:43 PM
Chromium	ND	0.0060		mg/L	1	12/1/2009 3:29:43 PM
Lead	ND	0.0050		mg/L	1	12/1/2009 3:29:43 PM
Selenium	ND	0.050		mg/L	1	12/1/2009 3:29:43 PM
Silver	ND	0.0050		mg/L	1	12/1/2009 3:29:43 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: LBJ
Acenaphthene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Acenaphthylene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Aniline	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Anthracene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Azobenzene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Benz(a)anthracene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Benzo(a)pyrene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Benzo(b)fluoranthene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Benzo(g,h,i)perylene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Benzo(k)fluoranthene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Benzoic acid	ND	20		µg/L	1	11/25/2009 1:26:14 PM
Benzyl alcohol	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Bis(2-chloroethoxy)methane	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Bis(2-chloroethyl)ether	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Bis(2-chloroisopropyl)ether	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Bis(2-ethylhexyl)phthalate	ND	10		µg/L	1	11/25/2009 1:26:14 PM
4-Bromophenyl phenyl ether	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Butyl benzyl phthalate	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Carbazole	ND	10		µg/L	1	11/25/2009 1:26:14 PM
4-Chloro-3-methylphenol	ND	10		µg/L	1	11/25/2009 1:26:14 PM
4-Chloroaniline	ND	10		µg/L	1	11/25/2009 1:26:14 PM

Qualifiers: * Value exceeds Maximum Contaminant Level B Analyte detected in the associated Method Blank
 E Estimated value H Holding times for preparation or analysis exceeded
 J Analyte detected below quantitation limits MCL Maximum Contaminant Level
 ND Not Detected at the Reporting Limit RL Reporting Limit
 S Spike recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

Date: 03-Dec-09

CLIENT: Western Refining Southwest, Gallup
Lab Order: 0911331
Project: New Monitoring Wells
Lab ID: 0911331-02

Client Sample ID: OW-50
Collection Date: 11/17/2009 1:20:00 PM
Date Received: 11/17/2009
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: LBJ
2-Chloronaphthalene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
2-Chlorophenol	ND	10		µg/L	1	11/25/2009 1:26:14 PM
4-Chlorophenyl phenyl ether	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Chrysene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Di-n-butyl phthalate	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Di-n-octyl phthalate	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Dibenz(a,h)anthracene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Dibenzofuran	ND	10		µg/L	1	11/25/2009 1:26:14 PM
1,2-Dichlorobenzene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
1,3-Dichlorobenzene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
1,4-Dichlorobenzene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
3,3'-Dichlorobenzidine	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Diethyl phthalate	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Dimethyl phthalate	ND	10		µg/L	1	11/25/2009 1:26:14 PM
2,4-Dichlorophenol	ND	20		µg/L	1	11/25/2009 1:26:14 PM
2,4-Dimethylphenol	ND	10		µg/L	1	11/25/2009 1:26:14 PM
4,6-Dinitro-2-methylphenol	ND	20		µg/L	1	11/25/2009 1:26:14 PM
2,4-Dinitrophenol	ND	20		µg/L	1	11/25/2009 1:26:14 PM
2,4-Dinitrotoluene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
2,6-Dinitrotoluene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Fluoranthene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Fluorene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Hexachlorobenzene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Hexachlorobutadiene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Hexachlorocyclopentadiene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Hexachloroethane	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Indeno(1,2,3-cd)pyrene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Isophorone	ND	10		µg/L	1	11/25/2009 1:26:14 PM
2-Methylnaphthalene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
2-Methylphenol	ND	10		µg/L	1	11/25/2009 1:26:14 PM
3+4-Methylphenol	ND	10		µg/L	1	11/25/2009 1:26:14 PM
N-Nitrosodi-n-propylamine	ND	10		µg/L	1	11/25/2009 1:26:14 PM
N-Nitrosodimethylamine	ND	10		µg/L	1	11/25/2009 1:26:14 PM
N-Nitrosodiphenylamine	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Naphthalene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
2-Nitroaniline	ND	10		µg/L	1	11/25/2009 1:26:14 PM
3-Nitroaniline	ND	10		µg/L	1	11/25/2009 1:26:14 PM
4-Nitroaniline	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Nitrobenzene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
2-Nitrophenol	ND	10		µg/L	1	11/25/2009 1:26:14 PM
4-Nitrophenol	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Pentachlorophenol	ND	20		µg/L	1	11/25/2009 1:26:14 PM

