NM2 - ____10____

MONITORING REPORTS YEAR(S):

__2011 - 2015__

Western Refining
LOGISTICS

WNR LISTED NYSE

RECEIVED OCD

2015 AUG 17 P 3:23

August 14, 2015

Mr. Brad Jones
New Mexico Oil Conservation Division
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

FedEx Tracking #: 7742 8442 9856

RE: 2nd Quarter 2015 Monitoring Report
Bisti Landfarm 711 Permit NM-02-0010
San Juan County, New Mexico

Dear Mr. Jones:

Western Refining Southwest, Inc. (Western) submits the attached 2nd Quarter 2015 Monitoring Report for the Bisti Landfarm (Permit NM-02-0010) pursuant to your letter to Western dated May 29, 2015. If you have any questions or comments regarding this quarterly report, please do not hesitate to contact me at (505) 632-4166 or Kelly.Robinson@wnr.com.

Sincerely,

Kelly Robinson

Kelly R. Robinson
Environmental Manager
Western Refining Southwest, Inc.

cc: R. Schmaltz (WNR)
A. Hains (WNR)

2ND QUARTER SOIL SAMPLING REPORT

BISTI LANDFARM 711 PERMIT NM-02-0010
SAN JUAN COUNTY, NEW MEXICO

AUGUST 2015

Prepared for:

WESTERN REFINING SOUTHWEST, INC.
Bloomfield, New Mexico

Western Refining

LTE

2ND QUARTER SOIL SAMPLING REPORT

BISTI LANDFARM 711 PERMIT NM-02-0010
SAN JUAN COUNTY, NEW MEXICO

AUGUST 2015

Prepared for:

WESTERN REFINING SOUTHWEST, INC.
111 County Road 4990
Bloomfield, New, Mexico 87413

Prepared by:

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

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1.0 INTRODUCTION

On June 26, 2015, LT Environmental, Inc. (LTE) was contracted by Western Refining Southwest, Inc. (Western) to conduct quarterly vadose zone monitoring at the Bisti Landfarm, permit number NM-02-0010. The Bisti Landfarm was permitted in February 1998 under the New Mexico Oil and Gas Conservation Division (NMOCD) Rule 711 to Giant Industries, Arizona (Giant). Western procured the Bisti Landfarm from Giant in June 2007 and conducts regular sampling of the treatment zone and vadose zone in the active cells according to Rule 711 and 19.15.36 of the New Mexico Administrative Code (NMAC) (Rule 36).

The Site is located in the northwest quarter of the southeast quarter of Section 16, Township 25 North, Range 12 West in San Juan County, New Mexico (Figure 1). Giant disposed of impacted soil at the Bisti Landfarm resulting in three cells: API Cell, Crude Cell (containing material originating from Pettigrew, Eastline, Bisti, and Westline), and Cell 1, which is inactive and no longer monitored (Figure 2).

2.0 METHODS

Quarterly soil sampling consisted of vadose zone monitoring. The number of vadose zone samples collected within each cell was dependent on the size of the cell. Four soil samples were collected from the Crude Cell: one beneath the Eastline source area, one beneath the Westline source area, one beneath the Pettigrew source area, and one beneath the Bisti source area. One sample was collected from beneath the API Cell. Figure 2 depicts the second quarter vadose zone soil sample locations. All vadose zone soil samples were collected from between three feet and four feet below the landfarm cells' original ground surface and boreholes were filled with hydrated bentonite from total depth to the existing ground surface upon completion.

Soil samples were immediately placed on ice and sealed in a cooler for delivery to Hall Environmental Analysis Laboratory, Inc., of Albuquerque, New Mexico, under strict chain-of-custody (COC) protocol. The date and time sampled, sample number, type of sample, sampler's name and signature, preservative used, and analyses required were documented on the COC. Soil samples were labeled with the date and time of collection, sample name, sampler's name, and parameters to be analyzed.

All soil samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by the United State Environmental Protection Agency (EPA) Method 8021B and total petroleum hydrocarbons (gasoline range organics (TPH-GRO), diesel range organics (DRO), and motor oil range organics (MRO)) by EPA Method 8015M.

3.0 RESULTS

Laboratory analytical results indicate that all vadose zone soil samples collected during the second quarter sampling event contained no concentrations of BTEX or TPH exceeding laboratory reporting limits. The laboratory analytical results are presented in Table 1 and the complete laboratory analytical report is included as Attachment A.

FIGURES

LEGEND

SITE LOCATION

0 2,000 4,000

Feet

N

NEW MEXICO

FIGURE 1
SITE LOCATION MAP
BISTI LANDFARM
SEC 16 T25N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1005 BISTI\WR1005_BISTI_LANDFARM_FIG01_SL_12292014.mxd

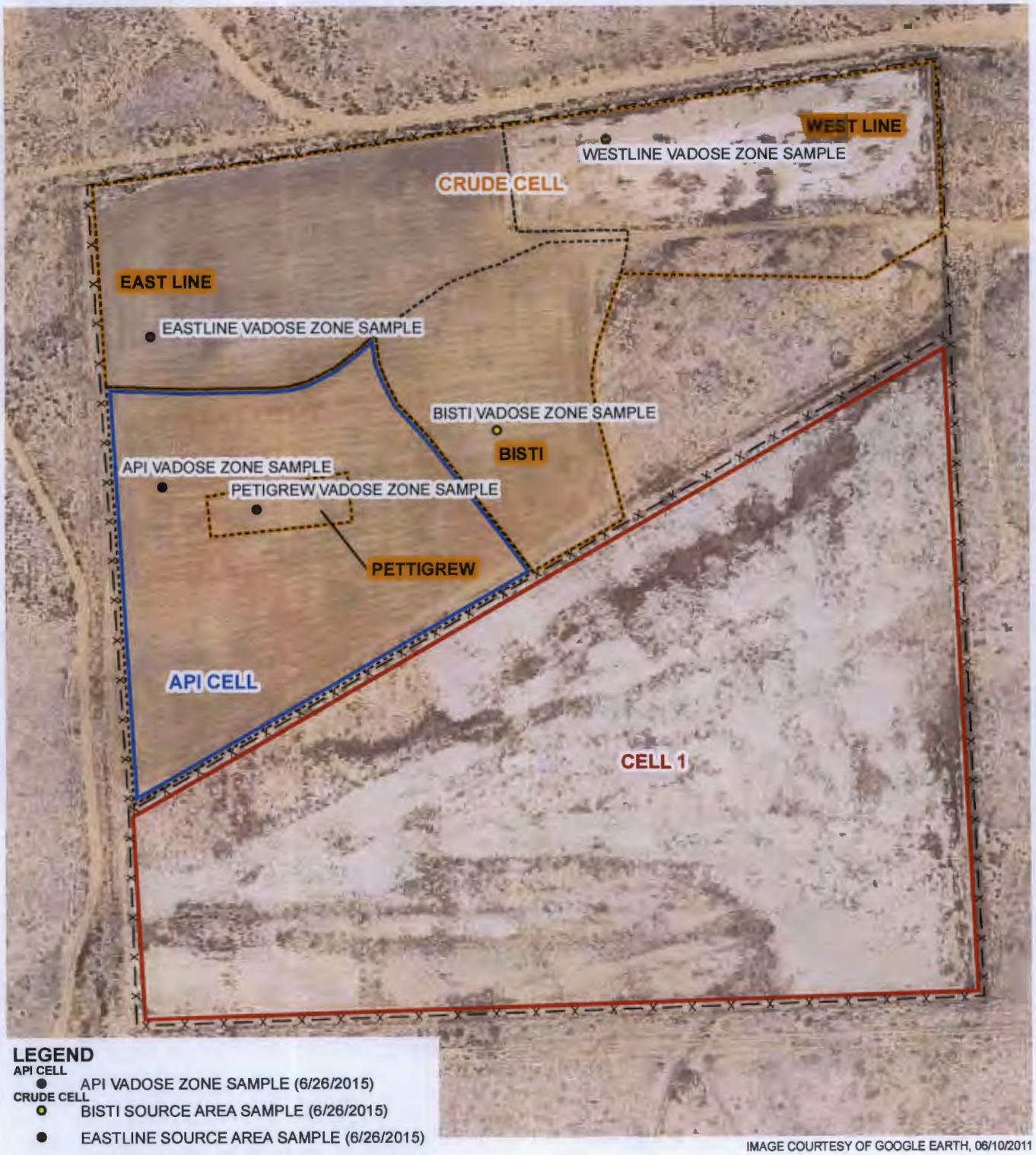

IMAGE COURTESY OF GOOGLE EARTH, 06/10/2011

LEGEND

API CELL
CRUDE CELL

- API VADOSE ZONE SAMPLE (6/26/2015)
- BISTI SOURCE AREA SAMPLE (6/26/2015)
- EASTLINE SOURCE AREA SAMPLE (6/26/2015)
- PETIGREW SOURCE AREA SAMPLE (6/26/2015)
- WESTLINE SOURCE AREA SAMPLE (6/26/2015)
- x — x FENCE
- APPROXIMATE SOURCE IDENTITY BOUNDARY
- CELL 1 BOUNDARY
- API CELL BOUNDARY
- CRUDE CELL BOUNDARY

0 200 400
Feet

N

FIGURE 2
VADOSE ZONE SOIL SAMPLING
LOCATION MAP
SEC 16 T25N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1005 BISTI\WR1005_BISTI_FIG02_SAMPLES_2015_Q2.mxd

TABLE

TABLE 1

JUNE 2015 VADOSE ZONE SOIL ANALYTICAL RESULTS
BISTI LANDFARM
WESTERN REFINING SOUTHWEST, INC.

Cell	Crude Cell				API Cell	Background Sample Result
Source Area	**West Line**	**East Line**	**Bisti**	**Pettigrew**	**API**	
Sample ID	Westline Vadose Zone	Eastline Vadose Zone	Bisti Vadose Zone	Pettigrew Vadose Zone	API Vadose Zone	
Sample Date	6/26/15	6/26/15	6/26/15	6/26/15	6/26/15	3/27/98
GRO (mg/kg)	<4.8	<4.8	<4.9	<4.8	<4.9	--
DRO (mg/kg)	<9.7	<9.8	<10	<10	<9.9	<50
MRO (mg/kg)	<49	<49	<50	<50	<50	--
Benzene (mg/kg)	<0.048	<0.048	<0.049	<0.048	<0.049	<0.05
Toluene (mg/kg)	<0.048	<0.048	<0.049	<0.048	<0.049	<0.05
Ethylbenzene (mg/kg)	<0.048	<0.048	<0.049	<0.048	<0.049	<0.05
Total Xylenes (mg/kg)	<0.095	<0.095	<0.099	<0.096	<0.098	<0.05

Notes:

DRO - diesel range organics

GRO - gasoline range organics

MRO - motor oil range organics

mg/kg - milligrams per kilograms

< indicates result is less than the stated method reporting limit.

-- Respective background data will be provided following completion of approved background sampling activites.

APPENDIX A

LABORATORY ANALYTICAL RESULTS

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

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

July 06, 2015

Kelly Robinson

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

RE: Bisti Landfarm Vadose Zone OrderNo.: 1506D27

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 5 sample(s) on 6/27/2015 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

Analytical Report
Lab Order **1506D27**
Date Reported: **7/6/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bisti Landfarm Vadose Zone
Lab ID: 1506D27-001 **Matrix:** SOIL

Client Sample ID: Westline Vadose Zone
Collection Date: 6/26/2015 12:10:00 PM
Received Date: 6/27/2015 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	7/2/2015 2:00:24 AM	20026
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/2/2015 2:00:24 AM	20026
Surr: DNOP	98.2	57.9-140		%REC	1	7/2/2015 2:00:24 AM	20026
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/30/2015 3:55:47 PM	20005
Surr: BFB	89.2	75.4-113		%REC	1	6/30/2015 3:55:47 PM	20005
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.048		mg/Kg	1	6/30/2015 3:55:47 PM	20005
Toluene	ND	0.048		mg/Kg	1	6/30/2015 3:55:47 PM	20005
Ethylbenzene	ND	0.048		mg/Kg	1	6/30/2015 3:55:47 PM	20005
Xylenes, Total	ND	0.095		mg/Kg	1	6/30/2015 3:55:47 PM	20005
Surr: 4-Bromofluorobenzene	92.7	80-120		%REC	1	6/30/2015 3:55:47 PM	20005

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, Inc.
Project: Bisti Landfarm Vadose Zone
Lab ID: 1506D27-002 **Matrix:** SOIL

Client Sample ID: Eastline Vadose Zone
Collection Date: 6/26/2015 12:30:00 PM
Received Date: 6/27/2015 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	7/2/2015 2:21:56 AM	20026
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/2/2015 2:21:56 AM	20026
Surr: DNOP	97.4	57.9-140		%REC	1	7/2/2015 2:21:56 AM	20026
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/30/2015 4:24:36 PM	20005
Surr: BFB	89.6	75.4-113		%REC	1	6/30/2015 4:24:36 PM	20005
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.048		mg/Kg	1	6/30/2015 4:24:36 PM	20005
Toluene	ND	0.048		mg/Kg	1	6/30/2015 4:24:36 PM	20005
Ethylbenzene	ND	0.048		mg/Kg	1	6/30/2015 4:24:36 PM	20005
Xylenes, Total	ND	0.095		mg/Kg	1	6/30/2015 4:24:36 PM	20005
Surr: 4-Bromofluorobenzene	94.7	80-120		%REC	1	6/30/2015 4:24:36 PM	20005

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, Inc.
Project: Bisti Landfarm Vadose Zone
Lab ID: 1506D27-003 **Matrix:** SOIL

Client Sample ID: Bisti Vadose Zone
Collection Date: 6/26/2015 11:40:00 AM
Received Date: 6/27/2015 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/2/2015 2:43:18 AM	20026
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/2/2015 2:43:18 AM	20026
Surr: DNOP	97.7	57.9-140		%REC	1	7/2/2015 2:43:18 AM	20026
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/30/2015 4:53:21 PM	20005
Surr: BFB	87.6	75.4-113		%REC	1	6/30/2015 4:53:21 PM	20005
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	6/30/2015 4:53:21 PM	20005
Toluene	ND	0.049		mg/Kg	1	6/30/2015 4:53:21 PM	20005
Ethylbenzene	ND	0.049		mg/Kg	1	6/30/2015 4:53:21 PM	20005
Xylenes, Total	ND	0.099		mg/Kg	1	6/30/2015 4:53:21 PM	20005
Surr: 4-Bromofluorobenzene	90.8	80-120		%REC	1	6/30/2015 4:53:21 PM	20005

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, Inc.
Project: Bisti Landfarm Vadose Zone
Lab ID: 1506D27-004 **Matrix:** SOIL

Client Sample ID: Pettigrew Vagose Zone
Collection Date: 6/26/2015 11:35:00 AM
Received Date: 6/27/2015 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/2/2015 3:04:50 AM	20026
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/2/2015 3:04:50 AM	20026
Surr: DNOP	90.9	57.9-140		%REC	1	7/2/2015 3:04:50 AM	20026
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/2/2015 12:13:24 AM	20005
Surr: BFB	86.5	75.4-113		%REC	1	7/2/2015 12:13:24 AM	20005
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.048		mg/Kg	1	7/2/2015 12:13:24 AM	20005
Toluene	ND	0.048		mg/Kg	1	7/2/2015 12:13:24 AM	20005
Ethylbenzene	ND	0.048		mg/Kg	1	7/2/2015 12:13:24 AM	20005
Xylenes, Total	ND	0.096		mg/Kg	1	7/2/2015 12:13:24 AM	20005
Surr: 4-Bromofluorobenzene	88.7	80-120		%REC	1	7/2/2015 12:13:24 AM	20005

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, Inc.
Client Sample ID: API Vadose Zone
Project: Bisti Landfarm Vadose Zone
Collection Date: 6/26/2015 11:25:00 AM
Lab ID: 1506D27-005 **Matrix:** SOIL
Received Date: 6/27/2015 8:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/2/2015 3:26:12 AM	20026
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	7/2/2015 3:26:12 AM	20026
Surr: DNOP	90.6	57.9-140		%REC	1	7/2/2015 3:26:12 AM	20026
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/2/2015 12:42:08 AM	20005
Surr: BFB	87.8	75.4-113		%REC	1	7/2/2015 12:42:08 AM	20005
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	7/2/2015 12:42:08 AM	20005
Toluene	ND	0.049		mg/Kg	1	7/2/2015 12:42:08 AM	20005
Ethylbenzene	ND	0.049		mg/Kg	1	7/2/2015 12:42:08 AM	20005
Xylenes, Total	ND	0.098		mg/Kg	1	7/2/2015 12:42:08 AM	20005
Surr: 4-Bromofluorobenzene	91.5	80-120		%REC	1	7/2/2015 12:42:08 AM	20005

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		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1506D27**

06-Jul-15

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone

Sample ID **MB-19990**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **19990**	RunNo: **27182**
Prep Date: **6/29/2015**	Analysis Date: **7/1/2015**	SeqNo: **815505** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.7		10.00		87.1	57.9	140			

Sample ID **MB-20026**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **20026**	RunNo: **27182**
Prep Date: **6/30/2015**	Analysis Date: **7/1/2015**	SeqNo: **816316** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.8		10.00		88.3	57.9	140			

Sample ID **LCS-20026**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **20026**	RunNo: **27182**
Prep Date: **6/30/2015**	Analysis Date: **7/1/2015**	SeqNo: **816317** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	10	50.00	0	82.6	57.4	139			
Surr: DNOP	4.9		5.000		97.5	57.9	140			

Sample ID **MB-20028**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **20028**	RunNo: **27182**
Prep Date: **6/30/2015**	Analysis Date: **7/2/2015**	SeqNo: **816327** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	10		10.00		101	57.9	140			

Sample ID **LCS-20028**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **20028**	RunNo: **27182**
Prep Date: **6/30/2015**	Analysis Date: **7/2/2015**	SeqNo: **816328** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	6.1		5.000		121	57.9	140			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- 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#: **1506D27**

06-Jul-15

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone

Sample ID **MB-20005**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **20005**	RunNo: **27195**
Prep Date: **6/29/2015**	Analysis Date: **6/30/2015**	SeqNo: **814609** 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	870		1000		87.1	75.4	113			

Sample ID **LCS-20005**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **20005**	RunNo: **27195**
Prep Date: **6/29/2015**	Analysis Date: **6/30/2015**	SeqNo: **814610** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	100	64	130			
Surr: BFB	920		1000		91.5	75.4	113			

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#: **1506D27**

06-Jul-15

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone

Sample ID **MB-20005**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **20005**	RunNo: **27195**
Prep Date: **6/29/2015**	Analysis Date: **6/30/2015**	SeqNo: **814628** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.91		1.000		91.0	80	120			

Sample ID **LCS-20005**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **20005**	RunNo: **27195**
Prep Date: **6/29/2015**	Analysis Date: **6/30/2015**	SeqNo: **814629** 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	99.3	76.6	128			
Toluene	0.98	0.050	1.000	0	98.1	75	124			
Ethylbenzene	1.0	0.050	1.000	0	102	79.5	126			
Xylenes, Total	3.0	0.10	3.000	0	101	78.8	124			
Surr: 4-Bromofluorobenzene	0.95		1.000		95.2	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- 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

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 Southw** Work Order Number: **1506D27** RcptNo: **1**

Received by/date: 06/27/15

Logged By: **Lindsay Mangin** **6/27/2015 8:45:00 AM**

Completed By: **Lindsay Mangin** **6/27/2015 9:00:50 AM**

Reviewed By: 06/29/15

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?	Courier		

Log In

4. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
5. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
6. Sample(s) in proper container(s)?	Yes ☑	No ☐	
7. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
8. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
9. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
10. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
11. Were any sample containers received broken?	Yes ☐	No ☑	
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	# of preserved bottles checked for pH: (<2 or >12 unless noted)
13. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	Adjusted?
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	5.5	Good	Yes			

Chain-of-Custody Record

Client: Western Refining
Kelly Robinson
Mailing Address: 111 CR 4990 Bloomfield
Bloomfield, NM
Phone #: 505-632-8013
email or Fax#: Kelly.robinson@wnr.com
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Bisti Landfarm Vadose Zone
Project #: 12610957
Project Manager: Brooke Herb
Sampler: Alex Crooks
On Ice: ☒ Yes ☐ No
Sample Temperature: 3.5

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1506527	BTEX + ~~MTBE + TMB's~~ (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Air Bubbles (Y or N)
6/10/15	1210	Soil	Westline Vadose Zone	4oz/2	cool	-001	X		X									
	1230		EastlineVadose Zone			-002												
	1140		Bisti Vadose Zone			-003												
	1135		PettigrewVadose Zone			-004												
↓	1125	↓	API Vadose Zone	↓	↓	-005	↓		↓									

Date:	Time:	Relinquished by:	Received by:	Date	Time
6/10/15	1415	Alex Crooks	Chantea Walker	6/26/15	1405
Date:	Time:	Relinquished by:	Received by:	Date	Time
6/26/15	1747	Chantea Walker		06/27/15	0845

Remarks: Please USE Method 8015M.
Please CC results to bherb@henv.com

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

Western Refining
LOGISTICS

WNR
LISTED
NYSE

RECEIVED OCD

2015 JUL 29 P 1:32

July 23, 2015

Mr. Brad Jones
New Mexico Oil Conservation Division
1220 South Saint Francis Drive
Santa Fe, New Mexico 87505

FedEx Tracking #: 7741 4308 2990

RE: March 2015 Quarterly Monitoring Report
Bisti Landfarm 711 Permit NM-02-0010
San Juan County, New Mexico

Dear Mr. Jones:

Western Refining Southwest, Inc. (Western) submits the attached March 2105 Quarterly Monitoring Report for the Bisti Landfarm (Permit NM-02-0010) pursuant to your letter to Western dated May 29, 2015. The above referenced report includes up-dated facility site maps to more accurately reflect the cell boundaries based on on-gong tilling operations. The south boundary of the Crude Cell Bisti area has been extended approximately 50 feet to include an area that has been tilled, but has not been used for landfarm operations.

Additionally, Western has developed a Background Sampling Plan which will be submitted under separate cover requesting OCD approval. Once additional background data is obtained, Western will submit a revised Table 2 as an addendum to this quarterly report comparing new background data to these sampling results. The addendum will be submitted within two weeks of receipt of all background laboratory analytical results.

Based on the results presented in this Report and historical reports indicating certain parameters exceed existing background values, Western has initiated release response sampling in accordance with Paragraph 5 of Subsection E of 19.15.36.15 NMAC. The results of the additional sampling and response actions will be reported in a Release Response Report and Action Plan that will be submitted to the New Mexico Oil Conservation Division (NMOCD) under a separate cover.

If you have any questions or comments regarding this quarterly report, please do not hesitate to contact me at (505) 632-4166 or Kelly.Robinson@wnr.com.

Sincerely,

Kelly Robinson

Kelly R. Robinson
Environmental Manager
Western Refining Southwest, Inc.

