Western Refining
GALLUP

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NMED
Hazardous Waste
Bureau

May 27, 2015

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: Grid 2121 Chloride Exceedance Excavation Report
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) that excavation and confirmation sampling of the Grid 2121 area in the Central OCD Landfarm (Landfarm) at Western's Gallup Refinery located in Gallup, New Mexico is complete. The work was done in accordance the "Chloride Exceedance Response Action Plan, Central Oil Conservation Division Landfarm, Western Refining Company Southwest, Inc., Gallup Refinery, Gallup, New Mexico" (Action Plan) dated March 20, 2015 and approved by OCD via email on March 25, 2015.

Background

Semiannual vadose zone sampling of the Landfarm is conducted in accordance with 19.15.36.15.E NMAC (Rule 36). Samples are collected from four randomly selected 6-foot-by-6-foot grids. The grids are selected prior to each sampling event using a random number generator. Rule 36 requires that semiannual vadose zone samples be analyzed for total petroleum hydrocarbons (TPH); benzene, toluene, ethylbenzene, and xylenes (BTEX); and, chloride. Per Rule 36, results are compared to either the practical quantitation limit (PQL) or background soil concentrations, whichever is higher. However, as agreed in an OCD email dated April 30, 2013, action levels for Western's Landfarm for chloride and TPH equal the OCD-approved Alternate Beneficial Reuse Screening Concentrations (ABRSCs) of 500 milligrams per kilogram (mg/kg) and 2,500 mg/kg, respectively.

The chloride concentration in the September 16, 2014 vadose sample collected from Grid 2121 (sample ID CentralOCD-04-091614) exceeded the above-referenced action level/ABRSC (500 mg/kg). In response to the exceedance, in accordance with Rule 36, and as approved in OCD's January 20, 2015 email, Western collected and analyzed an additional "four randomly selected, independent samples for TPH, BTEX, chlorides, and the constituents listed in Subsections A and B of 20.6.2.3103 NMAC" on February 5, 2015. These data were summarized in the March 2015 Action Plan. Additional action

level/ABRSC exceedances were not identified. Accordingly, Grid 2121 is the only location requiring further action based on the September 2014 and February 2015 vadose zone data.

Work Completed and Sampling Results

In accordance with March 2015 Action Plan, chloride-contaminated soil in the area of Grid 2121 was excavated on April 7, 2015. The location, dimensions, and orientation of the excavation are illustrated on Figure 1. A lithologic log of the excavation is provided as Attachment A, and photos of the excavation are included as Attachment B. The excavation was terminated at approximately 8.5 feet below ground surface and a confirmation sample was collected from the center of the floor of the excavation.

The confirmation sample was analyzed for chloride (EPA Method 300.0) by Hall Environmental Analysis Laboratory (Hall) of Albuquerque, New Mexico. Analytical data provided in Hall's May 8, 2015 laboratory report indicate that the chloride concentration of the confirmation soil sample is 160 mg/kg, which is below the chloride action level/ABRSC of 500 mg/kg. Chloride data from the September 2014 and April 2015 Grid 2121 soil samples are summarized in Table 1. A copy of the May 8, 2015 laboratory report and Trihydro's Tier II data validation are included as Attachments C and D, respectively. No data associated with the Grid 2121 confirmation sample were rejected as a result of the Tier II data validation.

Currently, the soil excavated from the Grid 2121 area remains stockpiled on plastic sheeting adjacent to the excavation. Based on the dimensions of the excavation, approximately 30 cubic yards of excavated soil will require off-Site disposal. Western will provide OCD with 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, New Mexico in the next couple of weeks. The excavation, which currently remains open and barricaded, will be backfilled with clean fill after the excavated soil has been 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

697-039-007

Attachments

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

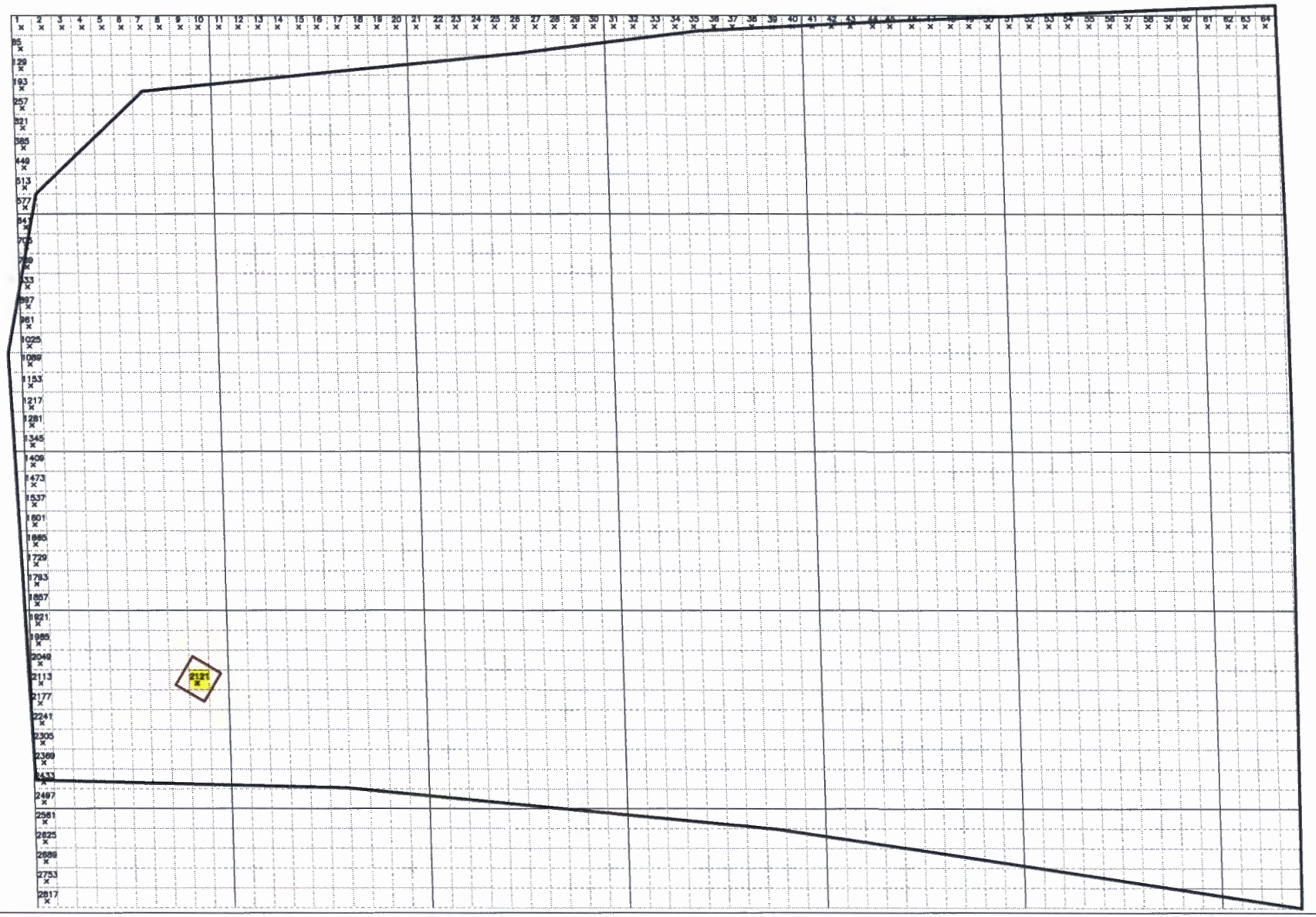
TABLE

TABLE 1. GRID 2121 CHLORIDE EXCEEDANCE EXCAVATION DATA SUMMARY, CENTRAL OCD LANDFARM
WESTERN REFINING SOUTHWEST, GALLUP REFINERY, GALLUP, NEW MEXICO

Grid Location	Sample Type	Sample Depth	Sample Identification	Collection Date	Chlorides (mg/kg)
2121	Semiannual Vadose Zone sample	6 ft bgs	CentralOCD-04-091614	9/16/2014	870
	Confirmation sample collected from the bottom of the excavation	8.5 ft bgs	OCD-2121-04072015	4/7/2015	160
Screening Standards					
				Baseline Concentration:	7.525
				ABRSC/Central Landfarm Action Level:	500

Notes:
mg/kg = milligrams per kilogram
ft bgs = feet below ground surface
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
- APPROXIMATE EXCAVATION EXTENT
- 2173 — 6'X6' GRID
- 2121 — GRID EXCAVATED DUE TO CHLORIDE EXCEEDANCE

0 ~20' ~40'

Trihydro CORPORATION
1252 Commerce Drive
Laramie, Wyoming 82070
www.trihydro.com
(P) 307/745.7474 (F) 307/745.7729

FIGURE 1

APRIL 2015 GRID 2121 CHLORIDE EXCEEDANCE EXCAVATION LOCATION CENTRAL OCD LANDFARM

WESTERN REFINING COMPANY L.L.C. GALLUP REFINERY GALLUP, NEW MEXICO

Drawn By: REP	Checked By: JW	Scale: 1" = ~20'	Date: 5/29/15	File: 697-OCD-CHLOR2121-201505

ATTACHMENT A

EXCAVATION LITHOLOGIC LOG

Sheet 5 of 5 Sheets

TRIHYDRO CORPORATION
FIELD BORING LOG

Project & Project Number: 697-039-007/8	Date: 4-7-15
Project Location/Address: Gallup Refinery OCD Landfarms	Drilling Company: WGR
Client: Western Refining	Driller: Adrian Becenti
Weather: Clear; Very Windy SW 25-40 mph	Rig Type / Method: Backhoe
Logged by: Zac Britonia	Sample Method (circle one): Direct Push Split Spoon Shelby Tube Other:
	Surface Elevation: Casing Elevation: GE Elevation:
Logger's Signature: [signature]	Equipment List:

BORING ID: GRID 2121 **Boring Location: Central OCD Landfarm**

(Circled entries shown in bold.)

