Western Gallup
Hydrocarbon seep

ENTERED

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company: WESTERN REFINING	Contact: Beck Larsen
Address: I-40 / EXIT 39, JAMESTOWN,NM 87347	Telephone No.(505) 722-0258
Facility Name: WESTERN RENINING (GALLUP REFINERY)	Facility Type: Petroleum Refinery

Surface Owner	Mineral Owner	API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
	28	15 N	15 W					MCKINLEY

Latitude__35° 029' 024"__ **Longitude**__108° 024' 024"__

NATURE OF RELEASE

Type of Release: Refined Product – Gasoline/Diesel Mixture	Volume of Release ➢ 25 barrels	Volume Recovered: 400 barrels
Source of Release: Unknown; Pending Investigation	Date and Hour of Occurrence 6/26/13 @ 1600 hrs	Date and Hour of Discovery 6/26/13 @ 1600 hrs
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? (HWB-R. Horowitz (msg;1720), K Vanhorn (msg; 1723)); (OCD -C Chavez (msg;1716)	
By Whom? Beck Larsen	Date and Hour: (HWB-R. Horowitz (msg;1720), K Vanhorn (msg; 1723)); (OCD -C Chavez (msg;1716)	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.* N/A

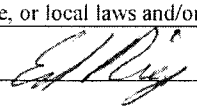
Describe Cause of Problem and Remedial Action Taken.*

- Problem consists of the following:
  1. Refined product, Non-Aqueous Petroleum Liquid (NAPL), with water was discovered from a seep in an isolated area 100 yards west of T-101/102;
  2. Since the recovered NAPL consists of gasoline/diesel mixture that is fresh and volatile, the release appears to be from recent operations; and
  3. The cause/source is unknown and pending.
- Emergency Response was initiated upon discovery of a reportable quantity.
- Investigation actions include:
  1. Envirotech completed 14 exploratory excavations using a track hoe to determine the source of the hydrocarbons;
  2. NAPL was discovered at multiple excavations;
  3. Six excavations remain open to facilitate NAPL recovery;
  4. Dye testing of the nearby underground sewer line was initiated; and
  5. RPS, Inc. is performing a subsurface investigation to identify the source of the hydrocarbons and determine the lateral extent to ensure containment.
- Remedial actions include:
  1. Water and NAPL continues to be recovered from the excavations starting on June 26;
  2. To assure that storm water does not contribute to the problem, culverts were plugged and berms installed to prevent storm water run-on;
  3. The storm water barrier valve downstream of excavation was confirmed to be in the closed position;
  4. As a safety precaution, the area is flagged off to limit access, monitored by Kurtz ERT personnel and fire firefighting foam has been applied, when necessary.
- There were no injuries due to the release.

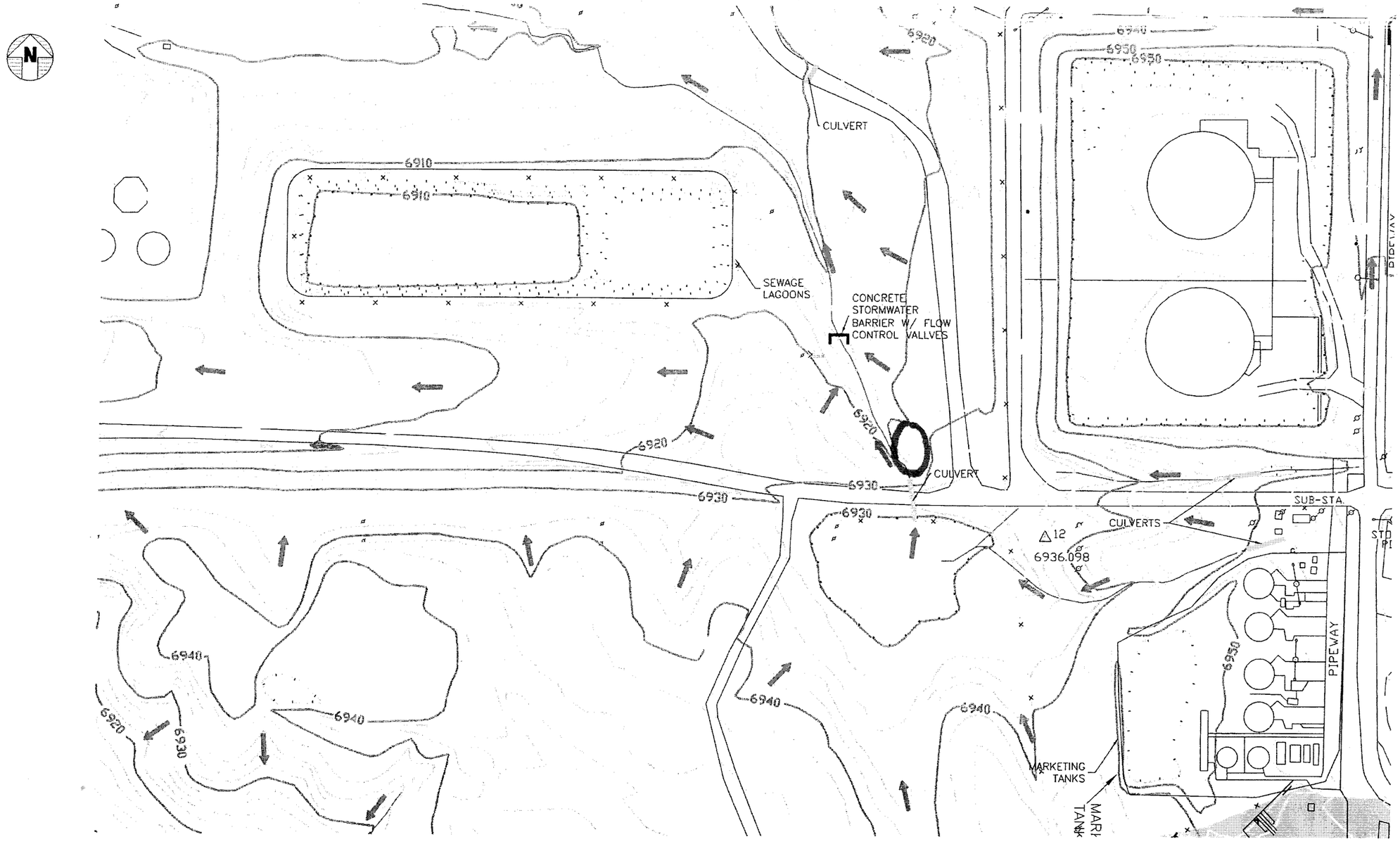
Describe Area Affected and Cleanup Action Taken.*

- Area affected is land approximately 25 yards upstream of a concrete stormwater barrier with valve (see attached drawing, red circle).
- Approximately 400 barrels of hydrocarbon and water has been recovered using a vacuum truck and processed through the oil water separator.
- Excavated soil has been staged on site for proper disposal.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature: 	OIL CONSERVATION DIVISION	
Printed Name: Ed Riege	Approved by Environmental Specialist:	
Title: Environmental Manager	Approval Date:	Expiration Date:
E-mail Address: ed.riege@wnr.com	Conditions of Approval:	Attached ☐
Date: 7/11/2013 Phone (505) 722-0217		

* Attach Additional Sheets If Necessary



SCALE

100' 0 100' 200'

CONTOUR INTERVAL 2 FT.

Rev	Description	BY	Date
3	REVISED FOR 2008 MSGP		12/18/08
2	FINAL ISSUE		1/9/06
1	DRAFT ISSUE TO CLIENT		12/16/05

REVISIONS

Scale: 1" = 100'
Designed by: LAL/JM
Drawn by: LAL
Checked by: AMEC
Approved by:

Issued for: Western Refining

Issued by: amec

1405 West Auto Drive, Tempe, Arizona 85284
(480) 940-2320 (480) 785-0970 fax

Title: **STORMWATER CONTROLS OUTFALL 1 MARKETING TANKS GALLUP REFINERY**

2 REVISION

Project: SWPPP GALLUP REFINERY
Project no.: 0811505023
FIGURE 8
Location: GALLUP, NEW MEXICO
Date: 1/9/05
9 SHEET 9 OF 12

Cobrain, Dave, NMENV

From: Larsen, Thurman <Thurman.Larsen@wnr.com>
Sent: Tuesday, August 20, 2013 4:53 PM
To: Chavez, Carl J, EMNRD; VonGonten, Glenn, EMNRD
Cc: Allen, Ann; Hains, Allen; Dhawan, Neelam, NMENV; Kieling, John, NMENV; Blaine, Tom, NMENV; Cobrain, Dave, NMENV
Subject: Gallup Hydrocarbon Seep - Spill Response Update
Attachments: Gallup Hydrocarbon Seep - Spill Response Update.pdf

Carl,

Western Refining Southwest, Inc. – Gallup Refinery provided notice of discovery of an apparent seep of hydrocarbon to the west of Tanks 101 and 102 on June 26, 2013 and submitted a Form C-141 on July 11, 2013 informing of initial spill response actions taken. The attached report provides an update on the on-going spill response actions.

Regards,

Beck Larsen\
Environmental Engineer
Western Refining

Western Refining
GALLUP

WNR
NYSE

August 20, 2013

Via Email and Certified Mail, Return Receipt Requested

Mr. Carl Chavez
New Mexico Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

Re: Hydrocarbon Release Notification Report
Western Refining Company Southwest, Inc. ("Western")
Gallup Refinery
AP-111
EPA ID #NMD000333211

Dear Mr. Chavez:

Western Refining Southwest, Inc. – Gallup Refinery provided notice of the discovery of an apparent seep of hydrocarbons to the west of Tanks 101 and 102 on June 26, 2013 and submitted a Form C-141 on July 11, 2013 informing of initial spill response actions taken. This letter report provides an update on the on-going spill response actions, including a map of the subject area (Figure 1) and all currently available information pertaining to the release (e.g., media affected, analytical reports and estimated recovered volumes of groundwater/hydrocarbons).

Actions Completed To-Date

As noted in the C-141 Form, a series of 14 excavations were completed in the area of the seep to the west and south of Tanks T-101 and T-102. The hydrocarbons appear to be migrating through silty fine sand deposits that overlie a thick low permeability clay/siltstone, which isolates the underling uppermost aquifer (Sonsela Aquifer). Six of the excavations were initially left open to facilitate recovery of hydrocarbons and groundwater. Subsequently, a six-inch PVC screen was placed in each of these same six excavations and they were backfilled with coarse gravel to create temporary sumps to allow for safe, continued recovery of liquids. The groundwater and any hydrocarbons that enter the sumps are removed with a vacuum truck and placed into the wastewater treatment system up-steam of the API Separator. The volume of total liquids (groundwater and hydrocarbons) recovered from June 26, 2013 through August 13, 2013 is estimated to be 27,000 gallons. The initial material recovered was estimated to be 50% water and 50% hydrocarbon; however, the percentage of hydrocarbon reduced significantly over the first couple of weeks. Since the area has been receiving significant rainfall, the recovered material is now primarily water.

Efforts to identify the source of the hydrocarbons have included the following actions:

1. Distillation analyses of two hydrocarbon samples collected near the seep (Seep 1 and Seep 2);

2. Dye tracer tests on the process sewer system;

3. Completion of five hand-auger borings to the west and northwest of the seep location with temporary well completions;

4. Installation of 22 soil borings with temporary well completions to the south of the seep location, including in the general vicinity of a recent release of gasoline from marketing tank MT-3, which was reported on May 7, 2013 (Form C-141 submitted May 16, 2013); and

5. Collection and laboratory analysis of one product sample, one soil sample from the exaction stock pile, one soil sample from drill cuttings, and six groundwater samples from temporary well completions.

The results of the two new distillation analyses were plotted on the enclosed graph (Figure 3) and the laboratory reports are also enclosed. The graph indicates that the hydrocarbon recovered at the location of the seep (identified on the graph as Seep Sample 1 and Seep Sample 2 and in the lab report as underground petroleum sample deposit #1 and #2) has a mixture of gasoline through light gas-oil range hydrocarbons, with a majority of the sample consisting of diesel range hydrocarbons. The distillation analysis of a crude sample collected from Tank T-101 in November 2011 is also plotted on Figure 3 and there is a clear distinction between the material found at the seep location and the crude oil processed at the refinery. The hydrocarbon recovered at the seeps and found in the soil borings is a clear liquid and does not resemble crude oil. In addition, the distillation results eliminate Tanks T-101 and T-102 (crude oil storage tanks) as a source of the release.

Two separate dye tests were conducted in the process sewer system. A dye was introduced into the sewer due east of the seep location near the bundle cleaning pad and a second dye was placed in the sewer to the southeast of the marketing tanks at the truck rack. In both instances, it took approximately eight days for the dye to be detected in the area of the seep. The dyes initially were not identified in the soil borings/temporary wells located further south, but only in the area where the seep was originally identified. During the most recent fluid gauging event on August 14th, a dye was observed in SB-1 and SB-16. The presence of dye in groundwater in the area of the seep indicates the potential for a release from the sewer system, but additional assessment will be required to confirm a release and locate any actual leaks.

The enclosed map (Figure 1) shows the locations of the five hand auger locations and 22 soil borings, which were completed as temporary monitoring wells to allow gauging of fluid levels and collection of groundwater samples for analysis. The boring logs and a table summarizing fluid level measurements (Table 1) are enclosed. As many of the borings/temporary wells indicate the presence of phase-separated hydrocarbon (PSH), groundwater samples were only collected for analysis from HA-1, HA-2, HA-3, HA-4, SB-18, and SB-19. A map of the measured thickness of PSH is enclosed as Figure 2. The groundwater samples were analyzed for total petroleum hydrocarbons (gasoline range, diesel range, and oil range) by EPA method 8015D. The results are summarized in Table 2. Gasoline range and diesel range organics were detected in all groundwater samples, with gasoline range being the dominant fraction in three of the four hand auger locations. The fourth hand auger location (HA-4) shows equal concentrations of gasoline range and diesel range organics, as does SB-18. A higher

concentration of diesel range organics as compared to gasoline range organics was detected in SB-19.

Waste characterization samples have been collected from the soils generated during excavation for the sumps and the drill cuttings from the temporary well installations. The analyses are enclosed for each and demonstrate the soils generated to-date are not characteristically hazardous, but do contain petroleum hydrocarbons.

Future Actions

Western will continue efforts to further characterize potential source areas, to recover PSH and to delineate the lateral extent of impacts to groundwater. These efforts will be accomplished by the following tasks.

- Further testing of the sewer system lines is being conducted to help locate any potential leaks. The results of leak detection surveys (e.g., *Tracer Tight* ® and *HeliTek* ®) will be used to help locate additional soil borings/temporary wells to define the lateral extent of any releases from the sewer system that may have contributed to the seep.
- Recovery operations at the six sumps will continue to remove any PSH and impacted groundwater that accumulates in the sumps.
- The ground level and top of casing elevations will be surveyed at the temporary well and sump locations. From this information and fluid level measurements, a potentiometric surface map will be prepared. This information will be used to help locate additional soil borings/temporary wells to define the lateral extent of the release.
- Additional soil borings/temporary wells will be installed for characterization and delineation purposes.

If there are any questions regarding the actions taken to-date or planned further actions, then please contact me at 505-722-0217. Please note Western reserves all applicable rights and defenses relevant to this matter.

Sincerely,

Beck Larsen
Environmental Engineer

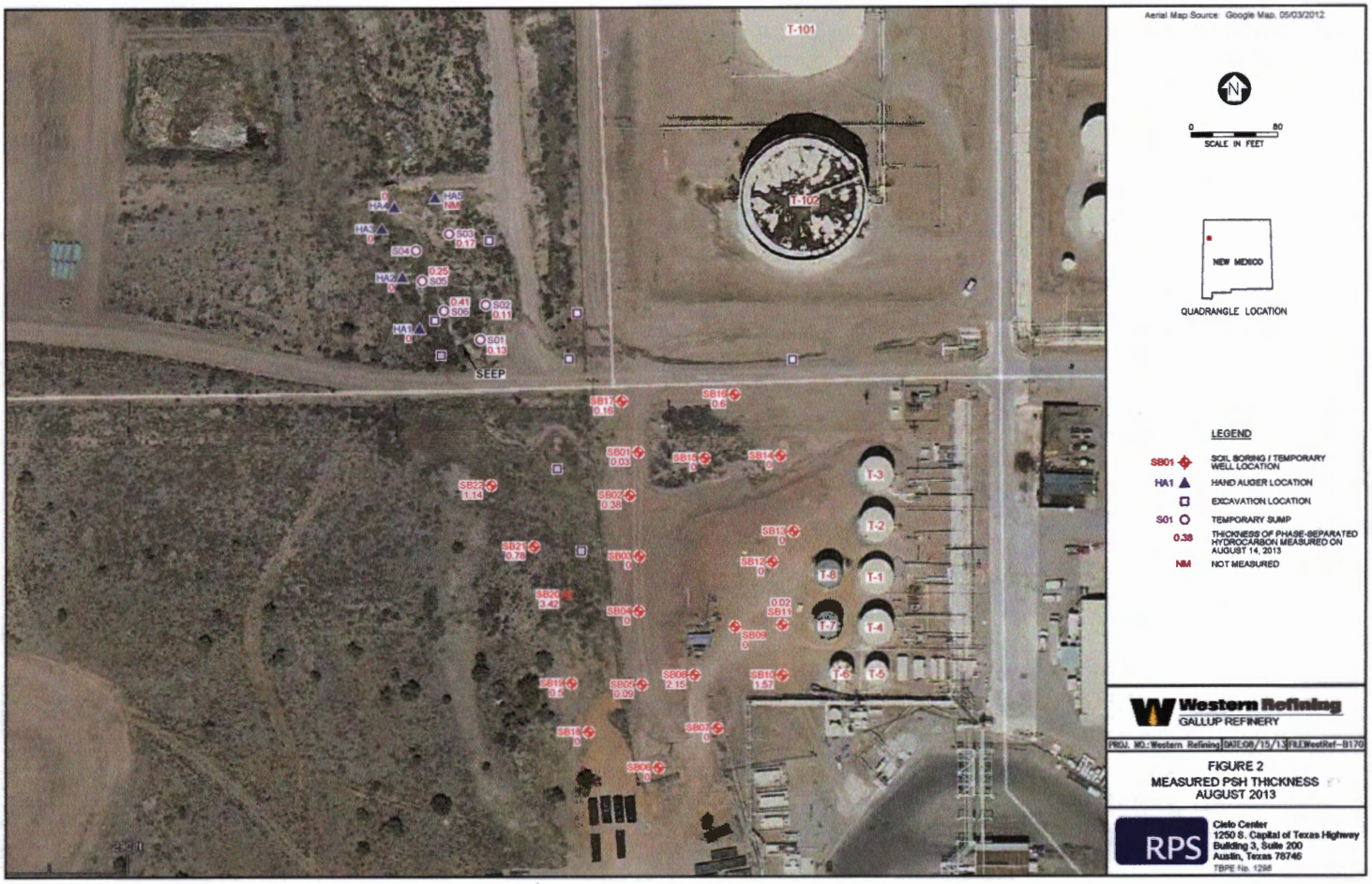
SC/BL/

Enclosures
Copy Distribution List:

