AP - 111

LANDFARMS

2014

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Wednesday, March 15, 2017 8:53 AM
To: 'Riege, Ed'
Cc: VanHorn, Kristen, NMENV; Griswold, Jim, EMNRD
Subject: RE: Gallup Refinery (AP-111) "September and October 2016 Chloride Exceedance Excavation Report" dated January 25, 2017

Ed, et al.:

Just a follow-up msg. to document our morning communication call with you.

OCD shared NMED's comment on former EP-10/OCD Central LFarm that it is highly likely the chlorides are from land farm use instead.

OCD attempted to understand why Western wanted the landfarm to be excluded from Part 36 Small Landfarm/Part 29 Remediation Plan process. At the conclusion of the call, Western was aware regardless of the RCRA SWMU Process or OCD's Part 36, OCD would likely become involved anyway because RCRA must satisfy state ARARs, i.e., Part 36 (e.g., small landfarm closure), Part 29 (e.g., remed. plan) and/or WQCC Regs (remed. to protect GW WQ Stds.). Consequently, Western seemed to understand OCD's joint NMED review e-mail indicating remediation of the area under OCD and RCRA would eliminate it from the SWMU. If remed. done under OCD only, then the area would likely need to be addressed during the SWMU Closure, etc.

OCD requested the following info. from Western to address the area:

1) Determine where shallow groundwater is.
2) If present, is it protectable?
3) Is there a chloride threat to protectable groundwater?
4) Is the vadose zone characterized vertically and laterally?

Western agreed to provide the info. to OCD for a "path forward" with the OCD Central LFarm. Western will have the option of also working with NMED if it wishes to also satisfy any RCRA requirements for the area.

Please chime in for clarification of the above as needed to promote communication between Western and the Agencies.

Thank you.

From: Chavez, Carl J, EMNRD
Sent: Tuesday, March 14, 2017 4:34 PM
To: 'Riege, Ed' <Ed.Riege@wnr.com>
Cc: VanHorn, Kristen, NMENV <Kristen.VanHorn@state.nm.us>; Griswold, Jim, EMNRD <Jim.Griswold@state.nm.us>
Subject: RE: Gallup Refinery (AP-111) "September and October 2016 Chloride Exceedance Excavation Report" dated January 25, 2017

Ed:

Jim and I will contact you tomorrow to communicate on this inquiry.

Thank you.

Mr. Carl J. Chavez, CHMM (#13099)
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St Francis Drive
Santa Fe, New Mexico 87505
Ph. (505) 476-3490
E-mail: CarlJ.Chavez@state.nm.us
"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: http://www.emnrd.state.nm.us/OCD and see "Publications")

From: Riege, Ed [mailto:Ed.Riege@wnr.com]
Sent: Thursday, March 2, 2017 11:36 AM
To: Chavez, Carl J, EMNRD <CarlJ.Chavez@state.nm.us>
Cc: VanHorn, Kristen, NMENV <Kristen.VanHorn@state.nm.us>
Subject: FW: Gallup Refinery (AP-111) "September and October 2016 Chloride Exceedance Excavation Report" dated January 25, 2017

Hi Carl,

Thanks for your prompt response. Can you give me your opinion of the following.
Western understands that the Evaporation Pond 10 is currently not in use and is accessible for cleanup. However, Western is suggesting that the chloride contamination in question pre-dates landfarm operation, and therefore, isn't subject to cleanup per the landfarm requirements included in NMAC 36.

Is OCD suggesting that the chloride contaminated soils beneath the footprint of the landfarm/Pond 10 need to be remediated per the NMAC 36 landfarm requirements even if the contamination was in place prior to landfarm operation?

Thanks,

Ed

Ed Riege
Remediation Manager

Western Refining
Gallup Refinery
92 Giant Crossing Road
Gallup, NM 87301
(505) 722-0217
ed.riege@wnr.com

Mr. Riege:

Re: OCD Central Landfarm

The New Mexico Oil Conservation Division (OCD) and New Mexico Environment Department (NMED) (Agencies) have completed review of the above subject report (report).

On page 3, "Proposed Path Forward", paragraph 1: The OCD Central Landfarm was built within Evaporation Pond 10 which is part of SWMU 2 (Evaporation Ponds) under Western's RCRA Permit. The updated schedule in the RCRA Permit lists corrective action at SWMU 2 as deferred since the SWMU is still in use. However, since Evaporation Pond 10 is not in use as an evaporation pond, Western can access soils for chloride remediation to address OCD's concerns. Additionally, the landfarm is permitted by OCD under Part 36 (i.e., 19.15.36 NMAC), so the continued operation of the landfarm also falls under OCD Regulations. OCD agrees with Western's proposed hot spot corrective actions in the report. Documentation (i.e., photos of excavation, C-138 manifest, etc. is required within 30-days of completion of corrective actions to verify the remediation was completed.

If Western plans to close the OCD Central Landfarm, NMED recommends in addition to OCD Regulations that NMED RCRA requirements also be addressed at the same time to avoid re-investigation of the area during SWMU 2 corrective action. OCD cannot guarantee that alternate remedial limits would be required based on the proposed source of contamination; however, OCD would consider recommended closure limits with the scientific basis if proposed in a landfarm closure plan by Western to the agencies.

Please contact me if you have questions, to request a telephone conference call, or wish to discuss this matter further. Thank you.

Mr. Carl J. Chavez, CHMM (#13099)
New Mexico Oil Conservation Division
Energy Minerals and Natural Resources Department
1220 South St Francis Drive
Santa Fe, New Mexico 87505
Ph. (505) 476-3490
E-mail: CarlJ.Chavez@state.nm.us
"Why not prevent pollution, minimize waste to reduce operating costs, reuse or recycle, and move forward with the rest of the Nation?" (To see how, go to: http://www.emnrd.state.nm.us/OCD **and see "Publications")**

Chavez, Carl J, EMNRD

From: VanHorn, Kristen, NMENV
Sent: Monday, March 20, 2017 11:04 AM
To: Riege, Ed
Cc: Hains, Allen (Allen.Hains@wnr.com); Cobrain, Dave, NMENV; Griswold, Jim, EMNRD; Chavez, Carl J, EMNRD; 'king.laurie@epa.gov'
Subject: Approval with Modifications Sept/Oct Chloride Exceedance Report OCD Central Landfarm
Attachments: APR_MODS_2016ChlorideExceedance_OCDLandfarm_EP10.pdf

Ed-
Attached is the letter we discussed last week. As I said on the phone, the April 11, 2017 due date for responses to NMED Comments 2 and 3 can be pushed out a couple of weeks to April 25, 2017 and response by email is sufficient.