MARCH 2015 QUARTERLY MONITORING REPORT

BISTI LANDFARM 711 PERMIT NM-02-0010
SAN JUAN COUNTY, NEW MEXICO

JUNE 2015

Prepared for:

WESTERN REFINING SOUTHWEST, INC.
111 County Road 4990
Bloomfield, New, Mexico 87413

Prepared by:

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

FIGURES

TABLES

APPENDICES

1.0 INTRODUCTION

LT Environmental (LTE) was contracted by Western Refining Southwest, Inc. (Western) to conduct quarterly treatment zone and vadose zone monitoring at the Bisti Landfarm, permit number NM-02-0010. The Bisti Landfarm was permitted in February 1998 under the New Mexico Oil and Gas Conservation Division (NMOCD) Rule 711 to Giant Industries, Arizona (Giant). Western procured the Bisti Landfarm from Giant in June of 2007 and conducts quarterly sampling of the treatment zone and vadose zone in the active cells according to Rule 711 and 19.15.36 of the New Mexico Administrative Code (NMAC) (Rule 36). This report presents the results of soil sampling conducted on March 19, 2015.

2.0 SITE DESCRIPTION

The Site is located in the northwest quarter of the southeast quarter of Section 16, Township 25 North, Range 12 West in San Juan County, New Mexico (Figure 1). Giant disposed of impacted soil at the Bisti Landfarm resulting in three cells: API Cell, Crude Cell (containing material originating from Pettigrew, East Line, Bisti, and West Line), and Cell 1, which is inactive and no longer monitored (Figure 2). On Figure 2, the Bisti portion of the Crude Cell has been extended south from its original size to include a portion of the unused area of the landfarm. No soil was added, but tilling operations have spread soil from the Crude Cell into this area. Western proposes to incorporate the additional area into the Crude Cell.

3.0 METHODS

Quarterly soil sampling consisted of treatment zone and vadose zone monitoring.

3.1 Treatment Zone Sampling

Treatment zones in the API and Crude cells were composite sampled by placing discrete samples collected from approximately 6-inches below the landfarm ground surface into a 1-gallon plastic bag. The soil within the bag was thoroughly mixed before filling glass sampling jars provided by the laboratory. The Crude Cell treatment zone samples included four discrete samples: one each from the Pettigrew, Bisti, West Line, and East Line source areas. The API Cell treatment zone samples included four discrete samples from the API Cell. Figure 2 depicts treatment zone soil sample locations. The soil samples were placed on ice and sealed in a cooler for delivery to Hall Environmental Analysis Laboratory, Inc. (HEAL) in Albuquerque, New Mexico, under strict chain-of-custody procedures for analysis of total petroleum hydrocarbons (TPH)-gasoline range organics (GRO), diesel range organics (DRO), and motor oil range organics (MRO) by United States Environmental Protection Agency (USEPA) Method 8015M/D, TPH by USEPA Method 418.1, and chloride by USEPA Method 300.0.

3.2 Vadose Zone Sampling

All vadose zone soil samples were collected from 3 feet to 4 feet below the landfarm cells' original ground surface and boreholes were filled with hydrated bentonite from total depth to the existing ground surface upon completion. The number of vadose zone samples collected within each cell was dependent on the size of the cell. Four soil samples were collected from the Crude Cell: one beneath the East Line source area, one beneath the West Line source area, one beneath the Pettigrew source area, and one beneath the Bisti source area. One sample was collected from beneath the API Cell. Figure 3 depicts quarterly vadose zone soil sample locations.

The soil samples were placed on ice and sealed in a cooler for delivery to HEAL under strict chain-of-custody procedures for analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEX) by USEPA Method 8021B, TPH-GRO, DRO, and MRO by USEPA Method 8015M/D, TPH by USEPA Method 418.1, and chloride by USEPA Method 300.0. Additionally, to address annual sampling requirements in the original Rule 711 permit, soil samples were analyzed for sulfate by USEPA Method 300.0, and carbonate and bicarbonate by ASA10-3, and metals (arsenic, barium, cadmium, calcium, chromium, lead, magnesium, potassium, selenium, silver, and sodium) by USEPA Method 6010B, mercury by USEPA Method 7471.

4.0 RESULTS

4.1 Treatment Zone Results

The laboratory analytical results from treatment zone soil samples are presented in Table 1. The GRO, DRO, TPH, and chloride concentrations did not exceed Rule 36 Treatment Zone Closure Performance Standards. The complete laboratory report is included as Attachment A.

4.2 Vadose Zone Results

The laboratory analytical results from vadose zone soil samples are compared to the higher of the background result or physical quantitation limit (PQL) in Table 2 with the exception of GRO, MRO, and TPH, for which no background value has been determined. The soil sample collected from beneath the East Line portion of the Crude Cell contained a sulfate concentration of 190 milligrams per kilograms (mg/kg), which exceeds the original background sample concentration of 140 mg/kg. Bicarbonate exceeds the background concentration of 110 mg/kg in the West Line, East Line, and Bisti portions of the Crude Cell as well as in the API Cell. Calcium and potassium concentrations in the West Line, East Line, and Bisti portions of the Crude Cell exceeded the background concentrations of 2,500 mg/kg and 810 mg/kg, respectively. Magnesium concentrations in samples collected from beneath the West Line and Bisti portions of the Crude Cell exceeded the original background concentration of 1,300 mg/kg. Sodium concentrations in the samples collected from the West Line and East Line portion of the Crude Cell and the API Cell exceeded the background concentration of 90 mg/kg.

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5.0 CONCLUSIONS

Based on the results presented in this report and historical reports indicating certain parameters exceed values established in the original background sample, Western has initiated release response sampling in accordance with Paragraph 5 of Subsection E of 19.15.36.15 NMAC. The results of the additional sampling and response actions will be reported in a Release Response Report and Action Plan that will be submitted under separate cover to the NMOCD. Additionally, Western is compiling a proposed background sampling plan, which will be submitted under separate cover, to collect additional baseline data for comparison of vadose zone sampling results. Once the background sampling plan is approved and additional background data is obtained, Western will submit a revised Table 2 as an addendum to this quarterly report comparing new background data to these sampling results. The addendum will be submitted within two weeks of receipt of all background laboratory analytical results.

FIGURES

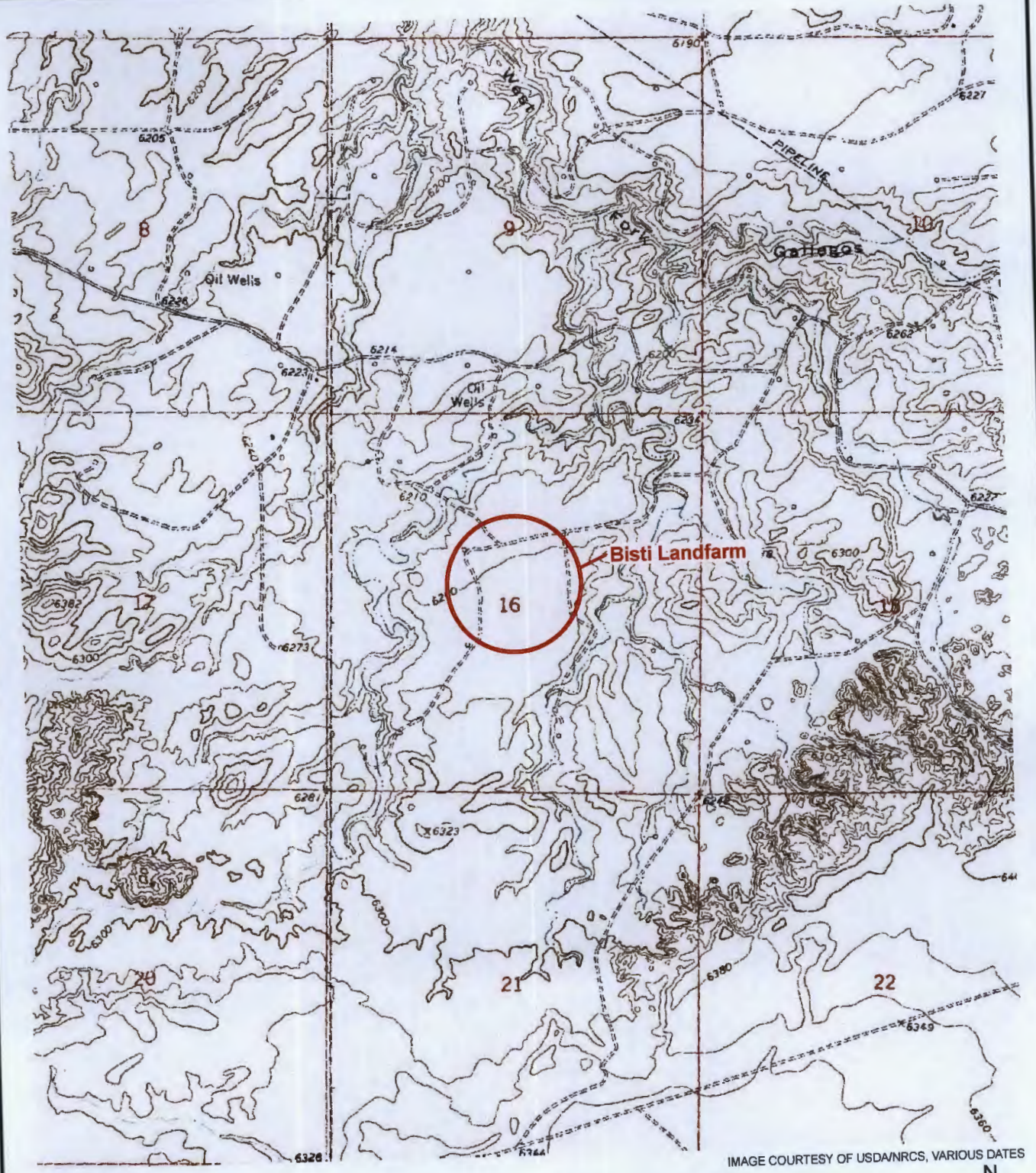


FIGURE 1
SITE LOCATION MAP
BISTI LANDFARM
SEC 16 T25N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1005\WR1005_BISTI_LANDFARM_FIG01_SL.mxd

LEGEND

- CRUDE CELL TREATMENT ZONE ALIQUOT SAMPLE (3/19/2015)
- API CELL TREATMENT ZONE ALIQUOT SAMPLE (3/19/2015)
- FENCE
- APPROXIMATE SOURCE IDENTITY BOUNDARY
- CELL 1 BOUNDARY
- API CELL BOUNDARY
- CRUDE CELL BOUNDARY

IMAGE COURTESY OF ESRI

0 200 400
Feet

N

FIGURE 2
TREATMENT ZONE SAMPLE LOCATION MAP
BISTI LANDFARM
SEC 16 T25N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1005 BISTI\WR1005_BISTI_FIG01_TREATMENT_ZONE_ANNUAL_2015_Q1.mxd

IMAGE COURTESY OF ESRI

LEGEND

- QUARTERLY VADOSE ZONE SOIL SAMPLE (COLLECTED 3/19/2015)
- FENCE
- APPROXIMATE SOURCE IDENTITY BOUNDARY
- CELL 1 BOUNDARY
- API CELL BOUNDARY
- CRUDE CELL BOUNDARY

0 200 400
Feet

N

FIGURE 3
VADOSE ZONE SAMPLE LOCATION MAP
BISTI LANDFARM
SEC 16 T25N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1005 BISTI\WR1005_BISTI_FIG02_VADOSE_ZONE_ANNUAL_2015_Q1.mxd

TABLES

TABLE 1

MARCH 2015 TREATMENT ZONE SOIL ANALYTICAL RESULTS
BISTI LANDFARM
WESTERN REFINING SOUTHWEST, INC.

Cell	Sample ID	Sample Date	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	TPH 418.1 (mg/kg)	Chloride (mg/kg)
19.15.36.15 Treatment Zone Closure Performance Standards			**GRO + DRO = 500**		**NE**	**2,500**	**1,000**
Crude Cell	Crude Cell Treatment Zone	19-Mar-15	<4.9	95	240	130	<30
API Cell	API Cell Treatment Zone	19-Mar-15	<4.9	15	81	63	110

Notes:

DRO - diesel range organics

GRO - gasoline range organics

MRO - motor oil range organics

mg/kg - milligrams per kiliograms

NE - Not Established

TPH - total petroleum hydrocarbons

< indicates result is less than the stated method reporting limit

TABLE 2

MARCH 2015 VADOSE ZONE SOIL ANALYTICAL RESULTS
BISTI LANDFARM
WESTERN REFINING SOUTHWEST, INC.

Cell	Crude Cell				API Cell	
Source Area	**West Line**	**East Line**	**Bisti**	**Pettigrew**	**API**	**Background Sample Result**
Sample ID	Westline Vadose Zone	Eastline Vadose Zone	Bisti Vadose Zone	Pettigrew Vadose Zone	API Vadose Zone	
Sample Date	3/19/15	3/19/15	3/19/15	3/19/15	3/19/15	3/27/98
GRO (mg/kg)	<4.7	<4.9	<4.9	<5.0	<5.0	--
DRO (mg/kg)	16	45	<10	<10	<9.9	<50
MRO (mg/kg)	50	61	<50	<50	<50	--
TPH 418.1 (mg/kg)	26	81	<20	<20	<20	--
Benzene (mg/kg)	<0.047	<0.049	<0.049	<0.050	<0.050	<0.05
Toluene (mg/kg)	<0.047	<0.049	<0.049	<0.050	<0.050	<0.05
Ethylbenzene (mg/kg)	<0.047	<0.049	<0.049	<0.050	<0.050	<0.05
Total Xylenes (mg/kg)	<0.094	<0.097	<0.098	<0.10	<0.10	<0.05
Chloride (mg/kg)	<30	<30	<30	<30	<30	<50
Sulfate (mg/kg)	54	**190**	<30	<30	47	140
Carbonate (mg/kg)	12	<4	<4	<4	5	26
Bicarbonate (mg/kg)	**627**	**112**	**120**	102	**306**	110
Arsenic (mg/kg)	<2.5	<2.5	<2.4	<2.4	<2.5	2.8
Barium (mg/kg)	40	92	180	48	66	180
Cadmium (mg/kg)	<0.10	<0.10	<0.098	<0.097	<0.10	<1.3
Calcium (mg/kg)	**16,000**	**3,000**	**7,000**	2,300	1,300	2,500
Chromium (mg/kg)	2.7	2.6	3.0	1.7	2.3	<5.0
Lead (mg/kg)	2.3	2.5	2.2	1.7	2.7	6.8
Magnesium (mg/kg)	**1,700**	1,200	**1,700**	910	1,100	1,300
Potassium (mg/kg)	**840**	**860**	**920**	600	780	810
Selenium (mg/kg)	<2.5	<2.5	<2.4	<2.4	<2.5	<2.5
Silver (mg/kg)	<0.25	<0.25	<0.24	<0.24	<0.25	<1.3
Sodium (mg/kg)	**180**	**97**	78	78	**350**	90
Mercury (mg/kg)	<0.032	<0.034	<0.032	<0.033	<0.033	<0.50

Notes:

DRO - diesel range organics

GRO - gasoline range organics

MRO - motor oil range organics

mg/kg - milligrams per kilograms

TPH - total petroleum hydrocarbons

< indicates result is less than the stated method reporting limit.

-- Respective background data will be provided following completion of approved background sampling activites.

BOLD indicates the result exceeds the higher of the background sample result or the laboratory physical quantitation limit.

APPENDICES

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

June 26, 2015

Ashley Ager
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (970) 946-1093
FAX

RE: Bisti Landfarm Treatment Zone Sampling OrderNo.: 1503941

Dear Ashley Ager:

Hall Environmental Analysis Laboratory received 2 sample(s) on 3/20/2015 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued March 26, 2015.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1503941**
Date Reported: **6/26/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bisti Landfarm Treatment Zone Sampling
Lab ID: 1503941-001 **Matrix:** SOIL

Client Sample ID: Crude Cell Treatment Zone
Collection Date: 3/19/2015 11:40:00 AM
Received Date: 3/20/2015 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: **BCN**
Petroleum Hydrocarbons, TR	130	20		mg/Kg	1	3/24/2015	18261
EPA METHOD 300.0: ANIONS							Analyst: **LGT**
Chloride	ND	30		mg/Kg	20	3/24/2015 1:33:07 PM	18295
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: **JME**
Diesel Range Organics (DRO)	95	10		mg/Kg	1	3/24/2015 5:07:44 PM	18271
Motor Oil Range Organics (MRO)	240	50		mg/Kg	1	3/24/2015 5:07:44 PM	18271
Surr: DNOP	125	63.5-128		%REC	1	3/24/2015 5:07:44 PM	18271
EPA METHOD 8015D: GASOLINE RANGE							Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/25/2015 11:37:40 AM	18259
Surr: BFB	96.0	80-120		%REC	1	3/25/2015 11:37:40 AM	18259

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, Inc.
Project: Bisti Landfarm Treatment Zone Sampling
Lab ID: 1503941-002 **Matrix:** SOIL

Client Sample ID: API Cell Treatment Zone
Collection Date: 3/19/2015 12:15:00 PM
Received Date: 3/20/2015 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **BCN**	
Petroleum Hydrocarbons, TR	63	20		mg/Kg	1	3/24/2015	18261
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	110	30		mg/Kg	20	3/24/2015 2:10:21 PM	18295
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	15	9.9		mg/Kg	1	3/24/2015 5:29:38 PM	18271
Motor Oil Range Organics (MRO)	81	50		mg/Kg	1	3/24/2015 5:29:38 PM	18271
Surr: DNOP	127	63.5-128		%REC	1	3/24/2015 5:29:38 PM	18271
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/25/2015 12:06:24 PM	18259
Surr: BFB	89.5	80-120		%REC	1	3/25/2015 12:06:24 PM	18259

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		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1503941**

26-Jun-15

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Treatment Zone Sampling

Sample ID **MB-18295**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **18295**	RunNo: **25049**
Prep Date: **3/24/2015**	Analysis Date: **3/24/2015**	SeqNo: **739028** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID **LCS-18295**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **18295**	RunNo: **25049**
Prep Date: **3/24/2015**	Analysis Date: **3/24/2015**	SeqNo: **739029** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.9	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1503941**

26-Jun-15

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Treatment Zone Sampling

Sample ID **MB-18261**	SampType: **MBLK**	TestCode: **EPA Method 418.1: TPH**
Client ID: **PBS**	Batch ID: **18261**	RunNo: **25036**
Prep Date: **3/20/2015**	Analysis Date: **3/24/2015**	SeqNo: **738310** 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-18261**	SampType: **LCS**	TestCode: **EPA Method 418.1: TPH**
Client ID: **LCSS**	Batch ID: **18261**	RunNo: **25036**
Prep Date: **3/20/2015**	Analysis Date: **3/24/2015**	SeqNo: **738311** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	100.0	0	107	86.7	126			

Sample ID **LCSD-18261**	SampType: **LCSD**	TestCode: **EPA Method 418.1: TPH**
Client ID: **LCSS02**	Batch ID: **18261**	RunNo: **25036**
Prep Date: **3/20/2015**	Analysis Date: **3/24/2015**	SeqNo: **738312** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	100.0	0	107	86.7	126	10000706	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#: **1503941**

26-Jun-15

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Treatment Zone Sampling

Sample ID **MB-18271**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **18271**	RunNo: **25013**
Prep Date: **3/23/2015**	Analysis Date: **3/24/2015**	SeqNo: **738864** 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	11		10.00		108	63.5	128			

Sample ID **LCS-18271**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **18271**	RunNo: **25013**
Prep Date: **3/23/2015**	Analysis Date: **3/24/2015**	SeqNo: **738865** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	89.7	67.8	130			
Surr: DNOP	5.5		5.000		111	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#: **1503941**

26-Jun-15

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Treatment Zone Sampling

Sample ID **MB-18259**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **18259**	RunNo: **24979**
Prep Date: **3/20/2015**	Analysis Date: **3/22/2015**	SeqNo: **736061** 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	860		1000		85.6	80	120			

Sample ID **LCS-18259**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **18259**	RunNo: **24979**
Prep Date: **3/20/2015**	Analysis Date: **3/22/2015**	SeqNo: **736062** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	100	64	130			
Surr: BFB	960		1000		95.6	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- 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

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 Southw** Work Order Number: **1503941** RcptNo: **1**

Received by/date: 03/20/15

Logged By: **Lindsay Mangin** **3/20/2015 8:30:00 AM**

Completed By: **Lindsay Mangin** **3/20/2015 12:42:11 PM**

Reviewed By: 03/20/15

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?	Courier		

Log In

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

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

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.6	Good	Yes			

Chain-of-Custody Record

Client: Western Refining
Kelly Robinson
Mailing Address: 111 CR 4990
Bloomfield NM, 87413
Phone #: 505-632-8013
email or Fax#: kelly.Robinson@wnr.com
QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____
Project Name:
Bisti landfarm Treatment Zone Sampling
Project #:
WR1005
Project Manager:
Ashley Ager
Sampler: Daniel Newman / Mike Wicker
On Ice: ☑ Yes ☐ No
Sample Temperature: 3.6

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. 1503941	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	SEE COC				Air Bubbles (Y or N)
3/19/15	1140	Soil	Crude Cell Treatment Zone	2/4oz	Cool	-001												X				
3/19/15	1215	Soil	API Cell Treatment Zone	2/4oz	Cool	-002												X				

Date:	Time:	Relinquished by:	Received by:	Date	Time
3/19/15	1606		Christine Walters	3/19/15	1600
Date:	Time:	Relinquished by:	Received by:	Date	Time
3/19/15	1825	Christine Walters		03/20/15	0830

Remarks: Please copy results to aager@ltenv.com

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

Treatment Zone

TPH –GRO, DRO, MRO 8015

TPH 418.1

Chloride

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

June 26, 2015

Ashley Ager
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (970) 946-1093
FAX

RE: Bisti Landfarm Vadose Zone Sampling OrderNo.: 1503936

Dear Ashley Ager:

Hall Environmental Analysis Laboratory received 5 sample(s) on 3/20/2015 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued April 03, 2015.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1503936**
Date Reported: **6/26/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bisti Landfarm Vadose Zone Sampling
Lab ID: 1503936-001 **Matrix:** SOIL