G. von Gonten, OCD	N. Dhawan, NMED HWB
A. Allen, Western	J. Kieling, NMED HWB
A. Hains, Western	T. Blaine, NMED
L. Gould, Western	D. Cobrain, NMED HWB

Figures


Aerial Map Source: Google Map, 05/03/2012
T-101
T-102
HA4
HA5
HA3
S03
S04
HA2
S05
S06
S02
HA1
S01
SEEP
SB17
SB16
SB01
SB15
SB14
SB12
SB02
T-3
T-2
SB13
SB21
SB03
SB12
T-8
T-1
SB22
SB04
SB11
T-7
T-4
SB09
SB18
SB05
SB08
SB10
T-6
T-5
SB19
SB07
SB06
N
0
80
SCALE IN FEET
NEW MEXICO
QUADRANGLE LOCATION
LEGEND
SB01 SOIL BORING / TEMPORARY WELL LOCATION
HA1 HAND AUGER LOCATION
EXCAVATION LOCATION
S01 TEMPORARY SUMP
Western Refining
GALLUP REFINERY
PROJ. NO.: Western Refining
DATE: 08/13/13
FILE: WestRef - B169
FIGURE 1
LOCATION MAP OF
SOIL BORING / TEMPORARY WELL,
HAND AUGER AND EXCAVATION
RPS
Cielo Center
1250 S. Capital of Texas Highway
Building 3, Suite 200
Austin, Texas 78746
TBPE No. 1298


Aerial Map Source: Google Map, 05/03/2012
T-101
T-102
T-1
T-2
T-3
T-4
T-5
T-6
T-7
SEEP
HA1 0
HA2 0
HA3 0
HA4 0
HA5 NM
S01 0.13
S02 0.11
S03 0.17
S04
S05 0.25
S06 0.41
SB01 0.03
SB02 0.38
SB03 0
SB04 0
SB05 0.09
SB06 2.15
SB07 0
SB08 0
SB09 0
SB10 1.57
SB11 0.02
SB12 0
SB13 0
SB14 0
SB15 0
SB16 0.6
SB17 0.16
SB18 0
SB19 0.2
SB20 3.42
SB21 0.78
SB22 1.14
0
SCALE IN FEET
NEW MEXICO
QUADRANGLE LOCATION
LEGEND
SB01 SOIL BORING / TEMPORARY WELL LOCATION
HA1 HAND AUGER LOCATION
EXCAVATION LOCATION
S01 TEMPORARY SUMP
0.38 THICKNESS OF PHASE-SEPARATED HYDROCARBON MEASURED ON AUGUST 14, 2013
NM NOT MEASURED
Western Refining
GALLUP REFINERY
PROJ. MGR.: Western Refining DATE: 08/15/13 FILE: WestRef-B170
FIGURE 2
MEASURED PSH THICKNESS
AUGUST 2013
RPS
Cielo Center
1250 S. Capital of Texas Highway
Building 3, Suite 200
Austin, Texas 78746
TBPE No. 1298

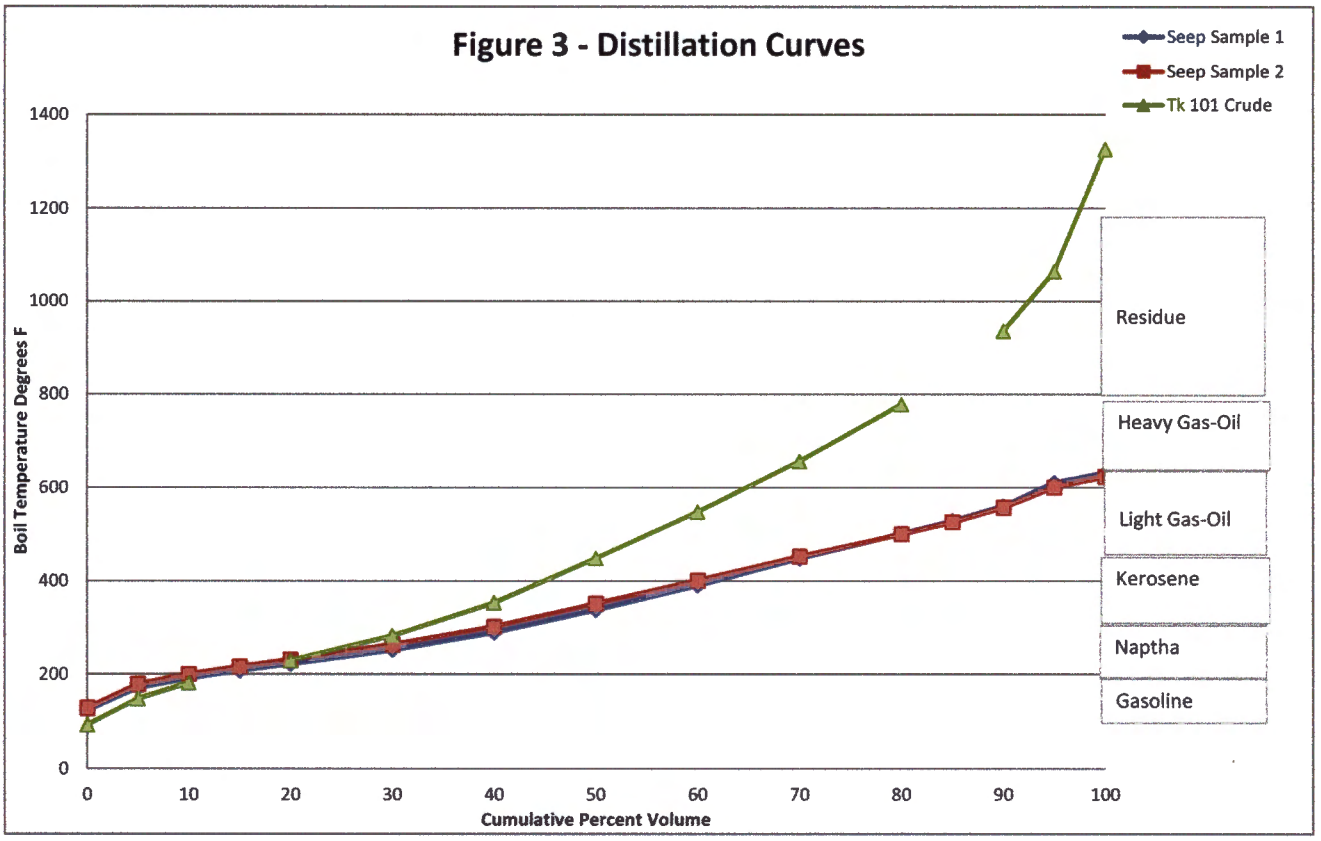


Figure 3 - Distillation Curves
Seep Sample 1
Seep Sample 2
Tk 101 Crude
1400
1200
1000
800
600
400
200
0
Boil Temperature Degrees F
0
10
20
30
40
50
60
70
80
90
100
Cumulative Percent Volume
Residue
Heavy Gas-Oil
Light Gas-Oil
Kerosene
Naptha
Gasoline

Tables

Table 1
Fluid Level Measurements
Gallup Refinery - Jamestown, New Mexico

LOC.	DATE	DEPTH TO PSH (ft BGL)	DEPTH TO GW (ft BGL)	PSH THICKNESS (feet)	Top of Casing (ft AGL)	COMMENTS
HA1	07/11/13	ND	4.90	0.00	5.80	
	07/12/13	ND	4.90	0.00	NM	
	07/17/13	ND	5.05	0.00	NM	
	08/14/13	ND	9.19	0.00	NM	Odor detected
HA2	07/12/13	ND	4.95	0.00	NM	
	07/17/13	ND	5.32	0.00	NM	
	08/14/13	ND	5.31	0.00	NM	Odor detected
HA3	07/12/13	ND	5.80	0.00	NM	
	07/17/13	ND	5.93	0.00	NM	
	08/14/13	ND	4.28	0.00	NM	Odor detected
HA4	07/12/13	ND	3.40	0.00	NM	PSH OBSERVED ON PROBE
	07/17/13	ND	3.53	0.00	NM	
	08/14/13	ND	4.94	0.00	NM	Odor detected
HA5	07/12/13	ND	5.50	0.00	NM	
	07/17/13	NM	NM		NM	BOREHOLE WAS DESTROYED
SB01	07/17/13	8.75	13.99	5.24	NM	
	07/25/13	8.18	13.88	5.70	2.67	
	08/14/13	9.88	9.91	0.03	2.67	Has reddish tint - trace of dye?
SB02	07/17/13	9.26	9.58	0.32	NM	
	07/25/13	8.85	9.14	0.29	0.83	
	08/14/13	8.74	9.12	0.38	0.83	
SB03	07/17/13	ND	11.40	0.00	NM	
	07/25/13	ND	10.63	0.00	2.21	
	08/14/13	ND	12.01	0.00	2.21	Odor detected
SB04	07/17/13	ND	12.87	0.00	NM	
	07/25/13	ND	12.23	0.00	0.75	
	08/14/13	ND	12.19	0.00	0.75	Odor detected
SB05	07/17/13	13.67	14.70	1.03	NM	
	07/25/13	13.27	14.19	0.92	1.21	
	08/14/13	13.66	13.75	0.09	1.21	
SB06	07/22/13	13.43	13.44	0.01	NM	No PSH observed during drilling
	07/25/13	13.33	13.34	0.01	0.67	
	08/14/13	ND	13.07	0.00	0.67	Odor detected
SB07	07/22/13	13.51	13.52	0.01	NM	No PSH observed during drilling
	07/25/13	13.45	13.46	0.01	1.33	
	08/14/13	ND	13.49	0.00	1.33	Odor detected
SB08	07/22/13	16.00	17.86	1.86	NM	
	07/25/13	15.92	17.80	1.88	1.88	
	08/14/13	16.65	18.80	2.15	1.88	

Table 1
Fluid Level Measurements
Gallup Refinery - Jamestown, New Mexico

LOC.	DATE	DEPTH TO PSH (ft BGL)	DEPTH TO GW (ft BGL)	PSH THICKNESS (feet)	Top of Casing (ft AGL)	COMMENTS
SB09	07/22/13	14.39	14.40	0.01	NM	PSH observed during drilling
	07/25/13	ND	14.40	0.00	2.25	
	08/14/13	ND	14.83	0.00	2.25	Odor detected
SB10	07/22/13	ND	8.29	0.00	NM	PSH observed during drilling at 5-6'
	07/25/13	ND	6.16	0.00	1.58	
	08/14/13	7.57	9.14	1.57	1.58	Odor detected
SB11	07/22/13	ND	ND	NA	NM	PSH observed during drilling
	07/25/13				3.00	Reset not measured
	08/14/13	14.06	14.08	0.02	3.00	Odor detected
SB12	07/22/13	11.96	11.97	0.01	NM	PSH observed during drilling
	07/25/13	ND	12.01	0.00	2.17	
	08/14/13	ND	14.72	0.00	2.17	Odor detected
SB13	07/22/13	ND	11.71	0.00	NM	Sheen observed during drilling
	07/25/13	ND	11.53	0.00	3.50	
	08/14/13	ND	14.75	0.00	3.50	Odor detected
SB14	07/25/13	ND	14.09	0.00	2.00	
	08/14/13	ND	15.7	0.00	2.00	Odor detected
SB15	07/25/13	ND	16.46	0.00	3.00	
	08/14/13	ND	18.54	0.00	3.00	Odor detected
SB16	07/25/13	9.54	12.70	3.16	1.50	
	08/14/13	10.76	11.36	0.60	1.50	Has reddish tint - trace of dye?
SB17	07/25/13	9.42	9.55	0.13	2.58	
	08/14/13	11.09	11.25	0.16	2.58	
SB18	07/25/13	ND	15.58	0.00	3.00	Sampled for TPH
	08/14/13	ND	17.54	0.00	3.00	Odor detected
SB19	07/25/13	ND	16.78	0.00	2.67	Sampled for TPH
	08/14/13	18.3	18.8	0.50	2.67	
SB20	07/25/13	10.62	13.24	2.62	3.00	
	08/14/13	12.88	16.3	3.42	3.00	
SB21	07/25/13	7.10	9.32	2.22	2.83	
	08/14/13	9.20	9.98	0.78	2.83	
SB22	07/25/13	4.89	7.99	3.10	3.00	
	08/14/13	6.77	7.91	1.14	3.00	

ND - no product detected
NM - not measured

Table 2
Groundwater Analytical Results Summary
Gallup Refinery - Jamestown, New Mexico

Analytes		HA-1	HA-2	HA-3	HA-4	SB-18	SB-19
Sample ID		1307892-001	1307892-002	1307892-003	1307892-004	1012096-01	1009356-02
Sample date		7/17/2013	7/17/2013	7/17/2013	7/17/2013	7/25/2013	7/25/2013
	Units						
Total Petroleum Hydrocarbons							
Gasoline Range Organics (GRO)	mg/L	19	16	25	17	73	19
Diesel Range Organics (DRO)	mg/L	3.3	3.1	4.8	17	73	30
Motor Oil Range Organics (MRO)	mg/L	<5	<5	<5	<5	<5	<5

Boring Logs

RPS

LOG OF BORING

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: N/A
Drilling Rig: N/A
Drilling Method: Hand Auger
Sampling Method: Auger Head
Comments: N 35°29.346' W 108°25.782'

Total Depth: 7.5' bgl
Ground Water: Saturated @ 5' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Boring No.: HA1
Start Date: 7/10/2013 16:30
Finish Date: 7/10/2013 16:55

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0								**Silty Clay (CL)** Low plasticity, soft, damp, reddish brown to brown, no odor	0
2							100		2
4				5' ▼					4
6							100	**Silty Clay/Clayey Silt (CL/ML)** Low plasticity, very soft, moist to saturated, brown grading to black, gravelly, bio odor, no phase-separated hydrocarbon	6
8								Total Depth = 7.5' BGL	8
10									10
12									12
14								Set temporary 1" Well Screened: 2.5-7.5' bgl Filter Pack: 1-7.5' bgl Bentonite: 0-1' bgl Stickup: 1.75'	14
16									16

RPS
1250 S. Capital of Texas Hwy., Bldg. 3, Suite 200
Austin, Texas 78746

512/347-7588
512/347-8243 fax

RPS

LOG OF BORING

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: N/A
Drilling Rig: N/A
Drilling Method: Hand Auger
Sampling Method: Auger Head
Comments: N 35°29.353' W 108°25.785'

Total Depth: 9' bgl
Ground Water: Saturated @ 4.75' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Boring No.: HA2
Start Date: 7/11/2013 08:40
Finish Date: 7/11/2013 09:40

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0								**Silty Clay (CL)** Low plasticity, soft, damp, brown/reddish brown, no odor, damp	0
2					15.4 86°F		100		2
4				4.75'	15.6 86°F		100	**Silty Clay (CL)** Similar to above, moist to saturated at 4.75' bgl, gravelly, no odor	4
6					15.3 86°F		100	**Silty Clay (CL)** Similar to above with saturated sand seams, strong hydrocarbon odor, no phase-separated hydrocarbon	6
8									8
10					1250 86°F			Total Depth = 9' BGL	10
12								Set temporary 1" Well Screened: 5-9' bgl Filter Pack: 2-9' bgl Bentonite:0-2' bgl Stickup: 0.5'	12
14									14
16									16

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LOG OF BORING

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: N/A
Drilling Rig: N/A
Drilling Method: Hand Auger
Sampling Method: Auger Head
Comments: N 35°29.360' W 108°25.789'

Total Depth: 10.75' bgl
Ground Water: Saturated @ 9' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Boring No.: HA3
Start Date: 7/11/2013 12:45
Finish Date: 7/11/2013 13:45

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
0								Ground Surface	0
2					24.6 98°F		100	**Silty Clay (CL)** Low plasticity, firm, damp, brown-reddish brown, no odor	2
4					20.1 98°F				4
6					400 98°F		100	**Silty Clay (CL)** Similar to above, odor at 6' bgl with black discolorations	6
8				9'	933 98°F		100	**Sandy Clay (CL)** Low plasticity, soft, moist to saturated at 9' bgl, hydrocarbon odor, no phase-separated hydrocarbon	8
10					800 98°F		100	**Sandy Clay/Clayey Sand (SC/CL)** Fine grain, compact, saturated, dark brown, hydrocarbon odor, no phase-separated hydrocarbon	10
12								Total Depth = 10.75' BGL	12
14									14
16									16

Set temporary 1" Well
Screened: 5.75-10.75' bgl
Filter Pack: 2-10.75' bgl
Bentonite: 0-2' bgl
Stickup: 0.75'

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LOG OF BORING

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: N/A
Drilling Rig: N/A
Drilling Method: Hand Auger
Sampling Method: Auger Head
Comments: N 35°29.363' W 108°25.787'

Total Depth: 7' bgl
Ground Water: Saturated @ 4' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Boring No.: HA4
Start Date: 7/11/2013 14:00
Finish Date: 7/11/2013 15:00

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0							100	**Silt (ML)** Low plasticity, soft, dry, light brown, no odor	0
2					8.2 384 90°F		100	**Sandy Gravelly Clay (CL)** Low plasticity, firm, damp, brown, no odor	2
4				4' ▼	394 90°F		100	**Sandy Gravelly Clay (CL)** Similar to above, black, hydrocarbon odor, moist	4
6							100	**Sandy Gravelly Clay (CL)** Similar to above, saturated, oily, hydrocarbon odor, black to dark brown to brown	6
8								Total Depth = 7' BGL	8
10									10
12									12
14									14
16									16

Set temporary 1" Well
Screened: 2-7' bgl
Filter Pack: 1-7' bgl
Bentonite:0-1' bgl
Stickup: 3.25'

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LOG OF BORING

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: N/A
Drilling Rig: N/A
Drilling Method: Hand Auger
Sampling Method: Auger Head
Comments:

Total Depth: 8' bgl
Ground Water: Saturated @ 5.5' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Boring No.: HA5
Start Date: 7/11/2013 15:10
Finish Date: 7/11/2013 16:15

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0							100	**Silt (ML)** Low plasticity, very dense, dry to damp, brown, no odor	0
2					8.5 80°F		100	**Sandy Clay/Clayey Sand (CL)** Low plasticity, fine grain, compact, brown, no odor	2
4				5.5'					4
6					19.4 112 80°F		100	**Clayey Sand (SC)** Similar to above, saturated at 5.5' bgl, becomes black, oily, hydrocarbon odor	6
8								Total Depth = 8' BGL	8
10									10
12									12
14									14
16									16

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LOG OF BORING

Boring No.: SB01
Start Date: 7/12/2013 11:45
Finish Date: 7/12/2013 15:00

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01759
Geologist: Tracy Payne
Driller: EDI
Drilling Rig: CME 75
Drilling Method: Hollow Stem Auger
Sampling Method: Split Spoon

Total Depth: 20' bgl
Ground Water: Saturated @ 8' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Comments: Approximately 75' from center of road located north of SB01; N 35°29.328' W108°25.743'