Let me know if you have any questions,
Kristen

Kristen Van Horn
NMED Hazardous Waste Bureau
2905 Rodeo Park Drive East
Building 1
Santa Fe, NM 87505
Phone: 505-476-6046
Email: *Kristen.VanHorn@state.nm.us*

NEW MEXICO
ENVIRONMENT DEPARTMENT

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SUSANA MARTINEZ
Governor
JOHN A. SANCHEZ
Lt. Governor

BUTCH TONGATE
Cabinet Secretary
J. C. BORREGO
Deputy Secretary

CERTIFIED MAIL – RETURN RECEIPT REQUESTED

March 17, 2017

Mr. Ed Riege
Remediation Manager
Western Refining, Southwest Inc., Gallup Refinery
92 Giant Crossing Road
Gallup, New Mexico 87301

RE: APPROVAL WITH MODIFICATIONS
SEPTEMBER AND OCTOBER 2016 CHLORIDE EXCEEDANCE
EXCAVATION REPORT CENTRAL OIL CONSERVATION DIVISION
LANDFARM
WESTERN REFINING SOUTHWEST INC., GALLUP REFINERY
EPA ID # NMD000333211
HWB-WRG-17-003

Dear Mr. Riege:

The New Mexico Environment Department (NMED) has received the *September and October 2016 Chloride Exceedance Excavation Report Central Oil Conservation Division Landfarm* (Report), dated January 2017 on behalf of Western Refining Southwest Inc., Gallup Refinery (Permittee). The Permittee is also in receipt of an email from the Energy Minerals and Natural Resource Department, Oil Conservation Division (OCD) dated February 2, 2017 regarding this Report. After review of the Report, NMED issues this Approval with Modifications with the following comments.

Comment 1
Generally, NMED has not reviewed the Permittee's chloride reports regarding the OCD Central Landfarm, because they do not fall within NMED's regulatory authority. However, as pointed out in the Report, the Central OCD Landfarm lies within the footprint of Evaporation Pond 10 (EP-10), which is part of Solid Waste Management Unit (SWMU) 2. The OCD regulates the

Central OCD Landfarm under 19.15.36 NMAC (also known as Part 36) and required the Permittee to address chloride exceedances discovered in the landfarm. On page 3, paragraph 1, the Permittee states:

> "The Response Action Plan and subsequent excavations were intended to satisfy Rule 36 requirements and Central OCD Landfarm-specific agreements reached between Western and OCD. In light of the information presented in this correspondence, Western does not believe that vadose zone chloride concentrations in excess of the 500 mg/kg action level/ABRSC are a result of landfarm operation. Accordingly, Western does not believe that vadose zone chloride contamination needs to be addressed or remediated in accordance with NMAC Rule 36 or previous Central OCD Landfarm-specific agreements. The elevated chloride concentrations are believed to be associated with former Evaporation Pond #10. Former Evaporation Pond #10 is part of Solid Waste Management Unit (SWMU) 2. Therefore, Western believes that it would be appropriate to address the chloride contaminated soils as part of SWMU 2 remedies."

The updated corrective action schedule in the RCRA Permit defers corrective action at SWMU 2 because the unit is an active unit. However, because EP-10 is not being used as an evaporation pond and the Permittee not only has access, but is currently conducting work within the footprint of the pond/landfarm, the Permittee can address OCD's concerns and continue to follow through with the Response Action Plan and Central Landfarm-specific agreements with the OCD.

Comment 2

On page 2, under the heading "Former Evaporation Pond #10", the Permittee discusses the rationale behind the belief that the chlorides in the landfarm are from use of EP-10 for boiler house and water softener regeneration effluent. The Permittee states in paragraph 2 of that section,

> "This idea is further supported by soil data collected from the landfarm's treatment zone over the past 4 years. Western has collected 6 treatment zone samples since 2013 to assist in determining if the landfarm may be eligible for closure or soil reuse. As shown in Table 2, the maximum reported chloride concentration for samples collected from the treatment zone (1 ft bgs) is 310 mg/kg. This is less than the 500 mg/kg action level/ABRSC and far less than some of the more elevated vadose zone samples which are in excess of 2,500 mg/kg (see Table 1). If soils in the landfarm were the source of the vadose zone chloride contamination, it would be expected that the treatment zone chloride concentrations would be greater that the vadose zone chloride concentrations, but the data indicate the opposite. This line of evidence suggests a non-landfarm source."

NMED disagrees with this line of evidence. EP-10 has been used at the OCD Central Landfarm since the mid-1990s. Chloride is highly soluble and moves through the vadose zone relatively quickly. It is possible that the high levels of chlorides beneath the treatment zone are from the

landfarm and not from former EP-10 discharges. There are also high levels of chlorides in groundwater in this area and NMED and OCD required the Permittee to submit a work plan to investigate this issue. The work plan is currently under review. Provide the dimensions of EP-10 and documents from OCD related to use of the evaporation pond as a landfarm (email response is sufficient).

Comment 3
OCD's Rule 36 requires that semiannual vadose zone samples be analyzed for total petroleum hydrocarbons (TPH); benzene, toluene, ethylbenzene, and xylenes (BTEX); and, chloride. Sampling results for TPH and BTEX were not included with the Report. If samples were collected for TPH and BTEX analyses, provide the results to OCD and NMED.

Comment 4
If, at a future time, the Permittee chooses to close the OCD Central Landfarm, then the Permittee may also propose to conduct corrective action under the RCRA Permit and submit a work plan to NMED for review. The information gathered at that time may be used to support future corrective action activities at SWMU 2. A letter titled *Clarification of RCRA Corrective Action Process Evaporation Pond Closure Plan*, dated April 11, 2008 outlined the general requirements for the RCRA corrective action process and NMED can provide additional guidance when the time comes.

The Permittee must provide responses to NMED's Comments 2 and 3 on or before **April 11, 2017.**

If you have questions regarding this Approval with Modifications, please contact Kristen Van Horn of my staff at 505-476-6046.

Sincerely,

John E. Kieling
Chief
Hazardous Waste Bureau

cc: D. Cobrain NMED HWB
K. Van Horn NMED HWB
J. Griswold, OCD
C. Chavez OCD
A. Hains WRG
L. King EPA Region 6

File: Reading File and WRG 2017 File
HWB-WRG-17-003

Chavez, Carl J, EMNRD

From: Chavez, Carl J, EMNRD
Sent: Friday, February 07, 2014 2:34 PM
To: Ed.Riege@wnr.com
Cc: Sanchez, Daniel J., EMNRD; VonGonten, Glenn, EMNRD; Perrin, Charlie, EMNRD; VanHorn, Kristen, NMENV
Subject: Western Refining Southwest, Inc.- Gallup Refinery (AP-111) Central Landfarm Monitoring & Corrective Action from 2013

Ed:

The Oil Conservation Division (OCD) has reviewed Western Refining SW, Inc. – Gallup Refinery's Central OCD Landfarm letter dated January 16, 2014 with verification of excavation results (3 locations) for elevated Cl and TPH within the Landfarm. The "hot spots" were identified from semi-annual monitoring performed within the landfarm in 2013.