Qualifiers:
 * Value exceeds Maximum Contaminant Level
 E Estimated value
 J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 MCL Maximum Contaminant Level
 RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 03-Dec-09

CLIENT: Western Refining Southwest, Gallup
Lab Order: 0911331
Project: New Monitoring Wells
Lab ID: 0911331-02

Client Sample ID: OW-50
Collection Date: 11/17/2009 1:20:00 PM
Date Received: 11/17/2009
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8270C: SEMIVOLATILES						Analyst: LBJ
Phenanthrene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Phenol	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Pyrene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Pyridine	ND	10		µg/L	1	11/25/2009 1:26:14 PM
1,2,4-Trichlorobenzene	ND	10		µg/L	1	11/25/2009 1:26:14 PM
2,4,5-Trichlorophenol	ND	10		µg/L	1	11/25/2009 1:26:14 PM
2,4,6-Trichlorophenol	ND	10		µg/L	1	11/25/2009 1:26:14 PM
Surr: 2,4,6-Tribromophenol	65.7	16.6-150		%REC	1	11/25/2009 1:26:14 PM
Surr: 2-Fluorobiphenyl	43.8	19.6-134		%REC	1	11/25/2009 1:26:14 PM
Surr: 2-Fluorophenol	27.0	9.54-113		%REC	1	11/25/2009 1:26:14 PM
Surr: 4-Terphenyl-d14	40.7	22.7-145		%REC	1	11/25/2009 1:26:14 PM
Surr: Nitrobenzene-d5	40.4	14.6-134		%REC	1	11/25/2009 1:26:14 PM
Surr: Phenol-d5	21.0	10.7-80.3		%REC	1	11/25/2009 1:26:14 PM

EPA METHOD 8260B: VOLATILES						Analyst: HL
Benzene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
Toluene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
Ethylbenzene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
Naphthalene	ND	2.0		µg/L	1	11/18/2009 8:46:37 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	11/18/2009 8:46:37 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	11/18/2009 8:46:37 PM
Acetone	ND	10		µg/L	1	11/18/2009 8:46:37 PM
Bromobenzene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
Bromodichloromethane	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
Bromoform	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
Bromomethane	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
2-Butanone	ND	10		µg/L	1	11/18/2009 8:46:37 PM
Carbon disulfide	ND	10		µg/L	1	11/18/2009 8:46:37 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
Chlorobenzene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
Chloroethane	ND	2.0		µg/L	1	11/18/2009 8:46:37 PM
Chloroform	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
Chloromethane	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
2-Chlorotoluene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
4-Chlorotoluene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
cis-1,2-DCE	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
 E Estimated value
 J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits
 B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 MCL Maximum Contaminant Level
 RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 03-Dec-09

CLIENT: Western Refining Southwest, Gallup
Lab Order: 0911331
Project: New Monitoring Wells
Lab ID: 0911331-02

Client Sample ID: OW-50
Collection Date: 11/17/2009 1:20:00 PM
Date Received: 11/17/2009
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: HL
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	11/18/2009 8:46:37 PM
Dibromochloromethane	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
Dibromomethane	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
2,2-Dichloropropane	ND	2.0		µg/L	1	11/18/2009 8:46:37 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
2-Hexanone	ND	10		µg/L	1	11/18/2009 8:46:37 PM
Isopropylbenzene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	11/18/2009 8:46:37 PM
Methylene Chloride	ND	3.0		µg/L	1	11/18/2009 8:46:37 PM
n-Butylbenzene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
n-Propylbenzene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
sec-Butylbenzene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
Styrene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
tert-Butylbenzene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	11/18/2009 8:46:37 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
trans-1,2-DCE	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	11/18/2009 8:46:37 PM
Vinyl chloride	ND	1.0		µg/L	1	11/18/2009 8:46:37 PM
Xylenes, Total	ND	1.5		µg/L	1	11/18/2009 8:46:37 PM
Surr: 1,2-Dichloroethane-d4	98.3	54.6-141		%REC	1	11/18/2009 8:46:37 PM
Surr: 4-Bromofluorobenzene	109	60.1-133		%REC	1	11/18/2009 8:46:37 PM
Surr: Dibromofluoromethane	100	78.5-130		%REC	1	11/18/2009 8:46:37 PM
Surr: Toluene-d8	106	79.5-126		%REC	1	11/18/2009 8:46:37 PM

Qualifiers:
 * Value exceeds Maximum Contaminant Level
 E Estimated value
 J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 MCL Maximum Contaminant Level
 RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 03-Dec-09

CLIENT: Western Refining Southwest, Gallup
Lab Order: 0911331
Project: New Monitoring Wells
Lab ID: 0911331-02