Depth (ft.)	Sampling: Sample Depth	Sampling: Time	Sampling: Sample Type/ Container/No.	Sampling: Saturation	Sampling: Organic Vapor (ppm)	Sampling: USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0					164 80°F		60	**Fill (Silt/Sand)** Fine grain, loose, dry to damp, brown, no odor	0
2					423 80°F		40	**Silty Clay (CL)** Low plasticity, firm, damp, brown/reddish brown, no odor	2
4					330 80°F		70	**Silty Clay (CL)** Similar to above, no odor	4
6					75 80°F		90	**Silty Clay (CL)** Similar to above, sandy at base from 7.75-8.0' bgl, no odor	6
8				8'	326 80°F		90	**Silty Clay (CL)** Fine grain sand seams throughout, saturated, phase-separated hydrocarbon, hydrocarbon odor, clear phase-separated hydrocarbon poured out of split spoon	8
10					312 80°F		90	**Silty Clay (CL)** Similar to above with sand seams, saturated with phase-separated hydrocarbon, hydrocarbon odor, dark brown	10
12					368 80°F		80	**Gravelly Sand (SW)** Fine to medium to coarse grain, loose, saturated with phase-separated hydrocarbon, black, hydrocarbon odor	12
14					700 80°F		60	**Gravelly Sand (SW)** Similar to above	14
16							10	**Silty Sand/Silty Clay (SM/CL)** Low plasticity, firm, moist, brown, faint odor, no phase-separated hydrocarbon	16
18								**Silty Clay (CL)** Poor recovery	18

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LOG OF BORING

Boring No.: SB01
Start Date: 7/12/2013 11:45
Finish Date: 7/12/2013 15:00

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01759
Geologist: Tracy Payne
Driller: EDI
Drilling Rig: CME 75
Drilling Method: Hollow Stem Auger
Sampling Method: Split Spoon

Total Depth: 20' bgl
Ground Water: Saturated @ 8' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Comments: Approximately 75' from center of road located north of SB01; N 35°29.328' W108°25.743'

Depth (ft.)	Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
20					225 80°F		80	**Clay (CH)** High plasticity, very dense, damp, light reddish brown, faint odor **Siltstone/Sandstone** Fine to very fine grain, compact, stiff, friable, damp, greenish gray, faint odor Total Depth = 20' BGL	20
22									22
24									24
26									26
28									28
30									30
32								Set 1" Temporary Well Screened: 7-17' bgl Filter Pack: 5-17' bgl Bentonite: 0-5' bgl	32
34									34
36									36

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LOG OF BORING

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01759
Geologist: Tracy Payne
Driller: EDI
Drilling Rig: CME 75
Drilling Method: Hollow Stem Auger
Sampling Method: Split Spoon
Comments: N 35°29.321' W 108°25.744'

Total Depth: 16' bgl
Ground Water: Saturated @ 8' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Boring No.: SB02
Start Date: 7/15/2013 09:30
Finish Date: 7/15/2013 11:00

Depth (ft.)	Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0					14.2 83°F		60	**Fill (Silt)** Very low plasticity, very dense, dry, reddish brown	0
2							--	No recovery	2
4					96.9 83°F		90	**Silty Clay (CL)** Low plasticity, soft, damp, reddish brown, no odor, calcareous	4
6					332 83°F		90	**Silty Clay (CL)** Similar to above, faint odor	6
8				8'	515 83°F		80	**Silty Clay (CL)** Similar to above, 3" sand/gravel seam at 8.75-9' bgl, saturated, hydrocarbon odor, phase-separated hydrocarbon present	8
10					650 83°F		90	**Sandy/Silty Clay (CL)** Low plasticity, soft, moist to saturated, reddish brown, hydrocarbon odor, phase-separated hydrocarbon present	10
12					1330 83°F		60	**Clayey Sand (SC)** Fine grain, loose to compact, saturated, hydrocarbon odor, reddish brown	12
14					87 83°F		90	**Clay (CH)** High plasticity, firm to stiff, damp, reddish brown, faint odor	14
16								**Silt/ Silty Clay (CL)** Low plasticity, soft, damp, yellow-greenish gray, no odor	16
								Total Depth = 16' BGL	

Set 1" Temporary Well
Screened: 6-16' bgl
10/20 Filter Pack: 4-16' bgl
Bentonite: 0-4' bgl

Sampling

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LOG OF BORING

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01759
Geologist: Tracy Payne
Driller: EDI
Drilling Rig: CME 75
Drilling Method: Hollow Stem Auger
Sampling Method: Split Spoon
Comments: N 35°29.310' W 108°25.742'

Total Depth: 20' bgl
Ground Water: Saturated @ 14' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Boring No.: SB03
Start Date: 7/15/2013 11:00
Finish Date: 7/15/2013 16:00

Depth (ft.)	Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0					10.2 84°F		90	**Fill (Silt/Gravel)** Low plasticity, very dense, dry, light brown, no odor	0
2					11.7 84°F		80	**Fill (Silt/Gravel)** Similar to above, black, dense at base, no odor	2
4					16 84°F		90	**Silty Clay (CL)** Low plasticity, stiff, damp, reddish brown, no odor, calcareous	4
6					26 84°F		90	**Gravelly Sandy Clay (CL)** Low plasticity, loose to firm, damp, brown, no odor	6
8					708 84°F		70	**Silty Clay (CL)** Low plasticity, very soft, damp, reddish brown, hydrocarbon odor	8
10					369 84°F		80	**Clay (CH)** High plasticity, firm, damp, reddish brown, hydrocarbon odor	10
12					660 84°F		90	**Sandy Clay/Clayey Sand (SC/CL)** Low plasticity, fine grain, soft, damp, reddish brown, hydrocarbon odor	12
14				14'	85 84°F		90	**Sandy Clay (SC)** Similar to above, saturated sand seams, hydrocarbon odor, brown	14
16					64 84°F		70	**Sandy Clay (SC)** Similar to above, moist to saturated, hydrocarbon odor, brown	16

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LOG OF BORING

Boring No.: SB03
Start Date: 7/15/2013 11:00
Finish Date: 7/15/2013 16:00

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01759
Geologist: Tracy Payne
Driller: EDI
Drilling Rig: CME 75
Drilling Method: Hollow Stem Auger
Sampling Method: Split Spoon
Comments: N 35°29.310' W 108°25.742'

Total Depth: 20' bgl
Ground Water: Saturated @ 14' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
19					33 84°F		90	**Sandy Clay (SC)** Low plasticity, fine grain, soft, moist to saturated, light reddish brown, hydrocarbon odor, gravelly at base	19
21								**Silty Clay (CL)** Low plasticity, stiff, damp, light reddish brown grading to yellowish/greenish gray, becomes more silty at base	21
								Total Depth = 20' BGL	
23									23
25									25
27									27
29									29
31								Set 1" Temporary Well Screened: 10-20' bgl 10/20 Filter Pack: 8-20' bgl Bentonite: 0-8' bgl	31
33									33
35									35

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LOG OF BORING

Boring No.: SB04
Start Date: 7/16/2013 08:30
Finish Date: 7/16/2013 11:00

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01759
Geologist: Tracy Payne
Driller: EDI
Drilling Rig: CME 75
Drilling Method: Hollow Stem Auger
Sampling Method: Split Spoon
Comments: N 35°29.303' W 108°25.742'

Total Depth: 24' bgl
Ground Water: Saturated @ 17' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0					5.4 70°F		90	**Fill (Silty Clay (CL))** Low plasticity, very stiff, damp to dry, reddish brown, no odor, calcareous, gravelly	0
2					574 70°F		20	**Fill (Silty Sand (SM))** Fine grain, loose, damp, black, hydrocarbon odor	2
4					532 70°F		50	**Fill (Silty Clay (CL))** Low plasticity, soft, damp, reddish brown, hydrocarbon odor, gravel present	4
6					383 70°F		80	**Silty Clay (CL)** Similar to above, hydrocarbon odor, brown, gravel present	6
8					560 70°F		60	**Silty Clay (CL)** Similar to above, hydrocarbon odor	8
10					1050 70°F		60	**Silty Clay (CL)** Low plasticity, soft, damp to moist, brown, hydrocarbon odor	10
12					784 70°F		80	**Sandy Silty Clay (CL)** Similar to above, hydrocarbon odor, fine grain sand throughout in thin lenses, moist	12
14					851 70°F		90	**Sandy Clay (CL)** Low plasticity, firm to soft, moist, dark brown, hydrocarbon odor	14
16				17'	572 70°F		80	**Sandy Clay (CL)** Similar to above	16

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LOG OF BORING

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01759
Geologist: Tracy Payne
Driller: EDI
Drilling Rig: CME 75
Drilling Method: Hollow Stem Auger
Sampling Method: Split Spoon
Comments: N 35°29.303' W 108°25.742'

Total Depth: 24' bgl
Ground Water: Saturated @ 17' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Boring No.: SB04
Start Date: 7/16/2013 08:30
Finish Date: 7/16/2013 11:00

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
19					640 70°F		80	**Sandy Clay (CL)** Low plasticity, firm to soft, hydrocarbon odor, moist to slightly saturated	19
21					150 70°F		70	**Sandy Clay (CL)** Similar to above, hydrocarbon odor, moist to saturated, saturated sand/gravel lense 21.75-22' bgl	21
23					69 70°F		80	**Clay (CH)** High plasticity, stiff, damp, light yellowish brown, odor	23
25								Total Depth = 24' BGL	25
27									27
29									29
31									31
33									33
35									35

Set 1" Temporary Well
Screened: 9-24' bgl
10/20 Filter Pack: 7-24' bgl
Bentonite: 0-7' bgl

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LOG OF BORING

Boring No.: SB05
Start Date: 7/16/2013 11:15
Finish Date: 7/16/2013 14:00

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01759
Geologist: Tracy Payne
Driller: EDI
Drilling Rig: CME 75
Drilling Method: Hollow Stem Auger
Sampling Method: Split Spoon
Comments: N 35°29.294' W 108°25.742'

Total Depth: 24' bgl
Ground Water: Saturated @ 12' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Depth (ft.)	Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0					6.8 90°F		60	**Fill (Silt/Gravel)** Loose, damp to dry, brown, no odor	0
2					9.3 90°F		60	**Fill (Silt/Gravel)** Similar to above, no odor	2
4					21.3 90°F		70	**Fill (Silty Clay/Gravel)** Low plasticity, very stif, dry, no odor, brown	4
6					80.5 90°F		70	**Fill (Sitly Clay/Gravel)** Similar to above, faint hydrocarbon odor, damp	6
8					137 90°F		60	**Fill (Silty Clay)** Similar to above, hydrocarbon odor	8
10					1255 90°F		40	**Silty Clay (CL)** Low plasticity, firm, damp, dark brown, hydrocarbon odor	10
12				12'	784 90°F		70	**Sandy Silty Clay (CL)** Low plasticity, soft, damp to saturated in sand seams, brown to dark brown, hydrocarbon odor	12
14					1107 90°F		70	**Sandy Clay (CL)** Similar to above, moist to saturated, hydrocarbon odor	14
16					632 90°F		90	**Silty Clay (CL)** Low to moderate plasticity, firm, damp to moist, reddish brown, hydrocarbon odor	16

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LOG OF BORING

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01759
Geologist: Tracy Payne
Driller: EDI
Drilling Rig: CME 75
Drilling Method: Hollow Stem Auger
Sampling Method: Split Spoon
Comments: N 35°29.294' W 108°25.742'

Total Depth: 24' bgl
Ground Water: Saturated @ 12' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Boring No.: SB05
Start Date: 7/16/2013 11:15
Finish Date: 7/16/2013 14:00

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
19					1415 90°F		80	**Sandy Clay (CL)** Low plasticity, soft, moist to saturated in sand seams, dark brown, hydrocarbon odor	19
								Sandy Clay (CL) Similar to above, saturated, dark brown to black, hydrocarbon odor, gravelly at base	
21					225 90°F		80	**Sandy Silty Clay (CL)** Similar to above, decrease in sand, hydrocarbon odor, saturated, sheen observed in split spoon	21
23					45 90°F		60	**Sandy Silty Clay (CL)** Similar to above, hydrocarbon odor, moist, dark brown grading to brown, faint odor at base	23
								Total Depth = 24' BGL	
25									25
27									27
29									29
31									31
33									33
35									35

Set 1" Temporary Well
Screened: 9-24' bgl
10/20 Filter Pack: 7-24' bgl
Bentonite: 0-7' bgl

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LOG OF BORING

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.282' W 108°25.739'

Total Depth: 14' bgl
Ground Water: Saturated @ 10' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Boring No.: SB06
Start Date: 7/18/2013 10:00
Finish Date: 7/18/2013 10:45

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0					52.6 75°F		60	**Fill (Silty Clay/Gravel)** Low plasticity, firm, damp, brown, faint odor	0
2					180 75°F		100	**Silty Clay (CL)** Low plasticity, firm, damp, reddish brown, odor, calcareous	2
4					224 75°F		90	**Sandy Clay/Clayey Sand (CL/SC)** Low plasticity, fine grain, damp, dark brown, hydrocarbon odor, sand seams present	4
6					1202 75°F		90	**Sandy Clay/Clayey Sand (CL)** Similar to above	6
8					1228 75°F		90	**Sandy Silty Clay (CL)** Low plasticity, soft, damp, dark brown, hydrocarbon odor	8
10				10'	1525 75°F		90	**Sandy Clay (CL)** Similar to above, with moist to saturated sand seams, hydrocarbon odor	10
12					377 75°F		90	**Clayey Sand (SC)** Fine grain, loose to compact, saturated, hydrocarbon odor, dark brown	12
14								**Sandy Clay (CL)** Low plasticity, soft to firm, moist, dark brown, hydrocarbon odor	14
								Total Depth = 14' BGL	
16								Set 1" Temporary Well Screened: 9-14' bgl 10/20 Filter Pack: 6-14' bgl Bentonite: 0-6' bgl	16

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LOG OF BORING

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.287' W 108°25.728'

Total Depth: 16' bgl
Ground Water: Saturated @ 14' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Boring No.: SB07
Start Date: 7/18/2013 10:55
Finish Date: 7/18/2013 12:45

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0					163 83°F		90	**Fill (Silty Clay/Gravel)** Low plasticity, firm, dry to damp, brown, hydrocarbon odor	0
2	Set 1" Temporary Well Screened: 11-16' bgl 10/20 Filter Pack: 9-16' bgl Bentonite: 0-9' bgl				1811 83°F		90	**Fill (Silty Clay/Gravel)** Similar to above, hydrocarbon odor	2
4					2134 83°F		60	**Fill (Grave/Sand/Clay)** Low plasticity, moist to saturated at base, dark brown to black, hydrocarbon odor	4
6					299 83°F		90	**Silty Clay (CL)** Low plasticity, firm to stiff, light brown/brown, damp, faint hydrocarbon odor	6
8					413 83°F		90	**Silty Clay (CL)** Similar to above	8
10					336 83°F		50	**Sandy Clay (CL)** Low plasticity, firm, brown, damp, hydrocarbon odor, gravelly at base, fine to medium grain sand, tripped in auger to seal off fill (4-6') from sloughing into borehole	10
12					2186 86°F		70	**Sandy Clay (CL)** Similar to above, moist, hydrocarbon odor, dark brown	12
14				14'	1290 86°F		90	**Clayey Sand (SC)** Fine grain, compact, very moist to saturated, hydrocarbon odor, dark brown	14
16								Total Depth = 16' BGL	16

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LOG OF BORING

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.295' W 108°25.732'

Total Depth: 20' bgl
Ground Water: Saturated @ 17.5' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Boring No.: SB08
Start Date: 7/18/2013 13:40
Finish Date: 7/19/2013 09:40

Depth (ft.)	Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0					15.9 78°F		70	**Fill (Silt/Silty Clay)** Low plasticity, stiff, dry, light brown, no odor	0
2					228 78°F		60	**Fill (Silty Clay/Gravel)** Similar to above, dry, no odor	2
4					177 78°F		60	**Fill (Silty Clay)** (7/19/2013 08:45 - continued sampling) Similar to above, damp, no odor	4
6					264 78°F		40	**Fill (Silty Clay)** Low plasticity, soft, damp, brown, gravel and wood debris	6
8							--	No recovery	8
10					90 78°F		10	**Fill (Silty Clay/Gravel)** Similar to above	10
12					660 78°F		100	**Sandy Silty Clay (CL)** Low plasticity, soft, damp to moist at base, brown, hydrocarbon odor	12
14					1115 78°F		100	**Sandy Silty Clay (CL)** Similar to above, moist, oily, hydrocarbon odor	14
16				17.5'				**Gravelly Sandy Clay (CL)** Low plasticity, firm, moist, oily, 1" gravel, strong hydrocarbon odor	16

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LOG OF BORING

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.295' W 108°25.732'

Total Depth: 20' bgl
Ground Water: Saturated @ 17.5' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Boring No.: SB08
Start Date: 7/18/2013 13:40
Finish Date: 7/19/2013 09:40

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
19							100	**Clayey Gravel Sand (SC)** Fine to medium grain, loose, saturated, phase-separated hydrocarbon present, black, hydrocarbon odor	19
					225 78°F		100	**Sandy Clay (CL)** Low plasticity, firm, moist, black hydrocarbon odor	
21								Total Depth = 20' BGL	21
23									23
25									25
27									27
29									29
31								Set 1" Temporary Well Screened: 15-20' bgl 10/20 Filter Pack: 13-20' bgl Bentonite: 0-13' bgl	31
33									33
35									35

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LOG OF BORING

Boring No.: SB09
Start Date: 7/19/2013 09:50
Finish Date: 7/19/2013 10:50

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.302' W 108°25.723'

Total Depth: 18' bgl
Ground Water: Saturated @ 14' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N E

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0					763 86°F		100	**Fill (Silty Clay)** Low plasticity, firm, damp, dark brown, hydrocarbon odor	0
2					400 86°F		50	**Fill (Silty Clay)** Similar to above, hydrocarbon odor	2
4					515 86°F		50	**Silty Clay (CL)** Low plasticity, firm to soft, damp, reddish brown, hydrocarbon odor	4
6					734 86°F		90	**Silty Clay (CL)** Similar to above, soft, hydrocarbon odor	6
8					645 86°F		100	**Silty Clay (CL)** Low plasticity, firm, damp, reddish brown, hydrocarbon odor, gravel present, calcareous	8
10					1221 86°F		70	**Gravelly Clayey Sand (SC)** Fine grain, loose to compact, damp, brown, 1/2" gravel, hydrocarbon odor	10
12					602 86°F		60	**Clayey Gravelly Sand (SC)** Similar to above, moist, hydrocarbon odor	12
14				14'	621 86°F		70	**Gravelly Sand (SW)** Fine to medium grain, loose, saturated, phase-separated hydrocarbon, strong hydrocarbon odor	14
16					835 86°F		90	**Gravelly Sand (SW)** Similar to above, saturated, hydrocarbon odor	16
18								Total Depth = 18' BGL	18

Set 1" Temporary Well
Screened:13-18' bgl
10/20 Filter Pack: 11-18' bgl
Bentonite: 0-11' bgl

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LOG OF BORING

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.295' W 108°25.710'

Total Depth: 10' bgl
Ground Water: Saturated @ 5' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Boring No.: SB10
Start Date: 7/19/2013 10:55
Finish Date: 7/19/2013 12:00