Interval (ft bgs)	Texture - Grain Size Major	Minor	Color Major	Modifier	Plasticity	Consistency	Moisture	Odor	PID	Additional Comments (Odor descriptor, sheen, nodules, structure, vegitation, etc.)
0 to 2	**GVL - F M C**, **Sand - F M C**, **Silt**, Clay	Grvly, **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		
2 to 4	GVL - F M C, Sand - F M C, **Silt**, **Clay**	Grvly, 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**		~3ft is where Native soil potentially at and indicated by hard digging.
4 to 6	GVL - F M C, Sand - F M C, Silt, **Clay**	Grvly, 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**		
6 to 8.5	GVL - F M C, Sand - F M C, Silt, **Clay**	Grvly, 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**		Very Hard soil ~ 7ft. took sample @ 8.5 ft
	GVL - F M C, Sand - F M C, Silt, Clay	Grvly, 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	Grvly, 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	Grvly, 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-2121-04072015

Date: 4-7-15

Time: 1216

Depth: 8.5 ft

Number/Size of Containers: Two 4oz jars

Analysis to be Performed: Chloride

Duplicate Collected:

Notes:

ATTACHMENT B

PHOTO-DOCUMENTATION

ELEVATED CHLORIDE CONCENTRATION EXCAVATION, GRID 2121, APRIL 2015
WESTERN GALLUP REFINERY
GALLUP, NEW MEXICO

Photo 1. View to the E; beginning excavation of Grid 2121.

Photo 2. View to the SW; Grid 2121 excavation approximately 8 feet deep.

ELEVATED CHLORIDE CONCENTRATION EXCAVATION, GRID 2121, APRIL 2015
WESTERN GALLUP REFINERY
GALLUP, NEW MEXICO

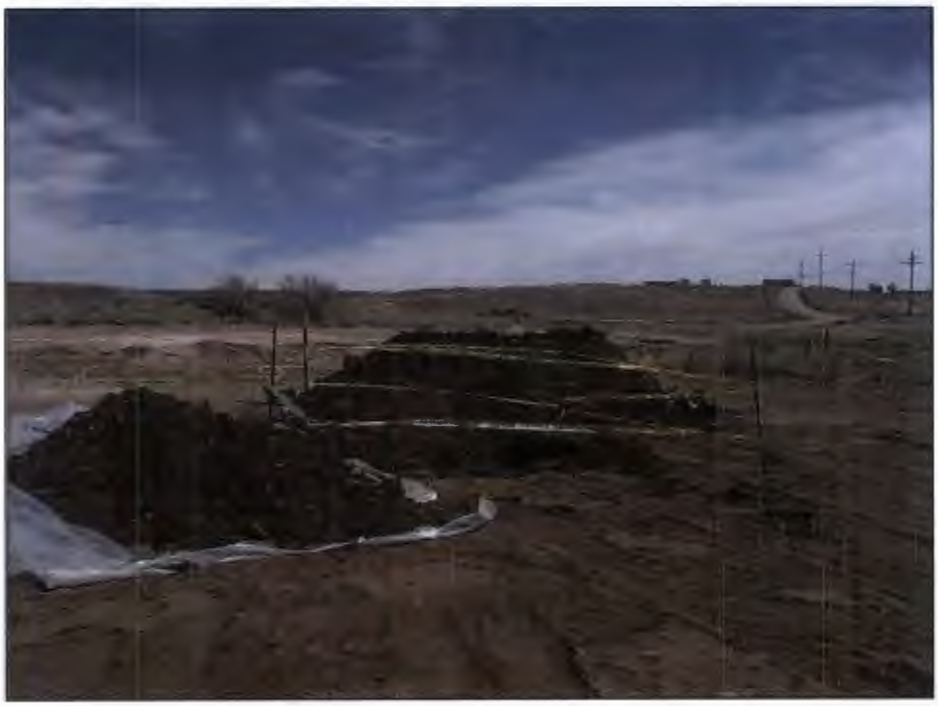


Photo 3. View to the E; barricaded excavation and stockpiled soil.

Photo 4: Looking into the completed Grid 2121 excavation.

ATTACHMENT C

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

May 08, 2015

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.: 1504287

Dear Ed Riege:

Hall Environmental Analysis Laboratory received 10 sample(s) on 4/8/2015 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

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

Case Narrative

WO#: **1504287**
Date: **5/8/2015**

CLIENT: Western Refining Southwest, Gallup
Project: OCD Central Landfarm Semiannual Sampling

Analytical Notes Regarding EPA Method 8270:
One of the surrogate compounds was not recoverable due to dilution and matrix interferences.

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CentralOCD-01-04062015
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 4/6/2015 1:45:00 PM
Lab ID: 1504287-001 **Matrix:** SOIL
Received Date: 4/8/2015 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	250	30		mg/Kg	20	4/17/2015 11:40:24 AM	18745
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **cadg**	
Benzene	ND	0.048		mg/Kg	1	4/9/2015 12:26:24 PM	18573
Toluene	ND	0.048		mg/Kg	1	4/9/2015 12:26:24 PM	18573
Ethylbenzene	ND	0.048		mg/Kg	1	4/9/2015 12:26:24 PM	18573
Xylenes, Total	ND	0.096		mg/Kg	1	4/9/2015 12:26:24 PM	18573
Surr: 1,2-Dichloroethane-d4	106	70-130		%REC	1	4/9/2015 12:26:24 PM	18573
Surr: 4-Bromofluorobenzene	101	70-130		%REC	1	4/9/2015 12:26:24 PM	18573
Surr: Dibromofluoromethane	108	70-130		%REC	1	4/9/2015 12:26:24 PM	18573
Surr: Toluene-d8	91.7	70-130		%REC	1	4/9/2015 12:26:24 PM	18573
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	4/14/2015 12:00:00 PM	18606

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 Not In Range
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: CentralOCD-02-04062015
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 4/6/2015 2:17:00 PM
Lab ID: 1504287-002 **Matrix:** SOIL
Received Date: 4/8/2015 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	160	30		mg/Kg	20	4/17/2015 12:05:13 PM	18745
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **cadg**	
Benzene	ND	0.048		mg/Kg	1	4/9/2015 12:55:21 PM	18573
Toluene	ND	0.048		mg/Kg	1	4/9/2015 12:55:21 PM	18573
Ethylbenzene	ND	0.048		mg/Kg	1	4/9/2015 12:55:21 PM	18573
Xylenes, Total	ND	0.096		mg/Kg	1	4/9/2015 12:55:21 PM	18573
Surr: 1,2-Dichloroethane-d4	103	70-130		%REC	1	4/9/2015 12:55:21 PM	18573
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	4/9/2015 12:55:21 PM	18573
Surr: Dibromofluoromethane	106	70-130		%REC	1	4/9/2015 12:55:21 PM	18573
Surr: Toluene-d8	89.6	70-130		%REC	1	4/9/2015 12:55:21 PM	18573
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	4/14/2015 12:00:00 PM	18606

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 Not In Range
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: CentralOCD-03-04062015 MS
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 4/6/2015 1:05:00 PM
Lab ID: 1504287-003 **Matrix:** SOIL
Received Date: 4/8/2015 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	330	30		mg/Kg	20	4/17/2015 1:19:40 PM	18745
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **cadg**	
Benzene	ND	0.047		mg/Kg	1	4/9/2015 1:24:07 PM	18573
Toluene	ND	0.047		mg/Kg	1	4/9/2015 1:24:07 PM	18573
Ethylbenzene	ND	0.047		mg/Kg	1	4/9/2015 1:24:07 PM	18573
Xylenes, Total	ND	0.095		mg/Kg	1	4/9/2015 1:24:07 PM	18573
Surr: 1,2-Dichloroethane-d4	106	70-130		%REC	1	4/9/2015 1:24:07 PM	18573
Surr: 4-Bromofluorobenzene	101	70-130		%REC	1	4/9/2015 1:24:07 PM	18573
Surr: Dibromofluoromethane	107	70-130		%REC	1	4/9/2015 1:24:07 PM	18573
Surr: Toluene-d8	93.6	70-130		%REC	1	4/9/2015 1:24:07 PM	18573
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	4/16/2015 12:00:00 PM	18606

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 Not In Range
RL	Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CentralOCD-04-04062015
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 4/6/2015 2:45:00 PM
Lab ID: 1504287-004 **Matrix:** SOIL
Received Date: 4/8/2015 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	220	30		mg/Kg	20	4/17/2015 1:44:29 PM	18745
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **cadg**	
Benzene	ND	0.047		mg/Kg	1	4/9/2015 2:50:46 PM	18573
Toluene	ND	0.047		mg/Kg	1	4/9/2015 2:50:46 PM	18573
Ethylbenzene	ND	0.047		mg/Kg	1	4/9/2015 2:50:46 PM	18573
Xylenes, Total	ND	0.093		mg/Kg	1	4/9/2015 2:50:46 PM	18573
Surr: 1,2-Dichloroethane-d4	97.0	70-130		%REC	1	4/9/2015 2:50:46 PM	18573
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	4/9/2015 2:50:46 PM	18573
Surr: Dibromofluoromethane	105	70-130		%REC	1	4/9/2015 2:50:46 PM	18573
Surr: Toluene-d8	95.2	70-130		%REC	1	4/9/2015 2:50:46 PM	18573
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	24	20		mg/Kg	1	4/14/2015 12:00:00 PM	18606

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 Not In Range
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: BD-04062015
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 4/6/2015
Lab ID: 1504287-005
Matrix: SOIL
Received Date: 4/8/2015 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	350	30		mg/Kg	20	4/17/2015 2:09:19 PM	18745
EPA METHOD 8260B: VOLATILES SHORT LIST						Analyst: **cadg**	
Benzene	ND	0.050		mg/Kg	1	4/9/2015 3:19:41 PM	18573
Toluene	ND	0.050		mg/Kg	1	4/9/2015 3:19:41 PM	18573
Ethylbenzene	ND	0.050		mg/Kg	1	4/9/2015 3:19:41 PM	18573
Xylenes, Total	ND	0.099		mg/Kg	1	4/9/2015 3:19:41 PM	18573
Surr: 1,2-Dichloroethane-d4	102	70-130		%REC	1	4/9/2015 3:19:41 PM	18573
Surr: 4-Bromofluorobenzene	99.6	70-130		%REC	1	4/9/2015 3:19:41 PM	18573
Surr: Dibromofluoromethane	104	70-130		%REC	1	4/9/2015 3:19:41 PM	18573
Surr: Toluene-d8	92.4	70-130		%REC	1	4/9/2015 3:19:41 PM	18573
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	4/14/2015 12:00:00 PM	18606