OCD hereby **approves** the excavation work based on the following condition:

1) Submit copies of the waste manifests from disposal at the Gandy Marley SWMF in Roswell, NM for OCD's record within 30-days from the date of this message or by COB on 3/7/2014.

Please be advised that OCD approval of this corrective action does not relieve Western Refining Southwest, Inc.- Gallup Refinery of responsibility should their operations pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve Western Refining Southwest, Inc.- Gallup Refinery of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Good job. Thank you.

Carl J. Chavez, CHMM
New Mexico Energy, Minerals & Natural Resources Department
Oil Conservation Division, Environmental Bureau
1220 South St. Francis Drive, Santa Fe, New Mexico 87505
O: (505) 476-3490
E-mail: CarlJ.Chavez@State.NM.US
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"Why Not Prevent Pollution; Minimize Waste; Reduce the Cost of Operations; & Move Forward With the Rest of the Nation?" To see how, please go to: "Pollution Prevention & Waste Minimization" at http://www.emnrd.state.nm.us/ocd/environmental.htm#environmental

Western Refining

GALLUP

WNR LISTED NYSE

January 16, 2014

Mr. Carl J. Chavez
Environmental Engineer
New Mexico Energy, Minerals, and Natural Resources Department
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, NM 87505

RE: Excavation of Grids with Elevated Chloride Concentrations
Central Oil Conservation Division Landfarm
Western Refining Company Southwest, Inc., Gallup Refinery
Gallup, New Mexico

Dear Mr. Chavez:

Western Refining Company Southwest, Inc. (Western) is submitting this correspondence to notify the Oil Conservation Division (OCD) of the results from the excavation of elevated chloride concentration areas in the Central OCD Landfarm (Landfarm) at Western's Gallup Refinery located in Gallup, New Mexico. The elevated chloride concentrations were detected in vadose zone soil samples collected from the Landfarm during a semi-annual sampling event on March 27, 2013 and a confirmation sampling event on May 8, 2013. A summary of the March and May chloride exceedances is provided in Table 1.

Semi-annual vadose zone sampling of the Landfarm is conducted in accordance with 19.15.36.15.E NMAC (Rule 36). Sampling is conducted within four randomly selected 6-foot by 6-foot grids. The grids are selected prior to each sampling event using an online random number generator. As confirmed in an OCD email dated April 30, 2013, action levels for the Landfarm for chloride and total petroleum hydrocarbons (TPH) equal the OCD-approved Alternate Beneficial Reuse Screening Concentrations (ABRSCs) of 500 milligrams per kilogram (mg/kg) and 2,500 mg/kg, respectively. As shown in Table 1, March and May 2013 vadose zone samples collected from three grids (grids 2173, 1730, and 1428) showed chloride concentrations that exceeded the action level of 500 mg/kg. Figure 1 shows the location of grids 2173, 1730, and 1428.

In accordance with OCD's September 12, 2013 email conditionally approving the proposed chloride exceedance action plan, the three grids listed above were excavated to remove chloride impacts. Trihydro initially attempted to perform the excavation activities on October 9, 2013. On that date, excavation of grid 1730 commenced. However, due to safety concerns caused by recent heavy rainfall, excavation of the grid ceased at a depth of approximately 7 feet below ground surface (ft bgs). The excavation activities were rescheduled, and the excavations were completed on November 19, 2013.

On November 19, 2013, Trihydro personnel oversaw a refinery operator use a rented John Deere model 310J backhoe to resume excavation of grid 1730, and begin contaminated soil removal at grids 2173 and 1428. Removed soil was placed on plastic sheeting to assist with future disposal. A Trihydro geologist logged the excavations using the Unified Soil Classification System (USCS). Additionally, the geologist observed the excavation sidewalls and removed soil for signs of contamination. Per the OCD-approved action plan, should stained soils and/or soils where olfactory senses suggest the presence of contamination be observed, samples should be analyzed for benzene, toluene, ethylbenzene, and xylenes (BTEX), in addition to chloride and TPH. The excavations did not exhibit any visual or olfactory

indications of impact. Accordingly, samples were not analyzed for BTEX. Grid 1730 was excavated to a total depth of approximately 8 ft bgs. Very hard native clay was encountered in grids 2173 and 1428 at a depth of approximately 5.5 ft bgs, and the backhoe could not advance the excavation deeper in these two grids. Copies of the excavations' boring logs are included as Attachment A. Photos of the three excavations are included as Attachment B.

At the total depths of each excavation, Trihydro performed chloride field screening of grab soil samples collected from the backhoe bucket. The screenings were performed using a Hach® Company Quantab® Chloride test strips. As indicated by the field screening, each of the soil samples exhibited chloride concentrations less than the action level of 500 mg/kg. Field screening results are located in the attached excavation boring logs.

Following field screening, soil samples were collected from the bottom of the three excavations and placed in laboratory-provided sample jars. The samples were labeled, secured, and placed in an iced cooler. The cooler was hand-delivered to Hall Environmental Analysis Laboratory (Hall) in Albuquerque, New Mexico on November 20, 2013 under proper chain-of-custody (COC) procedures. The samples were submitted for laboratory analyses of chlorides by EPA method 300.0 and TPH by EPA method 418.1.

Analytical data provided in Hall's November 26, 2013 laboratory report indicated that each of the three soil samples exhibited chloride concentrations less than the action level of 500 mg/kg. Additionally, each of the three soil samples indicated TPH concentrations less than the action level of 2,500 mg/kg. Laboratory analytical data is summarized in Table 1. A copy of the November 26, 2013 laboratory report and Trihydro's Tier II data validation are included as Attachments C and D, respectively. No data were rejected as a result of the Tier II data validation.

Currently, the soil excavated from the three grids remains stored on, and covered by, plastic sheeting near the three excavations. Western will provide copies of the soil disposal manifests following offsite disposal. The soil is scheduled to be transported to Gandy Marley, Inc (NM-711-1-0019) a surface waste management facility located in Roswell, NM on January 28, 2014, and the excavations, which currently remain open and barricaded, will be backfilled with clean fill after the excavated soil piles are removed. If you have any questions or comments, please do not hesitate to call me at (505) 722-0217.