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0					132 88°F		90	**Fill (Silty Clay)** Low plasticity, firm, dry to damp, brown, faint odor	0
2					235 88°F		90	**Fill (Clay/Sand/Gravel)** Damp, hydrocarbon odor	2
4				5'	1202 88°F		50	**Fill (Clay/Caliche Rock)** Odor	4
6					372 88°F		90	**Silty Sand (SM)** Fine grain, loose, saturated, phase-separated hydrocarbon, oily, brown to dark brown, hydrocarbon odor **Silty Sand (SM)** Similar to above, saturated	6
8							--	**Silty Clay (CL)** Low plasticity, firm, damp, brown, hydrocarbon odor No recovery	8
10								Total Depth = 10' BGL	10
12									12
14									14
16									16

Set 1" Temporary Well
Screened: 4-9' bgl
10/20 Filter Pack: 2-9' bgl
Bentonite: 0-2' bgl

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LOG OF BORING

Boring No.: SB11

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.302' W 108°25.716'

Total Depth: 14' bgl
Ground Water: Saturated @ 10.5' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Start Date: 7/19/2013 12:15
Finish Date: 7/19/2013 13:10

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0					85 95°F		90	**Fill (Silty Clay/Gravel)** Low plasticity, firm, dry to damp, odor	0
2					273 95°F		80	**Fill (Silty Clay/Gravel)** Similar to above	2
4					86 95°F		90	**Clay (CH)** High plasticity, stiff, damp, brown with light brown pockets of silt, odor	4
6					308 95°F		90	**Silty Clay (CL)** Low plasticity, soft/crumbly, dry to damp, brown, hydrocarbon odor	6
8					1126 95°F		80	**Silty Clay (CL)** Low plasticity, soft, damp, brown, hydrocarbon odor	8
10				▼ 10.5'	789 95°F		80	**Silty Clay (CL)** Similar to above, moist	10
12					558 95°F		90	**Silty Clay (CL)** Medium grain, loose, saturated, phase-separated hydrocarbon, hydrocarbon odor, brown **Sandy Silty Clay (CL)** Low plasticity, soft to firm, moist, hydrocarbon odor	12
14								**Sandy Clay (CL)** Low plasticity, soft to compact, saturated, phase-separated hydrocarbon, hydrocarbon odor	14
16								Total Depth = 14' BGL	16

Set 1" Temporary Well
Screened: 9-14' bgl
10/20 Filter Pack: 7-14' bgl
Bentonite: 0-7' bgl

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LOG OF BORING

Boring No.: SB12
Start Date: 7/19/2013 13:15
Finish Date: 7/19/2013 14:20

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.311' W 108°25.718'

Total Depth: 16' bgl
Ground Water: Saturated @ 12' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0					116 95°F		60	**Fill (Silty Clay)** Low plasticity, firm, dry to damp, trace gravel, no odor, brown	0
2					231 95°F		50	**Fill (Silty Clay)** Similar to above, wood debris, faint odor	2
4					235 95°F		60	**Silty Clay (CL)** Low plasticity, soft/crumbly, damp, brown, odor, calcareous, gravel present	4
6					237 95°F		90	**Sandy Silty Clay (CL)** Low plasticity, soft, damp to moist, hydrocarbon odor, brown	6
8					360 95°F		90	**Silty Clay (CL)** Similar to above, hydrocarbon odor	8
10					1070 95°F		60	**Silty Clay (CL)** Similar to above with fine grain sand seams, phase-separated hydrocarbon in sand seams, hydrocarbon odor	10
12				12'	373 95°F		80	**Sandy Clay/Clayey Sand (CL/SC)** Low plasticity, fine grain, compact, saturated, phase-separated hydrocarbon present, dark brown to black, hydrocarbon odor	12
14					275 95°F		90	**Silty Sand (SM)** Medium grain, compact, saturated, phase-separated hydrocarbon, odor, dark brown	14
16								Total Depth = 16' BGL	16

Set 1" Temporary Well
Screened: 11-16' bgl
10/20 Filter Pack: 9-16' bgl
Bentonite: 0-9' bgl

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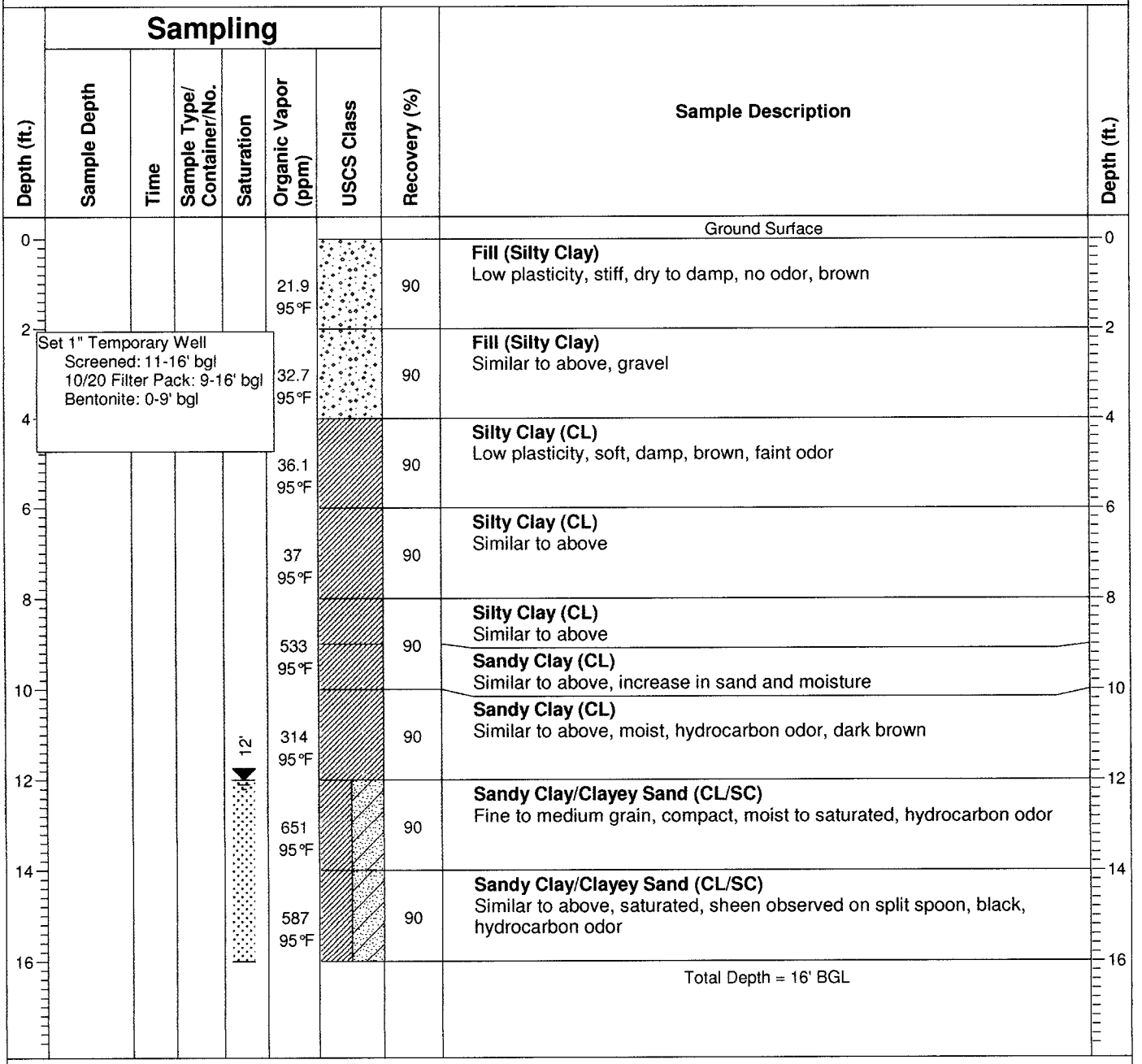
LOG OF BORING

Boring No.: SB13
Start Date: 7/19/2013 14:30
Finish Date: 7/19/2013 16:00

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.316' W 108°25.715'

Total Depth: 16' bgl
Ground Water: Saturated @ 12' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**



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LOG OF BORING

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.327' W 108°25.716'

Total Depth: 18' bgl
Ground Water: Saturated @ 14' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Boring No.: SB14
Start Date: 7/23/2013 08:55
Finish Date: 7/23/2013 10:25

Depth (ft.)	Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0					10.4 86°F		90	**Fill (Silty Clay/Gravel)** Low plasticity, stiff, damp to dry, brown, no odor	0
2					11.3 86°F		90	**Fill (Silty Clay/Gravel)** Similar to above, odor	2
4					34.6 86°F		90	**Fill (Silty Clay/Gravel)** Similar to above, odor	4
6					94 86°F		90	**Silty Clay (CL)** Low plasticity, firm, damp, brown	6
8					129 86°F		90	**Silty Clay/Clayey Silt (CL/ML)** Low plasticity, soft, crumbly, damp, brown, odor	8
10					143 86°F		90	**Sandy Silty Clay (CL)** Similar to above, with fine grain sand, increase in moisture, faint odor	10
12				14'	1225 86°F		90	**Sandy Silty Clay (CL)** Similar to above, hydrocarbon odor	12
14					1314 86°F		90	**Sandy Clay/Clayey Sand (CL/SC)** Low plasticity, soft, fine grain, moist to saturated, hydrocarbon odor, dark brown	14
16					745 86°F		90	**Clayey Sand (SC)** Similar to above, saturated, hydrocarbon odor	16
18								Total Depth = 18' BGL	18

Set 1" Temporary Well
Screened: 13-18' bgl
10/20 Filter Pack: 11-18' bgl
Bentonite: 0-11' bgl

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LOG OF BORING

Boring No.: SB15
Start Date: 7/23/2013 10:40
Finish Date: 7/23/2013 12:35

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.327' W 108°25.730'

Total Depth: 22' bgl
Ground Water: Saturated @ 18' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0					6 81°F		50	**Silty Clay (CL)** Low plasticity, stiff, damp, brown	0
2					6.3 81°F		90	**Silty Clay (CL)** Similar to above	2
4					8 81°F		90	**Silty Clay (CL)** Low plasticity, soft/crumbly, damp, light brown	4
6							--	No recovery	6
8					14.9 81°F		90	**Silty Sandy Clay (CL)** Low plasticity, soft/crumbly, damp, brown	8
10					30.5 81°F		90	**Silty Sandy Clay (CL)** Similar to above	10
12					50.8 81°F		90	**Sandy Clay (CL)** Low plasticity, soft, damp to moist, brown	12
14					218 81°F		90	**Clay (CH)** High plasticity, soft, moist, brown, odor	14
16				▼ 17.5'	453 81°F		90	**Clay (CH)** Similar to above, odor	16

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LOG OF BORING

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.327' W 108°25.730'

Total Depth: 22' bgl
Ground Water: Saturated @ 18' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Boring No.: SB15
Start Date: 7/23/2013 10:40
Finish Date: 7/23/2013 12:35

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
19					850 81°F		80	**Sandy Clay (CL)** Low plasticity, soft, moist to saturated, dark brown, hydrocarbon odor	19
21					1504 81°F		--	**Sandy Clay (CL)** Similar to above, saturated, hydrocarbon odor	21
23								Total Depth = 22' BGL	23
25									25
27									27
29									29
31								Set 1" Temporary Well Screened: 17-22' bgl 10/20 Filter Pack: 15-22' bgl Bentonite: 0-15' bgl	31
33									33
35									35

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LOG OF BORING

Boring No.: SB16
Start Date: 7/23/2013 13:25
Finish Date: 7/23/2013 17:00

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.336' W 108°25.724'

Total Depth: 14' bgl
Ground Water: Saturated @ 9' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Depth (ft.)	Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0					90 94°F		90	**Fill (Silt/Gravel)** Low plasticity, loose, dry, light brown	0
2					14 94°F		90	**Fill (Silty Clay/Gravel)** Similar to above	2
4					431 94°F		90	**Silty Clay (CL)** Low plasticity, stiff, dry, reddish brown, odor, calcareous	4
6					448 94°F		60	**Sand (SP)** Fine grain, loose, dry, reddish brown, odor	6
8				9'	654 94°F		60	**Sand (SP)** Similar to above, saturated at 9' bgl, phase-separated hydrocarbon, hydrocarbon odor	8
10					1559 94°F		90	**Clayey Sand (SC)** Fine grain, soft, saturated, phase-separated hydrocarbon, brown to black, hydrocarbon odor	10
12					713 94°F		90	**Clayey Sand/Sandy Clay (SC/CL)** Low plasticity, firm to stiff, moist to saturated, hydrocarbon odor, dark brown	12
14								Total Depth = 14' BGL	14
16								Set 1" Temporary Well Screened: 8-13' bgl 10/20 Filter Pack: 6-13' bgl Bentonite: 0-6' bgl	16

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LOG OF BORING

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.336' W 108°25.739'

Total Depth: 16' bgl
Ground Water: Saturated @ 12' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Boring No.: SB17
Start Date: 7/23/2013 17:11
Finish Date: 7/24/2013 09:30

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0					14 90°F		60	**Fill (Silty Clay/Gravel)** Low plasticity, stiff, dry, light brown	0
2					36 90°F		70	**Fill (Silty Clay)** Similar to above	2
4					80 90°F		90	**Silty Clay (CL)** Low plasticity, firm, damp, brown, calcareous	4
6					125 90°F		80	**Silty Clay (CL)** Similar to above (rain, shut down @ 1730 continued on 7/24/2013)	6
8					1259 83°F		80	**Silty Clay (CL)** Low plasticity, firm, damp, oily, hydrocarbon odor, dark brown	8
10				12'	860 83°F		70	**Silty Clay (CL)** Similar to above, moist, hydrocarbon odor, oily, phase-separated hydrocarbon	10
12					1716 83°F		60	**Sandy Clay (CL)** Low plasticity, soft, moist to saturated, hydrocarbon odor, dark brown	12
14					1050 83°F		70	**Silty Sand (SM)** Medium grain, loose, saturated, hydrocarbon odor, dark brown to black	14
16								**Sandy/Silty Clay (CL)** Low plasticity, firm, saturated, dark brown to black, hydrocarbon odor	16
								Total Depth = 16' BGL	

Set 1" Temporary Well
Screened: 11-16' bgl
10/20 Filter Pack: 9-16' bgl
Bentonite: 0-9' bgl

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LOG OF BORING

Boring No.: SB18
Start Date: 7/24/2013 10:05
Finish Date: 7/24/2013 11:20

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.286' W 108°25.751'

Total Depth: 20' bgl
Ground Water: Saturated @ 18' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0					70 87°F		90	**Silt/Gravel (ML)** Low plasticity, soft, damp to dry, no odor, brown	0
2					36 87°F		90	**Silt (ML)** Similar to above, gravel present, dry	2
4					15 87°F		80	**Silt (ML)** Similar to above, gravel, calcareous, dry, trace fine grain sand, brown	4
6					35 87°F		90	**Clayey Sandy Silt (ML)** Very fine grain, compact, dry, brown, no odor	6
8					9 87°F		90	**Sandy Clay (CL)** Low plasticity, firm, damp, brown, calcareous, no odor	8
10					90 87°F		90	**Sandy Clay (CL)** Similar to above, damp, no odor	10
12					2731 87°F		90	**Clayey Silty Sand (SC)** Fine to medium grain, compact to loose, damp, brown, hydrocarbon odor	12
14							--	No recovery - Gravel jammed inside split spoon, wet	14
16					418 87°F		40	**Sandy Clay (CL)** Low plasticity, soft, moist, dark brown, hydrocarbon odor	16

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Austin, Texas 78746

512/347-7588
512/347-8243 fax

RPS

LOG OF BORING

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.286' W 108°25.751'

Total Depth: 20' bgl
Ground Water: Saturated @ 18' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Boring No.: SB18
Start Date: 7/24/2013 10:05
Finish Date: 7/24/2013 11:20

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
19					206 87°F		80	**Silty Sand (SM)** Medium grain, loose, saturated, brown, hydrocarbon odor	19
								Clay (CH) High plasticity, firm, damp, brown, odor	
								Total Depth = 20' BGL	
21									21
23									23
25									25
27									27
29									29
31									31
33									33
35									35

Set 1" Temporary Well
Screened: 9-19' bgl
10/20 Filter Pack: 8-20' bgl
Bentonite: 0-8' bgl

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LOG OF BORING

Boring No.: SB19
Start Date: 7/24/2013 11:51
Finish Date: 7/24/2013 13:10

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.294' W 108°25.754'

Total Depth: 22' bgl
Ground Water: Saturated @ 14' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0					8.7 86°F		90	**Silt/Gravel (ML)** Low plasticity, soft, dry/damp, no odor, brown	0
2					54 86°F		80	**Silt/Gravel (ML)** Similar to above	2
4					7 86°F		70	**Gravel/Silt (GW)** 1/2 to 1" gravel, loose, compact, dry, no odor	4
6					7.5 86°F		70	**Clayey Sandy Silt (ML)** Very fine grain, compact, dry to damp, brown, no odor	6
8					5.5 86°F		60	**Sandy Clay (CL)** Low plasticity, firm, damp, light brown, no odor	8
10					5.8 86°F		70	**Sandy Clay (CL)** Similar to above, brown, no odor	10
12					10 86°F		70	**Sandy Clay (CL)** Similar to above	12
14				14'				**Silty Sand (SM)** Fine to medium grain, loose, damp, brown, no odor	14
16					225 86°F		50	**Sandy Clay (CL)** Low plasticity, firm, moist to saturated in sand seams, hydrocarbon odor, dark brown	16
					319 86°F		70	**Sandy Clay (CL)** Similar to above, moist, hydrocarbon odor	

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LOG OF BORING

Boring No.: SB19
Start Date: 7/24/2013 11:51
Finish Date: 7/24/2013 13:10

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.294' W 108°25.754'

Total Depth: 22' bgl
Ground Water: Saturated @ 14' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
19					400 86°F		--	**Sandy Clay (CL)** Similar to above, moist, hydrocarbon odor	19
21					532 86°F		--	**Sandy Clay/Clayey Sand (CL)** Very fine grain, compact, moist to saturated, sheen observed in split spoon, hydrocarbon odor	21
23								Total Depth = 22' BGL	23
25									25
27									27
29									29
31									31
33									33
35									35

Set 1" Temporary Well
Screened: 12-22' bgl
10/20 Filter Pack: 10-22' bgl
Bentonite: 0-10' bgl

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LOG OF BORING

Boring No.: SB20
Start Date: 7/24/2013 14:10
Finish Date: 7/24/2013 15:45

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.307' W 108°25.755'

Total Depth: 14' bgl
Ground Water: Saturated @ 10' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Depth (ft.)	Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0					8 80°F		90	**Silt (ML)** Low plasticity, soft, damp, brown, no odor	0
2					12.7 80°F		90	**Silt (ML)** Similar to above, trace gravel	2
4					13 80°F		80	**Sandy Clay (CL)** Low plasticity, stiff, dry, brown, calcareous	4
6					17 80°F		90	**Silty Sand/Sandy Silt (SM/ML)** Very fine grain, loose to compact, dry, calcareous, brown	6
8					59 80°F		90	**Sandy Silt (ML)** Similar to above, no odor	8
10				10'	1165 80°F		90	**Sandy Clay/Clayey Sand (SC/CL)** Medium grain, compact, moist to saturated, hydrocarbon odor, brown	10
12					1200 80°F		90	**Clayey Sand (SC)** Similar to above, saturated, hydrocarbon odor	12
14								Total Depth = 14' BGL	14
16								Set 1" Temporary Well Screened: 9-14' bgl 10/20 Filter Pack: 7-14' bgl Bentonite: 0-7' bgl	16