Client Sample ID: Westline Vadose Zone
Collection Date: 3/19/2015 10:30:00 AM
Received Date: 3/20/2015 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **BCN**	
Petroleum Hydrocarbons, TR	26	20		mg/Kg	1	3/24/2015	18261
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	4/2/2015 11:58:10 AM	18493
Sulfate	54	30		mg/Kg	20	4/2/2015 11:58:10 AM	18493
EPA METHOD 7471: MERCURY						Analyst: **MED**	
Mercury	ND	0.032		mg/Kg	1	3/25/2015 12:25:23 PM	18315
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.5		mg/Kg	1	3/25/2015 2:06:32 PM	18292
Barium	40	0.10		mg/Kg	1	3/25/2015 2:06:32 PM	18292
Cadmium	ND	0.10		mg/Kg	1	3/25/2015 2:06:32 PM	18292
Calcium	16000	130		mg/Kg	5	3/25/2015 4:10:00 PM	18292
Chromium	2.7	0.30		mg/Kg	1	3/25/2015 2:06:32 PM	18292
Lead	2.3	0.25		mg/Kg	1	3/25/2015 2:06:32 PM	18292
Magnesium	1700	25		mg/Kg	1	3/25/2015 2:06:32 PM	18292
Potassium	840	50		mg/Kg	1	3/25/2015 2:06:32 PM	18292
Selenium	ND	2.5		mg/Kg	1	3/25/2015 2:06:32 PM	18292
Silver	ND	0.25		mg/Kg	1	3/25/2015 2:06:32 PM	18292
Sodium	180	25		mg/Kg	1	3/25/2015 2:06:32 PM	18292
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	16	9.8		mg/Kg	1	3/24/2015 2:35:16 PM	18271
Motor Oil Range Organics (MRO)	50	49		mg/Kg	1	3/24/2015 2:35:16 PM	18271
Surr: DNOP	116	63.5-128		%REC	1	3/24/2015 2:35:16 PM	18271
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/25/2015 12:19:15 AM	18259
Surr: BFB	86.5	80-120		%REC	1	3/25/2015 12:19:15 AM	18259
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.047		mg/Kg	1	3/25/2015 12:19:15 AM	18259
Toluene	ND	0.047		mg/Kg	1	3/25/2015 12:19:15 AM	18259
Ethylbenzene	ND	0.047		mg/Kg	1	3/25/2015 12:19:15 AM	18259
Xylenes, Total	ND	0.094		mg/Kg	1	3/25/2015 12:19:15 AM	18259
Surr: 4-Bromofluorobenzene	100	80-120		%REC	1	3/25/2015 12:19:15 AM	18259

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, Inc.
Project: Bisti Landfarm Vadose Zone Sampling
Lab ID: 1503936-002 **Matrix:** SOIL

Client Sample ID: Eastline Vadose Zone
Collection Date: 3/19/2015 10:54:00 AM
Received Date: 3/20/2015 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **BCN**	
Petroleum Hydrocarbons, TR	81	20		mg/Kg	1	3/24/2015	18261
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	4/2/2015 12:35:24 PM	18493
Sulfate	190	30		mg/Kg	20	4/2/2015 12:35:24 PM	18493
EPA METHOD 7471: MERCURY						Analyst: **MED**	
Mercury	ND	0.034		mg/Kg	1	3/25/2015 12:27:11 PM	18315
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.5		mg/Kg	1	3/25/2015 2:10:11 PM	18292
Barium	92	0.10		mg/Kg	1	3/25/2015 2:10:11 PM	18292
Cadmium	ND	0.10		mg/Kg	1	3/25/2015 2:10:11 PM	18292
Calcium	3000	25		mg/Kg	1	3/25/2015 2:10:11 PM	18292
Chromium	2.6	0.30		mg/Kg	1	3/25/2015 2:10:11 PM	18292
Lead	2.5	0.25		mg/Kg	1	3/25/2015 2:10:11 PM	18292
Magnesium	1200	25		mg/Kg	1	3/25/2015 2:10:11 PM	18292
Potassium	860	50		mg/Kg	1	3/25/2015 2:10:11 PM	18292
Selenium	ND	2.5		mg/Kg	1	3/25/2015 2:10:11 PM	18292
Silver	ND	0.25		mg/Kg	1	3/25/2015 2:10:11 PM	18292
Sodium	97	25		mg/Kg	1	3/25/2015 2:10:11 PM	18292
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	45	10		mg/Kg	1	3/25/2015 5:03:04 PM	18271
Motor Oil Range Organics (MRO)	61	50		mg/Kg	1	3/25/2015 5:03:04 PM	18271
Surr: DNOP	127	63.5-128		%REC	1	3/25/2015 5:03:04 PM	18271
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/25/2015 12:47:56 AM	18259
Surr: BFB	85.9	80-120		%REC	1	3/25/2015 12:47:56 AM	18259
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	3/25/2015 12:47:56 AM	18259
Toluene	ND	0.049		mg/Kg	1	3/25/2015 12:47:56 AM	18259
Ethylbenzene	ND	0.049		mg/Kg	1	3/25/2015 12:47:56 AM	18259
Xylenes, Total	ND	0.097		mg/Kg	1	3/25/2015 12:47:56 AM	18259
Surr: 4-Bromofluorobenzene	99.2	80-120		%REC	1	3/25/2015 12:47:56 AM	18259

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, Inc.
Project: Bisti Landfarm Vadose Zone Sampling
Lab ID: 1503936-003 **Matrix:** SOIL

Client Sample ID: Bisti Vadose Zone
Collection Date: 3/19/2015 11:00:00 AM
Received Date: 3/20/2015 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **BCN**	
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	3/24/2015	18261
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	4/2/2015 12:47:49 PM	18493
Sulfate	ND	30		mg/Kg	20	4/2/2015 12:47:49 PM	18493
EPA METHOD 7471: MERCURY						Analyst: **MED**	
Mercury	ND	0.032		mg/Kg	1	3/25/2015 12:32:41 PM	18315
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.4		mg/Kg	1	3/25/2015 2:13:30 PM	18292
Barium	180	0.098		mg/Kg	1	3/25/2015 2:13:30 PM	18292
Cadmium	ND	0.098		mg/Kg	1	3/25/2015 2:13:30 PM	18292
Calcium	7000	49		mg/Kg	2	3/25/2015 2:15:17 PM	18292
Chromium	3.0	0.29		mg/Kg	1	3/25/2015 2:13:30 PM	18292
Lead	2.2	0.24		mg/Kg	1	3/25/2015 2:13:30 PM	18292
Magnesium	1700	24		mg/Kg	1	3/25/2015 2:13:30 PM	18292
Potassium	920	49		mg/Kg	1	3/25/2015 2:13:30 PM	18292
Selenium	ND	2.4		mg/Kg	1	3/25/2015 2:13:30 PM	18292
Silver	ND	0.24		mg/Kg	1	3/25/2015 2:13:30 PM	18292
Sodium	78	24		mg/Kg	1	3/25/2015 2:13:30 PM	18292
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/24/2015 4:02:18 PM	18271
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/24/2015 4:02:18 PM	18271
Surr: DNOP	125	63.5-128		%REC	1	3/24/2015 4:02:18 PM	18271
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/25/2015 1:16:36 AM	18259
Surr: BFB	85.3	80-120		%REC	1	3/25/2015 1:16:36 AM	18259
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.049		mg/Kg	1	3/25/2015 1:16:36 AM	18259
Toluene	ND	0.049		mg/Kg	1	3/25/2015 1:16:36 AM	18259
Ethylbenzene	ND	0.049		mg/Kg	1	3/25/2015 1:16:36 AM	18259
Xylenes, Total	ND	0.098		mg/Kg	1	3/25/2015 1:16:36 AM	18259
Surr: 4-Bromofluorobenzene	98.3	80-120		%REC	1	3/25/2015 1:16:36 AM	18259

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, Inc. **Client Sample ID:** Pettigrew Vadose Zone
Project: Bisti Landfarm Vadose Zone Sampling **Collection Date:** 3/19/2015 11:32:00 AM
Lab ID: 1503936-004 **Matrix:** SOIL **Received Date:** 3/20/2015 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **BCN**	
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	3/24/2015	18261
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	4/2/2015 1:00:14 PM	18493
Sulfate	ND	30		mg/Kg	20	4/2/2015 1:00:14 PM	18493
EPA METHOD 7471: MERCURY						Analyst: **MED**	
Mercury	ND	0.033		mg/Kg	1	3/25/2015 12:34:30 PM	18315
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.4		mg/Kg	1	3/25/2015 2:16:56 PM	18292
Barium	48	0.097		mg/Kg	1	3/25/2015 2:16:56 PM	18292
Cadmium	ND	0.097		mg/Kg	1	3/25/2015 2:16:56 PM	18292
Calcium	2300	24		mg/Kg	1	3/25/2015 2:16:56 PM	18292
Chromium	1.7	0.29		mg/Kg	1	3/25/2015 2:16:56 PM	18292
Lead	1.7	0.24		mg/Kg	1	3/25/2015 2:16:56 PM	18292
Magnesium	910	24		mg/Kg	1	3/25/2015 2:16:56 PM	18292
Potassium	600	49		mg/Kg	1	3/25/2015 2:16:56 PM	18292
Selenium	ND	2.4		mg/Kg	1	3/25/2015 2:16:56 PM	18292
Silver	ND	0.24		mg/Kg	1	3/25/2015 2:16:56 PM	18292
Sodium	78	24		mg/Kg	1	3/25/2015 2:16:56 PM	18292
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/24/2015 4:24:04 PM	18271
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/24/2015 4:24:04 PM	18271
Surr: DNOP	124	63.5-128		%REC	1	3/24/2015 4:24:04 PM	18271
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/25/2015 1:45:13 AM	18259
Surr: BFB	85.6	80-120		%REC	1	3/25/2015 1:45:13 AM	18259
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	3/25/2015 1:45:13 AM	18259
Toluene	ND	0.050		mg/Kg	1	3/25/2015 1:45:13 AM	18259
Ethylbenzene	ND	0.050		mg/Kg	1	3/25/2015 1:45:13 AM	18259
Xylenes, Total	ND	0.10		mg/Kg	1	3/25/2015 1:45:13 AM	18259
Surr: 4-Bromofluorobenzene	99.3	80-120		%REC	1	3/25/2015 1:45:13 AM	18259

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, Inc.
Client Sample ID: API Vadose Zone
Project: Bisti Landfarm Vadose Zone Sampling
Collection Date: 3/19/2015 11:56:00 AM
Lab ID: 1503936-005 **Matrix:** SOIL
Received Date: 3/20/2015 8:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **BCN**	
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	3/24/2015	18261
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Chloride	ND	30		mg/Kg	20	4/2/2015 1:37:28 PM	18493
Sulfate	47	30		mg/Kg	20	4/2/2015 1:37:28 PM	18493
EPA METHOD 7471: MERCURY						Analyst: **MED**	
Mercury	ND	0.033		mg/Kg	1	3/25/2015 12:36:19 PM	18315
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.5		mg/Kg	1	3/25/2015 2:25:35 PM	18292
Barium	66	0.10		mg/Kg	1	3/25/2015 2:25:35 PM	18292
Cadmium	ND	0.10		mg/Kg	1	3/25/2015 2:25:35 PM	18292
Calcium	1300	25		mg/Kg	1	3/25/2015 2:25:35 PM	18292
Chromium	2.3	0.30		mg/Kg	1	3/25/2015 2:25:35 PM	18292
Lead	2.7	0.25		mg/Kg	1	3/25/2015 2:25:35 PM	18292
Magnesium	1100	25		mg/Kg	1	3/25/2015 2:25:35 PM	18292
Potassium	780	50		mg/Kg	1	3/25/2015 2:25:35 PM	18292
Selenium	ND	2.5		mg/Kg	1	3/25/2015 2:25:35 PM	18292
Silver	ND	0.25		mg/Kg	1	3/25/2015 2:25:35 PM	18292
Sodium	350	25		mg/Kg	1	3/25/2015 2:25:35 PM	18292
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: **JME**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	3/24/2015 4:46:00 PM	18271
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/24/2015 4:46:00 PM	18271
Surr: DNOP	117	63.5-128		%REC	1	3/24/2015 4:46:00 PM	18271
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/25/2015 2:13:51 AM	18259
Surr: BFB	86.6	80-120		%REC	1	3/25/2015 2:13:51 AM	18259
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**	
Benzene	ND	0.050		mg/Kg	1	3/25/2015 2:13:51 AM	18259
Toluene	ND	0.050		mg/Kg	1	3/25/2015 2:13:51 AM	18259
Ethylbenzene	ND	0.050		mg/Kg	1	3/25/2015 2:13:51 AM	18259
Xylenes, Total	ND	0.10		mg/Kg	1	3/25/2015 2:13:51 AM	18259
Surr: 4-Bromofluorobenzene	102	80-120		%REC	1	3/25/2015 2:13:51 AM	18259

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		

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B15031855-001
Client Sample ID: 1503936-001B, Westline Vadose Zone

Revised Date: 06/22/15
Report Date: 04/01/15
Collection Date: 03/19/15 10:30
DateReceived: 03/24/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Alkalinity, 1:2	534	mg/kg	D	4		ASA10-3	03/31/15 15:56 / rbf
Bicarbonate, 1:2	627	mg/kg	D	4		ASA10-3	03/31/15 15:56 / rbf
Carbonate, 1:2	12	mg/kg	D	4		ASA10-3	03/31/15 15:56 / rbf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B15031855-002
Client Sample ID: 1503936-002B, Eastline Vadose Zone

Revised Date: 06/22/15
Report Date: 04/01/15
Collection Date: 03/19/15 10:54
DateReceived: 03/24/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Alkalinity, 1:2	92	mg/kg	D	4		ASA10-3	03/31/15 16:30 / rbf
Bicarbonate, 1:2	112	mg/kg	D	4		ASA10-3	03/31/15 16:30 / rbf
Carbonate, 1:2	ND	mg/kg	D	4		ASA10-3	03/31/15 16:30 / rbf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B15031855-003
Client Sample ID: 1503936-003B, Bisti Vadose Zone

Revised Date: 06/22/15
Report Date: 04/01/15
Collection Date: 03/19/15 11:00
DateReceived: 03/24/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Alkalinity, 1:2	98	mg/kg	D	4		ASA10-3	03/31/15 16:46 / rbf
Bicarbonate, 1:2	120	mg/kg	D	4		ASA10-3	03/31/15 16:46 / rbf
Carbonate, 1:2	ND	mg/kg	D	4		ASA10-3	03/31/15 16:46 / rbf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B15031855-004
Client Sample ID: 1503936-004B, Pettigrew Vadose Zone

Revised Date: 06/22/15
Report Date: 04/01/15
Collection Date: 03/19/15 11:32
DateReceived: 03/24/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Alkalinity, 1:2	84	mg/kg	D	4		ASA10-3	03/31/15 16:55 / rbf
Bicarbonate, 1:2	102	mg/kg	D	4		ASA10-3	03/31/15 16:55 / rbf
Carbonate, 1:2	ND	mg/kg	D	4		ASA10-3	03/31/15 16:55 / rbf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B15031855-005
Client Sample ID: 1503936-005B, API Vadose Zone

Revised Date: 06/22/15
Report Date: 04/01/15
Collection Date: 03/19/15 11:56
DateReceived: 03/24/15
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Alkalinity, 1:2	259	mg/kg	D	4		ASA10-3	03/31/15 17:00 / rbf
Bicarbonate, 1:2	306	mg/kg	D	4		ASA10-3	03/31/15 17:00 / rbf
Carbonate, 1:2	5	mg/kg	D	4		ASA10-3	03/31/15 17:00 / rbf

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Revised Date: 06/22/15
Report Date: 04/01/15
Work Order: B15031855

Client: Hall Environmental
Project: Not Indicated

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA10-3										Batch: 88204
Lab ID: LCS-88204	2	Laboratory Control Sample				Run: ORION555A_150331B				03/31/15 15:50
Alkalinity, 1:2		104	mg/kg	4.0	74	50	150			
Bicarbonate, 1:2		127	mg/kg	4.0	142	50	150			
Lab ID: B15031855-001ADUP	3	Sample Duplicate				Run: ORION555A_150331B				03/31/15 16:22
Alkalinity, 1:2		626	mg/kg	4.0				16	30	
Bicarbonate, 1:2		733	mg/kg	4.0				16	30	
Carbonate, 1:2		15.4	mg/kg	4.0				25	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1503936**

26-Jun-15

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone Sampling

Sample ID **MB-18493**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **18493**	RunNo: **25277**
Prep Date: **4/2/2015**	Analysis Date: **4/2/2015**	SeqNo: **747465** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								
Sulfate	ND	1.5								

Sample ID **LCS-18493**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **18493**	RunNo: **25277**
Prep Date: **4/2/2015**	Analysis Date: **4/2/2015**	SeqNo: **747466** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.5	90	110			
Sulfate	29	1.5	30.00	0	97.2	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1503936**

26-Jun-15

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone Sampling

Sample ID **MB-18261**	SampType: **MBLK**	TestCode: **EPA Method 418.1: TPH**
Client ID: **PBS**	Batch ID: **18261**	RunNo: **25036**
Prep Date: **3/20/2015**	Analysis Date: **3/24/2015**	SeqNo: **738310** 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-18261**	SampType: **LCS**	TestCode: **EPA Method 418.1: TPH**
Client ID: **LCSS**	Batch ID: **18261**	RunNo: **25036**
Prep Date: **3/20/2015**	Analysis Date: **3/24/2015**	SeqNo: **738311** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	100.0	0	107	86.7	126			

Sample ID **LCSD-18261**	SampType: **LCSD**	TestCode: **EPA Method 418.1: TPH**
Client ID: **LCSS02**	Batch ID: **18261**	RunNo: **25036**
Prep Date: **3/20/2015**	Analysis Date: **3/24/2015**	SeqNo: **738312** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	100.0	0	107	86.7	126	0000706	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#: **1503936**

26-Jun-15

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone Sampling

Sample ID **MB-18271**	SampType: **MBLK**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **18271**	RunNo: **25013**
Prep Date: **3/23/2015**	Analysis Date: **3/24/2015**	SeqNo: **738864** 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	11		10.00		108	63.5	128			

Sample ID **LCS-18271**	SampType: **LCS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **18271**	RunNo: **25013**
Prep Date: **3/23/2015**	Analysis Date: **3/24/2015**	SeqNo: **738865** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	89.7	67.8	130			
Surr: DNOP	5.5		5.000		111	63.5	128			

Sample ID **1503936-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **Westline Vadose Zo**	Batch ID: **18271**	RunNo: **25013**
Prep Date: **3/23/2015**	Analysis Date: **3/24/2015**	SeqNo: **738893** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	10	49.90	15.82	62.2	29.2	176			
Surr: DNOP	6.1		4.990		123	63.5	128			

Sample ID **1503936-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015M/D: Diesel Range Organics**
Client ID: **Westline Vadose Zo**	Batch ID: **18271**	RunNo: **25013**
Prep Date: **3/23/2015**	Analysis Date: **3/24/2015**	SeqNo: **738894** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	9.9	49.46	15.82	71.1	29.2	176	8.46	23	
Surr: DNOP	6.7		4.946		136	63.5	128	0	0	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

WO#: **1503936**

Hall Environmental Analysis Laboratory, Inc.

26-Jun-15

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone Sampling

Sample ID **MB-18259**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **18259**	RunNo: **24979**
Prep Date: **3/20/2015**	Analysis Date: **3/22/2015**	SeqNo: **736061** 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	860		1000		85.6	80	120			

Sample ID **LCS-18259**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **18259**	RunNo: **24979**
Prep Date: **3/20/2015**	Analysis Date: **3/22/2015**	SeqNo: **736062** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	100	64	130			
Surr: BFB	960		1000		95.6	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- 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#: **1503936**

26-Jun-15

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone Sampling

Sample ID **MB-18259**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **18259**	RunNo: **24979**
Prep Date: **3/20/2015**	Analysis Date: **3/22/2015**	SeqNo: **736083** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			

Sample ID **LCS-18259**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **18259**	RunNo: **24979**
Prep Date: **3/20/2015**	Analysis Date: **3/22/2015**	SeqNo: **736084** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.3	0.050	1.000	0	126	76.6	128			
Toluene	1.2	0.050	1.000	0	119	75	124			
Ethylbenzene	1.2	0.050	1.000	0	119	79.5	126			
Xylenes, Total	3.5	0.10	3.000	0	118	78.8	124			
Surr: 4-Bromofluorobenzene	1.1		1.000		112	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- 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#: **1503936**

26-Jun-15

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone Sampling

Sample ID **MB-18315**	SampType: **MBLK**	TestCode: **EPA Method 7471: Mercury**
Client ID: **PBS**	Batch ID: **18315**	RunNo: **25053**
Prep Date: **3/24/2015**	Analysis Date: **3/25/2015**	SeqNo: **739177** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID **LCS-18315**	SampType: **LCS**	TestCode: **EPA Method 7471: Mercury**
Client ID: **LCSS**	Batch ID: **18315**	RunNo: **25053**
Prep Date: **3/24/2015**	Analysis Date: **3/25/2015**	SeqNo: **739178** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1667	0	102	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- 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#: **1503936**

26-Jun-15

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone Sampling

Sample ID **MB-18292**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **18292**	RunNo: **25054**
Prep Date: **3/24/2015**	Analysis Date: **3/25/2015**	SeqNo: **739222** 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								
Calcium	ND	25								
Chromium	ND	0.30								
Lead	ND	0.25								
Magnesium	ND	25								
Potassium	ND	50								
Selenium	ND	2.5								
Silver	ND	0.25								
Sodium	ND	25								

Sample ID **LCS-18292**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **18292**	RunNo: **25054**
Prep Date: **3/24/2015**	Analysis Date: **3/25/2015**	SeqNo: **739223** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	2.5	25.00	0	102	80	120			
Barium	24	0.10	25.00	0	94.7	80	120			
Cadmium	24	0.10	25.00	0	96.1	80	120			
Calcium	2700	25	2500	0	107	80	120			
Chromium	24	0.30	25.00	0	94.9	80	120			
Lead	25	0.25	25.00	0	99.4	80	120			
Magnesium	2600	25	2500	0	105	80	120			
Potassium	2500	50	2500	0	99.7	80	120			
Selenium	25	2.5	25.00	0	101	80	120			
Silver	5.4	0.25	5.000	0	108	80	120			
Sodium	2600	25	2500	0	103	80	120			

Sample ID **ADOCP1-TES**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **18292**	RunNo: **25054**
Prep Date: **3/24/2015**	Analysis Date: **3/25/2015**	SeqNo: **739229** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	26	2.5	25.00	0	103	80	120	0.487	0	
Barium	24	0.10	25.00	0	95.2	80	120	0.519	0	
Cadmium	24	0.10	25.00	0	96.2	80	120	0.663	0	
Calcium	2700	25	2500	0	107	80	120	1.82	0	
Chromium	24	0.30	25.00	0	95.6	80	120	0.903	0	
Lead	25	0.25	25.00	0	100	80	120	0.291	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#: **1503936**

26-Jun-15

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone Sampling

Sample ID **ADOCP1-TES**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **18292**	RunNo: **25054**
Prep Date: **3/24/2015**	Analysis Date: **3/25/2015**	SeqNo: **739229** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Magnesium	2600	25	2500	0	105	80	120	2.17	0	
Potassium	2500	50	2500	0	99.4	80	120	2.03	0	
Selenium	25	2.5	25.00	0	101	80	120	1.56	0	
Silver	5.4	0.25	5.000	0	109	80	120	0.797	0	
Sodium	2600	25	2500	0	103	80	120	2.01	0	