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 Not In Range
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: CentralOCD-TZ-04062015
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 4/6/2015 12:30:00 PM
Lab ID: 1504287-006 **Matrix:** SOIL
Received Date: 4/8/2015 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	0.20		mg/Kg	1	4/25/2015 10:22:49 AM	18660
Aroclor 1221	ND	0.20		mg/Kg	1	4/25/2015 10:22:49 AM	18660
Aroclor 1232	ND	0.20		mg/Kg	1	4/25/2015 10:22:49 AM	18660
Aroclor 1242	ND	0.20		mg/Kg	1	4/25/2015 10:22:49 AM	18660
Aroclor 1248	ND	0.20		mg/Kg	1	4/25/2015 10:22:49 AM	18660
Aroclor 1254	ND	0.20		mg/Kg	1	4/25/2015 10:22:49 AM	18660
Aroclor 1260	ND	0.20		mg/Kg	1	4/25/2015 10:22:49 AM	18660
Surr: Decachlorobiphenyl	68.0	37.5-161		%REC	1	4/25/2015 10:22:49 AM	18660
Surr: Tetrachloro-m-xylene	60.0	28.1-149		%REC	1	4/25/2015 10:22:49 AM	18660
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **BCN**	
Diesel Range Organics (DRO)	350	95		mg/Kg	10	4/9/2015 4:08:24 PM	18574
Motor Oil Range Organics (MRO)	700	480		mg/Kg	10	4/9/2015 4:08:24 PM	18574
Surr: DNOP	128	63.5-128	S	%REC	10	4/9/2015 4:08:24 PM	18574
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	4/9/2015 11:56:05 AM	18573
Surr: BFB	87.7	80-120		%REC	1	4/9/2015 11:56:05 AM	18573
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	10	6.0		mg/Kg	20	4/17/2015 2:34:07 PM	18745
Chloride	130	30		mg/Kg	20	4/17/2015 2:34:07 PM	18745
Nitrogen, Nitrate (As N)	2.7	0.30		mg/Kg	1	4/17/2015 2:21:43 PM	18745
Sulfate	1200	30		mg/Kg	20	4/17/2015 2:34:07 PM	18745
EPA METHOD 7471: MERCURY						Analyst: **MED**	
Mercury	ND	0.16		mg/Kg	5	4/15/2015 2:53:36 PM	18690
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.5		mg/Kg	1	4/14/2015 9:54:36 AM	18669
Barium	350	0.20		mg/Kg	2	4/14/2015 9:56:11 AM	18669
Cadmium	ND	0.099		mg/Kg	1	4/14/2015 9:54:36 AM	18669
Chromium	14	0.30		mg/Kg	1	4/14/2015 9:54:36 AM	18669
Copper	9.3	0.30		mg/Kg	1	4/14/2015 9:54:36 AM	18669
Iron	17000	99		mg/Kg	100	4/14/2015 10:08:07 AM	18669
Lead	35	0.25		mg/Kg	1	4/14/2015 9:54:36 AM	18669
Manganese	410	0.20		mg/Kg	2	4/14/2015 9:56:11 AM	18669
Selenium	ND	2.5		mg/Kg	1	4/14/2015 9:54:36 AM	18669
Silver	ND	0.25		mg/Kg	1	4/14/2015 9:54:36 AM	18669
Uranium	ND	4.9		mg/Kg	1	4/14/2015 9:54:36 AM	18669
Zinc	52	2.5		mg/Kg	1	4/18/2015 2:09:34 PM	18669

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 Not In Range
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: CentralOCD-TZ-04062015
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 4/6/2015 12:30:00 PM
Lab ID: 1504287-006 **Matrix:** SOIL
Received Date: 4/8/2015 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **DAM**	
Acenaphthene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Acenaphthylene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Aniline	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Anthracene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Azobenzene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Benz(a)anthracene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Benzo(a)pyrene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Benzo(b)fluoranthene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Benzo(g,h,i)perylene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Benzo(k)fluoranthene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Benzoic acid	ND	5.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Benzyl alcohol	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Bis(2-chloroethoxy)methane	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Bis(2-chloroethyl)ether	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Bis(2-chloroisopropyl)ether	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Bis(2-ethylhexyl)phthalate	ND	5.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
4-Bromophenyl phenyl ether	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Butyl benzyl phthalate	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Carbazole	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
4-Chloro-3-methylphenol	ND	5.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
4-Chloroaniline	ND	5.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
2-Chloronaphthalene	ND	2.5		mg/Kg	1	4/15/2015 11:00:23 PM	18661
2-Chlorophenol	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
4-Chlorophenyl phenyl ether	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Chrysene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Di-n-butyl phthalate	ND	5.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Di-n-octyl phthalate	ND	4.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Dibenz(a,h)anthracene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Dibenzofuran	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
1,2-Dichlorobenzene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
1,3-Dichlorobenzene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
1,4-Dichlorobenzene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
3,3'-Dichlorobenzidine	ND	2.5		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Diethyl phthalate	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Dimethyl phthalate	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
2,4-Dichlorophenol	ND	4.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
2,4-Dimethylphenol	ND	3.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
4,6-Dinitro-2-methylphenol	ND	5.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
2,4-Dinitrophenol	ND	5.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661

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 Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CentralOCD-TZ-04062015
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 4/6/2015 12:30:00 PM
Lab ID: 1504287-006 **Matrix:** SOIL
Received Date: 4/8/2015 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8270C: SEMIVOLATILES						Analyst:	**DAM**
2,4-Dinitrotoluene	ND	5.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
2,6-Dinitrotoluene	ND	5.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Fluoranthene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Fluorene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Hexachlorobenzene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Hexachlorobutadiene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Hexachlorocyclopentadiene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Hexachloroethane	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Indeno(1,2,3-cd)pyrene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Isophorone	ND	5.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
1-Methylnaphthalene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
2-Methylnaphthalene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
2-Methylphenol	ND	5.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
3+4-Methylphenol	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
N-Nitrosodi-n-propylamine	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
N-Nitrosodiphenylamine	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Naphthalene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
2-Nitroaniline	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
3-Nitroaniline	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
4-Nitroaniline	ND	4.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Nitrobenzene	ND	5.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
2-Nitrophenol	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
4-Nitrophenol	ND	2.5		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Pentachlorophenol	ND	4.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Phenanthrene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Phenol	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Pyrene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Pyridine	ND	5.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
1,2,4-Trichlorobenzene	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
2,4,5-Trichlorophenol	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
2,4,6-Trichlorophenol	ND	2.0		mg/Kg	1	4/15/2015 11:00:23 PM	18661
Surr: 2-Fluorophenol	67.2	26.4-129		%REC	1	4/15/2015 11:00:23 PM	18661
Surr: Phenol-d5	75.1	34.8-118		%REC	1	4/15/2015 11:00:23 PM	18661
Surr: 2,4,6-Tribromophenol	76.8	26.8-128		%REC	1	4/15/2015 11:00:23 PM	18661
Surr: Nitrobenzene-d5	83.3	35.8-124		%REC	1	4/15/2015 11:00:23 PM	18661
Surr: 2-Fluorobiphenyl	86.9	24.5-139		%REC	1	4/15/2015 11:00:23 PM	18661
Surr: 4-Terphenyl-d14	0	29.4-129	S	%REC	1	4/15/2015 11:00:23 PM	18661
EPA METHOD 8260B: VOLATILES						Analyst:	**cadg**
Benzene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573

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 Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Gallup
Client Sample ID: CentralOCD-TZ-04062015
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 4/6/2015 12:30:00 PM
Lab ID: 1504287-006 **Matrix:** SOIL
Received Date: 4/8/2015 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Toluene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Ethylbenzene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Methyl tert-butyl ether (MTBE)	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1,2,4-Trimethylbenzene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1,3,5-Trimethylbenzene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1,2-Dichloroethane (EDC)	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1,2-Dibromoethane (EDB)	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Naphthalene	ND	0.099		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1-Methylnaphthalene	ND	0.20		mg/Kg	1	4/9/2015 3:48:39 PM	18573
2-Methylnaphthalene	ND	0.20		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Acetone	ND	0.74		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Bromobenzene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Bromodichloromethane	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Bromoform	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Bromomethane	ND	0.15		mg/Kg	1	4/9/2015 3:48:39 PM	18573
2-Butanone	ND	0.49		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Carbon disulfide	ND	0.49		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Carbon tetrachloride	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Chlorobenzene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Chloroethane	ND	0.099		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Chloroform	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Chloromethane	ND	0.15		mg/Kg	1	4/9/2015 3:48:39 PM	18573
2-Chlorotoluene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
4-Chlorotoluene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
cis-1,2-DCE	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
cis-1,3-Dichloropropene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1,2-Dibromo-3-chloropropane	ND	0.099		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Dibromochloromethane	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Dibromomethane	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1,2-Dichlorobenzene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1,3-Dichlorobenzene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1,4-Dichlorobenzene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Dichlorodifluoromethane	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1,1-Dichloroethane	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1,1-Dichloroethene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1,2-Dichloropropane	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1,3-Dichloropropane	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
2,2-Dichloropropane	ND	0.099		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1,1-Dichloropropene	ND	0.099		mg/Kg	1	4/9/2015 3:48:39 PM	18573

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 Not In Range
- 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: CentralOCD-TZ-04062015
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 4/6/2015 12:30:00 PM
Lab ID: 1504287-006 **Matrix:** SOIL
Received Date: 4/8/2015 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Hexachlorobutadiene	ND	0.099		mg/Kg	1	4/9/2015 3:48:39 PM	18573
2-Hexanone	ND	0.49		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Isopropylbenzene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
4-Isopropyltoluene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
4-Methyl-2-pentanone	ND	0.49		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Methylene chloride	ND	0.15		mg/Kg	1	4/9/2015 3:48:39 PM	18573
n-Butylbenzene	ND	0.15		mg/Kg	1	4/9/2015 3:48:39 PM	18573
n-Propylbenzene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
sec-Butylbenzene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Styrene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
tert-Butylbenzene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1,1,1,2-Tetrachloroethane	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1,1,2,2-Tetrachloroethane	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Tetrachloroethene (PCE)	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
trans-1,2-DCE	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
trans-1,3-Dichloropropene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1,2,3-Trichlorobenzene	ND	0.099		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1,2,4-Trichlorobenzene	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1,1,1-Trichloroethane	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1,1,2-Trichloroethane	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Trichloroethene (TCE)	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Trichlorofluoromethane	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
1,2,3-Trichloropropane	ND	0.099		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Vinyl chloride	ND	0.049		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Xylenes, Total	ND	0.099		mg/Kg	1	4/9/2015 3:48:39 PM	18573
Surr: Dibromofluoromethane	107	70-130		%REC	1	4/9/2015 3:48:39 PM	18573
Surr: 1,2-Dichloroethane-d4	104	70-130		%REC	1	4/9/2015 3:48:39 PM	18573
Surr: Toluene-d8	89.9	70-130		%REC	1	4/9/2015 3:48:39 PM	18573
Surr: 4-Bromofluorobenzene	96.6	70-130		%REC	1	4/9/2015 3:48:39 PM	18573
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	370	20		mg/Kg	1	4/14/2015 12:00:00 PM	18606