Client Sample ID: OW-50
Collection Date: 11/17/2009 1:20:00 PM
Date Received: 11/17/2009
Matrix: AQUEOUS

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
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EPA METHOD 8260B: VOLATILES

Analyst: HL

Qualifiers: * Value exceeds Maximum Contaminant Level
E Estimated value
J Analyte detected below quantitation limits
ND Not Detected at the Reporting Limit
S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
H Holding times for preparation or analysis exceeded
MCL Maximum Contaminant Level
RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 03-Dec-09

CLIENT: Western Refining Southwest, Gallup
 Lab Order: 0911331
 Project: New Monitoring Wells
 Lab ID: 0911331-03

Client Sample ID: Trip Blank
 Collection Date:
 Date Received: 11/17/2009
 Matrix: TRIP BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	0.050		mg/L	1	11/20/2009 4:40:45 PM
Surr: BFB	97.7	55.2-107		%REC	1	11/20/2009 4:40:45 PM
EPA METHOD 8260B: VOLATILES						Analyst: HL
Benzene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
Toluene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
Ethylbenzene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
Methyl tert-butyl ether (MTBE)	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
1,2,4-Trimethylbenzene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
1,3,5-Trimethylbenzene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
1,2-Dichloroethane (EDC)	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
1,2-Dibromoethane (EDB)	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
Naphthalene	ND	2.0		µg/L	1	11/18/2009 9:14:23 PM
1-Methylnaphthalene	ND	4.0		µg/L	1	11/18/2009 9:14:23 PM
2-Methylnaphthalene	ND	4.0		µg/L	1	11/18/2009 9:14:23 PM
Acetone	ND	10		µg/L	1	11/18/2009 9:14:23 PM
Bromobenzene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
Bromodichloromethane	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
Bromoform	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
Bromomethane	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
2-Butanone	ND	10		µg/L	1	11/18/2009 9:14:23 PM
Carbon disulfide	ND	10		µg/L	1	11/18/2009 9:14:23 PM
Carbon Tetrachloride	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
Chlorobenzene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
Chloroethane	ND	2.0		µg/L	1	11/18/2009 9:14:23 PM
Chloroform	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
Chloromethane	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
2-Chlorotoluene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
4-Chlorotoluene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
cis-1,2-DCE	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
cis-1,3-Dichloropropene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
1,2-Dibromo-3-chloropropane	ND	2.0		µg/L	1	11/18/2009 9:14:23 PM
Dibromochloromethane	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
Dibromomethane	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
1,2-Dichlorobenzene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
1,3-Dichlorobenzene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
1,4-Dichlorobenzene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
Dichlorodifluoromethane	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
1,1-Dichloroethane	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
1,1-Dichloroethene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
1,2-Dichloropropane	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
1,3-Dichloropropane	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
 E Estimated value
 J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 MCL Maximum Contaminant Level
 RL Reporting Limit

Hall Environmental Analysis Laboratory, Inc.

Date: 03-Dec-09

CLIENT: Western Refining Southwest, Gallup
 Lab Order: 0911331
 Project: New Monitoring Wells
 Lab ID: 0911331-03

Client Sample ID: Trip Blank
 Collection Date:
 Date Received: 11/17/2009
 Matrix: TRIP BLANK

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: HL
2,2-Dichloropropane	ND	2.0		µg/L	1	11/18/2009 9:14:23 PM
1,1-Dichloropropene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
Hexachlorobutadiene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
2-Hexanone	ND	10		µg/L	1	11/18/2009 9:14:23 PM
Isopropylbenzene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
4-Isopropyltoluene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
4-Methyl-2-pentanone	ND	10		µg/L	1	11/18/2009 9:14:23 PM
Methylene Chloride	ND	3.0		µg/L	1	11/18/2009 9:14:23 PM
n-Butylbenzene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
n-Propylbenzene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
sec-Butylbenzene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
Styrene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
tert-Butylbenzene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
1,1,1,2-Tetrachloroethane	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
1,1,2,2-Tetrachloroethane	ND	2.0		µg/L	1	11/18/2009 9:14:23 PM
Tetrachloroethene (PCE)	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
trans-1,2-DCE	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
trans-1,3-Dichloropropene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
1,2,3-Trichlorobenzene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
1,2,4-Trichlorobenzene	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
1,1,1-Trichloroethane	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
1,1,2-Trichloroethane	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
Trichloroethene (TCE)	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
Trichlorofluoromethane	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
1,2,3-Trichloropropane	ND	2.0		µg/L	1	11/18/2009 9:14:23 PM
Vinyl chloride	ND	1.0		µg/L	1	11/18/2009 9:14:23 PM
Xylenes, Total	ND	1.5		µg/L	1	11/18/2009 9:14:23 PM
Surr: 1,2-Dichloroethane-d4	101	54.6-141		%REC	1	11/18/2009 9:14:23 PM
Surr: 4-Bromofluorobenzene	107	60.1-133		%REC	1	11/18/2009 9:14:23 PM
Surr: Dibromofluoromethane	96.7	78.5-130		%REC	1	11/18/2009 9:14:23 PM
Surr: Toluene-d8	103	79.5-126		%REC	1	11/18/2009 9:14:23 PM