Sample ID **ADOCP2-TES**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **18292**	RunNo: **25054**
Prep Date: **3/24/2015**	Analysis Date: **3/25/2015**	SeqNo: **739230** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	26	2.5	25.00	0	104	80	120			
Barium	24	0.10	25.00	0	94.8	80	120			
Cadmium	24	0.10	25.00	0	95.7	80	120			
Calcium	2700	25	2500	0	107	80	120			
Chromium	24	0.30	25.00	0	95.1	80	120			
Lead	25	0.25	25.00	0	98.8	80	120			
Magnesium	2600	25	2500	0	106	80	120			
Potassium	2500	50	2500	0	100	80	120			
Selenium	25	2.5	25.00	0	98.9	80	120			
Silver	5.4	0.25	5.000	0	108	80	120			
Sodium	2600	25	2500	0	104	80	120			

Sample ID **ADOCP3-TES**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **18292**	RunNo: **25054**
Prep Date: **3/24/2015**	Analysis Date: **3/25/2015**	SeqNo: **739231** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	26	2.5	25.00	0	105	80	120			
Barium	24	0.10	25.00	0	96.6	80	120			
Cadmium	24	0.10	25.00	0	97.5	80	120			
Calcium	2700	25	2500	0	109	80	120			
Chromium	24	0.30	25.00	0	96.5	80	120			
Lead	25	0.25	25.00	0	100	80	120			
Magnesium	2700	25	2500	0	107	80	120			
Potassium	2500	50	2500	0	102	80	120			
Selenium	26	2.5	25.00	0	104	80	120			
Silver	5.5	0.25	5.000	0	110	80	120			
Sodium	2600	25	2500	0	105	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- 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#: **1503936**

26-Jun-15

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone Sampling

Sample ID **ADOCP4-TES**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **18292**	RunNo: **25054**
Prep Date: **3/24/2015**	Analysis Date: **3/25/2015**	SeqNo: **739232** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	26	2.5	25.00	0	105	80	120			
Barium	24	0.10	25.00	0	96.3	80	120			
Cadmium	24	0.10	25.00	0	97.4	80	120			
Calcium	2700	25	2500	0	108	80	120			
Chromium	24	0.30	25.00	0	96.8	80	120			
Lead	25	0.25	25.00	0	101	80	120			
Magnesium	2700	25	2500	0	110	80	120			
Potassium	2600	50	2500	0	104	80	120			
Selenium	25	2.5	25.00	0	100	80	120			
Silver	5.5	0.25	5.000	0	111	80	120			
Sodium	2700	25	2500	0	108	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- 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

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 Southw** Work Order Number: **1503936** RcptNo: **1**

Received by/date: 03/20/15

Logged By: **Lindsay Mangin** **3/20/2015 8:30:00 AM**

Completed By: **Lindsay Mangin** **3/20/2015 12:16:31 PM**

Reviewed By: 03/20/15

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?	Courier		

Log In

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

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

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

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

Person Notified: _____ Date: _____

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

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. **Cooler Information**

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.6	Good	Yes			

Chain-of-Custody Record

Client: Western Refining

Mailing Address: 111 CR 4990
Bloomfield, NM 87413

Phone #: (505) 632-8013

email or Fax#: KellyRobinson@WNR.com

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

Accreditation
☐ NELAP ☐ Other _____

☐ EDD (Type) _____

Turn-Around Time:
☑ Standard ☐ Rush _____

Project Name:
Bisti LandFarm Vadose Zone Sampling

Project #:
WR1005

Project Manager:
Ashley Ager

Sampler: Dan Newman / Mike Wicker

On Ice: ☑ Yes ☐ No

Sample Temperature: 3.6

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1503936
3/19/15	1030	Soil	Westline Vadose Zone	2 Jars (4oz)	Cool	-001
	1054		Eastline Vadose Zone			-002
	1100		Bisti Vadose Zone			-003
	1132		Pettigrew Vadose Zone			-004
↓	1156	↓	API Vadose Zone	↓	↓	-005

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)		See Attached			Air Bubbles (Y or N)
												↓			

Date:	Time:	Relinquished by:	Received by:	Date	Time
3/19/15	1605		Mike Wicker	3/19/15	1606
3/19/15	1825	Christine Walters		03/20/15	0830

Remarks: Please copy results to:
AAger@LTEnv.com

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

Vadose Zone

TPH –GRO, DRO, MRO 8015

TPH 418.1

BTEX 8021

Chloride

Sulfate

Alkalinity

Arsenic

Barium

Cadmium

Calcium

Chromium

Lead

Magnesium

Potassium

Selenium

Silver

Sodium

Mercury

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

Jami Bailey, Division Director
Oil Conservation Division

April 8, 2014

Kelly Robinson
Western Refining Southwest, Inc.
50 County Road 4990
Bloomfield, New Mexico 87413

RE: 2012 Monitoring Reports Review
Western Refining Southwest, Inc.
Bisti Landfarm
Permit NM2-010
Location: Unit F of Section 16, Township 25 North, Range 12 West, NMPM
San Juan County, New Mexico

Dear Ms. Robinson:

The Oil Conservation Division (OCD) has completed the review of Western Refining Southwest, Inc.'s (Western) 2012 Monitoring Report. The vadose zone results demonstrate that a released has occurred and the operator has not followed up with OCD regarding the response action plan. The five year vadose sampling event demonstrated that additional laboratory analysis was performed that was not required by regulation. Also, the incorrect test method for TPH was utilized and demonstrated in regards to vadose zone monitoring.

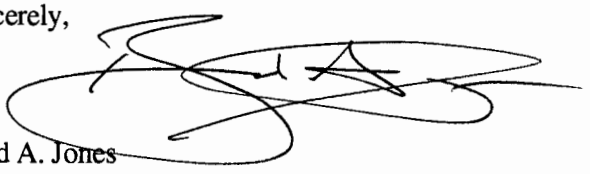
Pursuant to Paragraph (5) of 19.15.36.15.E NMAC, "If vadose zone sampling results show that the concentrations of TPH, BTEX or chlorides exceed the higher of the PQL or the background soil concentrations, then the operator shall notify the division's environmental bureau of the exceedance, and shall immediately collect and analyze a minimum of four randomly selected, independent samples for TPH, BTEX, chlorides and the constituents listed in Subsections A and B of 20.6.2.3103 NMAC. The operator shall submit the results of the re-sampling event and a response action plan for the division's approval within 45 days of the initial notification. The response action plan shall address changes in the landfarm's operation to prevent further contamination and, if necessary, a plan for remediating existing contamination." In February 2010, OCD approved an initial response action plan to delineate the extent of the vadose zone contamination. OCD was notified in the 2010 Annual Sampling Report, dated June 3, 2010, that OCD would be contacted by Western within a week of the submittal to schedule a meeting to discuss the results. The written response also stated "Results are being evaluated in a written report to be submitted to NMOCD, and a proposal for remedial action is forthcoming." OCD never received the follow up submittal nor was OCD contacted by Western to schedule a meeting. The responsibility of compliance for the existing surface waste management facility permit is that of the owner/operator by following up on outstanding compliance issues. Please submit the June 6, 2010 assessment and proposal and contact OCD to schedule a meeting to discuss the results and a path forward.

Pursuant to Paragraph (3) of 19.15.36.15.E NMAC, "The operator shall collect and analyze a minimum of four randomly selected, independent samples from the vadose zone, using the methods specified below for the constituents listed in Subsections A and B of 20.6.2.3103 NMAC at least every five years and shall compare each result to the higher of the PQL or the background soil concentrations to determine whether a release has occurred." The laboratory results submitted in the monitoring report demonstrated that analysis was performed for all the constituents listed in Subsections A and B of 20.6.2.3103 NMAC. As underlined in the above reference of Paragraph (1) of 19.15.36.15.E NMAC, the "methods specified below for the constituents listed in Subsections A and B of 20.6.2.3103 NMAC" are those identified in Subsection F of 19.15.36.15 NMAC: such as "determined by *EPA SW-846 methods 6010B or 6020* or other EPA method approved by the division..." Please submit all future five year vadose zone sampling results demonstrating compliance of Paragraph (3) of 19.15.36.15.E NMAC by EPA SW-846 methods 6010B or 6020.

In regards to utilizing the proper TPH test method for vadose zone monitoring, in accordance with Paragraph (2) of 19.15.36.15.E NMAC the operator shall analyze the samples from the vadose zone "using the methods specified below for TPH, BTEX and chlorides and shall compare each result to the higher of the PQL or the background soil concentrations to determine whether a release has occurred." The "methods specified below for TPH, BTEX and chlorides" are those identified in Subsection F of 19.15.36.15 NMAC: such as "TPH, as determined by *EPA method 418.1* or other EPA method approved by the division..." Pursuant to the Transitional Provisions of Subsection A of 19.15.36.20.NMAC, "Existing surface waste management facilities shall comply with the operational, waste acceptance and closure requirements provided in 19.15.36 NMAC, except as otherwise specifically provided in the applicable permit or order, or in a specific waiver, exception or agreement that the division has granted in writing to the particular surface waste management facility." The most common vadose zone monitoring (commonly referred to, but incorrectly as "Treatment Zone Monitoring" within existing landfarm permits) condition in an existing landfarm permit is as follows: "The soil samples must be analyzed using EPA-approved methods for total petroleum hydrocarbons (TPH) and volatile aromatic organics (BTEX) quarterly and for major cations/anions and Water Quality Control Commission (WQCC) metals annually." The permit condition only identified the constituent and does not specify the test method. Part 36 specifies EPA Method 418.1 as the required vadose zone analyses for TPH. Please submit all future vadose zone sampling results demonstrating TPH by EPA Method 418.1.

Please complete the required actions of 19.15.36.15.E NMAC and provide OCD with the additional sampling results and the response action plan within 30 days of receipt of this letter. Also, please submit future vadose zone sampling results demonstrating TPH by EPA Method 418.1 and compliance to Paragraph (3) of 19.15.36.15.E NMAC by EPA SW-846 methods 6010B or 6020. If there are any questions regarding this matter, please do not hesitate to contact me at (505) 476-3487 or brad.a.jones@state.nm.us.

Sincerely,



Brad A. Jones
Environmental Engineer

BAJ/baj

cc: OCD District III Office, Aztec
LT Environmental, Inc., 2243 Main Avenue, Suite 3, Durango, CO 81301

Western Refining

WNR LISTED NYSE

RECEIVED OCD

2013 DEC 11 P 3:05

December 9, 2013

Mr. Brad Jones
New Mexico Energy, Minerals, & Natural Resources Department
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Certified Mailer #: 7011 3500 0000 7665 5976 (Santa Fe Office)
Certified Mailer #: 7011 3500 0000 7665 5983 (Aztec Office)

Re: 2012 Annual Sampling Report
Western Refining Centralized Surface Waste Management Facility
Permit #: NM-02-0010
San Juan County, New Mexico

Dear Mr. Jones:

Please find enclosed the 2012 Annual Sampling Report for the Western Refining Centralized Surface Waste Management Facility located in San Juan County, New Mexico. This report summarizes the sampling activities performed in 2012. Western will be requesting closure of the above referenced surface waste management facility under a separate cover.

If you have any questions or require additional information, please do not hesitate to contact me at (505) 632-4166.

Sincerely,

Kelly Robinson

Kelly Robinson
Environmental Supervisor
Western Refining Southwest, Inc.

cc: R. Schmaltz - WNR
A. Hains – WNR

2012 ANNUAL REPORT

BISTI LANDFARM
WESTERN REFINING CENTRALIZED SURFACE WASTE MANAGEMENT FACILITY NM-02-0010

SAN JUAN COUNTY, NEW MEXICO

JULY 2013

WESTERN REFINING SOUTHWEST, INC.
111 County Road 4990
Bloomfield, New Mexico 87413

2012 ANNUAL REPORT

BISTI LANDFARM
WESTERN REFINING CENTRALIZED SURFACE WASTE MANAGEMENT FACILITY NM-02-0010

SAN JUAN COUNTY, NEW MEXICO

JULY 2013

Prepared for:

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

Prepared by:

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

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EXECUTIVE SUMMARY

LT Environmental, Inc. (LTE), on behalf of Western Refining Southwest, Inc. (Western), has prepared this report detailing soil monitoring completed between January 2012 through December 2012 at the Bisti Landfarm (Site) permit number NM-02-0010 in San Juan County, New Mexico.

The Site is located in the northwest quarter of the southeast quarter of Section 16, Township 25 North, Range 12 West in San Juan County, New Mexico. The Bisti Landfarm was permitted in February 1998 under 711 Permit NM-02-0010 to Giant Industries, Arizona (Giant). Giant disposed of impacted soils at the Bisti Landfarm resulting in three cells: API Cell, Crude Cell (containing material originating from Pettigrew, East Line, Bisti, and West Line) and Cell 1 which is inactive and no longer monitored quarterly (Figure 1). Western procured the Bisti Landfarm from Giant in June of 2007.

The scope of work for this project consisted of soil sampling including semi-annual treatment zone sampling as required by New Mexico Administrative Code 19.15.36.15 (Rule 36), quarterly vadose zone sampling as required by the original 711 permit, and five-year vadose zone sampling as required by Rule 36. Soil sampling was conducted to monitor the natural attenuation of contaminates of concern in the treatment zone, and to monitor potential migration of contaminates of concern into the vadose zone.

All soil sampling results are presented in the report and vadose zone soil analytical results are compared to the laboratory physical quantitation limit and background sample results, when available. Concentrations of TPH and chloride in the treatment zone are within the range of impacted soil undergoing treatment at the landfarm and do not exceed Treatment Zone Closure Performance Standards identified in Rule 36. Laboratory analytical results for vadose zone sampling were consistent with historical monitoring results.

Western will continue monitoring treatment zone and vadose zone soil at the Site, but consider simplifying annual activities by complying with Rule 36 monitoring requirements only and no longer conduct quarterly vadose zone monitoring as specified in the original 711 permit. Additionally, since treatment zone monitoring results do not exceed Treatment Zone Closure Performance Standards identified in Rule 36, Western will consider pursuing closure of the landfarm.

1.0 INTRODUCTION

LT Environmental, Inc. (LTE), on behalf of Western Refining Southwest, Inc. (Western), has prepared this report detailing work completed from January 2012 through December 2012 to monitor soil remediation at the Bisti Landfarm (Site) permit number NM-02-0010 in San Juan County, New Mexico.

1.1 SITE DESCRIPTION AND HISTORY

The Site occupies approximately 28 acres in the northwest quarter of the southeast quarter of Section 16, Township 25 North, Range 12 West in San Juan County, New Mexico (Figure 1). In 1998, Giant Industries, Arizona (Giant) permitted the Site as a surface waste management facility under the New Mexico Oil and Gas Conservation Division (NMOCD) Rule 711. Giant disposed of impacted soils at the Bisti Landfarm resulting in three cells: API Cell, Crude Cell (containing material originating from Pettigrew, East Line, Bisti, and West Line) and Cell 1 which is inactive (Figure 2). In 2007, the NMOCD passed new rules (19.15.36 of the New Mexico Administrative Code [NMAC] [Rule 36]) pertaining to surface waste management facilities and required compliance with the transitional provisions of Rule 36. Western procured the Bisti Landfarm from Giant in June of 2007 and disposed of soil at the Site until 2010. Western continues to monitor and maintain the API Cell and the Crude Cell using the provisional requirements of Rule 36 as a guide. Cell 1 is no longer tilled based on a letter dated March 8, 2004, from the NMOCD to Giant stating Cell 1 was approved for discontinued maintenance.

1.2 SCOPE OF WORK

The scope of work for this project consisted of soil sampling including semi-annual treatment zone sampling as required by Rule 36, quarterly vadose zone sampling as required by the original 711 permit, and five-year vadose zone sampling as required by Rule 36. Soil sampling was conducted to monitor the natural attenuation of contaminates of concern in the treatment zone, and to monitor potential migration of contaminates of concern into the vadose zone. A summary of field activities, laboratory analytical soil sampling results, and conclusions are presented in the subsequent sections of this report.

2.0 METHODOLOGY

2.1 SEMI-ANNUAL TREATMENT ZONE MONITORING

Treatment zones in the API and Crude cells were composite sampled semi-annually by placing discrete samples collected from approximately 6 inches below the ground surface into a 1-gallon plastic bag. The soil within the bags was thoroughly mixed before filling glass sampling jars provided by the laboratory. The Crude Cell treatment zone samples included four discrete samples from the Pettigrew, Bisti, West Line, and East Line source areas. The API Cell treatment zone samples included four discrete samples from the API Cell. Figure 3 depicts treatment zone soil sample locations. Treatment zone samples were analyzed for total petroleum hydrocarbons (TPH) – gasoline range organics (GRO), diesel range organics (DRO), and motor oil range organics (MRO) by United States Environmental Protection Agency (USEPA) Method 8015B and chloride by USEPA Method 300.0.

2.2 QUARTERLY VADOSE ZONE MONITORING

Discrete vadose zone samples were collected quarterly from the two active cells (API and Crude cells) to be analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by USEPA Method 8021B, TPH - GRO, DRO, and MRO by USEPA Method 8015B, and chloride by USEPA Method 300.0. Additionally, in March 2012 soil samples were analyzed for sulfate by USEPA Method 300.0, metals (arsenic, barium, cadmium, calcium, chromium, lead, magnesium, potassium, selenium, silver, and sodium) by USEPA Method 6010B, mercury by USEPA Method 7471, and alkalinity by ASA10-3. The number of vadose zone samples collected within each cell was dependent on the size of the cell. For each sampling event, four soil samples were collected from the Crude Cell: one beneath the East Line source area, one beneath the West Line source area, one beneath the Pettigrew source area, and one beneath the Bisti source area. One sample was collected from beneath the API Cell. Figure 4 depicts quarterly vadose zone soil sample locations. All vadose zone soil samples were collected from 3 feet to 4 feet below natural ground surface and boreholes were filled with hydrated bentonite from total depth to ground surface upon completion.

2.3 FIVE-YEAR VADOSE MONITORING

Five-year vadose zone monitoring consisted of collecting four vadose zone soil samples from each cell (API, Crude, and Cell 1). Cell 1 was included in this sampling event since the comprehensive five-year monitoring has never been conducted on Cell 1 in the past. Figure 5 depicts five-year vadose zone monitoring soil sample locations. Vadose zone soil samples were analyzed for the constituents listed in Subsection A and B of 20.6.2.3101 NMAC by USEPA approved methods. All vadose zone soil samples were collected from 3 feet to 4 feet below natural ground surface and boreholes were filled with hydrated bentonite from total depth to ground surface upon completion.

All samples collected during all sampling events were placed on ice upon collection and sealed in a cooler for delivery to Hall Environmental Analysis Laboratory, Inc., Albuquerque, New Mexico for analysis. Soil samples were labeled with the date and time of collection, sample name, sampler's name, and parameters to be analyzed. Strict chain-of-custody procedures were

documented including the date and time sampled, sample number, type of sample, sampler's name and signature, preservative used, and analyses required.

3.0 ANALYTICAL RESULTS

3.1 SEMI-ANNUAL TREATMENT ZONE ANALYTICAL RESULTS

Table 1 presents the analytical results from the treatment zone monitoring events in March and September 2012. The complete laboratory reports are presented in Appendix A.

3.2 QUARTERLY VADOSE ZONE ANALYTICAL RESULTS

The laboratory analytical results from quarterly vadose zone soil samples compared to the laboratory physical quantitation limit (PQL) and background sample results, when available, are presented in Table 2. The complete laboratory analytical reports are presented in Appendix A.

3.3 FIVE-YEAR VADOSE ZONE ANALYTICAL RESULTS

The five-year vadose zone soil sampling results are compared to the PQL and background sample results, when available, in Table 3. The complete laboratory analytical reports are presented in Appendix A.

4.0 CONCLUSIONS

Concentrations of TPH and chloride in the treatment zone are within the range of impacted soil undergoing treatment at the landfarm and do not exceed Treatment Zone Closure Performance Standards identified in Rule 36.

Western conducted vadose zone soil sampling in accordance with the original 711 permit and Rule 36 and results were compared to laboratory PQLs and background concentrations for review. Laboratory analytical results were consistent with historical monitoring results. Based on previous vadose zone sampling results, Western submitted a Release Response Plan to the NMOCD on December 31, 2009. Upon approval from the NMOCD, Western initiated the Release Response Plan, and results were reported to the NMOCD on June 6, 2010. Western is awaiting comments from the NMOCD before proceeding with additional actions.

5.0 RECOMMENDATIONS

Western should continue monitoring treatment zone and vadose zone soil at the Site, but consider simplifying annual activities by complying with Rule 36 monitoring requirements only and no longer conduct quarterly vadose zone monitoring as specified in the original 711 permit. The new monitoring schedule would consist of semi-annual treatment zone and vadose zone monitoring as well as 5-year vadose zone monitoring as described in Table 4.

Since Western is no longer accepting impacted soil at the Site and treatment zone monitoring results do not exceed Treatment Zone Closure Performance Standards identified in Rule 36, Western should consider pursuing closure of the landfarm.