Sincerely,
Western Refining Company

Ed Riege
Environmental Manager

697-039-004

Attachments

cc: C. Johnson, Western Refining
G. Price, Trihydro Corporation
K. Van Horn, NMED

TABLE

TABLE 1. CHLORIDE EXCEEDANCES GRID REMOVAL, 2013 CENTRAL OCD LANDFARM DATA SUMMARY
WESTERN REFINING SOUTHWEST, GALLUP REFINERY, GALLUP, NEW MEXICO

Grid Location	Sample Identification	Collection Date	Chlorides (mg/kg)	TPH (mg/kg)
2173	CentralOCD-01-032713	3/27/2013	1200	66
	OCD-2173-11192013	11/19/2013	300	ND(20)
1730	CentralOCD-04-032713	3/27/2013	510	140
	OCD-1730-11192013	11/19/2013	370	24
1428	Central OCD-02-05082013	5/8/2013	670	740
	OCD-1428-11192013	11/19/2013	150	ND(20)
Screening Standards				
		Baseline Concentration	7.525	20
		ABRSC	500	2500

Notes:

mg/kg = milligrams per kilogram

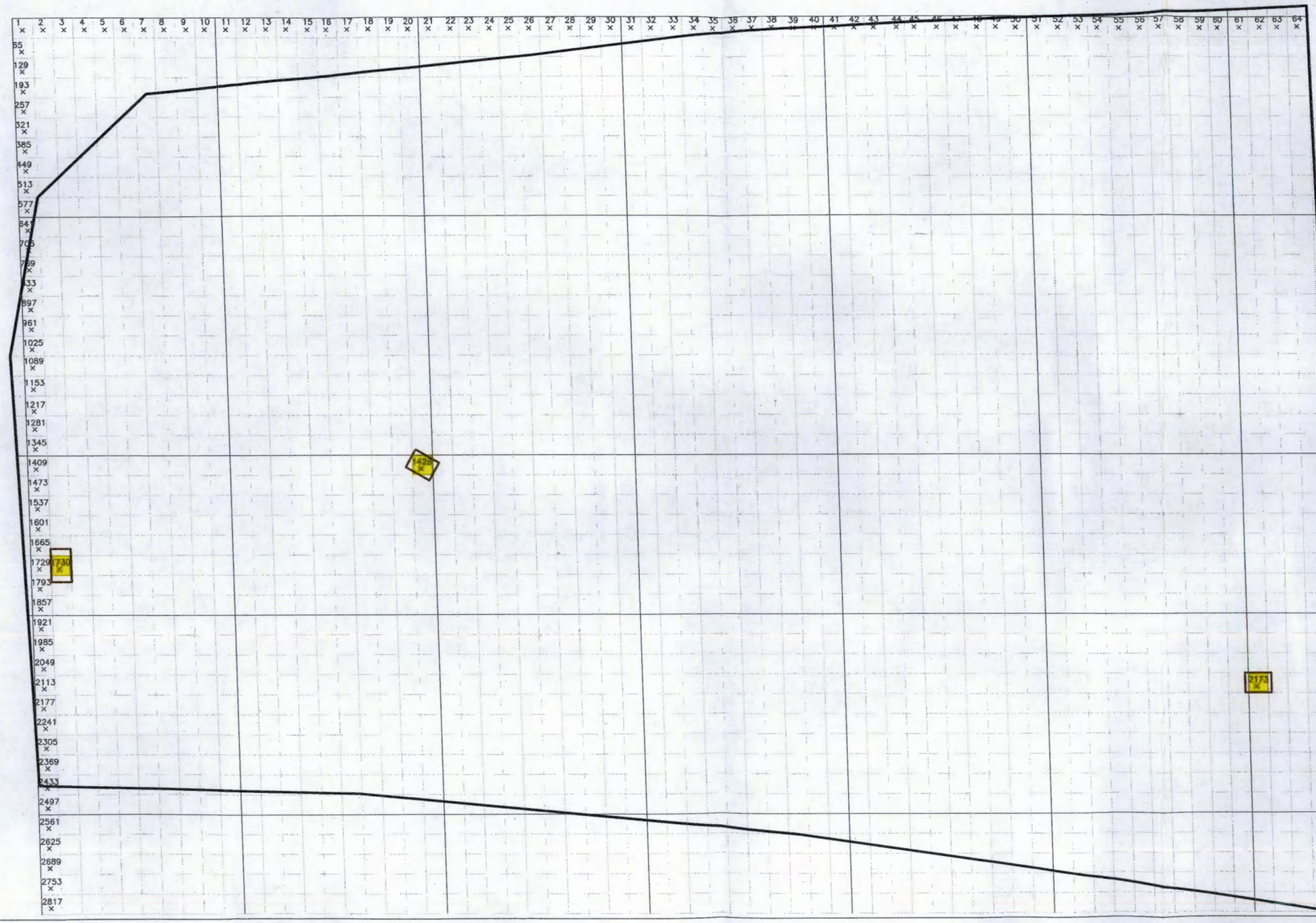
ND = non detect (laboratory reporting limit in parentheses)

TPH = total petroleum hydrocarbons

ABRSC = Alternate beneficial reuse screening concentration

Chlorides are analyzed by EPA method 300.0; TPH is analyzed by EPA method 418.1.

FIGURE



EXPLANATION

- APPROXIMATE LANDFARM BOUNDARY
- MAJOR GRID
- MINOR GRID
- EXCAVATION EXTENT
- 2173 — 6'X6' GRID
- 2173 — GRID EXCAVATED DUE TO CHLORIDE EXCEEDANCE

Trihydro CORPORATION
1252 Commerce Drive
Laramie, Wyoming 82070

DRAFT

FIGURE 1
EXCAVATION OF SOIL WITH ELEVATED CHLORIDE CONCENTRATIONS CENTRAL OCD LANDFARM
WESTERN REFINING COMPANY L.L.C.
GALLUP REFINERY

ATTACHMENT A

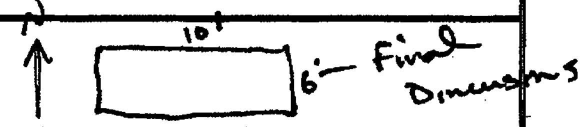
EXCAVATION BORING LOGS

Sheet 1 of 1 Sheets

TRIHYDRO CORPORATION
FIELD BORING/TEST PIT LOG

Project & Project Number:	697-039-004	Date:	11/19/2013
Project Location/Address:	Gallup Refinery OCD Landfarms	Drilling Company:	Western R.
Client:	Western Refining	Driller:	Adrian Becenti
Weather:	cool (~45), clear, sunny	Rig Type / Method:	Deere 310J (rental)
Logged by:	HLW	Sample Method (circle one):	Direct Push Split Spoon Shelby Tube Other: backhoe
		Surface Elevation:	Casing Elevation: GE Elevation:
Logger's Signature:	Hilary Walford	Equipment List:	

BORING/TEST PIT ID: Grid ~~2173~~ 1730 **Boring Location:** Central OCD Landfarm chloride screening

Interval (ft bgs)	Texture - Grain Size Major	Minor	Color Major	Modifier	Plasticity	Consistency	Moisture	Odor	Field Screening Results	Additional Comments (Odor descriptor, sheen, nodules, structure, vegitation, excavation deminsions, etc.)
8'	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --	<80 * 128	silty-clay, damp, reddish brown, v. hard, slightly plastic, no odor
	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --		
	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --		
	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --		
	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --		
	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --		
	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --		

Sample Collected: Yes

Sample ID: OCD-1730-11192013

Date: 11/19/2013

Time: 0930

Depth: 8'