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 Not In Range
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-2121-04072015
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 4/7/2015 12:16:00 PM
Lab ID: 1504287-007 **Matrix:** SOIL
Received Date: 4/8/2015 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	160	30		mg/Kg	20	4/17/2015 3:23:47 PM	18745

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 Not In Range
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-04062015
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 4/6/2015 1:30:00 PM
Lab ID: 1504287-008 **Matrix:** AQUEOUS **Received Date:** 4/8/2015 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **KJH**	
Benzene	ND	1.0		µg/L	1	4/8/2015 1:32:26 PM	R25378
Toluene	ND	1.0		µg/L	1	4/8/2015 1:32:26 PM	R25378
Ethylbenzene	ND	1.0		µg/L	1	4/8/2015 1:32:26 PM	R25378
Xylenes, Total	ND	1.5		µg/L	1	4/8/2015 1:32:26 PM	R25378
Surr: 1,2-Dichloroethane-d4	98.9	70-130		%REC	1	4/8/2015 1:32:26 PM	R25378
Surr: 4-Bromofluorobenzene	103	70-130		%REC	1	4/8/2015 1:32:26 PM	R25378
Surr: Dibromofluoromethane	101	70-130		%REC	1	4/8/2015 1:32:26 PM	R25378
Surr: Toluene-d8	96.9	70-130		%REC	1	4/8/2015 1:32:26 PM	R25378

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 Not In Range
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-04062015
Project: OCD Central Landfarm Semiannual Sam
Collection Date: 4/6/2015 1:35:00 PM
Lab ID: 1504287-009
Matrix: AQUEOUS
Received Date: 4/8/2015 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **KJH**	
Benzene	ND	1.0		µg/L	1	4/8/2015 2:01:09 PM	R25378
Toluene	ND	1.0		µg/L	1	4/8/2015 2:01:09 PM	R25378
Ethylbenzene	ND	1.0		µg/L	1	4/8/2015 2:01:09 PM	R25378
Xylenes, Total	ND	1.5		µg/L	1	4/8/2015 2:01:09 PM	R25378
Surr: 1,2-Dichloroethane-d4	121	70-130		%REC	1	4/8/2015 2:01:09 PM	R25378
Surr: 4-Bromofluorobenzene	101	70-130		%REC	1	4/8/2015 2:01:09 PM	R25378
Surr: Dibromofluoromethane	119	70-130		%REC	1	4/8/2015 2:01:09 PM	R25378
Surr: Toluene-d8	102	70-130		%REC	1	4/8/2015 2:01:09 PM	R25378

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 Not In Range
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: Trip Blank
Project: OCD Central Landfarm Semiannual Sam
Collection Date:
Lab ID: 1504287-010
Matrix: TRIP BLANK
Received Date: 4/8/2015 7:05:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260: VOLATILES SHORT LIST						Analyst: **KJH**	
Benzene	ND	1.0		µg/L	1	4/8/2015 2:29:54 PM	R25378
Toluene	ND	1.0		µg/L	1	4/8/2015 2:29:54 PM	R25378
Ethylbenzene	ND	1.0		µg/L	1	4/8/2015 2:29:54 PM	R25378
Xylenes, Total	ND	1.5		µg/L	1	4/8/2015 2:29:54 PM	R25378
Surr: 1,2-Dichloroethane-d4	104	70-130		%REC	1	4/8/2015 2:29:54 PM	R25378
Surr: 4-Bromofluorobenzene	111	70-130		%REC	1	4/8/2015 2:29:54 PM	R25378
Surr: Dibromofluoromethane	105	70-130		%REC	1	4/8/2015 2:29:54 PM	R25378
Surr: Toluene-d8	96.6	70-130		%REC	1	4/8/2015 2:29:54 PM	R25378

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 Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Anatek Labs, Inc.

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

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	150409032
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1504287
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	150409032-001	**Sampling Date**	4/6/2015	**Date/Time Received**	4/9/2015 11:15 AM
Client Sample ID	1504287-006D / CENTRALOCD-TZ-04062015			**Sampling Time**	12:30 PM
Matrix	Soil				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	1.31	mg/Kg	0.295	4/15/2015	CRW	EPA 335.4	
%moisture	15.9	Percent		4/15/2015	CRW	%moisture	

Authorized Signature

John Coddington, Lab Manager

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

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

Anatek Labs, Inc.

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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 #: 150409032
Project Name: 1504287

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Cyanide	0.511	mg/kg	0.5	102.2	90-110	4/15/2015	4/15/2015

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
150409032-001	Cyanide	1.31	16.5	mg/kg	14.75	103.0	90-110	4/15/2015	4/15/2015

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Cyanide	16.3	mg/kg	14.75	101.8	1.2	0-25	4/15/2015	4/15/2015

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide	ND	mg/Kg	0.5	4/15/2015	4/15/2015

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

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Pace Analytical
www.pacelabs.com

1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1504287
Pace Project No.: 30145292

Sample: 1504287-006C CentralOCD-TZ-040 **Lab ID: 30145292001** Collected: 04/06/15 12:30 Received: 04/10/15 10:45 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**1.059 ± 0.233 (0.160) C:NA T:NA**	pCi/g	05/08/15 10:26	13982-63-3	
Radium-228	EPA 901.1	**1.392 ± 0.289 (0.241) C:NA T:NA**	pCi/g	05/08/15 10:26	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 1504287
Pace Project No.: 30145292

QC Batch: RADC/24225
QC Batch Method: EPA 901.1
Analysis Method: EPA 901.1
Analysis Description: 901.1 Gamma Spec Ingrowth
Associated Lab Samples: 30145292001

METHOD BLANK: 884958
Matrix: Solid
Associated Lab Samples: 30145292001

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.137 ± 0.089 (0.192) C:NA T:NA	pCi/g	05/08/15 09:52	
Radium-228	0.000 ± 0.044 (0.487) C:NA T:NA	pCi/g	05/08/15 09:52	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1504287**

08-May-15

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-18745**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **18745**	RunNo: **25615**
Prep Date: **4/17/2015**	Analysis Date: **4/17/2015**	SeqNo: **758950** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								
Nitrogen, Nitrate (As N)	ND	0.30								
Sulfate	ND	1.5								

Sample ID **LCS-18745**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **18745**	RunNo: **25615**
Prep Date: **4/17/2015**	Analysis Date: **4/17/2015**	SeqNo: **758951** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.30	1.500	0	97.3	90	110			
Chloride	14	1.5	15.00	0	92.3	90	110			
Nitrogen, Nitrate (As N)	7.3	0.30	7.500	0	97.5	90	110			
Sulfate	28	1.5	30.00	0	94.7	90	110			

Sample ID **1504287-003AMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CentralOCD-03-0406**	Batch ID: **18745**	RunNo: **25615**
Prep Date: **4/17/2015**	Analysis Date: **4/17/2015**	SeqNo: **758962** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.4	0.30	1.500	2.186	14.0	13.6	100			
Nitrogen, Nitrate (As N)	17	0.30	7.500	8.487	114	85.3	110			S

Sample ID **1504287-003AMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **CentralOCD-03-0406**	Batch ID: **18745**	RunNo: **25615**
Prep Date: **4/17/2015**	Analysis Date: **4/17/2015**	SeqNo: **758963** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.4	0.30	1.500	2.186	14.7	13.6	100	0.438	20	
Nitrogen, Nitrate (As N)	17	0.30	7.500	8.487	118	85.3	110	1.45	20	S

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 Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1504287**

08-May-15

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-18606**	SampType: **MBLK**	TestCode: **EPA Method 418.1: TPH**
Client ID: **PBS**	Batch ID: **18606**	RunNo: **25503**
Prep Date: **4/9/2015**	Analysis Date: **4/14/2015**	SeqNo: **755191** 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-18606**	SampType: **LCS**	TestCode: **EPA Method 418.1: TPH**
Client ID: **LCSS**	Batch ID: **18606**	RunNo: **25503**
Prep Date: **4/9/2015**	Analysis Date: **4/14/2015**	SeqNo: **755192** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	93	20	100.0	0	92.7	86.7	126			

Sample ID **LCSD-18606**	SampType: **LCSD**	TestCode: **EPA Method 418.1: TPH**
Client ID: **LCSS02**	Batch ID: **18606**	RunNo: **25503**
Prep Date: **4/9/2015**	Analysis Date: **4/14/2015**	SeqNo: **755193** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	98	20	100.0	0	97.9	86.7	126	5.45	20	

Sample ID **1504287-003AMS**	SampType: **MS**	TestCode: **EPA Method 418.1: TPH**
Client ID: **CentralOCD-03-0406**	Batch ID: **18606**	RunNo: **25553**
Prep Date: **4/9/2015**	Analysis Date: **4/16/2015**	SeqNo: **756803** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	93	20	100.0	0	92.9	80	120			

Sample ID **1504287-003AMSD**	SampType: **MSD**	TestCode: **EPA Method 418.1: TPH**
Client ID: **CentralOCD-03-0406**	Batch ID: **18606**	RunNo: **25553**
Prep Date: **4/9/2015**	Analysis Date: **4/16/2015**	SeqNo: **756804** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	99	20	100.7	0	98.2	80	120	6.19	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 Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1504287**

08-May-15

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-18574**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **18574**	RunNo: **25386**
Prep Date: **4/8/2015**	Analysis Date: **4/9/2015**	SeqNo: **751714** 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	9.6		10.00		95.5	63.5	128			

Sample ID **LCS-18574**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **18574**	RunNo: **25386**
Prep Date: **4/8/2015**	Analysis Date: **4/9/2015**	SeqNo: **751806** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	97.1	67.8	130			
Surr: DNOP	4.6		5.000		92.4	63.5	128			

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 Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1504287**

08-May-15

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-18573**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **18573**	RunNo: **25395**
Prep Date: **4/8/2015**	Analysis Date: **4/9/2015**	SeqNo: **751932** 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	850		1000		85.2	80	120			