FIGURES

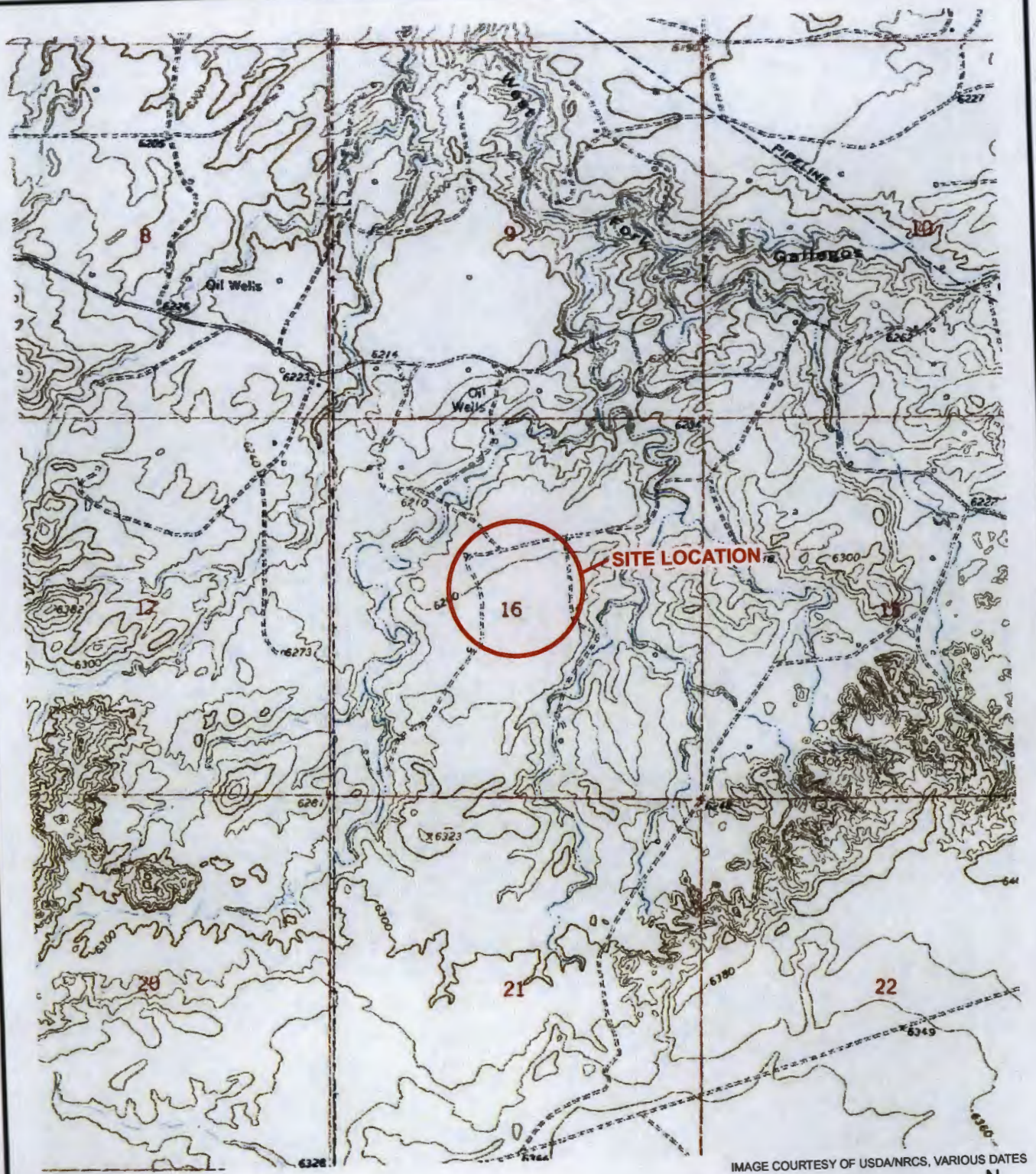

FIGURE 1
SITE LOCATION MAP
BISTI LANDFARM
SEC 16 T25N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

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IMAGE COURTESY OF GOOGLE EARTH, 06/10/2011

LEGEND

x — x FENCE

APPROXIMATE SOURCE IDENTITY BOUNDARY

CELL 1 BOUNDARY

API CELL BOUNDARY

CRUDE CELL BOUNDARY

0 200 400

Feet

N

FIGURE 2
SITE MAP
BISTI LANDFARM
SEC 16 T25N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1005\WR1005_BISTI_LANDFARM_FIG02_SITEMAP.mxd

LEGEND

- API TREATMENT ZONE ALIQUOT SAMPLE (03/06/2012)
- API TREATMENT ZONE ALIQUOT SAMPLE (09/28/2012)
- CRUDE TREATMENT ZONE ALIQUOT SAMPLE (03/06/2012)
- CRUDE TREATMENT ZONE ALIQUOT SAMPLE (09/28/2012)
- x — x FENCE
- APPROXIMATE SOURCE IDENTITY BOUNDARY
- CELL 1 BOUNDARY
- API CELL BOUNDARY
- CRUDE CELL BOUNDARY

IMAGE COURTESY OF GOOGLE EARTH, 06/10/2011

0 200 400
Feet

N

FIGURE 3
TREATMENT ZONE SAMPLE LOCATION MAP
BISTI LANDFARM
SEC 16 T25N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1005\WR1005_BISTI_LANDFARM_FIG02_SITEMAP.mxd

IMAGE COURTESY OF GOOGLE EARTH, 06/10/2011

LEGEND

- QUARTERLY VADOSE ZONE SOIL SAMPLE (COLLECTED 03/06/2012)
- QUARTERLY VADOSE ZONE SOIL SAMPLE (COLLECTED 06/20/2012)
- QUARTERLY VADOSE ZONE SOIL SAMPLE (COLLECTED 09/28/2012)
- QUARTERLY VADOSE ZONE SOIL SAMPLE (COLLECTED 12/20/2012)
- APPROXIMATE SOURCE IDENTITY BOUNDARY
- CELL 1 BOUNDARY
- API CELL BOUNDARY
- CRUDE CELL BOUNDARY
- FENCE

0 200 400
Feet

N

FIGURE 4
VADOSE ZONE SAMPLE LOCATION MAP
BISTI LANDFARM
SEC 16 T25N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1005\WR1005_BISTI_LANDFARM_FIG02_SITEMAP.mxd

IMAGE COURTESY OF GOOGLE EARTH, 06/10/2011

LEGEND

- BACKGROUND SOIL SAMPLE (COLLECTED 06/20/2012)
- 5-YEAR COMPREHENSIVE VADOSE ZONE SOIL SAMPLE (COLLECTED 06/20/2012)
- APPROXIMATE SOURCE IDENTITY BOUNDARY
- CELL 1 BOUNDARY
- API CELL BOUNDARY
- CRUDE CELL BOUNDARY
- FENCE

0 200 400
Feet

N

FIGURE 5
FIVE-YEAR MONITORING SAMPLE LOCATION MAP
BISTI LANDFARM
SEC 16 T25N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1005\WR1005_BISTI_LANDFARM_FIG02_SITEMAP.mxd

TABLES

TABLE 1

2012 SEMI-ANNUAL TREATMENT ZONE SOIL ANALYTICAL RESULTS
BISTI LANDFARM
WESTERN REFINING SOUTHWEST, INC.

Sample ID	Sample Date	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	Chloride (mg/kg)
Crude Treatment Zone	6-Mar-12	<4.9	100	280	34
Crude TZ	28-Sep-12	<4.9	70	<48	38
API Treatment Zone	6-Mar-12	<4.9	160	500	<15
API TZ	28-Sep-12	<4.9	76	<51	100

Notes:

DRO - Diesel Range Organics

GRO - Gasoline Range Organics

MRO - Motor Oil Range Organics

mg/kg - milligrams per kiliograms

NMAC - New Mexico Administrative Code

< indicates result is less than the stated method reporting limit

TABLE 2

2012 QUARTERLY VADOSE ZONE SOIL ANALYTICAL RESULTS
BISTI LANDFARM
WESTERN REFINING SOUTHWEST, INC.

Sample ID			Sample Date	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Chloride (mg/kg)	Sulfate (mg/kg)	Alkalinity (mg/kg)	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Calcium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)	Magnesium (mg/kg)	Potassium (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Sodium (mg/kg)	Mercury (mg/kg)
Crude Cell	West Line	Westline AVS	**6-Mar-12**	<4.9	<10	<51	<0.049	<0.049	<0.049	<0.098	6.0	210	73	<2.5	81	<0.10	3,200	2.7	1.8	1,200	770	<2.5	<0.25	<120	<0.033
		Westline Crude	**20-Jun-12**	<5.0	<9.9	<50	<0.050	<0.050	<0.050	<0.10	37	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Westline VZ	**28-Sep-12**	<4.9	<10	<50	<0.049	<0.049	<0.049	<0.097	<7.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Westline VS	**20-Dec-12**	<4.7	<10	<50	<0.047	<0.047	<0.047	<0.095	<7.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	East Line	Eastline AVS	**6-Mar-12**	<4.8	<9.8	<49	<0.048	<0.048	<0.048	<0.097	<15	46	118	<12	96	<0.50	4,300	6.9	4.3	2,600	2,000	<12	<1.2	240	<0.033
		Eastline Crude	**20-Jun-12**	<5.0	75	<49	<0.050	<0.050	<0.050	<0.099	<7.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Eastline VZ	**28-Sep-12**	<4.9	<10	<51	<0.049	<0.049	<0.049	<0.098	4.3	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Eastline VS	**20-Dec-12**	<4.7	<10	<50	<0.047	<0.047	<0.047	<0.094	7.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Bisti	Bisti AVS	**6-Mar-12**	<4.7	<10	<51	<0.047	<0.047	<0.047	<0.095	<15	16	106	<2.5	110	<0.10	3,300	2.4	1.7	1,100	720	<2.5	<0.25	<50	<0.033
		Eastline Crude	**20-Jun-12**	<4.7	<9.7	<48	<0.047	<0.047	<0.047	<0.095	7.8	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Eastline VZ	**28-Sep-12**	<4.8	<9.9	<50	<0.048	<0.048	<0.048	<0.095	12	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Eastline VS	**20-Dec-12**	<4.7	<9.8	<49	<0.047	<0.047	<0.047	<0.094	11	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Pettigrew	Pettigrew AVS	**6-Mar-12**	<4.9	<10	<51	<0.049	<0.049	<0.049	<0.098	83	42	89	<2.5	60	<0.10	1,800	2.1	1.6	1,100	680	<2.5	<0.25	100	<0.033
		Pettigrew Crude	**20-Jun-12**	<4.8	<10	<51	<0.048	<0.048	<0.048	<0.097	280	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Pettigrew VZ	**28-Sep-12**	<4.8	<10	<51	<0.048	<0.048	<0.048	<0.096	46	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		Pettigrew VS	**20-Dec-12**	<4.9	<10	<50	<0.049	<0.049	<0.049	<0.098	1,700	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
API Cell	API	API AVS	**6-Mar-12**	<4.8	<9.8	<49	<0.048	<0.048	<0.048	<0.097	1,800	1,000	109	<2.5	62	<0.10	4,000	2.7	1.8	1,200	900	<2.5	<0.25	2,100	<0.033
		API (4)	**20-Jun-12**	<4.9	<9.9	<49	<0.049	<0.049	<0.049	<0.097	2,500	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		API VZ	**28-Sep-12**	<4.8	<9.8	<49	<0.048	<0.048	<0.048	<0.096	<7.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
		API VS	**20-Dec-12**	<4.7	<9.9	<50	<0.047	<0.047	<0.047	<0.093	<7.5	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Background Sample			**27-Mar-98**	NA	<50	NA	<0.05	<0.05	<0.05	<0.05	<50	140	NA	2.8	180	<1.3	NA	<5.0	6.8	NA	NA	<2.5	<1.3	NA	<0.50
Reporting Limit*				4.7	9.7	48	0.047	0.047	0.047	0.094	1.5	15	4.0	2.5	0.20	0.10	50	0.30	0.25	50	100	2.5	0.25	50	0.033

Notes:
DRO - Diesel Range Organics
GRO - Gasoline Range Organics
MRO - Motor Oil Range Organics
mg/kg - milligrams per kilograms
NA - Not Analyzed
< indicates result is less than the stated method reporting limit
* LTE used Reporting Limit as the Physical Quantitation Limit. If different RLs are listed for different samples, the lowest Reporting Limit is provided.

TABLE 3

FIVE-YEAR MONITORING SOIL LABORATORY ANALYTICAL RESULTS
BISTI LANDFARM
WESTERN REFINING SOUTHWEST, INC.

ANALYTE (from Subsections A and B of 20.6.2.3103 NMAC)	UNIT	REPORTING LIMIT*	BACKGROUND SAMPLE	SAMPLE ID											
				EAST LINE CRUDE	PETTIGREW CRUDE	WEST LINE CRUDE	BISTI CRUDE	API - 1	API - 2	API - 3	API - 4	CELL 1-1	CELL 1-2	CELL 1-3	CELL 1-4
			27-Mar-98	20-Jun-12	20-Jun-12	20-Jun-12	20-Jun-12	20-Jun-12	20-Jun-12	20-Jun-12	20-Jun-12	20-Jun-12	20-Jun-12	20-Jun-12	20-Jun-12
Arsenic	mg/kg	25	2.8	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
Barium	mg/kg	0.5	180	64	86	100	110	83	72	85	100	60	110	130	160
Cadmium	mg/kg	0.5	<1.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 0.50	< 0.50	< 0.50
Chromium	mg/kg	1.5	<5.0	3.7	< 3.0	4.0	4.6	3.4	< 3.0	< 3.0	< 3.0	< 3.0	3.6	2.4	4.0
Cyanide	mg/kg	<0.244	NT	<0.257	<0.265	<0.244	<0.261	<0.262	<0.252	<0.254	<0.254	<0.259	<0.254	<0.252	<0.251
Fluoride	mg/kg	0.3	NT	1.5	1.4	1.8	1.9	2.0	1.6	4.4	2.7	4.3	6.0	3.3	1.5
Lead	mg/kg	2.5	6.8	4.4	5.3	6.1	5.0	4.1	5.0	5.6	4.1	3.8	4.0	3.9	4.4
Mercury	mg/kg	0.033	<0.5	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033	< 0.033
Nitrogen, Nitrate (As N)	mg/kg	0.3	NT	3.6	11	< 0.30	2.4	2.4	2.6	< 0.30	4.2	< 1.5	< 1.5	< 1.5	< 1.5
Selenium	mg/kg	12	<2.5	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 12	< 12	< 12
Silver	mg/kg	1.2	<1.3	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 2.5	< 1.2	< 1.2	< 1.2
Uranium	mg/kg	25	NT	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 50	< 25	< 25	< 25
Radium 226	pCi/g	0.3100	NT	0.522 ± 0.151	0.531 ± 0.147	0.593 ± 0.166	0.518 ± 0.127	0.310 ± 0.0920	0.626 ± 0.179	0.654 ± 0.147	0.428 ± 0.152	0.464 ± 0.113	0.569 ± 0.138	0.455 ± 0.135	0.447 ± 0.116
Radium 228	pCi/g	0.3140	NT	0.581 ± 0.201	0.314 ± 0.152	0.795 ± 0.266	0.809 ± 0.227	0.752 ± 0.246	0.640 ± 0.239	0.719 ± 0.259	0.729 ± 0.217	0.329 ± 0.197	0.893 ± 0.241	0.555 ± 0.185	0.497 ± 0.222
Benzene	mg/kg	0.046	<0.05	< 0.048	< 0.048	< 0.049	< 0.049	< 0.050	< 0.049	< 0.049	< 0.048	< 0.047	< 0.049	< 0.046	< 0.048
Aroclor 1016	mg/kg	0.020	NT	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Aroclor 1221	mg/kg	0.020	NT	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Aroclor 1232	mg/kg	0.020	NT	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Aroclor 1242	mg/kg	0.020	NT	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Aroclor 1248	mg/kg	0.020	NT	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Aroclor 1254	mg/kg	0.020	NT	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Aroclor 1260	mg/kg	0.020	NT	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Toluene	mg/kg	0.046	<0.05	< 0.048	< 0.048	< 0.049	< 0.049	< 0.050	< 0.049	< 0.049	< 0.048	< 0.047	< 0.049	< 0.046	< 0.048
Carbon tetrachloride	mg/kg	0.093	NT	< 0.096	< 0.096	< 0.099	< 0.098	< 0.10	< 0.098	< 0.098	< 0.097	< 0.095	< 0.098	< 0.093	< 0.095
1,2-Dichloroethane (EDC)	mg/kg	0.046	NT	< 0.048	< 0.048	< 0.049	< 0.049	< 0.050	< 0.049	< 0.049	< 0.048	< 0.047	< 0.049	< 0.046	< 0.048
1,1-Dichloroethene	mg/kg	0.046	NT	< 0.048	< 0.048	< 0.049	< 0.049	< 0.050	< 0.049	< 0.049	< 0.048	< 0.047	< 0.049	< 0.046	< 0.048
Tetrachloroethylene (PCE)	mg/kg	0.046	NT	< 0.048	< 0.048	< 0.049	< 0.049	< 0.050	< 0.049	< 0.049	< 0.048	< 0.047	< 0.049	< 0.046	< 0.048
Trichloroethylene (TCE)	mg/kg	0.046	NT	< 0.048	< 0.048	< 0.049	< 0.049	< 0.050	< 0.049	< 0.049	< 0.048	< 0.047	< 0.049	< 0.046	< 0.048
Ethylbenzene	mg/kg	0.046	<0.05	< 0.048	< 0.048	< 0.049	< 0.049	< 0.050	< 0.049	< 0.049	< 0.048	< 0.047	< 0.049	< 0.046	< 0.048
Xylenes, Total	mg/kg	0.093	<0.05	< 0.096	< 0.096	< 0.099	< 0.098	< 0.10	< 0.098	< 0.098	< 0.097	< 0.095	< 0.098	< 0.093	< 0.095
Methylene chloride	mg/kg	0.14	NT	< 0.14	< 0.14	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.15	< 0.14	< 0.15	< 0.14	< 0.14
Chloroform	mg/kg	0.046	NT	< 0.048	< 0.048	< 0.049	< 0.049	< 0.050	< 0.049	< 0.049	< 0.048	< 0.047	< 0.049	< 0.046	< 0.048
1,1-Dichloroethane	mg/kg	0.093	NT	< 0.096	< 0.096	< 0.099	< 0.098	< 0.10	< 0.098	< 0.098	< 0.097	< 0.095	< 0.098	< 0.093	< 0.095
1,2-Dibromoethane (EDB)	µg/kg	0.099	NT	< 0.1	< 0.1	< 0.1	< 0.099	<0.1	<0.1	<0.1	< 0.099	< 0.099	<0.1	<0.1	<0.1
1,1,1-Trichloroethane	mg/kg	0.046	NT	< 0.048	< 0.048	< 0.049	< 0.049	< 0.050	< 0.049	< 0.049	< 0.048	< 0.047	< 0.049	< 0.046	< 0.048
1,1,2-Trichloroethane	mg/kg	0.046	NT	< 0.048	< 0.048	< 0.049	< 0.049	< 0.050	< 0.049	< 0.049	< 0.048	< 0.047	< 0.049	< 0.046	< 0.048
1,1,2,2-Tetrachloroethane	mg/kg	0.046	NT	< 0.048	< 0.048	< 0.049	< 0.049	< 0.050	< 0.049	< 0.049	< 0.048	< 0.047	< 0.049	< 0.046	< 0.048
Vinyl chloride	mg/kg	0.046	NT	< 0.048	< 0.048	< 0.049	< 0.049	< 0.050	< 0.049	< 0.049	< 0.048	< 0.047	< 0.049	< 0.046	< 0.048
Naphthalene	mg/kg	0.093	NT	< 0.096	< 0.096	< 0.099	< 0.098	< 0.10	< 0.098	< 0.098	< 0.097	< 0.095	< 0.098	< 0.093	< 0.095
1-Methylnaphthalene	mg/kg	0.19	NT	< 0.19	< 0.19	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.19	< 0.19	< 0.20	< 0.19	< 0.19
2-Methylnaphthalene	mg/kg	0.19	NT	< 0.19	< 0.19	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.19	< 0.19	< 0.20	< 0.19	< 0.19
Benzo(a)pyrene	mg/kg	0.0098	NT	< 0.010	< 0.010	< 0.0099	< 0.010	< 0.0099	< 0.0099	< 0.0099	< 0.010	< 0.010	< 0.010	< 0.0098	< 0.0099
Chloride	mg/kg	1.5	<50	4.4	290	37	8.5	< 7.5	15	110	2,700	< 7.5	< 7.5	< 7.5	< 7.5
Copper	mg/kg	3.0	NT	3.8	3.5	3.9	4.7	3.9	4.3	4.5	4.5	3.9	4.5	4.1	5.3
Iron	mg/kg	200	NT	6,200	5,100	5,900	7,300	6,000	5,600	6,200	5,000	4,600	6,300	5,600	6,200
Manganese	mg/kg	0.5	NT	140	110	180	170	120	120	120	120	81	130	170	130
Phenol	mg/kg	0.20	NT	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Sulfate	mg/kg	1.5	140	140	55	120	20	15	100	460	300	31	21	17	12
Zinc	mg/kg	25	NT	40	< 25	53	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25	< 25
pH	S.U.	1.68	NT	8.36	8.14	8.57	8.83	9.34	8.72	8.28	7.98	9.26	9.27	9.23	8.79

Notes:
BTEX - benzene, toluene, ethylbenzene, total xylenes
* LTE used Reporting Limit as the Physical Quantitation Limit. If different RLs are listed for different samples, the lowest Reporting Limit is provided.
mg/kg - milligrams per kilogram
NE - not established
NMAC - New Mexico Administrative Code
NT - not tested
pCi/g - picocurie per gram
S.U. - standard units
µg/kg - micrograms per kilogram

TABLE 4

RECOMMENDED MONITORING SCHEDULE
BISTI LANDFARM
WESTERN REFINING SOUTHWEST, INC.