Number/Size of Containers: 2

Analysis to be Performed (circle applicable): TPH / BTEX / Chlorides / NMAC List

Duplicate Collected: Yes - BD-11192013

Notes: * Chloride screening result less than 1 Quantab Units 1.2 Units = 32 x 4 = 128 ppm

* Grid began excavation on 10/10/2013; stopped @ 7' due to inclement weather; restarted today (11/19/2013) @ ~0915

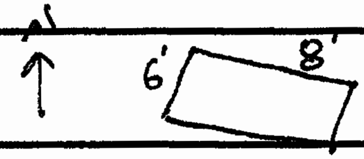
8

Sheet 1 of 1 Sheets

TRIHYDRO CORPORATION
FIELD BORING/TEST PIT LOG

Project & Project Number:	697-039-004	Date:	11/19/2013
Project Location/Address:	Gallup Refinery OCD Landfarms	Drilling Company:	Western Refining
Client:	Western Refining	Driller:	Adrian Becenti
Weather:	cool (~50°), clear, breezy	Rig Type / Method:	Deere 310 backhoe (rental)
Logged by:	HMW	Sample Method (circle one): Direct Push Split Spoon Shelby-Tube Other:	backhoe
		Surface Elevation: Casing Elevation: GE Elevation:	
Logger's Signature:	Holly Waldorf	Equipment List:	

BORING/TEST PIT ID: OCD-Grid 1428 **Boring Location:** Central OCD Landfarm

Interval (ft bgs)	Texture - Grain Size Major	Minor	Color Major	Modifier	Plasticity	Consistency	Moisture	Odor	Field Screening Results (Interval/Reading) chloride	Additional Comments (Odor descriptor, sheen, nodules, structure, vegitation, excavation deminsions, etc.)
0-4	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --		silty clay w/ irregular rounded gravel throughout dry to damp, reddish brown, soft + slightly plastic
4-5.5'	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --	<128 *	Clay w/ little silt, damp, reddish brown, v. hard, slightly plastic
	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --		
	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --		
	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --		
	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --		
	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --		

refusal @ 5.5

Sample Collected: Yes (circled)

Sample ID: OCD-1428-11192013

Date: 11/19/2013

Time: 1150

Depth: 5.5'

Number/Size of Containers: 6 total

Analysis to be Performed (circle applicable): TPH (circled) / BTEX / Chlorides (circled) / NMAC List

Duplicate Collected: No BD; but MS/MSD collected

Notes: refusal @ ~5.5' in very hard native clay
-chloride screening result = 0.4 Quantab units
1.2 units = 32 x4 = 128 ppm

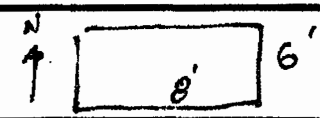
Sheet 1 of 1 Sheets

TRIHYDRO CORPORATION
FIELD BORING/TEST PIT LOG

Project & Project Number:	697-039-004	Date:	11/19/2013
Project Location/Address:	Gallup Refinery OCD Landfarms	Drilling Company:	Western Refining
Client:	Western Refining	Driller:	Adrian Benavidez
Weather:	cool (~50), clear, windy	Rig Type / Method:	Deer 310J backhoe (rental)
Logged by:	HAW	Sample Method (circle one):	Direct Push Split Spoon Shelby Tube Other: backhoe
		Surface Elevation:	Casing Elevation: GE Elevation:
Logger's Signature:	H Wal[illegible]	Equipment List:	

BORING/TEST PIT ID: OCD-2173 **Boring Location:** Central OCD Landfarm

refusal @ 5.5

Interval (ft bgs)	Texture - Grain Size Major	Texture - Grain Size Minor	Color Major	Color Modifier	Plasticity	Consistency	Moisture	Odor	Field Screening Results (Interval/Reading) chloride	Additional Comments (Odor descriptor, sheen, nodules, structure, vegitation, excavation deminsions, etc.)
0-4.5	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --		Silty-clay w/ few small gravel, dry to damp, soft to med stiff, reddish brown, slightly plastic, no odor
4.5-5.5	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --		Clay w/ little silt, damp, v. hard, crumbly, slightly plastic, reddish brown, no odor
	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --		
	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --		
	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --		
	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --		
	GVL - F M C Sand - F M C Silt Clay	Grvlly Sandy Silty Clayey	Black Gray - L M D Brn - L M D Red - L M D Other	Red Brown Gray Green Rust Yellow Other %	High Moderate Low Non --	Very Soft Soft Firm Hard Very Hard	Dry Moist Saturated -- --	Strong Moderate Slight None Noted --		

Sample Collected: (Yes)

Sample ID: OCD-2173-11192013

Date: 11/19/2013

Time:

Depth: 5.5

Number/Size of Containers: 6 total

Analysis to be Performed (circle applicable): (TPH) BTEX (Chlorides) NMAC List

Duplicate Collected: NA

Notes: refusal @ 5.5' in very hard native clay
-chloride screening result = 0.4 Quantab units
1.2 units = 32 x 4 = 128 ppm

ATTACHMENT B

PHOTO-DOCUMENTATION

EXCAVATION OF GRIDS WITH ELEVATED CHLORIDE CONCENTRATIONS
WESTERN GALLUP REFINERY
GALLUP, NEW MEXICO

Photo 1. View to the NE; excavation of grid 1428.

EXCAVATION OF GRIDS WITH ELEVATED CHLORIDE CONCENTRATIONS
WESTERN GALLUP REFINERY
GALLUP, NEW MEXICO

Photo 2. View of bottom of excavation of grid 1428; depth to bottom is approximately 5.5 feet.

EXCAVATION OF GRIDS WITH ELEVATED CHLORIDE CONCENTRATIONS
WESTERN GALLUP REFINERY
GALLUP, NEW MEXICO

Photo 3. View of bottom of Grid 1730 prior to resuming excavation.

EXCAVATION OF GRIDS WITH ELEVATED CHLORIDE CONCENTRATIONS
WESTERN GALLUP REFINERY
GALLUP, NEW MEXICO

Photo 4: View to the north, soil pile near Grid 1730 excavation.

EXCAVATION OF GRIDS WITH ELEVATED CHLORIDE CONCENTRATIONS
WESTERN GALLUP REFINERY
GALLUP, NEW MEXICO

Photo 5: View to the west-northwest; excavation and soil pile of Grid 2173.