Qualifiers: * Value exceeds Maximum Contaminant Level
 E Estimated value
 J Analyte detected below quantitation limits
 ND Not Detected at the Reporting Limit
 S Spike recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank
 H Holding times for preparation or analysis exceeded
 MCL Maximum Contaminant Level
 RL Reporting Limit

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup
Project: New Monitoring Wells

Work Order: 0911331

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8015B: Diesel Range

Sample ID: MB-20702 *MBLK* Batch ID: 20702 Analysis Date: 11/29/2009 7:23:03 PM

Diesel Range Organics (DRO) ND mg/L 1.0

Motor Oil Range Organics (MRO) ND mg/L 5.0

Sample ID: LCS-20702 *LCS* Batch ID: 20702 Analysis Date: 11/29/2009 7:58:44 PM

Diesel Range Organics (DRO) 5.932 mg/L 1.0 5 0 119 74 157

Method: EPA Method 8015B: Gasoline Range

Sample ID: 5ML RB *MBLK* Batch ID: R36285 Analysis Date: 11/20/2009 9:51:02 AM

Gasoline Range Organics (GRO) ND mg/L 0.050

Sample ID: 2.5UG GRO LCS *LCS* Batch ID: R36285 Analysis Date: 11/20/2009 5:09:36 PM

Gasoline Range Organics (GRO) 0.5098 mg/L 0.050 0.5 0 102 80 115

Qualifiers:

- E Estimated value
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup
 Project: New Monitoring Wells

Work Order: 0911331

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8260B: VOLATILES

Sample ID: 5ml rb

MBLK

Batch ID: R36238 Analysis Date: 11/18/2009 9:05:28 AM

Benzene	ND	µg/L	1.0								
Toluene	ND	µg/L	1.0								
Ethylbenzene	ND	µg/L	1.0								
Methyl tert-butyl ether (MTBE)	ND	µg/L	1.0								
1,2,4-Trimethylbenzene	ND	µg/L	1.0								
1,3,5-Trimethylbenzene	ND	µg/L	1.0								
1,2-Dichloroethane (EDC)	ND	µg/L	1.0								
1,2-Dibromoethane (EDB)	ND	µg/L	1.0								
Naphthalene	ND	µg/L	2.0								
1-Methylnaphthalene	ND	µg/L	4.0								
2-Methylnaphthalene	ND	µg/L	4.0								
Acetone	ND	µg/L	10								
Bromobenzene	ND	µg/L	1.0								
Bromodichloromethane	ND	µg/L	1.0								
Bromoform	ND	µg/L	1.0								
Bromomethane	ND	µg/L	1.0								
2-Butanone	ND	µg/L	10								
Carbon disulfide	ND	µg/L	10								
Carbon Tetrachloride	ND	µg/L	1.0								
Chlorobenzene	ND	µg/L	1.0								
Chloroethane	ND	µg/L	2.0								
Chloroform	ND	µg/L	1.0								
Chloromethane	ND	µg/L	1.0								
2-Chlorotoluene	ND	µg/L	1.0								
4-Chlorotoluene	ND	µg/L	1.0								
cis-1,2-DCE	ND	µg/L	1.0								
cis-1,3-Dichloropropene	ND	µg/L	1.0								
1,2-Dibromo-3-chloropropane	ND	µg/L	2.0								
Dibromochloromethane	ND	µg/L	1.0								
Dibromomethane	ND	µg/L	1.0								
1,2-Dichlorobenzene	ND	µg/L	1.0								
1,3-Dichlorobenzene	ND	µg/L	1.0								
1,4-Dichlorobenzene	ND	µg/L	1.0								
Dichlorodifluoromethane	ND	µg/L	1.0								
1,1-Dichloroethane	ND	µg/L	1.0								
1,1-Dichloroethene	ND	µg/L	1.0								
1,2-Dichloropropane	ND	µg/L	1.0								
1,3-Dichloropropane	ND	µg/L	1.0								
2,2-Dichloropropane	ND	µg/L	2.0								
1,1-Dichloropropene	ND	µg/L	1.0								
Hexachlorobutadiene	ND	µg/L	1.0								
2-Hexanone	ND	µg/L	10								
Isopropylbenzene	ND	µg/L	1.0								
4-Isopropyltoluene	ND	µg/L	1.0								