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LOG OF BORING

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.314' W 108°25.761'

Total Depth: 10' bgl
Ground Water: Saturated @ 6' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Boring No.: SB21
Start Date: 7/24/2013 15:55
Finish Date: 7/24/2013 16:20

Depth (ft.)	Sampling: Sample Depth	Sampling: Time	Sampling: Sample Type/ Container/No.	Sampling: Saturation	Sampling: Organic Vapor (ppm)	Sampling: USCS Class	Recovery (%)	Sample Description
								Ground Surface
0					15.2 80°F		60	**Silty Clay (CL)** Low plasticity, stiff, dry to damp, brown
2					88 80°F		50	**Sandy Clay (CL)** Low plasticity, very stiff, dry to damp, brown
4					1170 80°F		80	**Sandy Clay (CL)** Similar to above, hydrocarbon odor, sand at base
6				6'	1200 80°F		90	**Silty Sand (SM)** Medium grain, loose, moist to saturated, phase-separated hydrocarbon, brown, hydrocarbon odor
8					1350 80°F		90	**Sandy Clayey Gravel (GW)** Compact, saturated, phase-separated hydrocarbon, hydrocarbon odor, gray
10								Total Depth = 10' BGL
12								
14								
16								

Set 1" Temporary Well
Screened: 5-10' bgl
10/20 Filter Pack: 3-10' bgl
Bentonite: 0-3' bgl

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LOG OF BORING

Client: Western Refining Southwest, Inc.
Site: Gallup Refinery - Seep West of Tank 102
Job No.: UEC01809
Geologist: Tracy Payne
Driller: Precision Sampling
Drilling Rig: Geoprobe 6625 CPT
Drilling Method: Direct Push
Sampling Method: Split Spoon
Comments: N 35°29.323' W 108°25.769'

Total Depth: 10' bgl
Ground Water: Saturated @ 6' bgl
Elev., TOC (ft. msl): --
Elev., PAD (ft. msl): --
Elev., GL (ft. msl): --
Site Coordinates:
N **E**

Boring No.: SB22
Start Date: 7/24/2013 16:30
Finish Date: 7/24/2013 17:15

Depth (ft.)	Sampling: Sample Depth	Time	Sample Type/ Container/No.	Saturation	Organic Vapor (ppm)	USCS Class	Recovery (%)	Sample Description	Depth (ft.)
								Ground Surface	
0					18 80°F		20	**Silty Clay (CL)** Low plasticity, soft, damp, brown	0
2					308 80°F		90	**Silty Clay (CL)** Similar to above, odor	2
4					793 80°F		90	**Sandy Clay (CL)** Low plasticity, firm, moist, oily, brown, trace gravel	4
6				6'	504 80°F		90	**Clayey Sand (SC)** Medium grain, loose to compact, saturated, phase-separated hydrocarbon, hydrocarbon odor, black	6
8					760 80°F		90	**Clayey Sand (SC)** Similar to above, silty clay at base	8
10								Total Depth = 10' BGL	10
12									12
14									14
16									16

Set 1" Temporary Well
Screened: 5-10' bgl
10/20 Filter Pack: 3-10' bgl
Bentonite: 0-3' bgl

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Analytical Reports

W. Herzog GmbH Germany

Print-Date : 6/28/2013 11:36 AM

Herzog MP 626 - HDA 627/628

Unit Number : 1 - 006281160
Software - Version : HDA 1.0P

Sample number : 06/28/13 11AM
Sample Description : Underground Petroleum Sample Deposit#1
Date of Measurement: 6/28/2013 10:56:27 AM

Dist. Standard : INDEPENDENT
Dist. Group : -1
Thermometer : 7C/7F
Measurement Program : CRUDE

Corrections of temperatures : barometric corr. acc. D-1078
Barometric Pressure : 590.3 mmHG
Distillation Residue : 1.2 ml
Recovery : 98.1 vol % (observed :97.6 vol %)
Distillation Loss : 0.7 ml (observed :1.2 ml)
Stop Point : -- ml / -- °F

	Corrected		Observed	
	Volume	Temperature	Volume	Temperature
Distillation point1 :	IBP	* 124.0 °F *	IBP	* 112.1 °F *
Distillation point2 :	23.0 ml	* 230.7 °F *	23.0 ml	* 218.8 °F *
Distillation point3 :	45.0 ml	* 311.5 °F *	45.0 ml	* 299.7 °F *
Distillation point4 :	55.0 ml	* 363.6 °F *	55.0 ml	* 351.7 °F *
Distillation point5 :	75.0 ml	* 475.3 °F *	75.0 ml	* 463.5 °F *
Distillation point6 :	83.0 ml	* 516.7 °F *	83.0 ml	* 504.9 °F *
Distillation point7 :	FBP	* 631.2 °F *	FBP	* 619.3 °F *
Distillation point8 :	DP	* -- *	DP	* 32.0 °F *
Distillation point9 :	* 96.5 ml *	FBP	* 96.5 ml *	FBP
Distillation point10 :	* 0.0 ml *	DP	* 0.0 ml *	DP

Volume	Dist. rate	Dist. temp.	Barom. corr.	Evap. corr.
IBP	281.0 s	112.1 °F	124.0 °F	-
5 %	55.0 s	159.4 °F	171.3 °F	-
10 %	5.6 ml/min	179.6 °F	191.5 °F	-
15 %	5.4 ml/min	195.4 °F	207.3 °F	-
20 %	4.9 ml/min	210.0 °F	221.9 °F	-
30 %	4.4 ml/min	239.5 °F	251.4 °F	-
40 %	4.2 ml/min	276.8 °F	288.7 °F	-
50 %	4.4 ml/min	325.4 °F	337.3 °F	-
60 %	4.4 ml/min	378.5 °F	390.4 °F	-
70 %	4.7 ml/min	436.1 °F	448.0 °F	-
80 %	4.3 ml/min	488.8 °F	500.7 °F	-
85 %	4.0 ml/min	516.4 °F	528.3 °F	-
90 %	3.6 ml/min	548.4 °F	560.3 °F	-
95 %	69.1 s	598.6 °F	610.5 °F	-
FBP	158.0 s	619.3 °F	631.2 °F	-

Error Number	Error Description
8	Receiver door open during distillation !

BS+W = 0.0/0.0

API Gravity @ 60°F = 47.0

W. Herzog GmbH Germany

Print-Date : 6/28/2013 11:36 AM

Herzog MP 626 - HDA 627/628

Unit Number : 2 - 2
Software - Version : HDA 1.0P

Sample number : 06/28/13 11am
Sample Description : Undeground Petroleum Deposite #2
Date of Measurement: 6/28/2013 10:57:11 AM

Dist. Standard : INDEPENDENT
Dist. Group : -1
Thermometer : 7C/7F
Measurement Program : CRUDE

Corrections of temperatures : barometric corr. acc. D-1078
Barometric Pressure : 597.8 mmHG
Distillation Residue : 1.0 ml
Recovery : 98.4 vol % (observed :98.1 vol %)
Distillation Loss : 0.6 ml (observed :0.9 ml)
Stop Point : -- ml / -- °F

	Corrected		Observed	
	Volume	Temperature	Volume	Temperature
Distillation point1 :	IBP	* 127.8 °F *	IBP	* 116.4 °F *
Distillation point2 :	23.0 ml	* 239.9 °F *	23.0 ml	* 228.6 °F *
Distillation point3 :	45.0 ml	* 325.4 °F *	45.0 ml	* 314.1 °F *
Distillation point4 :	55.0 ml	* 375.3 °F *	55.0 ml	* 363.9 °F *
Distillation point5 :	75.0 ml	* 475.7 °F *	75.0 ml	* 464.4 °F *
Distillation point6 :	83.0 ml	* 514.9 °F *	83.0 ml	* 503.6 °F *
Distillation point7 :	FBP	* 623.1 °F *	FBP	* 611.8 °F *
Distillation point8 :	DP	* -- *	DP	* 32.0 °F *
Distillation point9 :	* 96.7 ml *	FBP	* 96.7 ml *	FBP
Distillation point10 :	* 0.0 ml *	DP	* 0.0 ml *	DP

Volume	Dist. rate	Dist. temp.	Barom. corr.	Evap. corr.
IBP	252.0 s	116.4 °F	127.8 °F	-
5 %	43.0 s	167.0 °F	178.3 °F	-
10 %	6.5 ml/min	188.2 °F	199.6 °F	-
15 %	5.7 ml/min	204.1 °F	215.4 °F	-
20 %	5.2 ml/min	219.2 °F	230.5 °F	-
30 %	4.5 ml/min	251.1 °F	262.4 °F	-
40 %	4.3 ml/min	289.8 °F	301.1 °F	-
50 %	4.4 ml/min	339.3 °F	350.6 °F	-
60 %	4.5 ml/min	389.1 °F	400.5 °F	-
70 %	4.5 ml/min	440.4 °F	451.8 °F	-
80 %	4.6 ml/min	488.7 °F	500.0 °F	-
85 %	4.1 ml/min	514.4 °F	525.7 °F	-
90 %	4.0 ml/min	545.7 °F	557.1 °F	-
95 %	57.9 s	589.3 °F	600.6 °F	-
FBP	146.0 s	611.8 °F	623.1 °F	-

API Gravity @ 60° F = 45.7

BS+W = 0.0/0.0

WESTERN REFINING - EL PASO, TX
Sample Report

Sample Number: 73769
Product: GALLUP
Tank No.:
Batch ID:
Comment: Pipeline Tk 101 Crude
Date Sampled: 11/19/2011 09:22:00

Analysis ID	Component Name	Result	Units	Pass/Fail
GRAV_PORT/1	API_Gravity	44.1	degAPI	Pass
NITROGEN/1	nitrogen	259	ppm	Pass
SIMDIS7169/1	IBP	92.8	deg_F	Pass
SIMDIS7169/1	5%	148.0	deg_F	Pass
SIMDIS7169/1	10%	181.3	deg_F	Pass
SIMDIS7169/1	20%	228.9	deg_F	Pass
SIMDIS7169/1	30%	281.8	deg_F	Pass
SIMDIS7169/1	40%	352.9	deg_F	Pass
SIMDIS7169/1	50%	448.3	deg_F	Pass
SIMDIS7169/1	60%	548.2	deg_F	Pass
SIMDIS7169/1	70%	656.0	deg_F	Pass
SIMDIS7169/1	80%	778.5	deg_F	Pass
SIMDIS7169/1	90%	935.8	deg_F	Pass
SIMDIS7169/1	95%	1063.5	deg_F	Pass
SIMDIS7169/1	FBP	1327.2	deg_F	Pass
SULF_4294/1	Sulfur_%Wt	0.119	%wt	Pass

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

August 01, 2013

Cheryl Johnson
Western Refining Southwest, Gallup
Rt. 3 Box 7
Gallup, NM 87301
TEL: (505) 722-0231
FAX (505) 722-0210

RE: Seep West of Tank 102 OrderNo.: 1307C30

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 2 sample(s) on 7/26/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1307C30**
Date Reported: **8/1/2013**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Project: Seep West of Tank 102
Lab ID: 1307C30-001 **Matrix:** AQUEOUS

Client Sample ID: SB18
Collection Date: 7/25/2013 1:30:00 PM
Received Date: 7/26/2013 9:07:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE						Analyst: **JME**	
Diesel Range Organics (DRO)	73	1.0		mg/L	1	7/29/2013 4:35:51 PM	8599
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/29/2013 4:35:51 PM	8599
Surr: DNOP	119	70.1-140		%REC	1	7/29/2013 4:35:51 PM	8599
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	73	10	P	mg/L	200	7/30/2013 4:17:20 AM	R12268
Surr: BFB	98.5	51.5-151	P	%REC	200	7/30/2013 4:17:20 AM	R12268

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Project: Seep West of Tank 102
Lab ID: 1307C30-002 **Matrix:** AQUEOUS

Client Sample ID: SB19
Collection Date: 7/25/2013 1:45:00 PM
Received Date: 7/26/2013 9:07:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE						Analyst: **JME**	
Diesel Range Organics (DRO)	30	1.0		mg/L	1	7/29/2013 4:57:45 PM	8599
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/29/2013 4:57:45 PM	8599
Surr: DNOP	127	70.1-140		%REC	1	7/29/2013 4:57:45 PM	8599
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	19	10		mg/L	200	7/30/2013 4:47:38 AM	R12268
Surr: BFB	93.8	51.5-151		%REC	200	7/30/2013 4:47:38 AM	R12268

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1307C30**

01-Aug-13

Client: Western Refining Southwest, Gallup

Project: Seep West of Tank 102

Sample ID **MB-8599**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **PBW**	Batch ID: **8599**	RunNo: **12239**
Prep Date: **7/29/2013**	Analysis Date: **7/29/2013**	SeqNo: **348455** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.1		1.000		113	70.1	140			

Sample ID **LCS-8599**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **LCSW**	Batch ID: **8599**	RunNo: **12239**
Prep Date: **7/29/2013**	Analysis Date: **7/29/2013**	SeqNo: **348473** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.2	1.0	5.000	0	105	89.1	151			
Surr: DNOP	0.42		0.5000		84.7	70.1	140			

Sample ID **LCSD-8599**	SampType: **LCSD**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **LCSS02**	Batch ID: **8599**	RunNo: **12239**
Prep Date: **7/29/2013**	Analysis Date: **7/29/2013**	SeqNo: **348474** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.3	1.0	5.000	0	106	89.1	151	1.59	20	
Surr: DNOP	0.44		0.5000		88.4	70.1	140	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

WO#: **1307C30**

Hall Environmental Analysis Laboratory, Inc.

01-Aug-13

Client: Western Refining Southwest, Gallup
Project: Seep West of Tank 102

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R12268**	RunNo: **12268**
Prep Date:	Analysis Date: **7/29/2013**	SeqNo: **348886** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		92.3	51.5	151			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R12268**	RunNo: **12268**
Prep Date:	Analysis Date: **7/29/2013**	SeqNo: **348887** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.51	0.050	0.5000	0	103	80	120			
Surr: BFB	20		20.00		99.1	51.5	151			

Qualifiers:

*	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
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
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 Log-In Check List

Client Name: Western Refining Gallup Work Order Number: 1307C30 RcptNo: 1

Received by/date: MG 07/26/13

Logged By: Anne Thorne 7/26/2013 9:07:00 AM Anne Thorne

Completed By: Anne Thorne 7/26/2013 Anne Thorne

Reviewed By: 07/29/13

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

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

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

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

Chain-of-Custody Record

Client: WESTERN REFINING
GALLUP REFINERY
Mailing Address: ROUTE 3 BOX 7
GALLUP, NM 87301
Phone #: 505-722-3833
email or Fax#: 505-863-0930
QA/QC Package:
☐ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standard ☐ Rush
Project Name: SEEP WEST OF TANK 102
Project #:
Project Manager: CHERYL JOHNSON
Sampler: TRACY PAYNE
On Ice: ☒ Yes ☐ No
Sample Temperature: 1.0

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 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	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)
7-25-13	1330	GW	SB18	3 40mL VOA	HCL	001			X									
↓	1345	GW	SB19	↓	HCL	002			X									

Date	Time	Relinquished by:	Received by:	Date	Time
7/26/13	0907				
Date:	Time:	Relinquished by:	Received by:	07/26/13 Date	0907 Time

Remarks:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

July 16, 2013

Cheryl Johnson
Western Refining Southwest, Gallup
Rt. 3 Box 7
Gallup, NM 87301
TEL: (505) 722-0231
FAX: (505) 722-0210

RE: Seep West of 102 OrderNo.: 1307269

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/8/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1307269**
Date Reported: **7/16/2013**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Project: Seep West of 102
Lab ID: 1307269-001 **Matrix:** PRODUCT

Client Sample ID: Seep Hole #6
Collection Date: 7/8/2013 9:45:00 AM
Received Date: 7/8/2013 1:20:00 PM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
DRO BY 8015D						Analyst: **JME**	
Diesel Range Organics (DRO)	55	2.0		wt%	20	7/9/2013 4:30:52 PM	8285
Motor Oil Range Organics (MRO)	ND	10		wt%	20	7/9/2013 4:30:52 PM	8285
Surr: DNOP	0	76.7-135	S	%REC	20	7/9/2013 4:30:52 PM	8285
GRO BY 8015D						Analyst: **NSB**	
Gasoline Range Organics (GRO)	49	2.5		wt%	1	7/10/2013 11:07:52 AM	8284
Surr: BFB	127	65.4-138		%REC	1	7/10/2013 11:07:52 AM	8284
EPA METHOD 300.0: ANIONS						Analyst: **JRR**	
Fluoride	ND	2.0		mg/L	20	7/9/2013 3:15:53 AM	R11809
Chloride	ND	10		mg/L	20	7/9/2013 3:15:53 AM	R11809
Nitrogen, Nitrite (As N)	ND	2.0		mg/L	20	7/9/2013 3:15:53 AM	R11809
Bromide	ND	2.0		mg/L	20	7/9/2013 3:15:53 AM	R11809
Nitrogen, Nitrate (As N)	ND	2.0		mg/L	20	7/9/2013 3:15:53 AM	R11809
Phosphorus, Orthophosphate (As P)	ND	10		mg/L	20	7/9/2013 3:15:53 AM	R11809
Sulfate	ND	10		mg/L	20	7/9/2013 3:15:53 AM	R11809
EPA METHOD 200.7: METALS						Analyst: **JLF**	
Calcium	ND	50		mg/L	1	7/11/2013 1:47:54 PM	8317
Magnesium	ND	50		mg/L	1	7/11/2013 1:47:54 PM	8317
Potassium	65	50		mg/L	1	7/11/2013 1:47:54 PM	8317
Sodium	100	50		mg/L	1	7/11/2013 1:47:54 PM	8317
SM4500-H+B: PH						Analyst: **JML**	
pH	7.04	1.68	H	pH units	1	7/12/2013 4:29:00 PM	R11906

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1307269**

16-Jul-13

Client: Western Refining Southwest, Gallup

Project: Seep West of 102

Sample ID: **MB-8317**	SampType: **MBLK**	TestCode: **EPA Method 200.7: Metals**
Client ID: **PBW**	Batch ID: **8317**	RunNo: **11877**
Prep Date: **7/11/2013**	Analysis Date: **7/11/2013**	SeqNo: **337675** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	ND	1.0								
Magnesium	ND	1.0								
Potassium	ND	1.0								
Sodium	ND	1.0								

Sample ID: **LCS-8317**	SampType: **LCS**	TestCode: **EPA Method 200.7: Metals**
Client ID: **LCSW**	Batch ID: **8317**	RunNo: **11877**
Prep Date: **7/11/2013**	Analysis Date: **7/11/2013**	SeqNo: **337676** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Calcium	50	1.0	50.00	0	99.4	85	115			
Magnesium	50	1.0	50.00	0	99.6	85	115			
Potassium	49	1.0	50.00	0	97.6	85	115			
Sodium	49	1.0	50.00	0	98.8	85	115			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1307269**