Sample Location	Landfarm Cell	Frequency	Sample Type	Analysis	Analytical Method
Treatment Zone	Crude Cell API Cell	Semi-Annually	1 each Composite Sample Consisting of 4 Discete Samples	TPH - GRO, DRO, MRO Chloride	USEPA Method 8015 USEPA Method 300.1
Vadose Zone	Crude Cell API Cell	Semi-Annually	4 each Discrete Samples	TPH - GRO, DRO TPH BTEX Chloride	USEPA Method 8015 USEPA Method 418.1 USEPA Method 8021 USEPA Method 300.1
Vadose Zone	Crude Cell API Cell	Every 5 Years	4 each Discrete Samples	Constituents Listed in Subsections A and B of 20.6.2.3103 NMAC	USEPA-Approved Methods

Notes:
DRO - Diesel Range Organics
GRO - Gasoline Range Organics
MRO - Motor Oil Range Organics
USEPA - United States Environmental Protection Agency
NMAC - New Mexico Administrative Code

APPENDIX A
LABORATORY ANALYTICAL REPORTS

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

March 14, 2012

Ashley Ager
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (970) 946-1093
FAX (505) 632-3911

RE: Bisti Landfarm OrderNo.: 1203229

Dear Ashley Ager:

Hall Environmental Analysis Laboratory received 2 sample(s) on 3/7/2012 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. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1203229**
Date Reported: **3/14/2012**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bisti Landfarm
Lab ID: 1203229-001 **Matrix:** SOIL

Client Sample ID: API Treatment Zone
Collection Date: 3/6/2012 10:58:00 AM
Received Date: 3/7/2012 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	160	10		mg/Kg	1	3/9/2012 10:42:19 AM
Motor Oil Range Organics (MRO)	500	50		mg/Kg	1	3/9/2012 10:42:19 AM
Surr: DNOP	88.4	77.4-131		%REC	1	3/9/2012 10:42:19 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/8/2012 2:13:32 PM
Surr: BFB	94.7	69.7-121		%REC	1	3/8/2012 2:13:32 PM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Chloride	ND	15		mg/Kg	10	3/8/2012 1:47:47 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bisti Landfarm
Lab ID: 1203229-002 **Matrix:** SOIL

Client Sample ID: Crude Treatment Zone
Collection Date: 3/6/2012 11:29:00 AM
Received Date: 3/7/2012 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	100	10		mg/Kg	1	3/9/2012 10:20:38 AM
Motor Oil Range Organics (MRO)	280	51		mg/Kg	1	3/9/2012 10:20:38 AM
Surr: DNOP	86.3	77.4-131		%REC	1	3/9/2012 10:20:38 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/8/2012 2:42:26 PM
Surr: BFB	95.8	69.7-121		%REC	1	3/8/2012 2:42:26 PM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Chloride	34	1.5		mg/Kg	1	3/8/2012 12:08:27 PM

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1203229**

14-Mar-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm

Sample ID **MB-1010**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **1010**	RunNo: **1374**
Prep Date: **3/8/2012**	Analysis Date: **3/8/2012**	SeqNo: **38822** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID **LCS-1010**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **1010**	RunNo: **1374**
Prep Date: **3/8/2012**	Analysis Date: **3/8/2012**	SeqNo: **38823** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.1	90	110			

Sample ID **1203245-001AMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **1010**	RunNo: **1374**
Prep Date: **3/8/2012**	Analysis Date: **3/8/2012**	SeqNo: **38825** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	7.5	15.00	2.604	81.6	74.6	118			

Sample ID **1203245-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **1010**	RunNo: **1374**
Prep Date: **3/8/2012**	Analysis Date: **3/8/2012**	SeqNo: **38826** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	7.5	15.00	2.604	82.8	74.6	118	1.27	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1203229**

14-Mar-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm

Sample ID **MB-988**	SampType: **MBLK**	TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **988**	RunNo: **1342**
Prep Date: **3/7/2012**	Analysis Date: **3/8/2012**	SeqNo: **38057** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.5		10.00		84.6	77.4	131			

Sample ID **LCS-988**	SampType: **LCS**	TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **988**	RunNo: **1342**
Prep Date: **3/7/2012**	Analysis Date: **3/8/2012**	SeqNo: **38064** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	10	50.00	0	82.5	62.7	139			
Surr: DNOP	4.3		5.000		85.5	77.4	131			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1203229**

14-Mar-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm

Sample ID **MB-986** SampType: **MBLK** TestCode: **EPA Method 8015B: Gasoline Range**

Client ID: **PBS** Batch ID: **986** RunNo: **1353**

Prep Date: **3/7/2012** Analysis Date: **3/8/2012** SeqNo: **38593** 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	940		1,000		94.3	69.7	121			

Sample ID **LCS-986** SampType: **LCS** TestCode: **EPA Method 8015B: Gasoline Range**

Client ID: **LCSS** Batch ID: **986** RunNo: **1353**

Prep Date: **3/7/2012** Analysis Date: **3/8/2012** SeqNo: **38594** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	101	98.5	133			
Surr: BFB	1,000		1,000		101	69.7	121			

Sample ID **1203229-001AMS** SampType: **MS** TestCode: **EPA Method 8015B: Gasoline Range**

Client ID: **API Treatment Zone** Batch ID: **986** RunNo: **1404**

Prep Date: **3/7/2012** Analysis Date: **3/12/2012** SeqNo: **40169** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	5.0	24.80	0	114	85.4	147			
Surr: BFB	980		992.1		99.1	69.7	121			

Sample ID **1203229-001AMSD** SampType: **MSD** TestCode: **EPA Method 8015B: Gasoline Range**

Client ID: **API Treatment Zone** Batch ID: **986** RunNo: **1404**

Prep Date: **3/7/2012** Analysis Date: **3/12/2012** SeqNo: **40171** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	4.9	24.56	0	113	85.4	147	1.76	19.2	
Surr: BFB	960		982.3		98.0	69.7	121	0	0	

Qualifiers:

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

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 Southwest, Inc Bloomfield** Work Order Number: **1203229**

Received by/date: MG 03/07/12

Logged By: **Michelle Garcia** **3/7/2012 9:30:00 AM** Michelle Garcia

Completed By: **Michelle Garcia** **3/7/2012 10:21:10 AM** Michelle Garcia

Reviewed By: 03/07/12

Chain of Custody

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

Log In

4.	Coolers are present? (see 19. for cooler specific information)	Yes	✔	No	NA
5.	Was an attempt made to cool the samples?	Yes	✔	No	NA
6.	Were all samples received at a temperature of >0° C to 6.0°C	Yes	✔	No	NA
7.	Sample(s) in proper container(s)?	Yes	✔	No	
8.	Sufficient sample volume for indicated test(s)?	Yes	✔	No	
9.	Are samples (except VOA and ONG) properly preserved?	Yes	✔	No	
10.	Was preservative added to bottles?	Yes		No ✔	NA
11.	VOA vials have zero headspace?	Yes		No	No VOA Vials ✔
12.	Were any sample containers received broken?	Yes		No ✔	
13.	Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes	✔	No	# of preserved bottles checked for pH:
14.	Are matrices correctly identified on Chain of Custody?	Yes	✔	No	(<2 or >12 unless noted)
15.	Is it clear what analyses were requested?	Yes	✔	No	Adjusted?
16.	Were all holding times able to be met? (If no, notify customer for authorization.)	Yes	✔	No	Checked by:

Special Handling (if applicable)

17. 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: _____

18. Additional remarks:

19. **Cooler Information**

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

Chain-of-Custody Record

Client: Western Refining
Kelly Robinson
Mailing Address: 111 CR 4990
Bloomfield, NM 87413
Phone #: 505-632 8013
email or Fax#:
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Bisti Landfarm
Project #: WR1005
Project Manager: Ashley Ager
Sampler: Sam LaRue
On Ice: ☒ Yes ☐ No
Sample Temperature:

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1203	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	TPH 8015 (GRO, DRO, MRO)	chloride			Air Bubbles (Y or N)
3/6/12	10:58	soil	API Treatment Zone	4oz/2	none	-1												✓	✓			
3/6/12	11:29	soil	Crude Treatment Zone	4oz/2	none	-2												✓	✓			

Date:	Time:	Relinquished by:	Received by:	Date	Time
3/6/12	13:40		Christine Walker	3/6/12	1340
3/6/12	1621	Christine Walker	Michelle Garcia	03/07/12	0930

Remarks: Please copy results to aager@Henv.com

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

March 16, 2012

Ashley Ager
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (970) 946-1093
FAX (505) 632-3911

RE: Bisti Landfarm OrderNo.: 1203236

Dear Ashley Ager:

Hall Environmental Analysis Laboratory received 5 sample(s) on 3/7/2012 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. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated.

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

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1203236**
Date Reported: **3/16/2012**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bisti Landfarm
Lab ID: 1203236-001 **Matrix:** SOIL

Client Sample ID: West line AVS
Collection Date: 3/6/2012 10:17:00 AM
Received Date: 3/7/2012 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/9/2012 8:07:51 AM
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	3/9/2012 8:07:51 AM
Surr: DNOP	83.2	77.4-131		%REC	1	3/9/2012 8:07:51 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/8/2012 5:06:18 PM
Surr: BFB	95.3	69.7-121		%REC	1	3/8/2012 5:06:18 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.049		mg/Kg	1	3/8/2012 5:06:18 PM
Toluene	ND	0.049		mg/Kg	1	3/8/2012 5:06:18 PM
Ethylbenzene	ND	0.049		mg/Kg	1	3/8/2012 5:06:18 PM
Xylenes, Total	ND	0.098		mg/Kg	1	3/8/2012 5:06:18 PM
Surr: 4-Bromofluorobenzene	105	85.3-139		%REC	1	3/8/2012 5:06:18 PM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Chloride	6.0	1.5		mg/Kg	1	3/8/2012 2:37:26 PM
Sulfate	210	30		mg/Kg	20	3/8/2012 2:49:50 PM
EPA METHOD 7471: MERCURY						Analyst: **JLF**
Mercury	ND	0.033		mg/Kg	1	3/13/2012 4:14:08 PM
EPA METHOD 6010B: SOIL METALS						Analyst: **RAG**
Arsenic	ND	2.5		mg/kg	1	3/12/2012 2:39:57 PM
Barium	81	0.50		mg/Kg	5	3/13/2012 1:44:54 PM
Cadmium	ND	0.10		mg/kg	1	3/12/2012 2:39:57 PM
Calcium	3,200	120		mg/Kg	5	3/13/2012 1:44:54 PM
Chromium	2.7	0.30		mg/kg	1	3/12/2012 2:39:57 PM
Lead	1.8	0.25		mg/kg	1	3/12/2012 2:39:57 PM
Magnesium	1,200	120		mg/Kg	5	3/13/2012 1:44:54 PM
Potassium	770	250		mg/Kg	5	3/13/2012 1:44:54 PM
Selenium	ND	2.5		mg/kg	1	3/12/2012 2:39:57 PM
Silver	ND	0.25		mg/kg	1	3/12/2012 2:39:57 PM
Sodium	ND	120		mg/Kg	5	3/13/2012 1:44:54 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bisti Landfarm
Lab ID: 1203236-002 **Matrix:** SOIL

Client Sample ID: Bisti AVS
Collection Date: 3/6/2012 9:52:00 AM
Received Date: 3/7/2012 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/8/2012 10:46:50 AM
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	3/8/2012 10:46:50 AM
Surr: DNOP	84.0	77.4-131		%REC	1	3/8/2012 10:46:50 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/8/2012 5:35:03 PM
Surr: BFB	96.1	69.7-121		%REC	1	3/8/2012 5:35:03 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.047		mg/Kg	1	3/8/2012 5:35:03 PM
Toluene	ND	0.047		mg/Kg	1	3/8/2012 5:35:03 PM
Ethylbenzene	ND	0.047		mg/Kg	1	3/8/2012 5:35:03 PM
Xylenes, Total	ND	0.095		mg/Kg	1	3/8/2012 5:35:03 PM
Surr: 4-Bromofluorobenzene	107	85.3-139		%REC	1	3/8/2012 5:35:03 PM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Chloride	ND	15		mg/Kg	10	3/8/2012 12:33:17 PM
Sulfate	16	15		mg/Kg	10	3/8/2012 12:33:17 PM
EPA METHOD 7471: MERCURY						Analyst: **JLF**
Mercury	ND	0.033		mg/Kg	1	3/13/2012 4:24:57 PM
EPA METHOD 6010B: SOIL METALS						Analyst: **RAG**
Arsenic	ND	2.5		mg/kg	1	3/12/2012 2:43:58 PM
Barium	110	0.50		mg/kg	5	3/12/2012 3:54:56 PM
Cadmium	ND	0.10		mg/kg	1	3/12/2012 2:43:58 PM
Calcium	3,300	50		mg/kg	2	3/12/2012 2:46:04 PM
Chromium	2.4	0.30		mg/kg	1	3/12/2012 2:43:58 PM
Lead	1.7	0.25		mg/kg	1	3/12/2012 2:43:58 PM
Magnesium	1,100	50		mg/kg	2	3/12/2012 2:46:04 PM
Potassium	720	100		mg/kg	2	3/12/2012 2:46:04 PM
Selenium	ND	2.5		mg/kg	1	3/12/2012 2:43:58 PM
Silver	ND	0.25		mg/kg	1	3/12/2012 2:43:58 PM
Sodium	ND	50		mg/kg	2	3/12/2012 2:46:04 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bisti Landfarm
Lab ID: 1203236-003 **Matrix:** SOIL

Client Sample ID: East line AVS
Collection Date: 3/6/2012 10:43:00 AM
Received Date: 3/7/2012 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	3/8/2012 11:08:31 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	3/8/2012 11:08:31 AM
Surr: DNOP	83.6	77.4-131		%REC	1	3/8/2012 11:08:31 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/12/2012 1:51:12 PM
Surr: BFB	89.7	69.7-121		%REC	1	3/12/2012 1:51:12 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.048		mg/Kg	1	3/12/2012 1:51:12 PM
Toluene	ND	0.048		mg/Kg	1	3/12/2012 1:51:12 PM
Ethylbenzene	ND	0.048		mg/Kg	1	3/12/2012 1:51:12 PM
Xylenes, Total	ND	0.097		mg/Kg	1	3/12/2012 1:51:12 PM
Surr: 4-Bromofluorobenzene	96.9	85.3-139		%REC	1	3/12/2012 1:51:12 PM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Chloride	ND	15		mg/Kg	10	3/8/2012 1:35:22 PM
Sulfate	46	15		mg/Kg	10	3/8/2012 1:35:22 PM
EPA METHOD 7471: MERCURY						Analyst: **JLF**
Mercury	ND	0.033		mg/Kg	1	3/13/2012 4:26:42 PM
EPA METHOD 6010B: SOIL METALS						Analyst: **RAG**
Arsenic	ND	12		mg/Kg	5	3/12/2012 4:20:55 PM
Barium	96	0.50		mg/Kg	5	3/12/2012 4:20:55 PM
Cadmium	ND	0.50		mg/Kg	5	3/12/2012 4:20:55 PM
Calcium	4,300	120		mg/Kg	5	3/12/2012 4:20:55 PM
Chromium	6.9	1.5		mg/Kg	5	3/12/2012 4:20:55 PM
Lead	4.3	1.2		mg/Kg	5	3/12/2012 4:20:55 PM
Magnesium	2,600	120		mg/Kg	5	3/12/2012 4:20:55 PM
Potassium	2,000	250		mg/Kg	5	3/12/2012 4:20:55 PM
Selenium	ND	12		mg/Kg	5	3/12/2012 4:20:55 PM
Silver	ND	1.2		mg/Kg	5	3/12/2012 4:20:55 PM
Sodium	240	120		mg/Kg	5	3/12/2012 4:20:55 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Pettigrew AVS
Project: Bisti Landfarm **Collection Date:** 3/6/2012 11:17:00 AM
Lab ID: 1203236-004 **Matrix:** SOIL **Received Date:** 3/7/2012 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/8/2012 11:30:19 AM
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	3/8/2012 11:30:19 AM
Surr: DNOP	85.5	77.4-131		%REC	1	3/8/2012 11:30:19 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/12/2012 2:20:00 PM
Surr: BFB	91.1	69.7-121		%REC	1	3/12/2012 2:20:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.049		mg/Kg	1	3/12/2012 2:20:00 PM
Toluene	ND	0.049		mg/Kg	1	3/12/2012 2:20:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	3/12/2012 2:20:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	3/12/2012 2:20:00 PM
Surr: 4-Bromofluorobenzene	98.7	85.3-139		%REC	1	3/12/2012 2:20:00 PM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Chloride	83	7.5		mg/Kg	5	3/8/2012 1:10:32 PM
Sulfate	42	7.5		mg/Kg	5	3/8/2012 1:10:32 PM
EPA METHOD 7471: MERCURY						Analyst: **JLF**
Mercury	ND	0.033		mg/Kg	1	3/13/2012 4:31:59 PM
EPA METHOD 6010B: SOIL METALS						Analyst: **RAG**
Arsenic	ND	2.5		mg/kg	1	3/12/2012 3:14:19 PM
Barium	60	0.20		mg/kg	2	3/12/2012 3:16:25 PM
Cadmium	ND	0.10		mg/kg	1	3/12/2012 3:14:19 PM
Calcium	1,800	50		mg/kg	2	3/12/2012 3:16:25 PM
Chromium	2.1	0.30		mg/kg	1	3/12/2012 3:14:19 PM
Lead	1.6	0.25		mg/kg	1	3/12/2012 3:14:19 PM
Magnesium	1,100	50		mg/kg	2	3/12/2012 3:16:25 PM
Potassium	680	100		mg/kg	2	3/12/2012 3:16:25 PM
Selenium	ND	2.5		mg/kg	1	3/12/2012 3:14:19 PM
Silver	ND	0.25		mg/kg	1	3/12/2012 3:14:19 PM
Sodium	100	50		mg/kg	2	3/12/2012 3:16:25 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** API AVS
Project: Bisti Landfarm **Collection Date:** 3/6/2012 11:36:00 AM
Lab ID: 1203236-005 **Matrix:** SOIL **Received Date:** 3/7/2012 9:30:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	3/8/2012 12:13:57 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	3/8/2012 12:13:57 PM
Surr: DNOP	85.3	77.4-131		%REC	1	3/8/2012 12:13:57 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **RAA**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/12/2012 2:48:51 PM
Surr: BFB	90.2	69.7-121		%REC	1	3/12/2012 2:48:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.048		mg/Kg	1	3/12/2012 2:48:51 PM
Toluene	ND	0.048		mg/Kg	1	3/12/2012 2:48:51 PM
Ethylbenzene	ND	0.048		mg/Kg	1	3/12/2012 2:48:51 PM
Xylenes, Total	ND	0.097		mg/Kg	1	3/12/2012 2:48:51 PM
Surr: 4-Bromofluorobenzene	97.1	85.3-139		%REC	1	3/12/2012 2:48:51 PM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Chloride	1,800	75		mg/Kg	50	3/12/2012 8:26:54 PM
Sulfate	1,000	30		mg/Kg	20	3/8/2012 2:25:01 PM
EPA METHOD 7471: MERCURY						Analyst: **JLF**
Mercury	ND	0.033		mg/Kg	1	3/13/2012 4:33:46 PM
EPA METHOD 6010B: SOIL METALS						Analyst: **RAG**
Arsenic	ND	2.5		mg/kg	1	3/12/2012 3:18:18 PM
Barium	62	0.20		mg/kg	2	3/12/2012 3:20:25 PM
Cadmium	ND	0.10		mg/kg	1	3/12/2012 3:18:18 PM
Calcium	4,000	120		mg/kg	5	3/12/2012 4:22:51 PM
Chromium	2.7	0.30		mg/kg	1	3/12/2012 3:18:18 PM
Lead	1.8	0.25		mg/kg	1	3/12/2012 3:18:18 PM
Magnesium	1,200	120		mg/kg	5	3/12/2012 4:22:51 PM
Potassium	900	250		mg/kg	5	3/12/2012 4:22:51 PM
Selenium	ND	2.5		mg/kg	1	3/12/2012 3:18:18 PM
Silver	ND	0.25		mg/kg	1	3/12/2012 3:18:18 PM
Sodium	2,100	120		mg/kg	5	3/12/2012 4:22:51 PM

Qualifiers:

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

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Report Date: 03/14/12

Lab ID: B12030679-001
Client Sample ID: 1203236-001D, West Line AVS
Collection Date: 03/06/12 10:17
DateReceived: 03/08/12
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Alkalinity, 1:2	73	mg/kg	D	4		ASA10-3	03/13/12 00:00 / jrs

Lab ID: B12030679-002
Client Sample ID: 1203236-002D, Bisti AVS
Collection Date: 03/06/12 09:52
DateReceived: 03/08/12
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Alkalinity, 1:2	106	mg/kg	D	4		ASA10-3	03/13/12 17:53 / jrs

Lab ID: B12030679-003
Client Sample ID: 1203236-003D, East Line AVS
Collection Date: 03/06/12 10:43
DateReceived: 03/08/12
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Alkalinity, 1:2	118	mg/kg	D	4		ASA10-3	03/13/12 17:58 / jrs

Lab ID: B12030679-004
Client Sample ID: 1203236-004D, Pettigrew AVS
Collection Date: 03/06/12 11:17
DateReceived: 03/08/12
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Alkalinity, 1:2	89	mg/kg	D	4		ASA10-3	03/13/12 18:04 / jrs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Report Date: 03/14/12

Lab ID: B12030679-005
Client Sample ID: 1203236-005D, API AVS
Collection Date: 03/06/12 11:36
DateReceived: 03/08/12
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Alkalinity, 1:2	109	mg/kg	D	4		ASA10-3	03/13/12 18:11 / jrs

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental
Report Date: 03/14/12
Project: Not Indicated
Work Order: B12030679

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA10-3										Batch: 60964
Sample ID: LCS-60964	Laboratory Control Sample					Run: MAN-TECH_120313A				03/13/12 18:17
Alkalinity, 1:2		137	mg/kg	4.0	100	50	150			
Sample ID: B12030679-001A DUP	Sample Duplicate					Run: MAN-TECH_120313A				03/13/12 00:00
Alkalinity, 1:2		73.6	mg/kg	4.0				0.2	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1203236**

16-Mar-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm

Sample ID **MB-1010**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **1010**	RunNo: **1374**
Prep Date: **3/8/2012**	Analysis Date: **3/8/2012**	SeqNo: **38822** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								
Sulfate	ND	1.5								

Sample ID **LCS-1010**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **1010**	RunNo: **1374**
Prep Date: **3/8/2012**	Analysis Date: **3/8/2012**	SeqNo: **38823** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	91.1	90	110			
Sulfate	27	1.5	30.00	0	90.7	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1203236**

16-Mar-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm

Sample ID **MB-988**	SampType: **MBLK**	TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **988**	RunNo: **1342**
Prep Date: **3/7/2012**	Analysis Date: **3/8/2012**	SeqNo: **38057** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.5		10.00		84.6	77.4	131			

Sample ID **LCS-988**	SampType: **LCS**	TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **988**	RunNo: **1342**
Prep Date: **3/7/2012**	Analysis Date: **3/8/2012**	SeqNo: **38064** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	10	50.00	0	82.5	62.7	139			
Surr: DNOP	4.3		5.000		85.5	77.4	131			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1203236**

16-Mar-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm

Sample ID **MB-986**	SampType: **MBLK**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **PBS**	Batch ID: **986**	RunNo: **1353**
Prep Date: **3/7/2012**	Analysis Date: **3/8/2012**	SeqNo: **38593** 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	940		1,000		94.3	69.7	121			

Sample ID **LCS-986**	SampType: **LCS**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **LCSS**	Batch ID: **986**	RunNo: **1353**
Prep Date: **3/7/2012**	Analysis Date: **3/8/2012**	SeqNo: **38594** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	101	98.5	133			
Surr: BFB	1,000		1,000		101	69.7	121			

Sample ID **MB-1027**	SampType: **MBLK**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **PBS**	Batch ID: **1027**	RunNo: **1404**
Prep Date: **3/9/2012**	Analysis Date: **3/12/2012**	SeqNo: **40165** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	910		1,000		90.9	69.7	121			

Sample ID **LCS-1027**	SampType: **LCS**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **LCSS**	Batch ID: **1027**	RunNo: **1404**
Prep Date: **3/9/2012**	Analysis Date: **3/12/2012**	SeqNo: **40168** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB	970		1,000		97.1	69.7	121			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1203236**

16-Mar-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm

Sample ID **MB-986**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **986**	RunNo: **1353**
Prep Date: **3/7/2012**	Analysis Date: **3/8/2012**	SeqNo: **38608** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		104	85.3	139			

Sample ID **LCS-986**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **986**	RunNo: **1353**
Prep Date: **3/7/2012**	Analysis Date: **3/8/2012**	SeqNo: **38612** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.93	0.050	1.000	0	93.3	83.3	107			
Toluene	0.95	0.050	1.000	0	95.4	74.3	115			
Ethylbenzene	0.96	0.050	1.000	0	95.7	80.9	122			
Xylenes, Total	2.9	0.10	3.000	0	96.5	85.2	123			
Surr: 4-Bromofluorobenzene	1.1		1.000		109	85.3	139			

Sample ID **MB-1027**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **1027**	RunNo: **1404**
Prep Date: **3/9/2012**	Analysis Date: **3/12/2012**	SeqNo: **40182** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.99		1.000		98.6	85.3	139			

Sample ID **LCS-1027**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **1027**	RunNo: **1404**
Prep Date: **3/9/2012**	Analysis Date: **3/12/2012**	SeqNo: **40185** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.0		1.000		101	85.3	139			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1203236**