Qualifiers:

E	Estimated value	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	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup
 Project: New Monitoring Wells

Work Order: 0911331

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8260B: VOLATILES

Sample ID: 5ml rb MBLK Batch ID: R36238 Analysis Date: 11/18/2009 9:05:28 AM

4-Methyl-2-pentanone	ND	µg/L	10
Methylene Chloride	ND	µg/L	3.0
n-Butylbenzene	ND	µg/L	1.0
n-Propylbenzene	ND	µg/L	1.0
sec-Butylbenzene	ND	µg/L	1.0
Styrene	ND	µg/L	1.0
tert-Butylbenzene	ND	µg/L	1.0
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0
1,1,2,2-Tetrachloroethane	ND	µg/L	2.0
Tetrachloroethene (PCE)	ND	µg/L	1.0
trans-1,2-DCE	ND	µg/L	1.0
trans-1,3-Dichloropropene	ND	µg/L	1.0
1,2,3-Trichlorobenzene	ND	µg/L	1.0
1,2,4-Trichlorobenzene	ND	µg/L	1.0
1,1,1-Trichloroethane	ND	µg/L	1.0
1,1,2-Trichloroethane	ND	µg/L	1.0
Trichloroethene (TCE)	ND	µg/L	1.0
Trichlorofluoromethane	ND	µg/L	1.0
1,2,3-Trichloropropane	ND	µg/L	2.0
Vinyl chloride	ND	µg/L	1.0
Xylenes, Total	ND	µg/L	1.5

Sample ID: b6 MBLK Batch ID: R36238 Analysis Date: 11/18/2009 10:09:57 PM

Benzene	ND	µg/L	1.0
Toluene	ND	µg/L	1.0
Ethylbenzene	ND	µg/L	1.0
Methyl tert-butyl ether (MTBE)	ND	µg/L	1.0
1,2,4-Trimethylbenzene	ND	µg/L	1.0
1,3,5-Trimethylbenzene	ND	µg/L	1.0
1,2-Dichloroethane (EDC)	ND	µg/L	1.0
1,2-Dibromoethane (EDB)	ND	µg/L	1.0
Naphthalene	ND	µg/L	2.0
1-Methylnaphthalene	ND	µg/L	4.0
2-Methylnaphthalene	ND	µg/L	4.0
Acetone	ND	µg/L	10
Bromobenzene	ND	µg/L	1.0
Bromodichloromethane	ND	µg/L	1.0
Bromoform	ND	µg/L	1.0
Bromomethane	ND	µg/L	1.0
2-Butanone	ND	µg/L	10
Carbon disulfide	ND	µg/L	10
Carbon Tetrachloride	ND	µg/L	1.0
Chlorobenzene	ND	µg/L	1.0
Chloroethane	ND	µg/L	2.0
Chloroform	ND	µg/L	1.0

Qualifiers:

- E Estimated value
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup
 Project: New Monitoring Wells