ATTACHMENT C

NOVEMBER 26, 2013 LABORATORY 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

November 26, 2013

Ed Riege
Western Refining Southwest, Gallup
92 Giant Crossing Road
Gallup, NM 87301
TEL: (505) 722-3833
FAX (505) 722-0210

RE: OCD Central Landfarm Semiannual Sampling OrderNo.: 1311876

Dear Ed Riege:

Hall Environmental Analysis Laboratory received 6 sample(s) on 11/20/2013 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 **1311876**
Date Reported: **11/26/2013**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OCD-1428-11192013
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/19/2013 11:50:00 AM
Lab ID: 1311876-001 **Matrix:** SOIL
Received Date: 11/20/2013 9:47:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: **JRR**
Chloride	150	30		mg/Kg	20	11/22/2013 1:57:53 PM	10486
EPA METHOD 418.1: TPH							Analyst: **BCN**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	11/25/2013	10461

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
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OCD-1730-11192013
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/19/2013 9:30:00 AM
Lab ID: 1311876-002 **Matrix:** SOIL
Received Date: 11/20/2013 9:47:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: **JRR**
Chloride	370	30		mg/Kg	20	11/22/2013 2:22:42 PM	10486
EPA METHOD 418.1: TPH							Analyst: **BCN**
Petroleum Hydrocarbons, TR	24	20		mg/Kg	1	11/25/2013	10461

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

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
S	Spike Recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2 for VOA and TOC only.
RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: OCD-2173-11192013
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/19/2013 12:50:00 PM
Lab ID: 1311876-003 **Matrix:** SOIL
Received Date: 11/20/2013 9:47:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: **JRR**
Chloride	300	30		mg/Kg	20	11/22/2013 3:12:20 PM	10486
EPA METHOD 418.1: TPH							Analyst: **BCN**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	11/25/2013	10461

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

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
S	Spike Recovery outside accepted recovery limits
B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2 for VOA and TOC only.
RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: BD-11192013
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/19/2013
Lab ID: 1311876-004
Matrix: SOIL
Received Date: 11/20/2013 9:47:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: **JRR**
Chloride	290	30		mg/Kg	20	11/22/2013 3:37:10 PM	10486
EPA METHOD 418.1: TPH							Analyst: **BCN**
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	11/25/2013	10461

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
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: EB-11192013
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/19/2013 10:05:00 AM
Lab ID: 1311876-005 **Matrix:** AQUEOUS **Received Date:** 11/20/2013 9:47:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	11/22/2013 2:07:41 PM	R15041
Toluene	ND	1.0		µg/L	1	11/22/2013 2:07:41 PM	R15041
Ethylbenzene	ND	1.0		µg/L	1	11/22/2013 2:07:41 PM	R15041
Xylenes, Total	ND	2.0		µg/L	1	11/22/2013 2:07:41 PM	R15041
Surr: 4-Bromofluorobenzene	106	85-136		%REC	1	11/22/2013 2:07:41 PM	R15041

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
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: FB-11192013
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 11/19/2013 11:20:00 AM
Lab ID: 1311876-006
Matrix: AQUEOUS
Received Date: 11/20/2013 9:47:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**	
Benzene	ND	1.0		µg/L	1	11/22/2013 3:38:30 PM	R15041
Toluene	ND	1.0		µg/L	1	11/22/2013 3:38:30 PM	R15041
Ethylbenzene	ND	1.0		µg/L	1	11/22/2013 3:38:30 PM	R15041
Xylenes, Total	ND	2.0		µg/L	1	11/22/2013 3:38:30 PM	R15041
Surr: 4-Bromofluorobenzene	109	85-136		%REC	1	11/22/2013 3:38:30 PM	R15041

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
S	Spike Recovery outside accepted recovery limits		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1311876**

26-Nov-13

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID	**MB-10486**	SampType:	**MBLK**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**PBS**	Batch ID:	**10486**		RunNo:	**15033**				
Prep Date:	**11/22/2013**	Analysis Date:	**11/22/2013**		SeqNo:	**434229**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID	**LCS-10486**	SampType:	**LCS**		TestCode:	**EPA Method 300.0: Anions**				
Client ID:	**LCSS**	Batch ID:	**10486**		RunNo:	**15033**				
Prep Date:	**11/22/2013**	Analysis Date:	**11/22/2013**		SeqNo:	**434230**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.2	90	110			

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
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1311876**

26-Nov-13

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-10461**	SampType: **MBLK**	TestCode: **EPA Method 418.1: TPH**							
Client ID: **PBS**	Batch ID: **10461**	RunNo: **15044**							
Prep Date: **11/21/2013**	Analysis Date: **11/25/2013**	SeqNo: **434342**	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-10461**	SampType: **LCS**	TestCode: **EPA Method 418.1: TPH**							
Client ID: **LCSS**	Batch ID: **10461**	RunNo: **15044**							
Prep Date: **11/21/2013**	Analysis Date: **11/25/2013**	SeqNo: **434343**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	100	20	100.0	0	100	80	120			

Sample ID **LCSD-10461**	SampType: **LCSD**	TestCode: **EPA Method 418.1: TPH**							
Client ID: **LCSS02**	Batch ID: **10461**	RunNo: **15044**							
Prep Date: **11/21/2013**	Analysis Date: **11/25/2013**	SeqNo: **434344**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	100.0	0	113	80	120	12.1	20	

Sample ID **1311876-001AMS**	SampType: **MS**	TestCode: **EPA Method 418.1: TPH**							
Client ID: **OCD-1428-11192013**	Batch ID: **10461**	RunNo: **15044**							
Prep Date: **11/21/2013**	Analysis Date: **11/25/2013**	SeqNo: **434346**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	99.80	0	110	80	120			

Sample ID **1311876-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 418.1: TPH**							
Client ID: **OCD-1428-11192013**	Batch ID: **10461**	RunNo: **15044**							
Prep Date: **11/21/2013**	Analysis Date: **11/25/2013**	SeqNo: **434347**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	99.90	0	114	80	120	3.54	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
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH greater than 2 for VOA and TOC only.
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1311876**

26-Nov-13

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **5ML-RB**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBW**	Batch ID: **R15041**	RunNo: **15041**
Prep Date:	Analysis Date: **11/22/2013**	SeqNo: **434285** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	1.0								
Toluene	ND	1.0								
Ethylbenzene	ND	1.0								
Xylenes, Total	ND	2.0								
Surr: 4-Bromofluorobenzene	22		20.00		108	85	136			

Sample ID **100NG BTEX LCS**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSW**	Batch ID: **R15041**	RunNo: **15041**
Prep Date:	Analysis Date: **11/22/2013**	SeqNo: **434286** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	93.8	80	120			
Toluene	19	1.0	20.00	0	94.6	80	120			
Ethylbenzene	19	1.0	20.00	0	95.1	80	120			
Xylenes, Total	58	2.0	60.00	0	96.0	80	120			
Surr: 4-Bromofluorobenzene	22		20.00		112	85	136			

Sample ID **1311876-005A MS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **EB-11192013**	Batch ID: **R15041**	RunNo: **15041**
Prep Date:	Analysis Date: **11/22/2013**	SeqNo: **434289** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.9	73.4	119			
Toluene	20	1.0	20.00	0.5640	95.4	80	120			
Ethylbenzene	19	1.0	20.00	0	97.4	80	120			
Xylenes, Total	60	2.0	60.00	0.9340	98.4	80	120			
Surr: 4-Bromofluorobenzene	22		20.00		112	85	136			