16-Jul-13

Client: Western Refining Southwest, Gallup

Project: Seep West of 102

Sample ID: **MB**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBW**	Batch ID: **R11809**	RunNo: **11809**
Prep Date:	Analysis Date: **7/9/2013**	SeqNo: **335617** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.10								
Chloride	ND	0.50								
Nitrogen, Nitrite (As N)	ND	0.10								
Bromide	ND	0.10								
Nitrogen, Nitrate (As N)	ND	0.10								
Phosphorus, Orthophosphate (As P)	ND	0.50								
Sulfate	ND	0.50								

Sample ID: **LCS**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSW**	Batch ID: **R11809**	RunNo: **11809**
Prep Date:	Analysis Date: **7/9/2013**	SeqNo: **335618** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	0.53	0.10	0.5000	0	107	90	110			
Chloride	4.8	0.50	5.000	0	95.5	90	110			
Nitrogen, Nitrite (As N)	0.96	0.10	1.000	0	95.5	90	110			
Bromide	2.5	0.10	2.500	0	99.0	90	110			
Nitrogen, Nitrate (As N)	2.5	0.10	2.500	0	100	90	110			
Phosphorus, Orthophosphate (As P)	4.8	0.50	5.000	0	95.3	90	110			
Sulfate	9.7	0.50	10.00	0	96.6	90	110			

Sample ID: **1307280-001AMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R11809**	RunNo: **11809**
Prep Date:	Analysis Date: **7/9/2013**	SeqNo: **335622** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.1	0.10	0.5000	0.6427	96.1	76.9	114			
Chloride	11	0.50	5.000	5.375	105	89.9	119			
Nitrogen, Nitrite (As N)	0.97	0.10	1.000	0	96.6	84.3	102			
Bromide	2.6	0.10	2.500	0.08490	101	92	104			
Nitrogen, Nitrate (As N)	3.4	0.10	2.500	0.8637	103	93	113			
Phosphorus, Orthophosphate (As P)	4.9	0.50	5.000	0	98.6	73.9	120			
Sulfate	31	0.50	10.00	19.89	109	90.1	116			

Sample ID: **1307280-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R11809**	RunNo: **11809**
Prep Date:	Analysis Date: **7/9/2013**	SeqNo: **335623** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.1	0.10	0.5000	0.6427	95.4	76.9	114	0.339	20	
Chloride	11	0.50	5.000	5.375	104	89.9	119	0.603	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1307269**

16-Jul-13

Client: Western Refining Southwest, Gallup

Project: Seep West of 102

Sample ID: **1307280-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **R11809**	RunNo: **11809**
Prep Date:	Analysis Date: **7/9/2013**	SeqNo: **335623** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrite (As N)	0.96	0.10	1.000	0	95.8	84.3	102	0.884	20	
Bromide	2.6	0.10	2.500	0.08490	101	92	104	0.398	20	
Nitrogen, Nitrate (As N)	3.4	0.10	2.500	0.8637	102	93	113	0.600	20	
Phosphorus, Orthophosphate (As P)	4.8	0.50	5.000	0	96.4	73.9	120	2.29	20	
Sulfate	31	0.50	10.00	19.89	106	90.1	116	0.814	20	

Qualifiers:

*	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
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

WO#: **1307269**

Hall Environmental Analysis Laboratory, Inc.

16-Jul-13

Client: Western Refining Southwest, Gallup
Project: Seep West of 102

Sample ID: **LCS-8285**	SampType: **LCS**	TestCode: **DRO by 8015D**							
Client ID: **LCSW**	Batch ID: **8285**	RunNo: **11794**							
Prep Date: **7/9/2013**	Analysis Date: **7/9/2013**	SeqNo: **335851**	Units: **wt%**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	0.40	0.10	0.5000	0	80.5	80	120			
Surr: DNOP	0.040		0.05000		79.3	76.7	135			

Sample ID: **LCSD-8285**	SampType: **LCSD**	TestCode: **DRO by 8015D**							
Client ID: **LCSS02**	Batch ID: **8285**	RunNo: **11794**							
Prep Date: **7/9/2013**	Analysis Date: **7/9/2013**	SeqNo: **335852**	Units: **wt%**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	0.43	0.10	0.5000	0	85.7	80	120	6.34	20	
Surr: DNOP	0.043		0.05000		85.8	76.7	135	0	0	

Sample ID: **MB-8285**	SampType: **MBLK**	TestCode: **DRO by 8015D**							
Client ID: **PBW**	Batch ID: **8285**	RunNo: **11794**							
Prep Date: **7/9/2013**	Analysis Date: **7/9/2013**	SeqNo: **335853**	Units: **wt%**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	0.10								
Motor Oil Range Organics (MRO)	ND	0.50								
Surr: DNOP	0.082		0.1000		82.1	76.7	135			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1307269**

16-Jul-13

Client: Western Refining Southwest, Gallup

Project: Seep West of 102

Sample ID: **MB-8284**	SampType: **MBLK**	TestCode: **GRO by 8015D**							
Client ID: **PBW**	Batch ID: **8284**	RunNo: **11829**							
Prep Date: **7/9/2013**	Analysis Date: **7/10/2013**	SeqNo: **336360**	Units: **wt%**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	2.5								
Surr: BFB	940		1000		94.1	65.4	138			

Sample ID: **LCS-8284**	SampType: **LCS**	TestCode: **GRO by 8015D**							
Client ID: **LCSW**	Batch ID: **8284**	RunNo: **11829**							
Prep Date: **7/9/2013**	Analysis Date: **7/10/2013**	SeqNo: **336361**	Units: **wt%**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	2.5	25.00	0	106	67.5	133			
Surr: BFB	1000		1000		99.7	65.4	138			

Sample ID: **LCSD-8284**	SampType: **LCSD**	TestCode: **GRO by 8015D**							
Client ID: **LCSS02**	Batch ID: **8284**	RunNo: **11829**							
Prep Date: **7/9/2013**	Analysis Date: **7/10/2013**	SeqNo: **336362**	Units: **wt%**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	2.5	25.00	0	103	67.5	133	3.10	8.39	
Surr: BFB	1000		1000		101	65.4	138	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1307269**

16-Jul-13

Client: Western Refining Southwest, Gallup

Project: Seep West of 102

Sample ID: **1307269-001ADUP**	SampType: **DUP**	TestCode: **SM4500-H+B: pH**							
Client ID: **Seep Hole #6**	Batch ID: **R11906**	RunNo: **11906**							
Prep Date:	Analysis Date: **7/12/2013**	SeqNo: **338410**	Units: **pH units**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH	7.03	1.68						0.142		H

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- 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 Log-In Check List

Client Name: **Western Refining Gallup** Work Order Number: **1307269** RcptNo: **1**

Received by/date: LM 07/08/13

Logged By: **Ashley Gallegos** **7/8/2013 1:20:00 PM** AG

Completed By: **Ashley Gallegos** **7/8/2013 1:49:57 PM** AG

Reviewed By: IO 07/08/13

Chain of Custody

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

Log In

4. Was an attempt made to cool the samples?	Yes ✔	No	NA
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ✔	No	NA
6. Sample(s) in proper container(s)?	Yes ✔	No	
7. Sufficient sample volume for indicated test(s)?	Yes ✔	No	
8. Are samples (except VOA and ONG) properly preserved?	Yes ✔	No	
9. Was preservative added to bottles?	Yes	No ✔	NA
10. VOA vials have zero headspace?	Yes ✔	No	No VOA Vials
11. Were any sample containers received broken?	Yes	No ✔	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ✔	No	# of preserved bottles checked for pH: -001A, -001B (~~<2~~ or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ✔	No	Adjusted? UNABLE TO BRING TO ACCEPTABLE pH - AK
14. Is it clear what analyses were requested?	Yes ✔	No	
15. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ✔	No	Checked by:

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

By Whom: _____ Via: eMail Phone Fax In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.5	Good	Not Present			

Chain-of-Custody Record

Client: Western Refining Company

GALLUP REFINERY

Mailing Address:

RT 3 BOX 7, GALLUP, NM 87301

Phone #: 505-722-3833

email or Fax#: 505-863-0930

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

Accreditation:

☐ NELAP ☐ Other

☐ EDD (Type)

Turn-Around Time:

Standard X Rush__ASAP__

Project Name:

Seep West of 102

Project #:

Seep Hole #6

Project Manager:

C. JOHNSON (cheryl.johnson@wnr.com)

Sampler: C. JOHNSON

On Ice: ☐ Yes ☐ No

Sample Temperature: 2.5

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1307269	8260+MTBE	8015B GRO/DRO/ORO	8270 + Phenols	WQCC Metals - Total	WQCC Metals - Dissolved (Filtered)	Major Cations/Anions	8021B + MTBE	Air Bubbles (Y or N)
7/8/2013	0945	Aqueous	Seep Hole #6			-001		X				X		

Date: 7/8/13 Time: 1000 Relinquished by:

Received by: Date Time

Date: 7/08/13 Time: 13:20 Relinquished by:

Received by: 07/08/13 1320

Remarks:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

July 19, 2013

Beck Larsen
Western Refining Southwest, Gallup
Rt. 3 Box 7
Gallup, NM 87301
TEL: (505) 722-0258
FAX: (505) 722-0210

RE: Excavation Behind Tank OrderNo.: 1307524

Dear Beck Larsen:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/12/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1307524**
Date Reported: **7/19/2013**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Project: Excavation Behind Tank
Lab ID: 1307524-001 **Matrix:** SOIL

Client Sample ID: Soil Pile Behind 101/102
Collection Date: 7/10/2013 3:30:00 PM
Received Date: 7/12/2013 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	40000	1000		mg/Kg	100	7/15/2013 4:21:37 PM	8339
Motor Oil Range Organics (MRO)	ND	5000		mg/Kg	100	7/15/2013 4:21:37 PM	8339
Surr: DNOP	0	63-147	S	%REC	100	7/15/2013 4:21:37 PM	8339
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **DAM**	
Gasoline Range Organics (GRO)	230	46		mg/Kg	10	7/15/2013 4:10:25 PM	8345
Surr: BFB	126	80-120	S	%REC	10	7/15/2013 4:10:25 PM	8345
MERCURY, TCLP						Analyst: **TES**	
Mercury	ND	0.020		mg/L	1	7/17/2013 5:40:38 PM	8429
EPA METHOD 6010B: TCLP METALS						Analyst: **JLF**	
Arsenic	ND	5.0		mg/L	1	7/18/2013 4:40:01 PM	8438
Barium	ND	100		mg/L	5	7/18/2013 3:22:07 PM	8438
Cadmium	ND	1.0		mg/L	1	7/18/2013 2:47:10 PM	8438
Chromium	ND	5.0		mg/L	1	7/18/2013 2:47:10 PM	8438
Lead	ND	5.0		mg/L	1	7/18/2013 2:47:10 PM	8438
Selenium	ND	1.0		mg/L	1	7/19/2013 11:22:21 AM	8438
Silver	ND	5.0		mg/L	1	7/18/2013 2:47:10 PM	8438
EPA METHOD 8270C TCLP						Analyst: **JDC**	
2-Methylphenol	ND	200		mg/L	1	7/16/2013 6:21:47 PM	8399
3+4-Methylphenol	ND	200		mg/L	1	7/16/2013 6:21:47 PM	8399
Phenol	ND	200		mg/L	1	7/16/2013 6:21:47 PM	8399
2,4-Dinitrotoluene	ND	0.13		mg/L	1	7/16/2013 6:21:47 PM	8399
Hexachlorobenzene	ND	0.13		mg/L	1	7/16/2013 6:21:47 PM	8399
Hexachlorobutadiene	ND	0.50		mg/L	1	7/16/2013 6:21:47 PM	8399
Hexachloroethane	ND	3.0		mg/L	1	7/16/2013 6:21:47 PM	8399
Nitrobenzene	ND	2.0		mg/L	1	7/16/2013 6:21:47 PM	8399
Pentachlorophenol	ND	100		mg/L	1	7/16/2013 6:21:47 PM	8399
Pyridine	ND	5.0		mg/L	1	7/16/2013 6:21:47 PM	8399
2,4,5-Trichlorophenol	ND	400		mg/L	1	7/16/2013 6:21:47 PM	8399
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	7/16/2013 6:21:47 PM	8399
Cresols, Total	ND	200		mg/L	1	7/16/2013 6:21:47 PM	8399
Surr: 2,4,6-Tribromophenol	64.2	26.8-116		%REC	1	7/16/2013 6:21:47 PM	8399
Surr: 2-Fluorobiphenyl	70.4	47.7-94		%REC	1	7/16/2013 6:21:47 PM	8399
Surr: 2-Fluorophenol	57.5	17.9-87.1		%REC	1	7/16/2013 6:21:47 PM	8399
Surr: 4-Terphenyl-d14	81.5	39.2-96.2		%REC	1	7/16/2013 6:21:47 PM	8399
Surr: Nitrobenzene-d5	85.4	49.8-105		%REC	1	7/16/2013 6:21:47 PM	8399
Surr: Phenol-d5	41.7	22.3-60.5		%REC	1	7/16/2013 6:21:47 PM	8399
VOLATILES BY 8260B/1311						Analyst: **JMP**	
Benzene	ND	0.50		mg/L	1	7/17/2013 3:37:37 AM	8390

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Soil Pile Behind 101/102
Project: Excavation Behind Tank
Collection Date: 7/10/2013 3:30:00 PM
Lab ID: 1307524-001 **Matrix:** SOIL **Received Date:** 7/12/2013 7:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
VOLATILES BY 8260B/1311						Analyst: **JMP**	
2-Butanone	ND	10		mg/L	1	7/17/2013 3:37:37 AM	8390
Carbon Tetrachloride	ND	0.50		mg/L	1	7/17/2013 3:37:37 AM	8390
Chlorobenzene	ND	100		mg/L	1	7/17/2013 3:37:37 AM	8390
Chloroform	ND	6.0		mg/L	1	7/17/2013 3:37:37 AM	8390
1,4-Dichlorobenzene	ND	7.5		mg/L	1	7/17/2013 3:37:37 AM	8390
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	7/17/2013 3:37:37 AM	8390
1,1-Dichloroethene	ND	0.70		mg/L	1	7/17/2013 3:37:37 AM	8390
Hexachlorobutadiene	ND	0.50		mg/L	1	7/17/2013 3:37:37 AM	8390
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	7/17/2013 3:37:37 AM	8390
Trichloroethene (TCE)	ND	0.50		mg/L	1	7/17/2013 3:37:37 AM	8390
Vinyl chloride	ND	0.20		mg/L	1	7/17/2013 3:37:37 AM	8390
Surr: 1,2-Dichloroethane-d4	90.3	69.9-130		%REC	1	7/17/2013 3:37:37 AM	8390
Surr: 4-Bromofluorobenzene	89.6	71.2-123		%REC	1	7/17/2013 3:37:37 AM	8390
Surr: Dibromofluoromethane	92.5	73.9-134		%REC	1	7/17/2013 3:37:37 AM	8390
Surr: Toluene-d8	94.6	81.9-122		%REC	1	7/17/2013 3:37:37 AM	8390

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Anatek Labs, Inc.

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

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

Batch #: 130716017
Project Name: 1307524

Analytical Results Report

Sample Number	130716017-001	**Sampling Date**	7/10/2013	**Date/Time Received**	7/16/2013 12:25 PM
Client Sample ID	1307524-001B / SOIL PILE BEHIND 101/102	**Sampling Time**	3:30 PM		
Matrix	Soil				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	45.6	mg/Kg	3.2	7/18/2013	CRW	SW846 CH7	
Ignitability	Negative			7/17/2013	JWC	EPA 1030	
pH	8.83	ph Units		7/17/2013	AJT	EPA 9045	
Reactive sulfide	46.0	mg/kg	10	7/18/2013	AJT	SW846 CH7	
%moisture	21.4	Percent		7/16/2013	AJT	%moisture	

Authorized Signature

John Coddington, Lab Manager

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

The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1307524**

19-Jul-13

Client: Western Refining Southwest, Gallup

Project: Excavation Behind Tank

Sample ID: **MB-8339**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **8339**	RunNo: **11878**
Prep Date: **7/12/2013**	Analysis Date: **7/12/2013**	SeqNo: **337805** 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	7.9		10.00		79.3	63	147			

Sample ID: **LCS-8339**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **8339**	RunNo: **11878**
Prep Date: **7/12/2013**	Analysis Date: **7/12/2013**	SeqNo: **337806** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	92.1	77.1	128			
Surr: DNOP	4.6		5.000		92.4	63	147			

Sample ID: **MB-8347**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **8347**	RunNo: **11922**
Prep Date: **7/12/2013**	Analysis Date: **7/15/2013**	SeqNo: **339456** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.6		10.00		85.7	63	147			

Sample ID: **LCS-8347**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **8347**	RunNo: **11922**
Prep Date: **7/12/2013**	Analysis Date: **7/15/2013**	SeqNo: **339457** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.1		5.000		81.9	63	147			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1307524**

19-Jul-13

Client: Western Refining Southwest, Gallup

Project: Excavation Behind Tank

Sample ID: **MB-8345**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **8345**	RunNo: **11935**
Prep Date: **7/12/2013**	Analysis Date: **7/15/2013**	SeqNo: **339766** 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	950		1000		95.3	80	120			

Sample ID: **LCS-8345**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **8345**	RunNo: **11935**
Prep Date: **7/12/2013**	Analysis Date: **7/15/2013**	SeqNo: **339767** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.6	62.6	136			
Surr: BFB	1000		1000		104	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

WO#: **1307524**

Hall Environmental Analysis Laboratory, Inc.

19-Jul-13

Client: Western Refining Southwest, Gallup
Project: Excavation Behind Tank

Sample ID: **mb-8390**	SampType: **MBLK**	TestCode: **Volatiles by 8260B/1311**
Client ID: **PBS**	Batch ID: **8390**	RunNo: **11981**
Prep Date: **7/15/2013**	Analysis Date: **7/16/2013**	SeqNo: **340636** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
2-Butanone	ND	10								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	100								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,2-Dichloroethane (EDC)	ND	0.50								
1,1-Dichloroethene	ND	0.70								
Hexachlorobutadiene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Surr: 1,2-Dichloroethane-d4	0.17		0.2000		87.2	69.9	130			
Surr: 4-Bromofluorobenzene	0.19		0.2000		96.9	71.2	123			
Surr: Dibromofluoromethane	0.18		0.2000		92.4	73.9	134			
Surr: Toluene-d8	0.19		0.2000		92.9	81.9	122			

Sample ID: **lcs-8390**	SampType: **LCS**	TestCode: **Volatiles by 8260B/1311**
Client ID: **LCSS**	Batch ID: **8390**	RunNo: **11981**
Prep Date: **7/15/2013**	Analysis Date: **7/17/2013**	SeqNo: **340637** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.41	0.10	0.4000	0	103	51.1	171			
Chlorobenzene	0.41	0.10	0.4000	0	102	36.1	191			
1,1-Dichloroethene	0.38	0.10	0.4000	0	95.3	49.1	162			
Trichloroethene (TCE)	0.38	0.10	0.4000	0	95.6	41.2	166			
Surr: 1,2-Dichloroethane-d4	0.18		0.2000		89.5	69.9	130			
Surr: 4-Bromofluorobenzene	0.20		0.2000		97.6	71.2	123			
Surr: Dibromofluoromethane	0.19		0.2000		93.4	73.9	134			
Surr: Toluene-d8	0.19		0.2000		92.9	81.9	122			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

WO#: **1307524**

Hall Environmental Analysis Laboratory, Inc.