Work Order: 0911331

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8260B: VOLATILES

Sample ID: b6

MBLK

Batch ID: R36238 Analysis Date: 11/18/2009 10:09:57 PM

Chloromethane	ND	µg/L	1.0								
2-Chlorotoluene	ND	µg/L	1.0								
4-Chlorotoluene	ND	µg/L	1.0								
cis-1,2-DCE	ND	µg/L	1.0								
cis-1,3-Dichloropropene	ND	µg/L	1.0								
1,2-Dibromo-3-chloropropane	ND	µg/L	2.0								
Dibromochloromethane	ND	µg/L	1.0								
Dibromomethane	ND	µg/L	1.0								
1,2-Dichlorobenzene	ND	µg/L	1.0								
1,3-Dichlorobenzene	ND	µg/L	1.0								
1,4-Dichlorobenzene	ND	µg/L	1.0								
Dichlorodifluoromethane	ND	µg/L	1.0								
1,1-Dichloroethane	ND	µg/L	1.0								
1,1-Dichloroethene	ND	µg/L	1.0								
1,2-Dichloropropane	ND	µg/L	1.0								
1,3-Dichloropropane	ND	µg/L	1.0								
2,2-Dichloropropane	ND	µg/L	2.0								
1,1-Dichloropropene	ND	µg/L	1.0								
Hexachlorobutadiene	ND	µg/L	1.0								
2-Hexanone	ND	µg/L	10								
Isopropylbenzene	ND	µg/L	1.0								
4-Isopropyltoluene	ND	µg/L	1.0								
4-Methyl-2-pentanone	ND	µg/L	10								
Methylene Chloride	ND	µg/L	3.0								
n-Butylbenzene	ND	µg/L	1.0								
n-Propylbenzene	ND	µg/L	1.0								
sec-Butylbenzene	ND	µg/L	1.0								
Styrene	ND	µg/L	1.0								
tert-Butylbenzene	ND	µg/L	1.0								
1,1,1,2-Tetrachloroethane	ND	µg/L	1.0								
1,1,2,2-Tetrachloroethane	ND	µg/L	2.0								
Tetrachloroethene (PCE)	ND	µg/L	1.0								
trans-1,2-DCE	ND	µg/L	1.0								
trans-1,3-Dichloropropene	ND	µg/L	1.0								
1,2,3-Trichlorobenzene	ND	µg/L	1.0								
1,2,4-Trichlorobenzene	ND	µg/L	1.0								
1,1,1-Trichloroethane	ND	µg/L	1.0								
1,1,2-Trichloroethane	ND	µg/L	1.0								
Trichloroethene (TCE)	ND	µg/L	1.0								
Trichlorofluoromethane	ND	µg/L	1.0								
1,2,3-Trichloropropane	ND	µg/L	2.0								
Vinyl chloride	ND	µg/L	1.0								
Xylenes, Total	ND	µg/L	1.5								

Sample ID: 100ng lcs

LCS

Batch ID: R36238 Analysis Date: 11/18/2009 11:24:13 AM

Qualifiers:

E	Estimated value	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	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup
 Project: New Monitoring Wells

Work Order: 0911331

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8260B: VOLATILES

Sample ID: 100ng lcs LCS Batch ID: R36238 Analysis Date: 11/18/2009 11:24:13 AM

Benzene	18.99	µg/L	1.0	20	0	95.0	76.7	114			
Toluene	21.60	µg/L	1.0	20	0	108	78.4	117			
Chlorobenzene	21.22	µg/L	1.0	20	0	106	80.7	127			
1,1-Dichloroethene	22.64	µg/L	1.0	20	0	113	80.2	128			
Trichloroethene (TCE)	16.54	µg/L	1.0	20	0	82.7	77.4	115			

Sample ID: 100ng lcs_b LCS Batch ID: R36238 Analysis Date: 11/18/2009 11:05:21 PM

Benzene	20.54	µg/L	1.0	20	0	103	76.7	114			
Toluene	22.13	µg/L	1.0	20	0	111	78.4	117			
Chlorobenzene	20.88	µg/L	1.0	20	0	104	80.7	127			
1,1-Dichloroethene	23.25	µg/L	1.0	20	0	116	80.2	128			
Trichloroethene (TCE)	17.61	µg/L	1.0	20	0	88.0	77.4	115			

Qualifiers:

- E Estimated value
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup
Project: New Monitoring Wells