Sample ID **1311876-005A MSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **EB-11192013**	Batch ID: **R15041**	RunNo: **15041**
Prep Date:	Analysis Date: **11/22/2013**	SeqNo: **434290** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	93.1	73.4	119	2.95	20	
Toluene	19	1.0	20.00	0.5640	92.3	80	120	3.18	20	
Ethylbenzene	19	1.0	20.00	0	94.8	80	120	2.69	20	
Xylenes, Total	59	2.0	60.00	0.9340	96.1	80	120	2.33	20	
Surr: 4-Bromofluorobenzene	22		20.00		112	85	136	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
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- 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: 1311876 RcptNo: 1

Received by/date: MG 11/20/13

Logged By: Lindsay Mangin 11/20/2013 9:47:00 AM

Completed By: Lindsay Mangin 11/20/2013 12:38:32 PM

Reviewed By: IO 11/20/13

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 ☐	
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: per JW Samples were collected in NM/A 11/22/13 Notified JW we did not receive TB

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.0	Good	Not Present			

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	☒ Standard ☐ Rush
Mailing Address: Route 3 Box 7	Project Name: OCD Central Landfarm Semiannual Sampling
Gallup, NM 87301	Project #: 697-039-004
Phone #: 505-722-3833	Project Manager: Ed Riege
email or Fax#: 505-722-0210	Sampler: Joey Waldmann / Kelsey Through
QA/QC Package: ☒ Standard ☐ Level 4 (Full Validation)	On Ice: ☒ Yes ☐ No
Accreditation: ☐ NELAP ☐ Other	Sample Temperature: 1.0
☐ EDD (Type) Please provide EDD	

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. B11876	TPH (418.1)	BTEX (8021)	Chlorides (300.1)
11/19/13	1150	soil	OCD-~~grid~~-1428-11192013 #50	4oz - 2	none	-001	X		X
11/19/13	0930	soil	OCD-~~grid~~-1730-11192013	4oz - 2	none	-002	X		X
11/19/13	1250	soil	OCD-~~grid~~-2173-11192013	4oz - 2	none	-003	X		X
11/19/13	—	soil	BD-11192013	4oz - 2	none	-004	X		X
11/19/13	1150	soil	OCD-~~grid~~-1428-11192013-MS	4oz - 2	none	-005	X		X
11/19/13	1150	soil	OCD-~~grid~~-1428-11192013-MSD	4oz - 2	none	-006	X		X
11/19/13	1005	water	EB-11192013	VOA - 3	HCL	-007		X	
11/19/13	1120	water	FB-11192013	VOA - 3	HCL	-008		X	
11/19/13		water	~~Trip Blank~~ KT 11/22/13	VOA - 2	HCL	-009		X	

Date	Time	Relinquished by	Received by	Date	Time
11/20/13	0947	Joey Waldmann (TriHydro)			
				11/20/13	0947
Date	Time	Relinquished by	Received by	Date	Time

Remarks: Please cc Grant Price (gprice@trihydro.com) with results
Call Grant @ 307-399-0890 w/ questions.

Required Detection limits (mg/kg): B=0.05, E=0.05, T=0.05, X=0.1, Chlorides=7.53, TPH=20

Did not Receive Trip Blank KT 11/22/13

ATTACHMENT D

TIER II DATA VALIDATION

Tier II Data Validation Report Summary

Client: Western Refining Southwest, Inc.	Laboratory: Hall Environmental Analysis Laboratory, Inc.
Project Name: OCD Landfarm Hot Spot samples	Sample Matrix: Water and Soil
Project Number: 697-039-004 Task 006	Sample Start Date: 11/19/2013
Date Validated: 12/16/2013	Sample End Date: 11/19/2013
Parameters Included: Benzene, Toluene, Ethylbenzene, Xylene (BTEX), and Methyl tert-Butyl Ether (MTBE) by Environmental Protection Agency Method 8021B; Chloride by EPA Method 300.0; and Total Petroleum Hydrocarbons (TPH) by EPA Method 418.1	
Laboratory Project ID: 1311876	
Data Validator: Kelsey Thrush, Chemical Engineer	

DATA EVALUATION CRITERIA SUMMARY

A Tier II Data Validation was performed by Trihydro Corporation's Chemical Data Evaluation Services group on the analytical data report package generated by Hall Environmental Analysis Laboratory, Inc., evaluating samples from the Western Refining Southwest site located in Gallup, NM.

Precision, accuracy, method compliance, and completeness of this data package were assessed during this data review. Precision was determined by evaluating the calculated relative percent difference (RPD) values of samples from field duplicate pairs; and matrix spike (MS) and matrix spike duplicate (MSD) pairs, laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) pairs. Laboratory accuracy was established by reviewing the demonstrated percent recoveries of MS/MSD samples and LCS/LCSD, and percent recoveries (%R) of organic system monitoring compounds (surrogates) to verify that data are not biased. Field accuracy was established by collecting field and equipment blank samples to monitor for possible ambient or cross contamination during sampling and transportation. Method compliance was established by reviewing sample integrity, holding times, detection limits, surrogate recoveries, laboratory blanks, initial and continuing calibrations (where applicable), and the LCS/LCSD percent recoveries against method-specific requirements. Completeness was evaluated by determining the overall ratio of the number of samples and analyses planned versus the number of samples with valid analyses. Determination of completeness included a review of the chain-of-custody (CoC), laboratory analytical methods, and other laboratory and field documents associated with this analytical data set.

Chemical data validation was conducted in accordance with the United States Environmental Protection Agency (USEPA) Contract Laboratory Program (CLP) National Functional Guidelines for organic and inorganic analyses, or by the appropriate method if not covered in the National Functional Guidelines. Data for organic analyses were evaluated according to validation criteria set forth in the USEPA CLP National Functional Guidelines for Superfund Organic Methods Data Review, document number USEPA-540-R-08-01, June 2008 with additional reference to the USEPA CLP National Functional Guidelines for Organic Data Review, document number EPA 540/R-99-008, October 1999. Data for inorganic analyses were evaluated according to validation criteria set forth in the USEPA CLP National Functional Guidelines for Inorganic Superfund Data Review, document number EPA 540R-10-011, January 2010. Review of field duplicates was conducted according to the USEPA Region 1 Laboratory Data Validation Functional Guidelines for Evaluation of Organic Analysis, December 1996.