19-Jul-13

Client: Western Refining Southwest, Gallup
Project: Excavation Behind Tank

Sample ID: **mb-8399** SampType: **MBLK** TestCode: **EPA Method 8270C TCLP**
Client ID: **PBS** Batch ID: **8399** RunNo: **11982**
Prep Date: **7/16/2013** Analysis Date: **7/16/2013** SeqNo: **340675** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
Phenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2,4,6-Tribromophenol	0.11		0.2000		54.1	26.8	116			
Surr: 2-Fluorobiphenyl	0.069		0.1000		69.3	47.7	94			
Surr: 2-Fluorophenol	0.13		0.2000		65.3	17.9	87.1			
Surr: 4-Terphenyl-d14	0.072		0.1000		71.5	39.2	96.2			
Surr: Nitrobenzene-d5	0.060		0.1000		60.4	49.8	105			
Surr: Phenol-d5	0.096		0.2000		48.1	22.3	60.5			

Sample ID: **lcs-8399** SampType: **LCS** TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSS** Batch ID: **8399** RunNo: **11982**
Prep Date: **7/16/2013** Analysis Date: **7/16/2013** SeqNo: **340676** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.065	0.010	0.1000	0	65.0	32	109			
3+4-Methylphenol	0.16	0.010	0.2000	0	78.9	36.2	121			
2,4-Dinitrotoluene	0.075	0.010	0.1000	0	75.0	40	108			
Hexachlorobenzene	0.071	0.010	0.1000	0	70.8	40.5	89			
Hexachlorobutadiene	0.065	0.010	0.1000	0	64.7	23	98.8			
Hexachloroethane	0.072	0.010	0.1000	0	71.7	20.9	104			
Nitrobenzene	0.090	0.010	0.1000	0	89.7	38.4	118			
Pentachlorophenol	0.046	0.010	0.1000	0	46.4	13	106			
Pyridine	0.016	0.010	0.1000	0	16.3	9.77	85.3			
2,4,5-Trichlorophenol	0.089	0.010	0.1000	0	89.5	19.6	118			
2,4,6-Trichlorophenol	0.083	0.010	0.1000	0	82.9	15.6	117			
Cresols, Total	0.24	0.010	0.3000	0	80.6	35.6	116			
Surr: 2,4,6-Tribromophenol	0.12		0.2000		61.6	26.8	116			
Surr: 2-Fluorobiphenyl	0.077		0.1000		77.0	47.7	94			
Surr: 2-Fluorophenol	0.11		0.2000		53.4	17.9	87.1			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1307524**

19-Jul-13

Client: Western Refining Southwest, Gallup

Project: Excavation Behind Tank

Sample ID: **lcs-8399**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSS**	Batch ID: **8399**	RunNo: **11982**
Prep Date: **7/16/2013**	Analysis Date: **7/16/2013**	SeqNo: **340676** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	0.078		0.1000		78.5	39.2	96.2			
Surr: Nitrobenzene-d5	0.080		0.1000		80.5	49.8	105			
Surr: Phenol-d5	0.076		0.2000		37.9	22.3	60.5			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

WO#: **1307524**

Hall Environmental Analysis Laboratory, Inc.

19-Jul-13

Client: Western Refining Southwest, Gallup

Project: Excavation Behind Tank

Sample ID: **MB-8429**	SampType: **MBLK**	TestCode: **MERCURY, TCLP**
Client ID: **PBW**	Batch ID: **8429**	RunNo: **12011**
Prep Date: **7/17/2013**	Analysis Date: **7/17/2013**	SeqNo: **341348** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID: **LCS-8429**	SampType: **LCS**	TestCode: **MERCURY, TCLP**
Client ID: **LCSW**	Batch ID: **8429**	RunNo: **12011**
Prep Date: **7/17/2013**	Analysis Date: **7/17/2013**	SeqNo: **341349** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	96.0	80	120			

Sample ID: **1307524-001AMS**	SampType: **MS**	TestCode: **MERCURY, TCLP**
Client ID: **Soil Pile Behind 101**	Batch ID: **8429**	RunNo: **12011**
Prep Date: **7/17/2013**	Analysis Date: **7/17/2013**	SeqNo: **341356** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	95.3	75	125			

Sample ID: **1307524-001AMSD**	SampType: **MSD**	TestCode: **MERCURY, TCLP**
Client ID: **Soil Pile Behind 101**	Batch ID: **8429**	RunNo: **12011**
Prep Date: **7/17/2013**	Analysis Date: **7/17/2013**	SeqNo: **341357** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	94.4	75	125	0	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1307524**

19-Jul-13

Client: Western Refining Southwest, Gallup

Project: Excavation Behind Tank

Sample ID: **MB-8438** SampType: **MBLK** TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW** Batch ID: **8438** RunNo: **12051**
Prep Date: **7/18/2013** Analysis Date: **7/18/2013** SeqNo: **342596** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Silver	ND	5.0								

Sample ID: **LCS-8438** SampType: **LCS** TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW** Batch ID: **8438** RunNo: **12051**
Prep Date: **7/18/2013** Analysis Date: **7/18/2013** SeqNo: **342597** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	ND	100	0.5000	0	103	80	120			
Cadmium	ND	1.0	0.5000	0	104	80	120			
Chromium	ND	5.0	0.5000	0	100	80	120			
Lead	ND	5.0	0.5000	0	98.7	80	120			
Silver	ND	5.0	0.1000	0	107	80	120			

Sample ID: **MB-8438** SampType: **MBLK** TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW** Batch ID: **8438** RunNo: **12051**
Prep Date: **7/18/2013** Analysis Date: **7/18/2013** SeqNo: **342625** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								

Sample ID: **LCS-8438** SampType: **LCS** TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW** Batch ID: **8438** RunNo: **12051**
Prep Date: **7/18/2013** Analysis Date: **7/18/2013** SeqNo: **342626** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	113	80	120			

Sample ID: **MB-8438** SampType: **MBLK** TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW** Batch ID: **8438** RunNo: **12065**
Prep Date: **7/18/2013** Analysis Date: **7/19/2013** SeqNo: **343176** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	1.0								

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1307524**

19-Jul-13

Client: Western Refining Southwest, Gallup

Project: Excavation Behind Tank

Sample ID: **LCS-8438**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **8438**	RunNo: **12065**
Prep Date: **7/18/2013**	Analysis Date: **7/19/2013**	SeqNo: **343177** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Selenium	ND	1.0	0.5000	0	111	80	120			

Qualifiers:

*	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
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
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 Log-In Check List

Client Name: Western Refining Gallup Work Order Number: 1307524 RcptNo: 1

Received by/date: 07/12/13

Logged By: Lindsay Mangin 7/12/2013 7:00:00 AM

Completed By: Lindsay Mangin 7/12/2013 7:31:13 AM

Reviewed By: mg 07/12/13

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.1	Good	Yes			

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Client: Western - Refining

Gallup Refinery

Mailing Address: RT 3 Box 7

Gallup NM 87301

Phone #: 505 722 3833

email or Fax#: 505 863 0930

QA/QC Package:

☐ Standard ☐ Level 4 (Full Validation)

☐ Other _____

☐ EDD (Type) _____

☐ Standard ☒ Rush _____

Project Name: Excavation Behind Tank

Project #: Excavation Behind Tank 101/102

Project Manager: Beck Larsen

Sampler: MPPE-OPPs

On Ice: ☒ Yes ☐ No

Sample Temperature: 1

HEAL No. 1307524

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)B	BTEX + MTBE + TPH (Gas only)	TPH-8015B (GRO/DRO/MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH (8310 or 8270SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA) TCLP	8270 (Semi-VOA) TCLP	RCI	TCLP Metals			Air Bubbles (Y or N)
7/10/2013	15:30PM	H2O	Soil Pile Behind 101/102	9 oz - 4	N/A	-001			X							X	X	X	X			

Date: 07-11-13 Time: 12:00 Relinquished by: Alvin Dorsey Received by: Date 07/12/13 Time 0700

Date: Time: Relinquished by: Received by: Date Time

Remarks: (101) (102) JL (Pile/EUDC)

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

July 25, 2013

Cheryl Johnson
Western Refining Southwest, Gallup
Rt. 3 Box 7
Gallup, NM 87301
TEL: (505) 722-0231
FAX (505) 722-0210

RE: Seep West of T102 OrderNo.: 1307891

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 1 sample(s) on 7/19/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1307891**
Date Reported: **7/25/2013**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Project: Seep West of T102
Lab ID: 1307891-001 **Matrix:** SOIL

Client Sample ID: Soil Drill Cuttings
Collection Date: 7/17/2013 8:00:00 AM
Received Date: 7/19/2013 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	140	9.9		mg/Kg	1	7/23/2013 4:23:04 PM	8486
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/23/2013 4:23:04 PM	8486
Surr: DNOP	116	63-147		%REC	1	7/23/2013 4:23:04 PM	8486
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **DAM**	
Gasoline Range Organics (GRO)	390	46		mg/Kg	10	7/23/2013 12:43:46 PM	8488
Surr: BFB	134	80-120	S	%REC	10	7/23/2013 12:43:46 PM	8488
MERCURY, TCLP						Analyst: **IDC**	
Mercury	ND	0.020		mg/L	1	7/24/2013 2:16:28 PM	8537
EPA METHOD 6010B: TCLP METALS						Analyst: **JLF**	
Arsenic	ND	5.0		mg/L	1	7/24/2013 2:27:37 PM	8533
Barium	ND	100		mg/L	5	7/24/2013 2:37:31 PM	8533
Cadmium	ND	1.0		mg/L	1	7/24/2013 2:27:37 PM	8533
Chromium	ND	5.0		mg/L	1	7/24/2013 2:27:37 PM	8533
Lead	ND	5.0		mg/L	1	7/24/2013 2:27:37 PM	8533
Selenium	ND	1.0		mg/L	1	7/24/2013 2:27:37 PM	8533
Silver	ND	5.0		mg/L	1	7/24/2013 2:27:37 PM	8533
EPA METHOD 8270C TCLP						Analyst: **DAM**	
2-Methylphenol	ND	200		mg/L	1	7/23/2013 2:47:06 PM	8508
3+4-Methylphenol	ND	200		mg/L	1	7/23/2013 2:47:06 PM	8508
Phenol	ND	200		mg/L	1	7/23/2013 2:47:06 PM	8508
2,4-Dinitrotoluene	ND	0.13		mg/L	1	7/23/2013 2:47:06 PM	8508
Hexachlorobenzene	ND	0.13		mg/L	1	7/23/2013 2:47:06 PM	8508
Hexachlorobutadiene	ND	0.50		mg/L	1	7/23/2013 2:47:06 PM	8508
Hexachloroethane	ND	3.0		mg/L	1	7/23/2013 2:47:06 PM	8508
Nitrobenzene	ND	2.0		mg/L	1	7/23/2013 2:47:06 PM	8508
Pentachlorophenol	ND	100		mg/L	1	7/23/2013 2:47:06 PM	8508
Pyridine	ND	5.0		mg/L	1	7/23/2013 2:47:06 PM	8508
2,4,5-Trichlorophenol	ND	400		mg/L	1	7/23/2013 2:47:06 PM	8508
2,4,6-Trichlorophenol	ND	2.0		mg/L	1	7/23/2013 2:47:06 PM	8508
Cresols, Total	ND	200		mg/L	1	7/23/2013 2:47:06 PM	8508
Surr: 2,4,6-Tribromophenol	67.2	26.8-116		%REC	1	7/23/2013 2:47:06 PM	8508
Surr: 2-Fluorobiphenyl	72.0	47.7-94		%REC	1	7/23/2013 2:47:06 PM	8508
Surr: 2-Fluorophenol	70.6	17.9-87.1		%REC	1	7/23/2013 2:47:06 PM	8508
Surr: 4-Terphenyl-d14	81.0	39.2-96.2		%REC	1	7/23/2013 2:47:06 PM	8508
Surr: Nitrobenzene-d5	81.6	49.8-105		%REC	1	7/23/2013 2:47:06 PM	8508
Surr: Phenol-d5	59.3	22.3-60.5		%REC	1	7/23/2013 2:47:06 PM	8508
VOLATILES BY 8260B/1311						Analyst: **DJF**	
Benzene	ND	0.50		mg/L	1	7/23/2013 3:58:11 PM	8505

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: Soil Drill Cuttings
Project: Seep West of T102
Collection Date: 7/17/2013 8:00:00 AM
Lab ID: 1307891-001 **Matrix:** SOIL **Received Date:** 7/19/2013 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
VOLATILES BY 8260B/1311						Analyst: **DJF**	
2-Butanone	ND	10		mg/L	1	7/23/2013 3:58:11 PM	8505
Carbon Tetrachloride	ND	0.50		mg/L	1	7/23/2013 3:58:11 PM	8505
Chlorobenzene	ND	100		mg/L	1	7/23/2013 3:58:11 PM	8505
Chloroform	ND	6.0		mg/L	1	7/23/2013 3:58:11 PM	8505
1,4-Dichlorobenzene	ND	7.5		mg/L	1	7/23/2013 3:58:11 PM	8505
1,2-Dichloroethane (EDC)	ND	0.50		mg/L	1	7/23/2013 3:58:11 PM	8505
1,1-Dichloroethene	ND	0.70		mg/L	1	7/23/2013 3:58:11 PM	8505
Hexachlorobutadiene	ND	0.50		mg/L	1	7/23/2013 3:58:11 PM	8505
Tetrachloroethene (PCE)	ND	0.70		mg/L	1	7/23/2013 3:58:11 PM	8505
Trichloroethene (TCE)	ND	0.50		mg/L	1	7/23/2013 3:58:11 PM	8505
Vinyl chloride	ND	0.20		mg/L	1	7/23/2013 3:58:11 PM	8505
Surr: 1,2-Dichloroethane-d4	90.6	69.9-130		%REC	1	7/23/2013 3:58:11 PM	8505
Surr: 4-Bromofluorobenzene	92.0	71.2-123		%REC	1	7/23/2013 3:58:11 PM	8505
Surr: Dibromofluoromethane	89.4	73.9-134		%REC	1	7/23/2013 3:58:11 PM	8505
Surr: Toluene-d8	93.4	81.9-122		%REC	1	7/23/2013 3:58:11 PM	8505
EPA METHOD 418.1: TPH						Analyst: **jmb**	
Petroleum Hydrocarbons, TR	430	20		mg/Kg	1	7/23/2013	8510

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Anatek Labs, Inc.

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

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	130723030
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1307891
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	130723030-001	**Sampling Date**	7/17/2013	**Date/Time Received**	7/23/2013 10:50 AM
Client Sample ID	1307891-001B / SOIL DRILL CUTTINGS			**Sampling Time**	8:00 AM
Matrix	Soil	**Sample Location**			
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide (reactive)	ND	mg/Kg	0.3	7/24/2013	CRW	SW846 CH7	
Ignitability	Negative			7/23/2013	JWC	EPA 1030	
pH	7.90	ph Units		7/24/2013	AJT	EPA 9045	
Reactive sulfide	ND	mg/kg	10	7/24/2013	AJT	SW846 CH7	
%moisture	17.8	Percent		7/23/2013	AJT	%moisture	

Authorized Signature

John Coddington, Lab Manager

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

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1307891**

25-Jul-13

Client: Western Refining Southwest, Gallup

Project: Seep West of T102

Sample ID **MB-8510**	SampType: **MBLK**	TestCode: **EPA Method 418.1: TPH**
Client ID: **PBS**	Batch ID: **8510**	RunNo: **12130**
Prep Date: **7/23/2013**	Analysis Date: **7/23/2013**	SeqNo: **344995** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	ND	20								

Sample ID **LCS-8510**	SampType: **LCS**	TestCode: **EPA Method 418.1: TPH**
Client ID: **LCSS**	Batch ID: **8510**	RunNo: **12130**
Prep Date: **7/23/2013**	Analysis Date: **7/23/2013**	SeqNo: **344996** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	92	20	100.0	0	91.8	80	120			

Sample ID **LCSD-8510**	SampType: **LCSD**	TestCode: **EPA Method 418.1: TPH**
Client ID: **LCSS02**	Batch ID: **8510**	RunNo: **12130**
Prep Date: **7/23/2013**	Analysis Date: **7/23/2013**	SeqNo: **344997** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	95	20	100.0	0	94.6	80	120	3.01	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

WO#: **1307891**

Hall Environmental Analysis Laboratory, Inc.

25-Jul-13

Client: Western Refining Southwest, Gallup
Project: Seep West of T102

Sample ID **LCS-8486**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **8486**	RunNo: **12083**
Prep Date: **7/22/2013**	Analysis Date: **7/22/2013**	SeqNo: **343712** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	10	50.00	0	88.0	77.1	128			
Surr: DNOP	4.2		5.000		84.9	63	147			

Sample ID **MB-8486**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **8486**	RunNo: **12083**
Prep Date: **7/22/2013**	Analysis Date: **7/22/2013**	SeqNo: **343713** 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	9.0		10.00		89.5	63	147			

Sample ID **1307891-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **Soil Drill Cuttings**	Batch ID: **8486**	RunNo: **12137**
Prep Date: **7/22/2013**	Analysis Date: **7/23/2013**	SeqNo: **345199** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	270	10	50.15	183.6	169	61.3	138			S
Surr: DNOP	6.3		5.015		125	63	147			

Sample ID **1307891-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **Soil Drill Cuttings**	Batch ID: **8486**	RunNo: **12137**
Prep Date: **7/22/2013**	Analysis Date: **7/23/2013**	SeqNo: **345200** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	150	9.9	49.31	183.6	-71.1	61.3	138	48.0	20	SR
Surr: DNOP	6.0		4.931		121	63	147	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1307891**

25-Jul-13

Client: Western Refining Southwest, Gallup

Project: Seep West of T102

Sample ID **MB-8488**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **8488**	RunNo: **12124**
Prep Date: **7/22/2013**	Analysis Date: **7/23/2013**	SeqNo: **345356** 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	1200		1000		116	80	120			

Qualifiers:

*	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
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

WO#: **1307891**

Hall Environmental Analysis Laboratory, Inc.