Sample ID **LCS-18573**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **18573**	RunNo: **25395**
Prep Date: **4/8/2015**	Analysis Date: **4/9/2015**	SeqNo: **751933** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	102	64	130			
Surr: BFB	920		1000		91.9	80	120			

Sample ID **1504287-006AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **CentralOCD-TZ-040**	Batch ID: **18573**	RunNo: **25395**
Prep Date: **4/8/2015**	Analysis Date: **4/9/2015**	SeqNo: **751936** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.9	24.63	0	96.1	47.9	144			
Surr: BFB	940		985.2		95.9	80	120			

Sample ID **1504287-006AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **CentralOCD-TZ-040**	Batch ID: **18573**	RunNo: **25395**
Prep Date: **4/8/2015**	Analysis Date: **4/9/2015**	SeqNo: **751937** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	4.9	24.61	0	104	47.9	144	7.82	29.9	
Surr: BFB	960		984.3		97.6	80	120	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 Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1504287**

08-May-15

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-18660**	SampType: **MBLK**	TestCode: **EPA Method 8082: PCB's**
Client ID: **PBS**	Batch ID: **18660**	RunNo: **25757**
Prep Date: **4/13/2015**	Analysis Date: **4/24/2015**	SeqNo: **763490** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.020								
Aroclor 1221	ND	0.020								
Aroclor 1232	ND	0.020								
Aroclor 1242	ND	0.020								
Aroclor 1248	ND	0.020								
Aroclor 1254	ND	0.020								
Aroclor 1260	ND	0.020								
Surr: Decachlorobiphenyl	0.071		0.06250		114	37.5	161			
Surr: Tetrachloro-m-xylene	0.078		0.06250		124	28.1	149			

Sample ID **LCS-18660**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSS**	Batch ID: **18660**	RunNo: **25757**
Prep Date: **4/13/2015**	Analysis Date: **4/24/2015**	SeqNo: **763491** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.074	0.020	0.1250	0	59.2	26.2	127			
Aroclor 1260	0.099	0.020	0.1250	0	79.2	36.6	122			
Surr: Decachlorobiphenyl	0.059		0.06250		94.0	37.5	161			
Surr: Tetrachloro-m-xylene	0.065		0.06250		104	28.1	149			

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 Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1504287**

08-May-15

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **mb-18573**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**	
Client ID: **PBS**	Batch ID: **18573**	RunNo: **25409**	
Prep Date: **4/8/2015**	Analysis Date: **4/9/2015**	SeqNo: **752062**	Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								

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 Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1504287**

08-May-15

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **mb-18573**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **18573**	RunNo: **25409**
Prep Date: **4/8/2015**	Analysis Date: **4/9/2015**	SeqNo: **752062** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.52		0.5000		105	70	130			
Surr: 1,2-Dichloroethane-d4	0.52		0.5000		103	70	130			
Surr: Toluene-d8	0.47		0.5000		93.5	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		99.8	70	130			

Sample ID **lcs-18573**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **18573**	RunNo: **25409**
Prep Date: **4/8/2015**	Analysis Date: **4/9/2015**	SeqNo: **752063** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.050	1.000	0	98.8	70	130			
Toluene	0.89	0.050	1.000	0	88.6	70	130			
Chlorobenzene	0.94	0.050	1.000	0	94.5	70	130			

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 Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1504287**

08-May-15

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID	**lcs-18573**	SampType:	**LCS**	TestCode:	**EPA Method 8260B: Volatiles**
Client ID:	**LCSS**	Batch ID:	**18573**	RunNo:	**25409**
Prep Date:	**4/8/2015**	Analysis Date:	**4/9/2015**	SeqNo:	**752063** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	1.1	0.050	1.000	0	113	60.6	134			
Trichloroethene (TCE)	0.89	0.050	1.000	0	89.0	70	130			
Surr: Dibromofluoromethane	0.54		0.5000		108	70	130			
Surr: 1,2-Dichloroethane-d4	0.52		0.5000		104	70	130			
Surr: Toluene-d8	0.46		0.5000		91.9	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		103	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
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- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1504287**

08-May-15

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **mb-18573**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **PBS**	Batch ID: **18573**	RunNo: **25409**
Prep Date: **4/8/2015**	Analysis Date: **4/9/2015**	SeqNo: **752065** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Methyl tert-butyl ether (MTBE)	ND	0.050								
Benzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
1,2-Dibromoethane (EDB)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
Naphthalene	ND	0.10								
2-Methylnaphthalene	ND	0.20								
1-Methylnaphthalene	ND	0.20								
Surr: 1,2-Dichloroethane-d4	0.52		0.5000		103	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		99.8	70	130			
Surr: Dibromofluoromethane	0.52		0.5000		105	70	130			
Surr: Toluene-d8	0.47		0.5000		93.5	70	130			

Sample ID **lcs-18573**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **LCSS**	Batch ID: **18573**	RunNo: **25409**
Prep Date: **4/8/2015**	Analysis Date: **4/9/2015**	SeqNo: **752066** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.050	1.000	0	98.8	70	130			
Toluene	0.89	0.050	1.000	0	88.6	70	130			
Surr: 1,2-Dichloroethane-d4	0.52		0.5000		104	70	130			
Surr: 4-Bromofluorobenzene	0.52		0.5000		103	70	130			
Surr: Dibromofluoromethane	0.54		0.5000		108	70	130			
Surr: Toluene-d8	0.46		0.5000		91.9	70	130			

Sample ID **1504287-003ams**	SampType: **MS**	TestCode: **EPA Method 8260B: Volatiles Short List**
Client ID: **CentralOCD-03-0406**	Batch ID: **18573**	RunNo: **25409**
Prep Date: **4/8/2015**	Analysis Date: **4/9/2015**	SeqNo: **752070** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.048	0.9515	0	105	57.8	132			
Toluene	0.90	0.048	0.9515	0	94.4	54.8	139			
Surr: 1,2-Dichloroethane-d4	0.51		0.4757		106	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.4757		97.1	70	130			
Surr: Dibromofluoromethane	0.52		0.4757		109	70	130			
Surr: Toluene-d8	0.44		0.4757		92.5	70	130			

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 Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1504287**

08-May-15

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **1504287-003amsd**	SampType: **MSD**	TestCode: **EPA Method 8260B: Volatiles Short List**	
Client ID: **CentralOCD-03-0406**	Batch ID: **18573**	RunNo: **25409**	
Prep Date: **4/8/2015**	Analysis Date: **4/9/2015**	SeqNo: **752071**	Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.047	0.9497	0	110	57.8	132	3.98	20	
Toluene	0.89	0.047	0.9497	0	94.2	54.8	139	0.433	20	
Surr: 1,2-Dichloroethane-d4	0.52		0.4748		109	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.47		0.4748		98.4	70	130	0	0	
Surr: Dibromofluoromethane	0.54		0.4748		113	70	130	0	0	
Surr: Toluene-d8	0.43		0.4748		90.5	70	130	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 Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1504287**

08-May-15

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **100ng lcs**	SampType: **LCS**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **LCSW**	Batch ID: **R25378**	RunNo: **25378**
Prep Date:	Analysis Date: **4/8/2015**	SeqNo: **750966** Units: **µg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	19	1.0	20.00	0	95.7	70	130			
Toluene	20	1.0	20.00	0	101	70	130			
Surr: 1,2-Dichloroethane-d4	9.9		10.00		99.0	70	130			
Surr: 4-Bromofluorobenzene	11		10.00		113	70	130			
Surr: Dibromofluoromethane	10		10.00		102	70	130			
Surr: Toluene-d8	11		10.00		109	70	130			

Sample ID **5mL-rb**	SampType: **MBLK**	TestCode: **EPA Method 8260: Volatiles Short List**
Client ID: **PBW**	Batch ID: **R25378**	RunNo: **25378**
Prep Date:	Analysis Date: **4/8/2015**	SeqNo: **750970** 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	1.5								
Surr: 1,2-Dichloroethane-d4	11		10.00		108	70	130			
Surr: 4-Bromofluorobenzene	9.6		10.00		95.5	70	130			
Surr: Dibromofluoromethane	11		10.00		111	70	130			
Surr: Toluene-d8	11		10.00		110	70	130			

Qualifiers:

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- E Value above quantitation range
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- O RSD is greater than RSDlimit
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- 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 Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1504287**

08-May-15

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **mb-18661**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**	
Client ID: **PBS**	Batch ID: **18661**	RunNo: **25544**	
Prep Date: **4/13/2015**	Analysis Date: **4/15/2015**	SeqNo: **756564**	Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.20								
Acenaphthylene	ND	0.20								
Aniline	ND	0.20								
Anthracene	ND	0.20								
Azobenzene	ND	0.20								
Benz(a)anthracene	ND	0.20								
Benzo(a)pyrene	ND	0.20								
Benzo(b)fluoranthene	ND	0.20								
Benzo(g,h,i)perylene	ND	0.20								
Benzo(k)fluoranthene	ND	0.20								
Benzoic acid	ND	0.50								
Benzyl alcohol	ND	0.20								
Bis(2-chloroethoxy)methane	ND	0.20								
Bis(2-chloroethyl)ether	ND	0.20								
Bis(2-chloroisopropyl)ether	ND	0.20								
Bis(2-ethylhexyl)phthalate	ND	0.50								
4-Bromophenyl phenyl ether	ND	0.20								
Butyl benzyl phthalate	ND	0.20								
Carbazole	ND	0.20								
4-Chloro-3-methylphenol	ND	0.50								
4-Chloroaniline	ND	0.50								
2-Chloronaphthalene	ND	0.25								
2-Chlorophenol	ND	0.20								
4-Chlorophenyl phenyl ether	ND	0.20								
Chrysene	ND	0.20								
Di-n-butyl phthalate	ND	0.40								
Di-n-octyl phthalate	ND	0.40								
Dibenz(a,h)anthracene	ND	0.20								
Dibenzofuran	ND	0.20								
1,2-Dichlorobenzene	ND	0.20								
1,3-Dichlorobenzene	ND	0.20								
1,4-Dichlorobenzene	ND	0.20								
3,3'-Dichlorobenzidine	ND	0.25								
Diethyl phthalate	ND	0.20								
Dimethyl phthalate	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.40								
2,4-Dinitrophenol	ND	0.50								

Qualifiers:

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- E Value above quantitation range
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- 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 Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1504287**