16-Mar-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm

Sample ID **MB-1057**	SampType: **MBLK**	TestCode: **EPA Method 7471: Mercury**							
Client ID: **PBS**	Batch ID: **1057**	RunNo: **1434**							
Prep Date: **3/13/2012**	Analysis Date: **3/13/2012**	SeqNo: **40348**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID **LCS-1057**	SampType: **LCS**	TestCode: **EPA Method 7471: Mercury**							
Client ID: **LCSS**	Batch ID: **1057**	RunNo: **1434**							
Prep Date: **3/13/2012**	Analysis Date: **3/13/2012**	SeqNo: **40349**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.18	0.033	0.1667	0	107	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1203236**

16-Mar-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm

Sample ID **LCS-1025**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **1025**	RunNo: **1417**
Prep Date: **3/9/2012**	Analysis Date: **3/12/2012**	SeqNo: **39956** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	24	2.5	25.00	0	97.9	80	120			
Barium	24	0.10	25.00	0	94.5	80	120			
Cadmium	24	0.10	25.00	0	95.4	80	120			
Calcium	2,400	25	2,500	0	96.5	80	120			
Chromium	23	0.30	25.00	0	93.2	80	120			
Lead	23	0.25	25.00	0	91.3	80	120			
Magnesium	2,400	25	2,500	0	97.2	80	120			
Potassium	2,400	50	2,500	5.580	94.8	80	120			
Selenium	25	2.5	25.00	0	98.7	80	120			
Silver	4.9	0.25	5.000	0	98.9	80	120			
Sodium	2,400	25	2,500	0	96.1	80	120			

Sample ID **MB-1025**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **1025**	RunNo: **1417**
Prep Date: **3/9/2012**	Analysis Date: **3/12/2012**	SeqNo: **39957** 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								
Calcium	ND	25								
Chromium	ND	0.30								
Lead	ND	0.25								
Magnesium	ND	25								
Potassium	ND	50								
Selenium	ND	2.5								
Silver	ND	0.25								
Sodium	ND	25								

Qualifiers:

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

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 Southwest, Inc Bloomfield** Work Order Number: **1203236**

Received by/date: MG 03/07/12

Logged By: **Michelle Garcia** 3/7/2012 9:30:00 AM Michelle Garcia

Completed By: **Michelle Garcia** 3/7/2012 10:46:46 AM Michelle Garcia

Reviewed By: 03/07/12

Chain of Custody

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

Log In

4. Coolers are present? (see 19. for cooler specific information)	Yes	✔	No	NA
5. Was an attempt made to cool the samples?	Yes	✔	No	NA
6. Were all samples received at a temperature of >0° C to 6.0°C	Yes	✔	No	NA
7. Sample(s) in proper container(s)?	Yes	✔	No	
8. Sufficient sample volume for indicated test(s)?	Yes	✔	No	
9. Are samples (except VOA and ONG) properly preserved?	Yes	✔	No	
10. Was preservative added to bottles?	Yes		No ✔	NA
11. VOA vials have zero headspace?	Yes		No	No VOA Vials ✔
12. Were any sample containers received broken?	Yes		No ✔	
13. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes	✔	No	# of preserved bottles checked for pH:
14. Are matrices correctly identified on Chain of Custody?	Yes	✔	No	(<2 or >12 unless noted)
15. Is it clear what analyses were requested?	Yes	✔	No	Adjusted?
16. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes	✔	No	Checked by:

Special Handling (if applicable)

17. 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:

18. Additional remarks:

19. **Cooler Information**

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

Chain-of-Custody Record

Client: Western Refining
Kelly Robinson
Mailing Address: 111 CR 4990
Bloomfield, NM 87413
Phone #: 505 632 8013
email or Fax#:
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Bisti Landfarm
Project #: WR1005
Project Manager: Ashley Ager
Sampler: Sam LaRue
On Ice: ☐ No
Sample Temperature: 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. 1203354	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals + Ca, Mg, K, Na	Anions ($F, Cl, NO_3, NO_2, PO_4, SO_4$)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	TPH 8015 (GRO DRO, MRO)	soil alkalinity			Air Bubbles (Y or N)
3/6/12	10:17	soil	West line AVS	4oz/4	none	-1	✓						✓	✓				✓	✓			
3/6/12	9:52	soil	Bisti AVS	4oz/4	none	-2	✓						✓	✓				✓	✓			
3/6/12	10:43	soil	East line AVS	4oz/4	none	-3	✓						✓	✓				✓	✓			
3/6/12	11:17	soil	Pettigrew AVS	4oz/4	none	-4	✓						✓	✓				✓	✓			
3/6/12	11:36	soil	API AVS	4oz/4	none	-5	✓						✓	✓				✓	✓			

Date	Time	Relinquished by:	Received by:	Date	Time
3/6/12	13:46		Christa Walls	3/6/12	13:46
3/6/12	16:21	Christa Walls	Michelle Garcia	03/07/12	0930

Remarks:
Please copy results to aager@itenv.com

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 28, 2012

Ashley Ager
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (970) 946-1093
FAX: (505) 632-3911

RE: Bisti Landfarm Vadose Zone Quarterly OrderNo.: 1206A11

Dear Ashley Ager:

Hall Environmental Analysis Laboratory received 5 sample(s) on 6/22/2012 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. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated. 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.

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1206A11**
Date Reported: **6/28/2012**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bisti Landfarm Vadose Zone Quarterly
Lab ID: 1206A11-001 **Matrix:** SOIL

Client Sample ID: Eastline Crude
Collection Date: 6/20/2012 10:05:00 AM
Received Date: 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	75	9.8		mg/Kg	1	6/27/2012 8:46:44 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/27/2012 8:46:44 AM
Surr: DNOP	113	77.6-140		%REC	1	6/27/2012 8:46:44 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/27/2012 11:40:04 AM
Surr: BFB	93.5	69.7-121		%REC	1	6/27/2012 11:40:04 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		mg/Kg	1	6/27/2012 11:40:04 AM
Toluene	ND	0.050		mg/Kg	1	6/27/2012 11:40:04 AM
Ethylbenzene	ND	0.050		mg/Kg	1	6/27/2012 11:40:04 AM
Xylenes, Total	ND	0.099		mg/Kg	1	6/27/2012 11:40:04 AM
Surr: 4-Bromofluorobenzene	94.4	80-120		%REC	1	6/27/2012 11:40:04 AM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Chloride	ND	7.5		mg/Kg	5	6/26/2012 9:22:10 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Pettigrew Crude
Project: Bisti Landfarm Vadose Zone Quarterly **Collection Date:** 6/20/2012 1:33:00 PM
Lab ID: 1206A11-002 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	6/27/2012 10:03:05 AM
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	6/27/2012 10:03:05 AM
Surr: DNOP	111	77.6-140		%REC	1	6/27/2012 10:03:05 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	6/27/2012 12:08:52 PM
Surr: BFB	94.4	69.7-121		%REC	1	6/27/2012 12:08:52 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.048		mg/Kg	1	6/27/2012 12:08:52 PM
Toluene	ND	0.048		mg/Kg	1	6/27/2012 12:08:52 PM
Ethylbenzene	ND	0.048		mg/Kg	1	6/27/2012 12:08:52 PM
Xylenes, Total	ND	0.097		mg/Kg	1	6/27/2012 12:08:52 PM
Surr: 4-Bromofluorobenzene	94.7	80-120		%REC	1	6/27/2012 12:08:52 PM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Chloride	280	30		mg/Kg	20	6/26/2012 9:59:24 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Client Sample ID: Westline Crude
Project: Bisti Landfarm Vadose Zone Quarterly
Collection Date: 6/20/2012 9:43:00 AM
Lab ID: 1206A11-003
Matrix: SOIL
Received Date: 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/27/2012 10:28:42 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	6/27/2012 10:28:42 AM
Surr: DNOP	111	77.6-140		%REC	1	6/27/2012 10:28:42 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	6/27/2012 12:37:36 PM
Surr: BFB	94.2	69.7-121		%REC	1	6/27/2012 12:37:36 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.050		mg/Kg	1	6/27/2012 12:37:36 PM
Toluene	ND	0.050		mg/Kg	1	6/27/2012 12:37:36 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/27/2012 12:37:36 PM
Xylenes, Total	ND	0.10		mg/Kg	1	6/27/2012 12:37:36 PM
Surr: 4-Bromofluorobenzene	94.6	80-120		%REC	1	6/27/2012 12:37:36 PM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Chloride	37	7.5		mg/Kg	5	6/26/2012 10:36:39 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bisti Landfarm Vadose Zone Quarterly
Lab ID: 1206A11-004 **Matrix:** SOIL

Client Sample ID: Bisti Crude
Collection Date: 6/20/2012 12:48:00 PM
Received Date: 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	6/27/2012 10:54:18 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	6/27/2012 10:54:18 AM
Surr: DNOP	112	77.6-140		%REC	1	6/27/2012 10:54:18 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	6/27/2012 1:06:20 PM
Surr: BFB	95.2	69.7-121		%REC	1	6/27/2012 1:06:20 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.047		mg/Kg	1	6/27/2012 1:06:20 PM
Toluene	ND	0.047		mg/Kg	1	6/27/2012 1:06:20 PM
Ethylbenzene	ND	0.047		mg/Kg	1	6/27/2012 1:06:20 PM
Xylenes, Total	ND	0.095		mg/Kg	1	6/27/2012 1:06:20 PM
Surr: 4-Bromofluorobenzene	95.1	80-120		%REC	1	6/27/2012 1:06:20 PM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Chloride	7.8	7.5		mg/Kg	5	6/26/2012 11:26:18 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Client Sample ID: API Cell (4)
Project: Bisti Landfarm Vadose Zone Quarterly
Collection Date: 6/20/2012 11:43:00 AM
Lab ID: 1206A11-005 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	6/27/2012 11:19:39 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	6/27/2012 11:19:39 AM
Surr: DNOP	114	77.6-140		%REC	1	6/27/2012 11:19:39 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	6/27/2012 1:35:06 PM
Surr: BFB	95.8	69.7-121		%REC	1	6/27/2012 1:35:06 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.049		mg/Kg	1	6/27/2012 1:35:06 PM
Toluene	ND	0.049		mg/Kg	1	6/27/2012 1:35:06 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/27/2012 1:35:06 PM
Xylenes, Total	ND	0.097		mg/Kg	1	6/27/2012 1:35:06 PM
Surr: 4-Bromofluorobenzene	96.2	80-120		%REC	1	6/27/2012 1:35:06 PM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Chloride	2500	150		mg/Kg	100	6/27/2012 1:56:28 PM

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206A11**

28-Jun-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone Quarterly

Sample ID: **MB-2569**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **2569**	RunNo: **3709**
Prep Date: **6/26/2012**	Analysis Date: **6/26/2012**	SeqNo: **104710** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: **LCS-2569**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **2569**	RunNo: **3709**
Prep Date: **6/26/2012**	Analysis Date: **6/26/2012**	SeqNo: **104711** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	15	1.5	15.00	0	97.1	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206A11**

28-Jun-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone Quarterly

Sample ID: **MB-2578**	SampType: **MBLK**	TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **2578**	RunNo: **3669**
Prep Date: **6/26/2012**	Analysis Date: **6/26/2012**	SeqNo: **103994** 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	11		10.00		110	77.6	140			

Sample ID: **LCS-2578**	SampType: **LCS**	TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **2578**	RunNo: **3669**
Prep Date: **6/26/2012**	Analysis Date: **6/26/2012**	SeqNo: **104060** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	40	10	50.00	0	80.7	52.6	130			
Surr: DNOP	4.6		5.000		91.0	77.6	140			

Sample ID: **1206A11-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **Eastline Crude**	Batch ID: **2578**	RunNo: **3706**
Prep Date: **6/26/2012**	Analysis Date: **6/27/2012**	SeqNo: **104640** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	120	10	49.85	75.41	89.3	57.2	146			
Surr: DNOP	5.0		4.985		99.5	77.6	140			

Sample ID: **1206A11-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **Eastline Crude**	Batch ID: **2578**	RunNo: **3706**
Prep Date: **6/26/2012**	Analysis Date: **6/27/2012**	SeqNo: **104706** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	110	9.9	49.50	75.41	71.0	57.2	146	8.14	24.5	
Surr: DNOP	4.8		4.950		97.9	77.6	140	0	0	

Sample ID: **MB-2601**	SampType: **MBLK**	TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **2601**	RunNo: **3705**
Prep Date: **6/27/2012**	Analysis Date: **6/27/2012**	SeqNo: **105014** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	11		10.00		106	77.6	140			

Sample ID: **LCS-2601**	SampType: **LCS**	TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **2601**	RunNo: **3705**
Prep Date: **6/27/2012**	Analysis Date: **6/27/2012**	SeqNo: **105019** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.2		5.000		85.0	77.6	140			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206A11**

28-Jun-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone Quarterly

Sample ID: **MB-2575**	SampType: **MBLK**			TestCode: **EPA Method 8015B: Gasoline Range**					
Client ID: **PBS**	Batch ID: **2575**			RunNo: **3738**					
Prep Date: **6/26/2012**	Analysis Date: **6/27/2012**			SeqNo: **105606**		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	940		1000		94.1	69.7	121			

Sample ID: **LCS-2575**	SampType: **LCS**			TestCode: **EPA Method 8015B: Gasoline Range**					
Client ID: **LCSS**	Batch ID: **2575**			RunNo: **3738**					
Prep Date: **6/26/2012**	Analysis Date: **6/27/2012**			SeqNo: **105609**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	108	98.5	133			
Surr: BFB	1000		1000		102	69.7	121			

Sample ID: **1206A11-001AMS**	SampType: **MS**			TestCode: **EPA Method 8015B: Gasoline Range**					
Client ID: **Eastline Crude**	Batch ID: **2575**			RunNo: **3738**					
Prep Date: **6/26/2012**	Analysis Date: **6/27/2012**			SeqNo: **105612**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	4.8	24.20	0	120	85.4	147			
Surr: BFB	1000		968.1		105	69.7	121			

Sample ID: **1206A11-001AMSD**	SampType: **MSD**			TestCode: **EPA Method 8015B: Gasoline Range**					
Client ID: **Eastline Crude**	Batch ID: **2575**			RunNo: **3738**					
Prep Date: **6/26/2012**	Analysis Date: **6/27/2012**			SeqNo: **105613**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	31	4.9	24.63	0	125	85.4	147	5.64	19.2	
Surr: BFB	1000		985.2		104	69.7	121	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206A11**

28-Jun-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone Quarterly

Sample ID: **MB-2575**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **2575**	RunNo: **3738**
Prep Date: **6/26/2012**	Analysis Date: **6/27/2012**	SeqNo: **105627** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.95		1.000		94.8	80	120			

Sample ID: **LCS-2575**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **2575**	RunNo: **3738**
Prep Date: **6/26/2012**	Analysis Date: **6/27/2012**	SeqNo: **105628** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.050	1.000	0	95.9	76.3	117			
Toluene	0.94	0.050	1.000	0	94.4	80	120			
Ethylbenzene	0.93	0.050	1.000	0	92.9	77	116			
Xylenes, Total	2.8	0.10	3.000	0	93.1	76.7	117			
Surr: 4-Bromofluorobenzene	0.98		1.000		98.2	80	120			

Sample ID: **1206A11-002AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **Pettigrew Crude**	Batch ID: **2575**	RunNo: **3738**
Prep Date: **6/26/2012**	Analysis Date: **6/27/2012**	SeqNo: **105632** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.048	0.9671	0	112	67.2	113			
Toluene	1.1	0.048	0.9671	0	111	62.1	116			
Ethylbenzene	1.1	0.048	0.9671	0	109	67.9	127			
Xylenes, Total	3.2	0.097	2.901	0	110	60.6	134			
Surr: 4-Bromofluorobenzene	0.96		0.9671		99.1	80	120			

Sample ID: **1206A11-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **Pettigrew Crude**	Batch ID: **2575**	RunNo: **3738**
Prep Date: **6/26/2012**	Analysis Date: **6/27/2012**	SeqNo: **105633** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.048	0.9671	0	110	67.2	113	1.53	14.3	
Toluene	1.1	0.048	0.9671	0	111	62.1	116	0.227	15.9	
Ethylbenzene	1.1	0.048	0.9671	0	109	67.9	127	0.532	14.4	
Xylenes, Total	3.2	0.097	2.901	0	109	60.6	134	0.434	12.6	
Surr: 4-Bromofluorobenzene	0.96		0.9671		98.9	80	120	0	0	

Qualifiers:

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

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 Southwest, Inc Bloomfield Work Order Number: 1206A11

Received by/date: AG 06/22/12

Logged By: Lindsay Mangin 6/22/2012 10:00:00 AM

Completed By: Lindsay Mangin 6/23/2012 10:59:07 AM

Reviewed By: AT 06/25/12

Chain of Custody

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

Log In

4. Coolers are present? (see 19. for cooler specific information)	Yes ☑	No ☐	NA ☐
5. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
6. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
7. Sample(s) in proper container(s)?	Yes ☑	No ☐	
8. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
9. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
10. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
11. VOA vials have zero headspace?	Yes ☐	No ☐	No VOA Vials ☑
12. Were any sample containers received broken?	Yes ☐	No ☑	
13. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
14. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
15. Is it clear what analyses were requested?	Yes ☑	No ☐	
16. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

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

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

17. 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: _____

18. Additional remarks:

19. Cooler Information

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

Chain-of-Custody Record

Client: Western Refining
Kelly Robinson
Mailing Address: 111 CR 4990
Bloomfield, NM 87413
Phone #: 505 632 8013
email or Fax#:
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Bisti Landfarm Vadose Zone Quarterly
Project #: WR1005
Project Manager: Ashley Ager
Sampler: Brooke Herb / Kyla Vaughan
On Ice: ☑ Yes
Sample Temperature: 4.1

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	[redacted]	Chloride 300.1			Air Bubbles (Y or N)
4/20/12	10:05	soil	Eastline Crude	4oz/2	cool	-001	✓		✓										✓			
4/20/12	13:33	soil	Pettigrew Crude	4oz/2	cool	-002	✓		✓										✓			
4/20/12	9:43	soil	Westline Crude	4oz/2	cool	-003	✓		✓										✓			
4/20/12	12:48	soil	Bisti Crude	4oz/2	cool	-004	✓		✓										✓			
4/20/12	11:43	soil	API Cell (4)	4oz/2	cool	-005	✓		✓										✓			

Date:	Time:	Relinquished by:	Received by:	Date	Time
4/21/12	1520	Kyla Vaughan	Christine Walker	4/21/12	1520
4/21/12	1700	Christine Walker		04/22/12	1000

Remarks:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

August 01, 2012

Kelly Robinson

Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (505) 632-4135
FAX (505) 632-3911

RE: Bisti Landfarm Vadose Zone 5 Yr OrderNo.: 1206992

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 12 sample(s) on 6/22/2012 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. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated. 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.