Tier II Data Validation Report Summary

SAMPLE NUMBERS TABLE

Client Sample ID	Laboratory Sample Number
OCD-1428-11192013	1311876-001A
OCD-1730-11192013	1311876-002A
OCD-2173-11192013	1311876-003A
BD-11192013	1311876-004A
EB-11192013	1311876-005A
FB-11192013	1311876-006A

Tier II Data Validation Report Summary

The laboratory data were reviewed to evaluate compliance with the methods and the quality of the reported data. Assessment of CoC completeness is included in Item 3 of the Data Validation Checklist. A check mark (✓) indicates that the referenced validation criteria were deemed acceptable, whereas a crossed circle (⊗) indicates validation criteria for which the data have been qualified by the data validator. A null symbol (∅) indicates that the specified criterion does not apply to the reviewed data. Details are noted in the tables below.

Validation Criteria

- ✓ Data Completeness
- ✓ CoC Documentation
- ✓ Holding Times and Preservation
- ✓ Laboratory Blanks
- ✓ System Monitoring Compounds (i.e., Surrogates)
- ✓ LCS/LCSD
- ✓ MS/MSD
- ∅ Initial and Continuing Calibrations
- ✓ Field Duplicates
- ∅ Laboratory Duplicates
- ✓ Equipment and Field Blanks

OVERALL DATA PACKAGE ASSESSMENT

Based on a data validation review, the data are acceptable as delivered. Data qualified by the laboratory are discussed in Item 2 of the Data Validation Checklist.

Data qualifiers were not used during this data validation report.

Data Completeness

The analyses were performed as requested on the CoC records. The associated samples were received by the laboratory and analyzed properly. The complete data package consisted of 8 data points excluding blank samples. No data points were rejected. The data completeness measure for this data package is calculated to be 100% and is acceptable.

VALIDATION CRITERIA CHECKLIST

1. Was the report free of non-conformances identified by the laboratory? Yes

Comments: The laboratory reports were free of non-conformances related to the analytical data.

2. Were the data free of data qualification flags and/or notes used by the laboratory? If no, define. Yes

Comments: The data was free of qualification flags from the laboratory.

3. Were sample CoC forms complete? Yes

Comments: The CoC form was complete from the field to the laboratory. Custody was maintained with proper signatures, times, and dates or receipt.

4. Were detection limits in accordance with the quality assurance project plan (QAPP), permit, or method, or indicated as acceptable? Yes

Comments: The detection limits were acceptable.

300.0: A dilution factor of 20 times was applied for the analysis of samples OCD-1428-11192013, OCD-1730-11192013, BD-11192013 and OCD-2173-1192013.

5. Were the reported analytical methods and constituents in compliance with the QAPP, permit, or CoC? Were any analytes reported by more than one method? Yes

Comments: The reported analytical methods were in compliance with the CoC and the laboratory reported the requested constituents in accordance with the CoC.

6. Were samples received in good condition within method-specified requirements? No

Comments: Samples were received on ice, intact, and in good condition outside the temperature 4°C +/- 2°C acceptance ranges at a temperature of 1.0°C, as noted on the Sample Receipt forms. Sample temperatures below the 2°C limit were judged to be acceptable since sample bottles were noted to be intact and were not frozen. Custody seals were noted to be present upon receipt at the laboratory.

7. Were samples extracted and analyzed within method-specified or technical holding times? Yes

Comments: Samples were extracted and analyzed within the method specified holding times.

8. Were reported units appropriate for the sample matrix/matrices and analytical method(s)? Yes

Comments: The results were reported in concentration unit of mg/Kg and µg/L for analyses. This was an acceptable unit for the sample matrices and requested analyses.

9. Was there indication from the laboratory that the initial or continuing calibration verification results were within acceptable limits? N/A

Comments: Calibration data were not reported as part of the analytical data. However, the results were assumed to be acceptable since non-conformances were not noted by the laboratory.

10. Was the total number of laboratory blank samples prepared equal to at least 5% of the total number of samples or analyzed as required by the method? Yes

Comments: The total number of laboratory blank samples prepared was equal to at least 5% of the total number of samples.

11. Were laboratory blank samples reported to be free of target analyte contamination? Yes

Comments: The laboratory blank samples were reported to be free of analyte contamination.

12. Was the total number of MS samples prepared equal to at least 5% of the total number of samples or analyzed as required by the method? Yes

Comments: The total number of matrix spike samples prepared was equal to at least 5% of the total number of samples as shown in the following table.

Method	Analytes	Batch	MS Sample Source
418.1	TPH	10461	OCD-1428-11192013

VALIDATION CRITERIA CHECKLIST				
	8021B	BTEX	R15041	EB-11192013
	300.0	Chloride	10486	Not Prepared
The source sample listed as "Not Prepared" did not have an MS or MSD associated with the analytical batch.				
13. Were MS/MSD percent recoveries and MS/MSD RPDs within data validation or laboratory quality control (QC) limits?				Yes
Comments: The MS/MSD recoveries and MS/MSD RPDs were within laboratory-specified limits.				
14. Was the total number of LCSs analyzed equal to at least 5% of the total number of samples or analyzed as required by the method?				Yes
Comments: The total number of LCSs analyzed was equal to at least 5% of the total number of samples.				
15. Were LCS/LCSD percent recoveries and LCS/LCSD RPDs within data validation or laboratory QC limits?				Yes
Comments: The LCS/LCSD percent recoveries and RPD values were within laboratory QC limits.				
16. Were surrogate recoveries within laboratory QC limits?				Yes
Comments: Surrogate recoveries were within laboratory QC limits.				
17. Were the number of trip blank, field blank, and/or equipment blank samples collected equal to at least 10% of the total number of samples or as required by the project guidelines, QAPP, SAP, or permit?				Yes
Comments: One equipment blank, EB-11192013, and one field blank, FB-11192013, were collected as part of the sample set.				
18. Were the trip blank, field blank, and/or equipment blank samples reported to be free of target analyte contamination?				Yes
Comments: The field and equipment blank samples were free of target analytes.				
19. Was the number of field duplicates collected equal to at least 10% of the total number of samples or as required by the project guidelines, QAPP, SAP, or permit?				Yes
Comments: The number of field duplicates collected was equal to at least 10% of the total number of samples. Sample BD-11192013 was collected as a field duplicate of sample OCD-2173-11192013.				
20. Were field duplicate RPD values within data validation QC limits (soil 0-50%, water 0-30%, or air 0-25%)?				No
Comments: The field duplicate RPD values were within soil QC limits of 50%.				
21. Were laboratory duplicate RPD values within laboratory QC limits?				N/A
Comments: Laboratory duplicates were not analyzed for this sample set.				

FIELD DUPLICATE SUMMARY

Client Sample ID: Central OCD-2173-11192013 Field Duplicate Sample ID: BD-11192013				
Analyte	**Method**	**Laboratory Result (mg/Kg)**	**Duplicate Result (mg/Kg)**	**Relative Percent Difference (RPD)**
Chloride	**300.0**	**300**	**290**	**3.4%**
Field duplicate RPD control limits are not to exceed 50% for soil as established by USEPA Region 1 Laboratory Data Validation Function Guidelines for Evaluation of Organic Analysis, December 1996.				