08-May-15

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **mb-18661**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**	
Client ID: **PBS**	Batch ID: **18661**	RunNo: **25544**	
Prep Date: **4/13/2015**	Analysis Date: **4/15/2015**	SeqNo: **756564**	Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
2,4-Dinitrotoluene	ND	0.50								
2,6-Dinitrotoluene	ND	0.50								
Fluoranthene	ND	0.20								
Fluorene	ND	0.20								
Hexachlorobenzene	ND	0.20								
Hexachlorobutadiene	ND	0.20								
Hexachlorocyclopentadiene	ND	0.20								
Hexachloroethane	ND	0.20								
Indeno(1,2,3-cd)pyrene	ND	0.20								
Isophorone	ND	0.40								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
2-Methylphenol	ND	0.40								
3+4-Methylphenol	ND	0.20								
N-Nitrosodi-n-propylamine	ND	0.20								
N-Nitrosodiphenylamine	ND	0.20								
Naphthalene	ND	0.20								
2-Nitroaniline	ND	0.20								
3-Nitroaniline	ND	0.20								
4-Nitroaniline	ND	0.40								
Nitrobenzene	ND	0.40								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenanthrene	ND	0.20								
Phenol	ND	0.20								
Pyrene	ND	0.20								
Pyridine	ND	0.40								
1,2,4-Trichlorobenzene	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2-Fluorophenol	2.4		3.330		70.7	26.4	129			
Surr: Phenol-d5	2.4		3.330		72.3	34.8	118			
Surr: 2,4,6-Tribromophenol	2.4		3.330		72.4	26.8	128			
Surr: Nitrobenzene-d5	1.2		1.670		70.8	35.8	124			
Surr: 2-Fluorobiphenyl	1.1		1.670		65.9	24.5	139			
Surr: 4-Terphenyl-d14	1.1		1.670		65.9	29.4	129			

Qualifiers:

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- 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 Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1504287**

08-May-15

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **lcs-18661**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**	
Client ID: **LCSS**	Batch ID: **18661**	RunNo: **25544**	
Prep Date: **4/13/2015**	Analysis Date: **4/15/2015**	SeqNo: **756565**	Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	0.99	0.20	1.670	0	59.3	45.8	114			
4-Chloro-3-methylphenol	2.3	0.50	3.330	0	69.4	52.3	122			
2-Chlorophenol	2.1	0.20	3.330	0	62.1	49.9	115			
1,4-Dichlorobenzene	1.1	0.20	1.670	0	64.0	43.7	107			
2,4-Dinitrotoluene	0.84	0.50	1.670	0	50.5	36	106			
N-Nitrosodi-n-propylamine	1.0	0.20	1.670	0	61.6	39.5	110			
4-Nitrophenol	2.0	0.25	3.330	0	59.3	45.1	121			
Pentachlorophenol	1.7	0.40	3.330	0	50.6	23.7	111			
Phenol	2.2	0.20	3.330	0	65.5	52.7	119			
Pyrene	0.98	0.20	1.670	0	58.5	50.4	116			
1,2,4-Trichlorobenzene	1.1	0.20	1.670	0	64.2	40.1	114			
Surr: 2-Fluorophenol	2.1		3.330		62.4	26.4	129			
Surr: Phenol-d5	2.2		3.330		67.2	34.8	118			
Surr: 2,4,6-Tribromophenol	2.2		3.330		66.5	26.8	128			
Surr: Nitrobenzene-d5	1.1		1.670		64.0	35.8	124			
Surr: 2-Fluorobiphenyl	1.0		1.670		62.8	24.5	139			
Surr: 4-Terphenyl-d14	1.1		1.670		66.0	29.4	129			

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
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- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1504287**

08-May-15

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID	**MB-18690**	SampType: **MBLK**			TestCode: **EPA Method 7471: Mercury**					
Client ID:	**PBS**	Batch ID: **18690**			RunNo: **25534**					
Prep Date:	**4/14/2015**	Analysis Date: **4/15/2015**			SeqNo: **756337**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID	**LCS-18690**	SampType: **LCS**			TestCode: **EPA Method 7471: Mercury**					
Client ID:	**LCSS**	Batch ID: **18690**			RunNo: **25534**					
Prep Date:	**4/14/2015**	Analysis Date: **4/15/2015**			SeqNo: **756338**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.16	0.033	0.1667	0	97.8	80	120			

Sample ID	**1504287-006BMS**	SampType: **MS**			TestCode: **EPA Method 7471: Mercury**					
Client ID:	**CentralOCD-TZ-040**	Batch ID: **18690**			RunNo: **25534**					
Prep Date:	**4/14/2015**	Analysis Date: **4/15/2015**			SeqNo: **756356**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.58	0.16	0.1591	0.1429	276	75	125			S

Sample ID	**1504287-006BMSD**	SampType: **MSD**			TestCode: **EPA Method 7471: Mercury**					
Client ID:	**CentralOCD-TZ-040**	Batch ID: **18690**			RunNo: **25534**					
Prep Date:	**4/14/2015**	Analysis Date: **4/15/2015**			SeqNo: **756357**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.61	0.16	0.1611	0.1429	290	75	125	4.77	20	S

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 Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1504287**

08-May-15

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID **MB-18669**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **18669**	RunNo: **25491**
Prep Date: **4/13/2015**	Analysis Date: **4/14/2015**	SeqNo: **754953** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								
Barium	ND	0.10								
Cadmium	ND	0.10								
Chromium	ND	0.30								
Copper	ND	0.30								
Iron	ND	2.5								
Lead	ND	0.25								
Manganese	ND	0.10								
Selenium	ND	2.5								
Silver	ND	0.25								
Uranium	ND	5.0								

Sample ID **LCS-18669**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **18669**	RunNo: **25491**
Prep Date: **4/13/2015**	Analysis Date: **4/14/2015**	SeqNo: **754954** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	26	2.5	25.00	0	106	80	120			
Barium	26	0.10	25.00	0	103	80	120			
Cadmium	26	0.10	25.00	0	104	80	120			
Chromium	26	0.30	25.00	0	104	80	120			
Copper	27	0.30	25.00	0	107	80	120			
Iron	27	2.5	25.00	0	108	80	120			
Lead	26	0.25	25.00	0	102	80	120			
Manganese	26	0.10	25.00	0	103	80	120			
Selenium	26	2.5	25.00	0	102	80	120			
Silver	5.6	0.25	5.000	0	112	80	120			
Uranium	26	5.0	25.00	0	105	80	120			

Sample ID **MB-18669**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **18669**	RunNo: **25596**
Prep Date: **4/13/2015**	Analysis Date: **4/18/2015**	SeqNo: **758372** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	ND	2.5								

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
- 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 Not In Range
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1504287**

08-May-15

Client: Western Refining Southwest, Gallup

Project: OCD Central Landfarm Semiannual Sampling

Sample ID	**LCS-18669**	SampType:	**LCS**		TestCode:	**EPA Method 6010B: Soil Metals**				
Client ID:	**LCSS**	Batch ID:	**18669**		RunNo:	**25596**				
Prep Date:	**4/13/2015**	Analysis Date:	**4/18/2015**		SeqNo:	**758373**	Units:	**mg/Kg**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Zinc	25	2.5	25.00	0	101	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 Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

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: 1504287 RcptNo 1

Received by/date: 04/08/15

Logged By: Lindsay Mangin 4/8/2015 7:05:00 AM

Completed By: Lindsay Mangin 4/8/2015 7:59:16 AM

Reviewed By: 04/08/15

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 ☑	# of preserved bottles checked for pH: ____ (<2 or >12 unless noted)
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	Adjusted?
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 ☐	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	3.4	Good	Yes			

Chain-of-Custody Record

Client: Western Refining

Mailing Address: Route 3 Box 7

Gallup, NM 87301

Phone #: 505-722-3833

email or Fax#: 505-722-0210

QA/QC Package:

☒ Standard ☐ Level 4 (Full Validation)

Accreditation:

☐ NELAP ☐ Other_____

☐ EDD (Type) _Please provide EDD_____

Turn-Around Time:

☒ Standard ☐ Rush_____

Project Name:

OCD Central Landfarm Semiannual Sampling

Project #:

697-039-008

Project Manager:

Ed Riege

Sampler: Zac Bitsue

On Ice: ☒ Yes ☐ No

Sample Temperature: 3.4

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. 1504087	Vadose Zone List (see attached)	NMAC List (see attached)	Chloride by EPA 300.0	BTEX (8260)	Air Bubbles (Y or N)
4/6/2015	1345	soil	CentralOCD-01-04062015	4oz - 2	none	-001	X				
4/6/2015	1417	soil	CentralOCD-02-04062015	4oz - 2	none	-002	X				
4/6/2015	1305	soil	CentralOCD-03-04062015	4oz - 2	none	-003	X				
4/6/2015	1425	soil	CentralOCD-04-04062015	4oz - 2	none	-004	X				
4/6/2015	—	soil	BD-04062015	4oz - 2	none	-005	X				
4/6/2015	1312	soil	CentralOCD-03-04062015-MS	4oz - 2	none	-003	X				
4/6/2015	1316	soil	CentralOCD-03-04062015-MSD	4oz - 2	none	-003	X				
4/6/2015	1230	soil	CentralOCD-TZ-04062015	8oz - 3, 4oz - 1	none	-006	X	X			
4/7/2015	1216	soil	OCD-2121-04072015	4oz - 2	none	-007			X		
4/6/2015	1330	water	EB-04062015	VOA - 3	HCL	-008				X	
4/6/2015	1355	water	FB-04062015	VOA - 3	HCL	-009				X	
NA	NA	water	Trip Blank	VOA - 3	HCL	-010				X	

Date:	Time:	Relinquished by:	Received by:	Date	Time
4-7-15	1430			04/08/15	0705
Date:	Time:	Relinquished by:	Received by:	Date	Time

Remarks: Please cc Grant Price (gprice@trihydro.com) with results. Call Grant @ 307-745-7474 w/ questions. **Verify that Reporting limits comply with those shown on the attached. PCBs need DL of 0.02 mg/kg.**

NMAC LIST ANALYTES AND REPORTING LIMITS, CONSTITUENTS LISTED IN SUBSECTIONS A AND B OF 20.6.2.3103 NMAC, CENTRAL OIL CONSERVATION DIVISION LANDFARM
WESTERN REFINING SOUTHWEST, GALLUP REFINERY, GALLUP, NEW MEXICO