25-Jul-13

Client: Western Refining Southwest, Gallup
Project: Seep West of T102

Sample ID **MB-8505**	SampType: **MBLK**	TestCode: **Volatiles by 8260B/1311**
Client ID: **PBS**	Batch ID: **8505**	RunNo: **12138**
Prep Date: **7/22/2013**	Analysis Date: **7/23/2013**	SeqNo: **345217** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.50								
2-Butanone	ND	10								
Carbon Tetrachloride	ND	0.50								
Chlorobenzene	ND	100								
Chloroform	ND	6.0								
1,4-Dichlorobenzene	ND	7.5								
1,2-Dichloroethane (EDC)	ND	0.50								
1,1-Dichloroethene	ND	0.70								
Hexachlorobutadiene	ND	0.50								
Tetrachloroethene (PCE)	ND	0.70								
Trichloroethene (TCE)	ND	0.50								
Vinyl chloride	ND	0.20								
Surr: 1,2-Dichloroethane-d4	0.18		0.2000		88.0	69.9	130			
Surr: 4-Bromofluorobenzene	0.18		0.2000		91.5	71.2	123			
Surr: Dibromofluoromethane	0.19		0.2000		95.9	73.9	134			
Surr: Toluene-d8	0.18		0.2000		89.7	81.9	122			

Sample ID **LCS-8505**	SampType: **LCS**	TestCode: **Volatiles by 8260B/1311**
Client ID: **LCSS**	Batch ID: **8505**	RunNo: **12138**
Prep Date: **7/22/2013**	Analysis Date: **7/23/2013**	SeqNo: **345218** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.46	0.30	0.4000	0	115	51.1	171			
Chlorobenzene	0.39	0.30	0.4000	0	98.3	36.1	191			
1,1-Dichloroethene	0.48	0.30	0.4000	0	121	49.1	162			
Trichloroethene (TCE)	0.42	0.30	0.4000	0	104	41.2	166			
Surr: 1,2-Dichloroethane-d4	0.17		0.2000		86.4	69.9	130			
Surr: 4-Bromofluorobenzene	0.19		0.2000		94.6	71.2	123			
Surr: Dibromofluoromethane	0.19		0.2000		95.5	73.9	134			
Surr: Toluene-d8	0.19		0.2000		93.3	81.9	122			

Sample ID **1307891-001AMS**	SampType: **MS**	TestCode: **Volatiles by 8260B/1311**
Client ID: **Soil Drill Cuttings**	Batch ID: **8505**	RunNo: **12138**
Prep Date: **7/22/2013**	Analysis Date: **7/23/2013**	SeqNo: **345221** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.49	0.30	0.4000	0	122	51.1	171			
Chlorobenzene	0.41	0.30	0.4000	0	103	36.1	191			
1,1-Dichloroethene	0.45	0.30	0.4000	0	113	49.1	162			
Trichloroethene (TCE)	0.40	0.30	0.4000	0	99.1	41.2	166			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1307891**

25-Jul-13

Client: Western Refining Southwest, Gallup

Project: Seep West of T102

Sample ID **1307891-001AMS**	SampType: **MS**	TestCode: **Volatiles by 8260B/1311**
Client ID: **Soil Drill Cuttings**	Batch ID: **8505**	RunNo: **12138**
Prep Date: **7/22/2013**	Analysis Date: **7/23/2013**	SeqNo: **345221** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.19		0.2000		95.4	69.9	130			
Surr: 4-Bromofluorobenzene	0.20		0.2000		99.3	71.2	123			
Surr: Dibromofluoromethane	0.17		0.2000		85.6	73.9	134			
Surr: Toluene-d8	0.19		0.2000		93.4	81.9	122			

Sample ID **1307891-001AMSD**	SampType: **MSD**	TestCode: **Volatiles by 8260B/1311**
Client ID: **Soil Drill Cuttings**	Batch ID: **8505**	RunNo: **12138**
Prep Date: **7/22/2013**	Analysis Date: **7/23/2013**	SeqNo: **345222** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.39	0.30	0.4000	0	96.9	51.1	171	23.0	0	
Chlorobenzene	0.37	0.30	0.4000	0	92.0	36.1	191	11.8	0	
1,1-Dichloroethene	0.38	0.30	0.4000	0	94.0	49.1	162	18.3	0	
Trichloroethene (TCE)	0.35	0.30	0.4000	0	87.0	41.2	166	13.1	0	
Surr: 1,2-Dichloroethane-d4	0.17		0.2000		87.3	69.9	130	0	0	
Surr: 4-Bromofluorobenzene	0.18		0.2000		91.4	71.2	123	0	0	
Surr: Dibromofluoromethane	0.17		0.2000		86.4	73.9	134	0	0	
Surr: Toluene-d8	0.19		0.2000		93.4	81.9	122	0	0	

Qualifiers:

*	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
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1307891**

25-Jul-13

Client: Western Refining Southwest, Gallup

Project: Seep West of T102

Sample ID **mb-8508**	SampType: **MBLK**	TestCode: **EPA Method 8270C TCLP**
Client ID: **PBS**	Batch ID: **8508**	RunNo: **12150**
Prep Date: **7/23/2013**	Analysis Date: **7/23/2013**	SeqNo: **345776** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	ND	200								
3+4-Methylphenol	ND	200								
Phenol	ND	200								
2,4-Dinitrotoluene	ND	0.13								
Hexachlorobenzene	ND	0.13								
Hexachlorobutadiene	ND	0.50								
Hexachloroethane	ND	3.0								
Nitrobenzene	ND	2.0								
Pentachlorophenol	ND	100								
Pyridine	ND	5.0								
2,4,5-Trichlorophenol	ND	400								
2,4,6-Trichlorophenol	ND	2.0								
Cresols, Total	ND	200								
Surr: 2,4,6-Tribromophenol	0.14		0.2000		71.9	26.8	116			
Surr: 2-Fluorobiphenyl	0.072		0.1000		72.4	47.7	94			
Surr: 2-Fluorophenol	0.15		0.2000		73.0	17.9	87.1			
Surr: 4-Terphenyl-d14	0.079		0.1000		79.4	39.2	96.2			
Surr: Nitrobenzene-d5	0.081		0.1000		80.9	49.8	105			
Surr: Phenol-d5	0.12		0.2000		60.3	22.3	60.5			

Sample ID **lcs-8508**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSS**	Batch ID: **8508**	RunNo: **12150**
Prep Date: **7/23/2013**	Analysis Date: **7/23/2013**	SeqNo: **345777** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2-Methylphenol	0.091	0.010	0.1000	0	91.4	32	109			
3+4-Methylphenol	0.21	0.010	0.2000	0	106	36.2	121			
2,4-Dinitrotoluene	0.065	0.010	0.1000	0	65.2	40	108			
Hexachlorobenzene	0.072	0.010	0.1000	0	72.3	40.5	89			
Hexachlorobutadiene	0.077	0.010	0.1000	0	77.4	23	98.8			
Hexachloroethane	0.082	0.010	0.1000	0	81.6	20.9	104			
Nitrobenzene	0.10	0.010	0.1000	0	103	38.4	118			
Pentachlorophenol	0.035	0.010	0.1000	0	35.3	13	106			
Pyridine	0.077	0.010	0.1000	0	77.0	9.77	85.3			
2,4,5-Trichlorophenol	0.070	0.010	0.1000	0	70.1	19.6	118			
2,4,6-Trichlorophenol	0.054	0.010	0.1000	0	53.9	15.6	117			
Cresols, Total	0.30	0.010	0.3000	0	101	35.6	116			
Surr: 2,4,6-Tribromophenol	0.14		0.2000		68.0	26.8	116			
Surr: 2-Fluorobiphenyl	0.075		0.1000		75.4	47.7	94			
Surr: 2-Fluorophenol	0.12		0.2000		62.1	17.9	87.1			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1307891**

25-Jul-13

Client: Western Refining Southwest, Gallup

Project: Seep West of T102

Sample ID **lcs-8508**	SampType: **LCS**	TestCode: **EPA Method 8270C TCLP**
Client ID: **LCSS**	Batch ID: **8508**	RunNo: **12150**
Prep Date: **7/23/2013**	Analysis Date: **7/23/2013**	SeqNo: **345777** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Terphenyl-d14	0.088		0.1000		87.8	39.2	96.2			
Surr: Nitrobenzene-d5	0.090		0.1000		90.0	49.8	105			
Surr: Phenol-d5	0.11		0.2000		57.2	22.3	60.5			

Qualifiers:

*	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
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

WO#: **1307891**

Hall Environmental Analysis Laboratory, Inc.

25-Jul-13

Client: Western Refining Southwest, Gallup
Project: Seep West of T102

Sample ID **MB-8537**	SampType: **MBLK**			TestCode: **MERCURY, TCLP**						
Client ID: **PBW**	Batch ID: **8537**			RunNo: **12151**						
Prep Date: **7/24/2013**	Analysis Date: **7/24/2013**			SeqNo: **345795**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020								

Sample ID **LCS-8537**	SampType: **LCS**			TestCode: **MERCURY, TCLP**						
Client ID: **LCSW**	Batch ID: **8537**			RunNo: **12151**						
Prep Date: **7/24/2013**	Analysis Date: **7/24/2013**			SeqNo: **345796**		Units: **mg/L**				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.020	0.005000	0	99.4	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1307891**

25-Jul-13

Client: Western Refining Southwest, Gallup

Project: Seep West of T102

Sample ID **MB-8533**	SampType: **MBLK**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **PBW**	Batch ID: **8533**	RunNo: **12154**
Prep Date: **7/24/2013**	Analysis Date: **7/24/2013**	SeqNo: **345858** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0								
Barium	ND	100								
Cadmium	ND	1.0								
Chromium	ND	5.0								
Lead	ND	5.0								
Selenium	ND	1.0								
Silver	ND	5.0								

Sample ID **LCS-8533**	SampType: **LCS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **LCSW**	Batch ID: **8533**	RunNo: **12154**
Prep Date: **7/24/2013**	Analysis Date: **7/24/2013**	SeqNo: **345859** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	99.7	80	120			
Barium	ND	100	0.5000	0	90.3	80	120			
Cadmium	ND	1.0	0.5000	0	94.9	80	120			
Chromium	ND	5.0	0.5000	0	89.7	80	120			
Lead	ND	5.0	0.5000	0	89.2	80	120			
Selenium	ND	1.0	0.5000	0	97.9	80	120			
Silver	ND	5.0	0.1000	0	99.0	80	120			

Sample ID **1307891-001AMS**	SampType: **MS**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **Soil Drill Cuttings**	Batch ID: **8533**	RunNo: **12154**
Prep Date: **7/24/2013**	Analysis Date: **7/24/2013**	SeqNo: **345861** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	98.0	75	125			
Cadmium	ND	1.0	0.5000	0	95.5	75	125			
Chromium	ND	5.0	0.5000	0	88.2	75	125			
Lead	ND	5.0	0.5000	0	88.9	75	125			
Selenium	ND	1.0	0.5000	0	95.0	75	125			
Silver	ND	5.0	0.1000	0	101	75	125			

Sample ID **1307891-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: TCLP Metals**
Client ID: **Soil Drill Cuttings**	Batch ID: **8533**	RunNo: **12154**
Prep Date: **7/24/2013**	Analysis Date: **7/24/2013**	SeqNo: **345862** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	5.0	0.5000	0	95.0	75	125	0	20	
Cadmium	ND	1.0	0.5000	0	94.3	75	125	0	20	
Chromium	ND	5.0	0.5000	0	86.2	75	125	0	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

WO#: **1307891**

Hall Environmental Analysis Laboratory, Inc.

25-Jul-13

Client: Western Refining Southwest, Gallup

Project: Seep West of T102

Sample ID **1307891-001AMSD** SampType: **MSD** TestCode: **EPA Method 6010B: TCLP Metals**

Client ID: **Soil Drill Cuttings** Batch ID: **8533** RunNo: **12154**

Prep Date: **7/24/2013** Analysis Date: **7/24/2013** SeqNo: **345862** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	5.0	0.5000	0	87.5	75	125	0	20	
Selenium	ND	1.0	0.5000	0	95.1	75	125	0	20	
Silver	ND	5.0	0.1000	0	99.6	75	125	0	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- 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 Log-In Check List

Client Name: Western Refining Gallup Work Order Number: 1307891 RcptNo: 1

Received by/date: MG 07/19/13

Logged By: Michelle Garcia 7/19/2013 8:00:00 AM Michelle Garcia

Completed By: Michelle Garcia 7/19/2013 9:11:18 AM Michelle Garcia

Reviewed By: JO 07/19/13

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

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

Chain-of-Custody Record

Client: WESTERN REFINING
GALLUP REFINERY
Mailing Address: Route 3 Box 7
Gallup, NM 87301
Phone #: 505 - 722-3833
Email or Fax#: 505-863-0930
QA/QC Package:
X Standard ☐ Level 4 (Full Validation)
Accreditation:
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time:
☐ Standard X Rush ASAP
Project Name:
Seep West of T102
Project #:
Soil drill cuttings
Project Manager:
Cheryl Johnson
Cheryl.johnson@wnr.com
Sampler: C. Johnson
On Ice: ☐ Yes ☐ No
Sample Temperature: 1.0

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 130789	Analysis Request: 8015B (DRO/GRO/MRO)	418.1 TPH	8260B - TCLP	8270 - TCLP	RCRA 8 METALS - TCLP	RCI	Air Bubbles (Y or N)
7/17/2013	800	Soil	Soil Drill Cuttings	2-9 oz Jar	None	-001	X	X	X	X	X	X	

Date:	Time:	Relinquished by:	Received by:	Date	Time
7-17-2013	0900				
Date:	Time:	Relinquished by:	Received by:	Date	Time
				07/19/13	0800

Remarks:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

July 24, 2013

Cheryl Johnson
Western Refining Southwest, Gallup
Rt. 3 Box 7
Gallup, NM 87301
TEL: (505) 722-0231
FAX (505) 722-0210

RE: Seep West of Tank 102 OrderNo.: 1307892

Dear Cheryl Johnson:

Hall Environmental Analysis Laboratory received 4 sample(s) on 7/19/2013 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1307892**
Date Reported: **7/24/2013**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Project: Seep West of Tank 102
Lab ID: 1307892-001 **Matrix:** AQUEOUS

Client Sample ID: HA1
Collection Date: 7/17/2013 1:00:00 PM
Received Date: 7/19/2013 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE						Analyst: **GSA**	
Diesel Range Organics (DRO)	3.3	1.0		mg/L	1	7/19/2013 2:57:57 PM	8462
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/19/2013 2:57:57 PM	8462
Surr: DNOP	118	70.1-140		%REC	1	7/19/2013 2:57:57 PM	8462
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **DAM**	
Gasoline Range Organics (GRO)	19	5.0		mg/L	100	7/19/2013 3:26:08 PM	R12077
Surr: BFB	93.4	51.5-151		%REC	100	7/19/2013 3:26:08 PM	R12077

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Project: Seep West of Tank 102
Lab ID: 1307892-002 **Matrix:** AQUEOUS

Client Sample ID: HA2
Collection Date: 7/17/2013 1:15:00 PM
Received Date: 7/19/2013 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE						Analyst: **GSA**	
Diesel Range Organics (DRO)	3.1	1.0		mg/L	1	7/19/2013 3:28:20 PM	8462
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/19/2013 3:28:20 PM	8462
Surr: DNOP	114	70.1-140		%REC	1	7/19/2013 3:28:20 PM	8462
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **DAM**	
Gasoline Range Organics (GRO)	16	1.0		mg/L	20	7/19/2013 3:56:29 PM	R12077
Surr: BFB	102	51.5-151		%REC	20	7/19/2013 3:56:29 PM	R12077

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Project: Seep West of Tank 102
Lab ID: 1307892-003 **Matrix:** AQUEOUS

Client Sample ID: HA3
Collection Date: 7/17/2013 1:30:00 PM
Received Date: 7/19/2013 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE						Analyst: **GSA**	
Diesel Range Organics (DRO)	4.8	1.0		mg/L	1	7/19/2013 3:58:41 PM	8462
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/19/2013 3:58:41 PM	8462
Surr: DNOP	116	70.1-140		%REC	1	7/19/2013 3:58:41 PM	8462
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **DAM**	
Gasoline Range Organics (GRO)	25	1.0		mg/L	20	7/19/2013 4:26:52 PM	R12077
Surr: BFB	114	51.5-151		%REC	20	7/19/2013 4:26:52 PM	R12077

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: HA4
Project: Seep West of Tank 102
Collection Date: 7/17/2013 1:55:00 PM
Lab ID: 1307892-004 **Matrix:** AQUEOUS **Received Date:** 7/19/2013 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE						Analyst: **GSA**	
Diesel Range Organics (DRO)	17	1.0		mg/L	1	7/19/2013 4:28:49 PM	8462
Motor Oil Range Organics (MRO)	ND	5.0		mg/L	1	7/19/2013 4:28:49 PM	8462
Surr: DNOP	130	70.1-140		%REC	1	7/19/2013 4:28:49 PM	8462
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **DAM**	
Gasoline Range Organics (GRO)	17	5.0		mg/L	100	7/19/2013 2:55:45 PM	R12077
Surr: BFB	92.9	51.5-151		%REC	100	7/19/2013 2:55:45 PM	R12077

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

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1307892**

24-Jul-13

Client: Western Refining Southwest, Gallup

Project: Seep West of Tank 102

Sample ID **MB-8462**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **PBW**	Batch ID: **8462**	RunNo: **12068**
Prep Date: **7/19/2013**	Analysis Date: **7/19/2013**	SeqNo: **343222** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	1.0								
Motor Oil Range Organics (MRO)	ND	5.0								
Surr: DNOP	1.1		1.000		107	70.1	140			

Sample ID **LCS-8462**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range**
Client ID: **LCSW**	Batch ID: **8462**	RunNo: **12068**
Prep Date: **7/19/2013**	Analysis Date: **7/19/2013**	SeqNo: **343223** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	5.6	1.0	5.000	0	113	89.1	151			
Surr: DNOP	0.64		0.5000		128	70.1	140			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- 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
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1307892**

24-Jul-13

Client: Western Refining Southwest, Gallup

Project: Seep West of Tank 102

Sample ID **5ML RB**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBW**	Batch ID: **R12077**	RunNo: **12077**
Prep Date:	Analysis Date: **7/19/2013**	SeqNo: **343355** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	0.050								
Surr: BFB	18		20.00		87.8	51.5	151			

Sample ID **2.5UG GRO LCS**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSW**	Batch ID: **R12077**	RunNo: **12077**
Prep Date:	Analysis Date: **7/19/2013**	SeqNo: **343356** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	0.50	0.050	0.5000	0	99.4	80	120			
Surr: BFB	19		20.00		96.7	51.5	151			

Qualifiers:

*	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
O	RSD is greater than RSDlimit	P	Sample pH greater than 2 for VOA and TOC only.
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit

ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Western Refining Gallup Work Order Number: 1307892 RcptNo: 1

Received by/date: MG 07/19/13

Logged By: Michelle Garcia 7/19/2013 8:00:00 AM Michelle Garcia

Completed By: Michelle Garcia 7/19/2013 9:27:02 AM Michelle Garcia

Reviewed By: TO 07/19/13

Chain of Custody

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

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

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

Chain-of-Custody Record

Client: WESTERN REFINING SW, INC.

Mailing Address: ROUTE 3 BOX 7
GALLUP, NM 87301

Phone #: 505-722-3833

email or Fax#: 505-863-0930

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____

Project Name: SEEP WEST OF TANK 102

Project #:

Project Manager: CHERYL JOHNSON

Sampler: TRACY PAYNE RPS

On Ice: ☒ Yes ☐ No

Sample Temperature: 2.5

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)					
7/11/13	1300	GW	HA1	3 40ML VOA	HCL	-001			X													
	1315	GW	HA2			-002			X													
	1330	GW	HA3			-003			X													
↓	1355	GW	HA4	↓	↓	-004			X													

Date:	Time:	Relinquished by:	Received by:	Date	Time
7-18-13	12:00			07/19/13	0800
Date:	Time:	Relinquished by:	Received by:	Date	Time

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.