Work Order: 0911331

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8270C: Semivolatiles

Sample ID: mb-20706

MBLK

Batch ID: 20706 **Analysis Date:** 11/25/2009 11:28:13 AM

Acenaphthene	ND	µg/L	10
Acenaphthylene	ND	µg/L	10
Aniline	ND	µg/L	10
Anthracene	ND	µg/L	10
Azobenzene	ND	µg/L	10
Benz(a)anthracene	ND	µg/L	10
Benzo(a)pyrene	ND	µg/L	10
Benzo(b)fluoranthene	ND	µg/L	10
Benzo(g,h,i)perylene	ND	µg/L	10
Benzo(k)fluoranthene	ND	µg/L	10
Benzoic acid	ND	µg/L	20
Benzyl alcohol	ND	µg/L	10
Bis(2-chloroethoxy)methane	ND	µg/L	10
Bis(2-chloroethyl)ether	ND	µg/L	10
Bis(2-chloroisopropyl)ether	ND	µg/L	10
Bis(2-ethylhexyl)phthalate	ND	µg/L	10
4-Bromophenyl phenyl ether	ND	µg/L	10
Butyl benzyl phthalate	ND	µg/L	10
Carbazole	ND	µg/L	10
4-Chloro-3-methylphenol	ND	µg/L	10
4-Chloroaniline	ND	µg/L	10
2-Chloronaphthalene	ND	µg/L	10
2-Chlorophenol	ND	µg/L	10
4-Chlorophenyl phenyl ether	ND	µg/L	10
Chrysene	ND	µg/L	10
Di-n-butyl phthalate	ND	µg/L	10
Di-n-octyl phthalate	ND	µg/L	10
Dibenz(a,h)anthracene	ND	µg/L	10
Dibenzofuran	ND	µg/L	10
1,2-Dichlorobenzene	ND	µg/L	10
1,3-Dichlorobenzene	ND	µg/L	10
1,4-Dichlorobenzene	ND	µg/L	10
3,3'-Dichlorobenzidine	ND	µg/L	10
Diethyl phthalate	ND	µg/L	10
Dimethyl phthalate	ND	µg/L	10
2,4-Dichlorophenol	ND	µg/L	20
2,4-Dimethylphenol	ND	µg/L	10
4,6-Dinitro-2-methylphenol	ND	µg/L	20
2,4-Dinitrophenol	ND	µg/L	20
2,4-Dinitrotoluene	ND	µg/L	10
2,6-Dinitrotoluene	ND	µg/L	10
Fluoranthene	ND	µg/L	10
Fluorene	ND	µg/L	10
Hexachlorobenzene	ND	µg/L	10

Qualifiers:

E	Estimated value	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	S	Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup
 Project: New Monitoring Wells

Work Order: 0911331

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA Method 8270C: Semivolatiles

Sample ID: mb-20706 MBLK Batch ID: 20706 Analysis Date: 11/25/2009 11:28:13 AM

Hexachlorobutadiene	ND	µg/L	10								
Hexachlorocyclopentadiene	ND	µg/L	10								
Hexachloroethane	ND	µg/L	10								
Indeno(1,2,3-cd)pyrene	ND	µg/L	10								
Isophorone	ND	µg/L	10								
2-Methylnaphthalene	ND	µg/L	10								
2-Methylphenol	ND	µg/L	10								
3+4-Methylphenol	ND	µg/L	10								
N-Nitrosodi-n-propylamine	ND	µg/L	10								
N-Nitrosodimethylamine	ND	µg/L	10								
N-Nitrosodiphenylamine	ND	µg/L	10								
Naphthalene	ND	µg/L	10								
2-Nitroaniline	ND	µg/L	10								
3-Nitroaniline	ND	µg/L	10								
4-Nitroaniline	ND	µg/L	10								
Nitrobenzene	ND	µg/L	10								
2-Nitrophenol	ND	µg/L	10								
4-Nitrophenol	ND	µg/L	10								
Pentachlorophenol	ND	µg/L	20								
Phenanthrene	ND	µg/L	10								
Phenol	ND	µg/L	10								
Pyrene	ND	µg/L	10								
Pyridine	ND	µg/L	10								
1,2,4-Trichlorobenzene	ND	µg/L	10								
2,4,5-Trichlorophenol	ND	µg/L	10								
2,4,6-Trichlorophenol	ND	µg/L	10								

Sample ID: lcs-20706 LCS Batch ID: 20706 Analysis Date: 11/25/2009 11:57:25 AM

Acenaphthene	55.80	µg/L	10	100	0	55.8	33.2	88.1			
4-Chloro-3-methylphenol	107.8	µg/L	10	200	0	53.9	26.5	101			
2-Chlorophenol	79.52	µg/L	10	200	0	39.8	27.5	88.7			
1,4-Dichlorobenzene	38.44	µg/L	10	100	0	38.4	27.2	74.1			
2,4-Dinitrotoluene	68.86	µg/L	10	100	0	68.9	32.6	107			
N-Nitrosodi-n-propylamine	46.14	µg/L	10	100	0	46.1	27.1	96.3			
4-Nitrophenol	51.70	µg/L	10	200	0	25.9	6.78	74.7			
Pentachlorophenol	81.54	µg/L	20	200	3.44	39.1	14.8	113			
Phenol	48.90	µg/L	10	200	0	24.5	17	53.4			
Pyrene	53.62	µg/L	10	100	0	53.6	27	96.3			
1,2,4-Trichlorobenzene	45.94	µg/L	10	100	0	45.9	30	77.9			

Method: EPA Method 7470: Mercury

Sample ID: MB-20729 MBLK Batch ID: 20729 Analysis Date: 11/25/2009 4:41:21 PM

Mercury	ND	mg/L	0.00020								
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Sample ID: LCS-20729 LCS Batch ID: 20729 Analysis Date: 11/25/2009 4:43:07 PM