Analyte	Analytical Method	Reporting Units	Requested Reporting Limit
Fluoride	E300	mg/kg	0.3000
Nitrogen, Nitrate (As N)	E300	mg/kg	2.2000
Sulfate	E300	mg/kg	21.5000
*Radium-226	E901.1	pCi/g	1.3950
*Radium-228	E901.1	pCi/g	1.2500
*Radium-226+Radium-228	E901.1	pCi/g	2.6450
Arsenic	SW6010A	mg/kg	2.5000
Barium	SW6010A	mg/kg	1.0000
Cadmium	SW6010A	mg/kg	0.1000
Chromium	SW6010A	mg/kg	0.3000
Copper	SW6010A	mg/kg	0.6000
Iron	SW6010A	mg/kg	500.0000
Lead	SW6010A	mg/kg	0.2500
Manganese	SW6010A	mg/kg	1.0000
Selenium	SW6010A	mg/kg	2.5000
Silver	SW6010A	mg/kg	0.2500
Uranium	SW6010A	mg/kg	5.0000
Zinc	SW6010A	mg/kg	2.5000
Mercury	SW7471	mg/kg	0.0330
Aroclor 1016	SW8082	mg/kg	0.0200
Aroclor 1221	SW8082	mg/kg	0.0200
Aroclor 1232	SW8082	mg/kg	0.0200
Aroclor 1242	SW8082	mg/kg	0.0200
Aroclor 1248	SW8082	mg/kg	0.0200
Aroclor 1254	SW8082	mg/kg	0.0200
Aroclor 1260	SW8082	mg/kg	0.0200
1,1,1-Trichloroethane	SW8260B	mg/kg	0.0480
1,1,2-Trichloroethane	SW8260B	mg/kg	0.0480
1,1-Dichloroethane	SW8260B	mg/kg	0.0970
1,1-Dichloroethene	SW8260B	mg/kg	0.0480
1,2-Dichloroethane	SW8260B	mg/kg	0.0480
Carbon tetrachloride	SW8260B	mg/kg	0.0970
Chloroform	SW8260B	mg/kg	0.0480
Dibromomethane	SW8260B	mg/kg	0.1000
Methylene chloride	SW8260B	mg/kg	0.1500
Tetrachloroethene	SW8260B	mg/kg	0.0480
Trichloroethene	SW8260B	mg/kg	0.0480
Vinyl chloride	SW8260B	mg/kg	0.0480
2,4,5-Trichlorophenol	SW8270C	mg/kg	0.2000
2,4,6-Trichlorophenol	SW8270C	mg/kg	0.2000
2,4-Dichlorophenol	SW8270C	mg/kg	0.4000
2,4-Dimethylphenol	SW8270C	mg/kg	0.3000
2,4-Dinitrophenol	SW8270C	mg/kg	0.4000
2-Chlorophenol	SW8270C	mg/kg	0.2000
2-Methylphenol	SW8270C	mg/kg	0.1000
2-Nitrophenol	SW8270C	mg/kg	0.1000
3+4-Methylphenol	SW8270C	mg/kg	0.1000
4,6-Dinitro-2-methylphenol	SW8270C	mg/kg	0.5000
4-Chloro-3-methylphenol	SW8270C	mg/kg	0.1000
4-Nitrophenol	SW8270C	mg/kg	0.1000
Pentachlorophenol	SW8270C	mg/kg	0.4000
Phenol	SW8270C	mg/kg	0.2000
1-Methylnaphthalene	SW8260B	mg/kg	0.2000
2-Methylnaphthalene	SW8260B	mg/kg	0.2000
Acenaphthene	SW8270C	mg/kg	0.2000
Acenaphthylene	SW8270C	mg/kg	0.2000
Anthracene	SW8270C	mg/kg	0.2000
Benzo(a)anthracene	SW8270C	mg/kg	0.2000
Benzo(a)pyrene	SW8270C	mg/kg	0.2000
Benzo(b)fluoranthene	SW8270C	mg/kg	0.2000
Benzo(g,h,i)perylene	SW8270C	mg/kg	0.2000
Benzo(k)fluoranthene	SW8270C	mg/kg	0.2000
Chrysene	SW8270C	mg/kg	0.2000
Dibenz(a,h)anthracene	SW8270C	mg/kg	0.2000
Fluoranthene	SW8270C	mg/kg	0.2000
Fluorene	SW8270C	mg/kg	0.2000
Indeno(1,2,3-c,d)pyrene	SW8270C	mg/kg	0.2000
Naphthalene	SW8270C	mg/kg	0.2000
Phenanthrene	SW8270C	mg/kg	0.2000
Pyrene	SW8270C	mg/kg	0.2000
Cyanide	EPA 335.4	mg/kg	0.3000
Diesel Range Organics (DRO)	SW8015	mg/kg	12
Gasoline Range Organics (GRO)	SW8015	mg/kg	1.0

VADOSE ZONE ANALYTES AND REPORTING LIMITS, CENTRAL OIL CONSERVATION DIVISION LANDFARM
WESTERN REFINING SOUTHWEST, GALLUP REFINERY, GALLUP, NEW MEXICO

Analyte	Analytical Method	Reporting Units	Requested Reporting Limit
Chloride	E300	mg/kg	30
Benzene	SW8260B	mg/kg	0.050
Ethylbenzene	SW8260B	mg/kg	0.050
Toluene	SW8260B	mg/kg	0.050
Xylenes, Total	SW8260B	mg/kg	0.100
Petroleum Hydrocarbons, TR	E418.1	mg/kg	20

ATTACHMENT D

TIER II DATA VALIDATION

Tier II Data Validation Report Summary

Client: Western Refining Southwest, Inc.	Laboratory: Hall Environmental Analysis Laboratory
Project Name: Semiannual OCD Landfarm Soil Sampling	Sample Matrix: Soil, Water
Project Number: 697-039-007 Task 0005	Sample Start Date: 04/06/2015
Date Validated: 05/18/2015	Sample End Date: 04/07/2015
Parameters Included: ▪ Volatile Organic Compounds (VOC) by Test Methods for Evaluating Solid Waste (SW-846) Method 8260B ▪ Gasoline Range Organics (GRO) and Diesel Range Organics (DRO) by SW-846 Method 8015D ▪ Total Petroleum Hydrocarbons (TPH) by Environmental Protection Agency (EPA) Method 418.1 ▪ Semivolatile Organic Compounds (SVOC) by SW-846 Method 8270C ▪ Total Metals by SW-846 Method 6010B ▪ Total Mercury by SW-846 Method 7471 ▪ Anions by EPA Method 300.0 ▪ Polychlorinated Biphenyls (PCB) by SW-846 Method 8082 ▪ Total Cyanide by EPA Method 335.4 ▪ Radium-226 and Radium-228 by EPA Method 901.1	
Laboratory Project ID: 1504287	
Data Validator: James Gianakon, Environmental Chemist	
Reviewer: Charles Ballek, Senior Chemist	

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 in Albuquerque, New Mexico, Anatek Labs, Inc. in Moscow, Idaho, and Pace Analytical Labs in Greensburg, Pennsylvania, evaluating samples from the Western Refining Southwest, Inc. site, located in Gallup, New Mexico.

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 from:

- Field duplicate pairs
- 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 (%R) of the following items to verify that data are not biased.

- MS/MSD samples
- LCS/LCSD samples
- Organic system monitoring compounds (surrogates)

Field accuracy was established by collecting and analyzing the following samples to monitor for possible ambient or cross contamination during sampling and transportation.

- Trip blanks
- Field blanks
- Equipment blanks

Tier II Data Validation Report Summary

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.

Tier II Data Validation Report Summary

SAMPLE NUMBERS TABLE

Client Sample ID	Laboratory Sample Number
CentralOCD-01-04062015	1504287-001
CentralOCD-02-04062015	1504287-002
CentralOCD-03-04062015	1504287-003
CentralOCD-04-04062015	1504287-004
BD-04062015	1504287-005
CentralOCD-TZ-04062015	1504287-006 / 150409032-001 / 30145292001
OCD-2121-04072015	1504287-007
EB-04062015	1504287-008
FB-04062015	1504287-009
Trip Blank	1504287-010

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. An empty circle (O) 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 (Item 3)
- ✓ Holding Times and Preservation (Items 6 and 7)
- O Initial and Continuing Calibrations (Item 9)
- ✓ Laboratory Blanks (Item 10)
- ⊗ MS/MSD (Item 12)
- ✓ LCS/LCSD (Item 14)
- ⊗ System Monitoring Compounds (i.e., Surrogates) (Item 16)
- ✓ Field, Equipment, and Trip Blanks (Item 17)
- ✓ Field Duplicates (Item 19)
- O Laboratory Duplicates (Item 21)

Guidance References

Chemical data validation was conducted in accordance with the United States Environmental Protection Agency (USEPA) Contract Laboratory Program (CLP) National Functional Guidelines for the analyses listed below, 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 EPA-540-R-014-002, August 2014 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-540-R-013-001, August 2014 with additional reference to the USEPA CLP National Functional Guidelines for Inorganic Data Review, document number EPA 540-R-04-004, October 2004.
- Radiochemistry data were evaluated following criteria defined in USEPA Multi-Agency Radiological Laboratory Analytical Protocols Manual (MARLAP), document number EPA 402-B-04-001A, July 2004.
- Review of field duplicates was conducted according to the USEPA New England Environmental Data Review Supplement for Regional Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement0, April 2013.
- Trihydro Data Validation Variance Documentation, March 2015.

Tier II Data Validation Report Summary

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 Validation Criteria Checklist.

The purpose of validating data and assigning qualifiers is to assist in proper data interpretation. Data that are not qualified meet the site data quality objectives. If values are assigned qualifiers other than an R (rejected, data not usable), the data may be used for site evaluation; however, consideration should be given to the reasons for qualification when interpreting sample concentrations. Data points that are assigned an R qualifier should not be used for site evaluation purposes.

Text identified in **bold font** in the Validation Criteria Checklist indicates that further action and/or qualification of the data were required. Data validation qualifiers were added for the items noted with crossed circles in the Validation Criteria section above. Please see the Data Qualification Summary table at the end of this report for a complete list of samples and analytes qualified.

Data qualifiers used during this validation are included in the following table.

Qualifier	Definition
J-	The result is an estimated concentration, but may be biased low
R	Rejected, data not usable

Data Completeness

The analyses were performed as requested on the CoC records. The associated samples were received by the laboratory and analyzed properly unless otherwise noted in the Criteria Checklist below. The complete data package consisted of 198 data points excluding blank samples. 23 data points were rejected. The data completeness measure for this data package is calculated to be 88.38% and is not acceptable.

VALIDATION CRITERIA CHECKLIST	
1. Was the report free of non-conformances identified by the laboratory?	No
Comments: The laboratory noted the following non-conformances as related to this data set. Method 8270C: One of the surrogate compounds was not recoverable due to dilution and matrix interferences.	
2. Were the data free of data qualification flags and/or notes used by the laboratory? If no, define.	No
Comments: The laboratory used the following data qualification flags in the laboratory report. S – Spike Recovery outside accepted recovery limits.	
3. Were sample CoC forms and procedures complete?	Yes
Comments: The CoC record from the field to the laboratory was complete and custody was maintained as evidenced by the field and laboratory personnel signatures, dates, and times of receipt. Samples CentralOCD-01-04062015, CentralOCD-02-04062015, CentralOCD-03-04062015, and CentralOCD-04-04062015 represent new sample locations, despite the name (OCD-XX) having been used in previous sampling events. Sample CentralOCD-2121-04072015 corresponds to the location of sample CentralOCD-04-091614.	
4. Were detection limits in accordance with the quality assurance project plan (QAPP), permit, or method, or indicated as acceptable?	Yes
Comments: The reporting limits for the data set were reviewed and appeared to be acceptable. The following dilutions were applied to the project samples. Method 8015B: A dilution factor of 10 times was applied for the DRO analysis of sample CentralOCD-TZ-04062015. Method 300.0: A dilution factor of 20 times was applied for the analyses of anions for selected samples. Method 6010B: A dilution factor of 2 times was applied for the analysis of barium and manganese in sample CentralOCD-TZ-04062015 and a dilution factor of 100 times was applied for the analysis of iron in sample CentralOCD-TZ-04062015. Method 7471: A dilution factor of 5 times was applied for the analysis of mercury in sample CentralOCD-TZ-04062015.	
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 and constituents were found to be in compliance with the CoC.	
6. Were samples received in good condition within method-specified requirements?	Yes
Comments: The samples were received in good condition, with the cooler temperature within the recommended temperature range of 4.0°C ± 2.0°C at a temperature of 3.4°C as noted on the Sample Log-In Check List. The shipping containers were sealed and custody seals were present and intact on the shipping containers.	
7. Were samples extracted/digested and analyzed within method-specified or technical holding times?	Yes
Comments: Samples were extracted/digested and analyzed within the method specified holding times.	
8. Were reported units appropriate for the sample matrix/matrices and analytical method(s)? Specify if wet or dry units were used for soil.	Yes
Comments: The results were reported in concentration units of milligrams per kilogram (mg/kg) and picocuries per gram (pCi/g) which were acceptable for the sample matrices and the analyses requested. Analytical results for the soil samples were reported on an as-received, wet weight basis, except the cyanide, radium-266, and radium-228 results were reported on a dry weight basis. The analytical results for the field, equipment, and trip blank samples were reported in units of micrograms per liter which were appropriate.	

VALIDATION CRITERIA CHECKLIST

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

Comments: Initial and continuing calibration data were not included as part of this data set. However, the data were assumed to be acceptable as the laboratory did not note that any calibration verification results were outside the acceptable limits.

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 target analyte contamination. The activity for radium-226 in the method blank for Method 901.1 was reported below the associated minimum detectable concentration MDC). This result was evaluated as ND and was not used to qualify associated data.

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. The matrix spike sample source for each analytical batch in this sample set has been indicated below.

Method	Analyte (s)	Batch	MS Sample Source
300.0	Anions	18745	CentralOCD-03-04062015
8260B	VOCs	18573	CentralOCD-03-04062015
8260B	VOCs	R25378	Not Prepared
8270C	SVOCs	18661	Not Prepared
418.1	TPH	18606	CentralOCD-03-04062015
8015D	DRO	18574	Not Prepared
8015D	GRO	18573	CentralOCD-TZ-04062015
8082	PCBs	18660	Not Prepared
7471	Mercury	18690	CentralOCD-TZ-04062015
6010B	Total Metals	18669	Not Prepared
335.4	Cyanide	150409032	CentralOCD-TZ-04062015
901.1	Radium	RADC/24225	Not Prepared/Not Required

Not Prepared – Matrix spikes were not prepared for this batch.

13. For MS/MSDs prepared from project samples, were percent recoveries and RPDs within data validation or laboratory quality control (QC) limits? No

Comments: MS/MSD percent recoveries and MS/MSD RPDs were within data validation and laboratory QC limits, with the following exceptions.

The recoveries of nitrogen, nitrate in the MS/MSD for Method 300.0 batch 18745 were outside of the laboratory control limits of 85.3-110% at 114% and 118%, respectively. Nitrogen, nitrate was detected in the associated sample CentralOCD-TZ-04062015 and the result was assigned a J+ qualifier due to evidence of high bias.

The recoveries of mercury in the MS/MSD for Method 7471 were outside of the data validation limits of 75-125% at 276% and 290%, respectively. Mercury was not detected in the associated sample and qualification of data was not required.

VALIDATION CRITERIA CHECKLIST	
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 LCS samples analyzed was equal to at least 5% of the total number of samples analyzed.	
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 LCS/LCSD RPDs were within laboratory QC limits.	
16. Were surrogate recoveries within laboratory QC limits?	No
Comments: Surrogate recoveries were within laboratory QC limits with the following exceptions. **The recovery of the Method 8270C surrogate 4-terphenyl-d_{14} in sample CentralOCD-TZ-04062015 was outside of the laboratory acceptance limits of 29.4-129% at 0%. Associated non-detections were assigned R qualifiers due to extreme low bias.** **The Method 8015D (DRO) surrogate DNOP was recovered outside the acceptance range of 63.5-128% at 128% for sample Central OCD-TZ-04062015. The associated analytes, DRO and motor oil range organics (MRO) were detected in the sample and the results were assigned J+ qualifiers due to evidence of potential high bias.**	
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: The number of trip blank, field blank, and equipment blank samples collected was equal to at least 10% of the total samples. One trip blank sample, Trip Blank, one field blank sample, FB-04062015, and one equipment blank sample, EB-04062015, were collected as a part of this data set.	
18. Were the trip blank, field blank, and/or equipment blank samples reported to be free of target analyte contamination?	Yes
Comments: The trip blank, field blank, and equipment blank samples were reported to be free of target analyte contamination.	
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 duplicate samples collected was equal to at least 10% of the total number of samples. The sample BD-04062015 was collected as a duplicate for CentralOCD-03-04062015.	
20. Were field duplicate RPD values within data validation QC limits (soil 0-50%, water 0-30%, or air 0-25%)?	Yes
Comments: As detailed in the Field Duplicate Summary Tables below, the field duplicate RPD values for detected analytes were within QC limits. The remaining target analytes were not detected in the sample or the duplicate.	
21. For laboratory duplicates prepared from project samples, were RPDs within laboratory QC limits?	N/A
Comments: Laboratory duplicate samples were not prepared as a part of this data set.	

FIELD DUPLICATE SUMMARY

Client Sample ID: CentralOCD-03-04062015 Field Duplicate Sample ID: BD-04062015				
Method	**Analyte**	**Laboratory Result (mg/kg)**	**Duplicate Result (mg/kg)**	**Relative Percent Difference (RPD)**
300.0	Chloride	330	350	5.9%
Field duplicate RPD control limits are not to exceed 50% for soil as established by USEPA New England Environmental Data Review Supplement for Regional Data Review Elements and Superfund Specific Guidance/Procedures, EQADR-Supplement0, April 2013.				

DATA QUALIFICATION SUMMARY

Abbreviation	Reason
HR-SUR	The surrogate percent recovery was greater than the upper acceptable limit indicating a possible high bias.
LR-SUR	The surrogate percent recovery was less than the lower acceptable limit indicating a possible low bias.
HR-MS	The MS and/or MSD percent recovery was greater than the upper acceptable limit indicating possible matrix interference.

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
3,3-Dichlorobenzidine	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	2.5	mg/kg	R	LR-SUR
4-Bromophenyl-phenylether	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	2	mg/kg	R	LR-SUR
4-Nitroaniline	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	4	mg/kg	R	LR-SUR
Anthracene	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	2	mg/kg	R	LR-SUR
Azobenzene	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	2	mg/kg	R	LR-SUR
Benzo(a)anthracene	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	2	mg/kg	R	LR-SUR
Benzo(a)pyrene	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	2	mg/kg	R	LR-SUR
Benzo(b)fluoranthene	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	2	mg/kg	R	LR-SUR
Benzo(g,h,i)perylene	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	2	mg/kg	R	LR-SUR
Benzo(k)fluoranthene	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	2	mg/kg	R	LR-SUR
Bis(2-ethylhexyl)phthalate	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	5	mg/kg	R	LR-SUR
Butylbenzylphthalate	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	2	mg/kg	R	LR-SUR
Carbazole	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	2	mg/kg	R	LR-SUR
Chrysene	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	2	mg/kg	R	LR-SUR
Dibenzo(a,h)anthracene	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	2	mg/kg	R	LR-SUR
Di-n-butylphthalate	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	5	mg/kg	R	LR-SUR
Di-n-octylphthalate	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	4	mg/kg	R	LR-SUR
Fluoranthene	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	2	mg/kg	R	LR-SUR
Hexachlorobenzene	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	2	mg/kg	R	LR-SUR
Indeno(1,2,3-cd)pyrene	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	2	mg/kg	R	LR-SUR
Motor Oil	SW8015	CentralOCD-TZ-04062015	1504287-006A	700	480	mg/kg	J+	HR-SUR

Analyte	Method	Field Sample ID	Lab Sample ID	Result	Limit	Units	Reviewer Qualifier	DV Flag Reasons
Nitrogen, Nitrate & Nitrite, Dissolved	E300	CentralOCD-TZ-04062015	1504287-006B	2.7	0.3	mg/kg	J+	HR-MS
N-Nitrosodiphenylamine	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	2	mg/kg	R	LR-SUR
Phenanthrene	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	2	mg/kg	R	LR-SUR
Pyrene	SW8270C	CentralOCD-TZ-04062015	1504287-006b	ND	2	mg/kg	R	LR-SUR
TPH DRO	SW8015	CentralOCD-TZ-04062015	1504287-006A	350	95	mg/kg	J+	HR-SUR