Mercury	0.005101	mg/L	0.00020	0.005	0	102	80	120			
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Qualifiers:

- E Estimated value
- J Analyte detected below quantitation limits
- R RPD outside accepted recovery limits
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- S Spike recovery outside accepted recovery limits

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Gallup
Project: New Monitoring Wells

Work Order: 0911331

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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Method: EPA 6010B: Total Recoverable Metals

Sample ID: MB-20666

MBLK

Batch ID: 20666 **Analysis Date:** 11/19/2009 2:50:51 PM

Arsenic	ND	mg/L	0.020								
Barium	ND	mg/L	0.010								
Cadmium	ND	mg/L	0.0020								
Chromium	ND	mg/L	0.0060								
Lead	ND	mg/L	0.0050								
Selenium	ND	mg/L	0.050								
Silver	ND	mg/L	0.0050								

Sample ID: LCS-20666

LCS

Batch ID: 20666 **Analysis Date:** 11/19/2009 3:02:40 PM

Arsenic	0.4988	mg/L	0.020	0.5	0	99.8	80	120			
Barium	0.4977	mg/L	0.010	0.5	0	99.5	80	120			
Cadmium	0.4972	mg/L	0.0020	0.5	0	99.4	80	120			
Chromium	0.4948	mg/L	0.0060	0.5	0	99.0	80	120			
Lead	0.4892	mg/L	0.0050	0.5	0	97.8	80	120			
Selenium	0.4828	mg/L	0.050	0.5	0	96.6	80	120			
Silver	0.5077	mg/L	0.0050	0.5	0.0012	101	80	120			

Qualifiers:

- | | |
|--|--|
| E Estimated value | 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 | S Spike recovery outside accepted recovery limits |

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **WESTERN REFINING GALLI**

Date Received: **11/17/2009**

Work Order Number **0911331**

Received by: **ARS**

Checklist completed by: _____

Signature

11/17/09
Date

Sample ID labels checked by: _____

Initials **AR**

Matrix: _____

Carrier name: Client drop-off

- | | | | | |
|---|---|---|--------------------------------------|---|
| Shipping container/cooler in good condition? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> | |
| Custody seals intact on shipping container/cooler? | Yes <input type="checkbox"/> | No <input type="checkbox"/> | Not Present <input type="checkbox"/> | Not Shipped <input checked="" type="checkbox"/> |
| Custody seals intact on sample bottles? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | |
| Chain of custody present? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Chain of custody signed when relinquished and received? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Chain of custody agrees with sample labels? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Samples in proper container/bottle? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Sample containers intact? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Sufficient sample volume for indicated test? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| All samples received within holding time? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | | |
| Water - VOA vials have zero headspace? | No VOA vials submitted <input type="checkbox"/> | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | |
| Water - Preservation labels on bottle and cap match? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | |
| Water - pH acceptable upon receipt? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> | N/A <input type="checkbox"/> | |
| Container/Temp Blank temperature? | 3.8° | <6° C Acceptable | | |

Number of preserved bottles checked for pH:

2
<2 > 12 unless noted below.

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: **POURED off from 1x1tr amber into 1x500 mL BOTTLES**

for more volume for KCCA & metals, JAT 11/18/09

Corrective Action _____

Chain-of-Custody Record

Client: **Western Refining-Gallup**

Mailing Address: **Route 3, Box 7
Gallup, NM 87301**

Phone #: **505-722-3833**

email or Fax#:

QA/QC Package:

Standard Level 4 (Full Validation)

Accreditation

NELAP Other _____

EDD (Type) _____

Turn-Around Time:

Standard Rush

Project Name:

New Monitoring Wells

Project #:

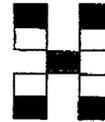
Project Manager:

Gaurav Rajen

Sampler:

On Ice: Yes No

Sample Temperature: **38**



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)	8010 C RCRA metals	8015B G-PP/DRD	Air Bubbles (Y or N)
11-17-09	12:20	H ₂ O	OW-52	6x40mls 1/2 1/2 20mls	HgCl ₂	0911381										X	X	X	X	
11-17-09	13:20	H ₂ O	OW-50	11 11	+ HNO ₃										X	X	X	X		
			Trip Blank #0																	

Date: 11-17-09 Time: 16:00 Relinquished by: **[Signature]**

Received by: **[Signature]** Date: 11/17/09 Time: 16:00

Remarks: **Bill TO Western Refining-Gallup
Per Gaurav Rajen**

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.