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1206992**
Date Reported: **8/1/2012**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Client Sample ID: Eastline Crude
Project: Bisti Landfarm Vadose Zone 5 Yr
Collection Date: 6/20/2012 10:05:00 AM
Lab ID: 1206992-001 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **LRW**
1,2-Dibromoethane	ND	0.10		µg/Kg	1	7/2/2012 11:58:15 AM
EPA METHOD 8082: PCB'S						Analyst: **SCC**
Aroclor 1016	ND	0.020		mg/Kg	1	7/4/2012 3:54:55 AM
Aroclor 1221	ND	0.020		mg/Kg	1	7/4/2012 3:54:55 AM
Aroclor 1232	ND	0.020		mg/Kg	1	7/4/2012 3:54:55 AM
Aroclor 1242	ND	0.020		mg/Kg	1	7/4/2012 3:54:55 AM
Aroclor 1248	ND	0.020		mg/Kg	1	7/4/2012 3:54:55 AM
Aroclor 1254	ND	0.020		mg/Kg	1	7/4/2012 3:54:55 AM
Aroclor 1260	ND	0.020		mg/Kg	1	7/4/2012 3:54:55 AM
Surr: Decachlorobiphenyl	79.2	20.7-114		%REC	1	7/4/2012 3:54:55 AM
EPA METHOD 8310: PAHS						Analyst: **SCC**
Naphthalene	ND	0.25		mg/Kg	1	6/30/2012 5:13:13 AM
1-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 5:13:13 AM
2-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 5:13:13 AM
Acenaphthylene	ND	0.25		mg/Kg	1	6/30/2012 5:13:13 AM
Acenaphthene	ND	0.25		mg/Kg	1	6/30/2012 5:13:13 AM
Fluorene	ND	0.030		mg/Kg	1	6/30/2012 5:13:13 AM
Phenanthrene	ND	0.015		mg/Kg	1	6/30/2012 5:13:13 AM
Anthracene	ND	0.015		mg/Kg	1	6/30/2012 5:13:13 AM
Fluoranthene	ND	0.020		mg/Kg	1	6/30/2012 5:13:13 AM
Pyrene	ND	0.025		mg/Kg	1	6/30/2012 5:13:13 AM
Benz(a)anthracene	ND	0.010		mg/Kg	1	6/30/2012 5:13:13 AM
Chrysene	0.012	0.011		mg/Kg	1	6/30/2012 5:13:13 AM
Benzo(b)fluoranthene	ND	0.010		mg/Kg	1	6/30/2012 5:13:13 AM
Benzo(k)fluoranthene	ND	0.010		mg/Kg	1	6/30/2012 5:13:13 AM
Benzo(a)pyrene	ND	0.010		mg/Kg	1	6/30/2012 5:13:13 AM
Dibenz(a,h)anthracene	ND	0.010		mg/Kg	1	6/30/2012 5:13:13 AM
Benzo(g,h,i)perylene	ND	0.010		mg/Kg	1	6/30/2012 5:13:13 AM
Indeno(1,2,3-cd)pyrene	ND	0.010		mg/Kg	1	6/30/2012 5:13:13 AM
Surr: Benzo(e)pyrene	92.0	35.9-103		%REC	1	6/30/2012 5:13:13 AM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Fluoride	1.5	0.30		mg/Kg	1	6/26/2012 12:15:57 PM
Chloride	4.4	1.5		mg/Kg	1	6/26/2012 12:15:57 PM
Nitrogen, Nitrate (As N)	3.6	0.30		mg/Kg	1	6/26/2012 12:15:57 PM
Sulfate	140	1.5		mg/Kg	1	6/26/2012 12:15:57 PM
EPA METHOD 7471: MERCURY						Analyst: **DBD**
Mercury	ND	0.033		mg/Kg	1	6/26/2012 3:19:19 PM
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**
Arsenic	ND	25		mg/Kg	10	7/25/2012 7:32:41 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Eastline Crude
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 10:05:00 AM
Lab ID: 1206992-001 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**
Barium	64	1.0		mg/Kg	10	7/25/2012 7:32:41 PM
Cadmium	ND	1.0		mg/Kg	10	7/25/2012 7:32:41 PM
Chromium	3.7	3.0		mg/Kg	10	7/25/2012 7:32:41 PM
Copper	3.8	3.0		mg/Kg	10	7/25/2012 7:32:41 PM
Iron	6200	200		mg/Kg	200	7/25/2012 7:35:22 PM
Lead	4.4	2.5		mg/Kg	10	7/25/2012 7:32:41 PM
Manganese	140	1.0		mg/Kg	10	7/25/2012 7:32:41 PM
Selenium	ND	25		mg/Kg	10	7/30/2012 5:56:04 PM
Silver	ND	2.5		mg/Kg	10	7/25/2012 7:32:41 PM
Uranium	ND	50		mg/Kg	10	7/25/2012 7:32:41 PM
Zinc	40	25		mg/Kg	10	7/25/2012 7:32:41 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **JDC**
4-Chloro-3-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 5:27:09 PM
2-Chlorophenol	ND	0.20		mg/Kg	1	6/27/2012 5:27:09 PM
2,4-Dichlorophenol	ND	0.40		mg/Kg	1	6/27/2012 5:27:09 PM
2,4-Dimethylphenol	ND	0.30		mg/Kg	1	6/27/2012 5:27:09 PM
4,6-Dinitro-2-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 5:27:09 PM
2,4-Dinitrophenol	ND	0.40		mg/Kg	1	6/27/2012 5:27:09 PM
2-Methylphenol	ND	0.50		mg/Kg	1	6/27/2012 5:27:09 PM
3+4-Methylphenol	ND	0.20		mg/Kg	1	6/27/2012 5:27:09 PM
2-Nitrophenol	ND	0.20		mg/Kg	1	6/27/2012 5:27:09 PM
4-Nitrophenol	ND	0.25		mg/Kg	1	6/27/2012 5:27:09 PM
Pentachlorophenol	ND	0.40		mg/Kg	1	6/27/2012 5:27:09 PM
Phenol	ND	0.20		mg/Kg	1	6/27/2012 5:27:09 PM
2,4,5-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 5:27:09 PM
2,4,6-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 5:27:09 PM
Surr: 2,4,6-Tribromophenol	92.5	20.1-121		%REC	1	6/27/2012 5:27:09 PM
Surr: 2-Fluorobiphenyl	84.1	19-133		%REC	1	6/27/2012 5:27:09 PM
Surr: 2-Fluorophenol	82.4	20.2-108		%REC	1	6/27/2012 5:27:09 PM
Surr: 4-Terphenyl-d14	82.5	18.9-115		%REC	1	6/27/2012 5:27:09 PM
Surr: Nitrobenzene-d5	80.8	20.8-123		%REC	1	6/27/2012 5:27:09 PM
Surr: Phenol-d5	94.0	19.8-115		%REC	1	6/27/2012 5:27:09 PM
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
Toluene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
Ethylbenzene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
Methyl tert-butyl ether (MTBE)	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
1,2,4-Trimethylbenzene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
1,3,5-Trimethylbenzene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
1,2-Dichloroethane (EDC)	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
1,2-Dibromoethane (EDB)	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Eastline Crude
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 10:05:00 AM
Lab ID: 1206992-001 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Naphthalene	ND	0.096		mg/Kg	1	6/26/2012 6:55:31 PM
1-Methylnaphthalene	ND	0.19		mg/Kg	1	6/26/2012 6:55:31 PM
2-Methylnaphthalene	ND	0.19		mg/Kg	1	6/26/2012 6:55:31 PM
Acetone	ND	0.72		mg/Kg	1	6/26/2012 6:55:31 PM
Bromobenzene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
Bromodichloromethane	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
Bromoform	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
Bromomethane	ND	0.14		mg/Kg	1	6/26/2012 6:55:31 PM
2-Butanone	ND	0.48		mg/Kg	1	6/26/2012 6:55:31 PM
Carbon disulfide	ND	0.48		mg/Kg	1	6/26/2012 6:55:31 PM
Carbon tetrachloride	ND	0.096		mg/Kg	1	6/26/2012 6:55:31 PM
Chlorobenzene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
Chloroethane	ND	0.096		mg/Kg	1	6/26/2012 6:55:31 PM
Chloroform	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
Chloromethane	ND	0.14		mg/Kg	1	6/26/2012 6:55:31 PM
2-Chlorotoluene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
4-Chlorotoluene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
cis-1,2-DCE	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
cis-1,3-Dichloropropene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
1,2-Dibromo-3-chloropropane	ND	0.096		mg/Kg	1	6/26/2012 6:55:31 PM
Dibromochloromethane	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
Dibromomethane	ND	0.096		mg/Kg	1	6/26/2012 6:55:31 PM
1,2-Dichlorobenzene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
1,3-Dichlorobenzene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
1,4-Dichlorobenzene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
Dichlorodifluoromethane	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
1,1-Dichloroethane	ND	0.096		mg/Kg	1	6/26/2012 6:55:31 PM
1,1-Dichloroethene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
1,2-Dichloropropane	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
1,3-Dichloropropane	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
2,2-Dichloropropane	ND	0.096		mg/Kg	1	6/26/2012 6:55:31 PM
1,1-Dichloropropene	ND	0.096		mg/Kg	1	6/26/2012 6:55:31 PM
Hexachlorobutadiene	ND	0.096		mg/Kg	1	6/26/2012 6:55:31 PM
2-Hexanone	ND	0.48		mg/Kg	1	6/26/2012 6:55:31 PM
Isopropylbenzene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
4-Isopropyltoluene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
4-Methyl-2-pentanone	ND	0.48		mg/Kg	1	6/26/2012 6:55:31 PM
Methylene chloride	ND	0.14		mg/Kg	1	6/26/2012 6:55:31 PM
n-Butylbenzene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
n-Propylbenzene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
sec-Butylbenzene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
Styrene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Client Sample ID: Eastline Crude
Project: Bisti Landfarm Vadose Zone 5 Yr
Collection Date: 6/20/2012 10:05:00 AM
Lab ID: 1206992-001
Matrix: SOIL
Received Date: 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
tert-Butylbenzene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
1,1,1,2-Tetrachloroethane	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
1,1,2,2-Tetrachloroethane	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
Tetrachloroethene (PCE)	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
trans-1,2-DCE	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
trans-1,3-Dichloropropene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
1,2,3-Trichlorobenzene	ND	0.096		mg/Kg	1	6/26/2012 6:55:31 PM
1,2,4-Trichlorobenzene	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
1,1,1-Trichloroethane	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
1,1,2-Trichloroethane	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
Trichloroethene (TCE)	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
Trichlorofluoromethane	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
1,2,3-Trichloropropane	ND	0.096		mg/Kg	1	6/26/2012 6:55:31 PM
Vinyl chloride	ND	0.048		mg/Kg	1	6/26/2012 6:55:31 PM
Xylenes, Total	ND	0.096		mg/Kg	1	6/26/2012 6:55:31 PM
Surr: 1,2-Dichloroethane-d4	91.7	70-130		%REC	1	6/26/2012 6:55:31 PM
Surr: 4-Bromofluorobenzene	98.5	70-130		%REC	1	6/26/2012 6:55:31 PM
Surr: Dibromofluoromethane	114	71.7-132		%REC	1	6/26/2012 6:55:31 PM
Surr: Toluene-d8	97.2	70-130		%REC	1	6/26/2012 6:55:31 PM
SM4500-H+B: PH						Analyst: **KS**
pH	8.36	1.68		pH Units	1	7/5/2012 3:51:00 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Pettigrew Crude
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 1:33:00 PM
Lab ID: 1206992-002 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **LRW**
1,2-Dibromoethane	ND	0.10		µg/Kg	1	7/2/2012 12:11:00 PM
EPA METHOD 8082: PCB'S						Analyst: **SCC**
Aroclor 1016	ND	0.020		mg/Kg	1	7/4/2012 4:39:44 AM
Aroclor 1221	ND	0.020		mg/Kg	1	7/4/2012 4:39:44 AM
Aroclor 1232	ND	0.020		mg/Kg	1	7/4/2012 4:39:44 AM
Aroclor 1242	ND	0.020		mg/Kg	1	7/4/2012 4:39:44 AM
Aroclor 1248	ND	0.020		mg/Kg	1	7/4/2012 4:39:44 AM
Aroclor 1254	ND	0.020		mg/Kg	1	7/4/2012 4:39:44 AM
Aroclor 1260	ND	0.020		mg/Kg	1	7/4/2012 4:39:44 AM
Surr: Decachlorobiphenyl	80.4	20.7-114		%REC	1	7/4/2012 4:39:44 AM
EPA METHOD 8310: PAHS						Analyst: **SCC**
Naphthalene	ND	0.25		mg/Kg	1	6/30/2012 5:34:29 AM
1-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 5:34:29 AM
2-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 5:34:29 AM
Acenaphthylene	ND	0.25		mg/Kg	1	6/30/2012 5:34:29 AM
Acenaphthene	ND	0.25		mg/Kg	1	6/30/2012 5:34:29 AM
Fluorene	ND	0.030		mg/Kg	1	6/30/2012 5:34:29 AM
Phenanthrene	ND	0.015		mg/Kg	1	6/30/2012 5:34:29 AM
Anthracene	ND	0.015		mg/Kg	1	6/30/2012 5:34:29 AM
Fluoranthene	ND	0.020		mg/Kg	1	6/30/2012 5:34:29 AM
Pyrene	ND	0.025		mg/Kg	1	6/30/2012 5:34:29 AM
Benz(a)anthracene	ND	0.010		mg/Kg	1	6/30/2012 5:34:29 AM
Chrysene	ND	0.011		mg/Kg	1	6/30/2012 5:34:29 AM
Benzo(b)fluoranthene	ND	0.010		mg/Kg	1	6/30/2012 5:34:29 AM
Benzo(k)fluoranthene	ND	0.010		mg/Kg	1	6/30/2012 5:34:29 AM
Benzo(a)pyrene	ND	0.010		mg/Kg	1	6/30/2012 5:34:29 AM
Dibenz(a,h)anthracene	ND	0.010		mg/Kg	1	6/30/2012 5:34:29 AM
Benzo(g,h,i)perylene	ND	0.010		mg/Kg	1	6/30/2012 5:34:29 AM
Indeno(1,2,3-cd)pyrene	ND	0.010		mg/Kg	1	6/30/2012 5:34:29 AM
Surr: Benzo(e)pyrene	91.1	35.9-103		%REC	1	6/30/2012 5:34:29 AM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Fluoride	1.4	0.30		mg/Kg	1	6/26/2012 1:05:37 PM
Chloride	290	30		mg/Kg	20	6/26/2012 1:42:52 PM
Nitrogen, Nitrate (As N)	11	0.30		mg/Kg	1	6/26/2012 1:05:37 PM
Sulfate	55	1.5		mg/Kg	1	6/26/2012 1:05:37 PM
EPA METHOD 7471: MERCURY						Analyst: **DBD**
Mercury	ND	0.033		mg/Kg	1	6/26/2012 3:24:42 PM
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**
Arsenic	ND	25		mg/Kg	10	7/25/2012 7:38:12 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Pettigrew Crude
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 1:33:00 PM
Lab ID: 1206992-002 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**
Barium	86	1.0		mg/Kg	10	7/25/2012 7:38:12 PM
Cadmium	ND	1.0		mg/Kg	10	7/25/2012 7:38:12 PM
Chromium	ND	3.0		mg/Kg	10	7/25/2012 7:38:12 PM
Copper	3.5	3.0		mg/Kg	10	7/25/2012 7:38:12 PM
Iron	5100	200		mg/Kg	200	7/25/2012 7:51:12 PM
Lead	5.3	2.5		mg/Kg	10	7/25/2012 7:38:12 PM
Manganese	110	1.0		mg/Kg	10	7/25/2012 7:38:12 PM
Selenium	ND	25		mg/Kg	10	7/26/2012 8:51:50 PM
Silver	ND	2.5		mg/Kg	10	7/25/2012 7:38:12 PM
Uranium	ND	50		mg/Kg	10	7/25/2012 7:38:12 PM
Zinc	ND	25		mg/Kg	10	7/25/2012 7:38:12 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **JDC**
4-Chloro-3-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 2:25:53 PM
2-Chlorophenol	ND	0.20		mg/Kg	1	6/27/2012 2:25:53 PM
2,4-Dichlorophenol	ND	0.40		mg/Kg	1	6/27/2012 2:25:53 PM
2,4-Dimethylphenol	ND	0.30		mg/Kg	1	6/27/2012 2:25:53 PM
4,6-Dinitro-2-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 2:25:53 PM
2,4-Dinitrophenol	ND	0.40		mg/Kg	1	6/27/2012 2:25:53 PM
2-Methylphenol	ND	0.50		mg/Kg	1	6/27/2012 2:25:53 PM
3+4-Methylphenol	ND	0.20		mg/Kg	1	6/27/2012 2:25:53 PM
2-Nitrophenol	ND	0.20		mg/Kg	1	6/27/2012 2:25:53 PM
4-Nitrophenol	ND	0.25		mg/Kg	1	6/27/2012 2:25:53 PM
Pentachlorophenol	ND	0.40		mg/Kg	1	6/27/2012 2:25:53 PM
Phenol	ND	0.20		mg/Kg	1	6/27/2012 2:25:53 PM
2,4,5-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 2:25:53 PM
2,4,6-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 2:25:53 PM
Surr: 2,4,6-Tribromophenol	75.5	20.1-121		%REC	1	6/27/2012 2:25:53 PM
Surr: 2-Fluorobiphenyl	63.4	19-133		%REC	1	6/27/2012 2:25:53 PM
Surr: 2-Fluorophenol	59.6	20.2-108		%REC	1	6/27/2012 2:25:53 PM
Surr: 4-Terphenyl-d14	70.6	18.9-115		%REC	1	6/27/2012 2:25:53 PM
Surr: Nitrobenzene-d5	62.0	20.8-123		%REC	1	6/27/2012 2:25:53 PM
Surr: Phenol-d5	62.4	19.8-115		%REC	1	6/27/2012 2:25:53 PM
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
Toluene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
Ethylbenzene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
Methyl tert-butyl ether (MTBE)	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
1,2,4-Trimethylbenzene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
1,3,5-Trimethylbenzene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
1,2-Dichloroethane (EDC)	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
1,2-Dibromoethane (EDB)	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Client Sample ID: Pettigrew Crude
Project: Bisti Landfarm Vadose Zone 5 Yr
Collection Date: 6/20/2012 1:33:00 PM
Lab ID: 1206992-002
Matrix: SOIL
Received Date: 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Naphthalene	ND	0.096		mg/Kg	1	6/26/2012 8:19:23 PM
1-Methylnaphthalene	ND	0.19		mg/Kg	1	6/26/2012 8:19:23 PM
2-Methylnaphthalene	ND	0.19		mg/Kg	1	6/26/2012 8:19:23 PM
Acetone	ND	0.72		mg/Kg	1	6/26/2012 8:19:23 PM
Bromobenzene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
Bromodichloromethane	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
Bromoform	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
Bromomethane	ND	0.14		mg/Kg	1	6/26/2012 8:19:23 PM
2-Butanone	ND	0.48		mg/Kg	1	6/26/2012 8:19:23 PM
Carbon disulfide	ND	0.48		mg/Kg	1	6/26/2012 8:19:23 PM
Carbon tetrachloride	ND	0.096		mg/Kg	1	6/26/2012 8:19:23 PM
Chlorobenzene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
Chloroethane	ND	0.096		mg/Kg	1	6/26/2012 8:19:23 PM
Chloroform	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
Chloromethane	ND	0.14		mg/Kg	1	6/26/2012 8:19:23 PM
2-Chlorotoluene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
4-Chlorotoluene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
cis-1,2-DCE	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
cis-1,3-Dichloropropene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
1,2-Dibromo-3-chloropropane	ND	0.096		mg/Kg	1	6/26/2012 8:19:23 PM
Dibromochloromethane	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
Dibromomethane	ND	0.096		mg/Kg	1	6/26/2012 8:19:23 PM
1,2-Dichlorobenzene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
1,3-Dichlorobenzene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
1,4-Dichlorobenzene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
Dichlorodifluoromethane	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
1,1-Dichloroethane	ND	0.096		mg/Kg	1	6/26/2012 8:19:23 PM
1,1-Dichloroethene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
1,2-Dichloropropane	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
1,3-Dichloropropane	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
2,2-Dichloropropane	ND	0.096		mg/Kg	1	6/26/2012 8:19:23 PM
1,1-Dichloropropene	ND	0.096		mg/Kg	1	6/26/2012 8:19:23 PM
Hexachlorobutadiene	ND	0.096		mg/Kg	1	6/26/2012 8:19:23 PM
2-Hexanone	ND	0.48		mg/Kg	1	6/26/2012 8:19:23 PM
Isopropylbenzene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
4-Isopropyltoluene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
4-Methyl-2-pentanone	ND	0.48		mg/Kg	1	6/26/2012 8:19:23 PM
Methylene chloride	ND	0.14		mg/Kg	1	6/26/2012 8:19:23 PM
n-Butylbenzene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
n-Propylbenzene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
sec-Butylbenzene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
Styrene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Pettigrew Crude
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 1:33:00 PM
Lab ID: 1206992-002 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
tert-Butylbenzene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
1,1,1,2-Tetrachloroethane	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
1,1,2,2-Tetrachloroethane	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
Tetrachloroethene (PCE)	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
trans-1,2-DCE	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
trans-1,3-Dichloropropene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
1,2,3-Trichlorobenzene	ND	0.096		mg/Kg	1	6/26/2012 8:19:23 PM
1,2,4-Trichlorobenzene	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
1,1,1-Trichloroethane	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
1,1,2-Trichloroethane	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
Trichloroethene (TCE)	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
Trichlorofluoromethane	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
1,2,3-Trichloropropane	ND	0.096		mg/Kg	1	6/26/2012 8:19:23 PM
Vinyl chloride	ND	0.048		mg/Kg	1	6/26/2012 8:19:23 PM
Xylenes, Total	ND	0.096		mg/Kg	1	6/26/2012 8:19:23 PM
Surr: 1,2-Dichloroethane-d4	94.3	70-130		%REC	1	6/26/2012 8:19:23 PM
Surr: 4-Bromofluorobenzene	95.5	70-130		%REC	1	6/26/2012 8:19:23 PM
Surr: Dibromofluoromethane	116	71.7-132		%REC	1	6/26/2012 8:19:23 PM
Surr: Toluene-d8	95.7	70-130		%REC	1	6/26/2012 8:19:23 PM
SM4500-H+B: PH						Analyst: **KS**
pH	8.14	1.68		pH Units	1	7/5/2012 3:51:00 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Westline Crude
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 9:43:00 AM
Lab ID: 1206992-003 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **LRW**
1,2-Dibromoethane	ND	0.10		µg/Kg	1	7/2/2012 12:23:41 PM
EPA METHOD 8082: PCB'S						Analyst: **SCC**
Aroclor 1016	ND	0.020		mg/Kg	1	7/4/2012 5:24:36 AM
Aroclor 1221	ND	0.020		mg/Kg	1	7/4/2012 5:24:36 AM
Aroclor 1232	ND	0.020		mg/Kg	1	7/4/2012 5:24:36 AM
Aroclor 1242	ND	0.020		mg/Kg	1	7/4/2012 5:24:36 AM
Aroclor 1248	ND	0.020		mg/Kg	1	7/4/2012 5:24:36 AM
Aroclor 1254	ND	0.020		mg/Kg	1	7/4/2012 5:24:36 AM
Aroclor 1260	ND	0.020		mg/Kg	1	7/4/2012 5:24:36 AM
Surr: Decachlorobiphenyl	64.4	20.7-114		%REC	1	7/4/2012 5:24:36 AM
EPA METHOD 8310: PAHS						Analyst: **SCC**
Naphthalene	ND	0.25		mg/Kg	1	6/30/2012 6:38:26 AM
1-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 6:38:26 AM
2-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 6:38:26 AM
Acenaphthylene	ND	0.25		mg/Kg	1	6/30/2012 6:38:26 AM
Acenaphthene	ND	0.25		mg/Kg	1	6/30/2012 6:38:26 AM
Fluorene	ND	0.030		mg/Kg	1	6/30/2012 6:38:26 AM
Phenanthrene	ND	0.015		mg/Kg	1	6/30/2012 6:38:26 AM
Anthracene	ND	0.015		mg/Kg	1	6/30/2012 6:38:26 AM
Fluoranthene	ND	0.020		mg/Kg	1	6/30/2012 6:38:26 AM
Pyrene	ND	0.025		mg/Kg	1	6/30/2012 6:38:26 AM
Benz(a)anthracene	ND	0.0099		mg/Kg	1	6/30/2012 6:38:26 AM
Chrysene	ND	0.011		mg/Kg	1	6/30/2012 6:38:26 AM
Benzo(b)fluoranthene	ND	0.0099		mg/Kg	1	6/30/2012 6:38:26 AM
Benzo(k)fluoranthene	ND	0.0099		mg/Kg	1	6/30/2012 6:38:26 AM
Benzo(a)pyrene	ND	0.0099		mg/Kg	1	6/30/2012 6:38:26 AM
Dibenz(a,h)anthracene	ND	0.0099		mg/Kg	1	6/30/2012 6:38:26 AM
Benzo(g,h,i)perylene	ND	0.0099		mg/Kg	1	6/30/2012 6:38:26 AM
Indeno(1,2,3-cd)pyrene	ND	0.0099		mg/Kg	1	6/30/2012 6:38:26 AM
Surr: Benzo(e)pyrene	90.4	35.9-103		%REC	1	6/30/2012 6:38:26 AM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Fluoride	1.8	0.30		mg/Kg	1	6/26/2012 1:55:17 PM
Chloride	37	1.5		mg/Kg	1	6/26/2012 1:55:17 PM
Nitrogen, Nitrate (As N)	ND	0.30		mg/Kg	1	6/26/2012 1:55:17 PM
Sulfate	120	1.5		mg/Kg	1	6/26/2012 1:55:17 PM
EPA METHOD 7471: MERCURY						Analyst: **DBD**
Mercury	ND	0.033		mg/Kg	1	6/26/2012 3:26:33 PM
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**
Arsenic	ND	25		mg/Kg	10	7/25/2012 7:54:04 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Westline Crude
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 9:43:00 AM
Lab ID: 1206992-003 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**
Barium	100	1.0		mg/Kg	10	7/25/2012 7:54:04 PM
Cadmium	ND	1.0		mg/Kg	10	7/25/2012 7:54:04 PM
Chromium	4.0	3.0		mg/Kg	10	7/25/2012 7:54:04 PM
Copper	3.9	3.0		mg/Kg	10	7/25/2012 7:54:04 PM
Iron	5900	200		mg/Kg	200	7/25/2012 7:56:45 PM
Lead	6.1	2.5		mg/Kg	10	7/25/2012 7:54:04 PM
Manganese	180	1.0		mg/Kg	10	7/25/2012 7:54:04 PM
Selenium	ND	25		mg/Kg	10	7/26/2012 8:54:16 PM
Silver	ND	2.5		mg/Kg	10	7/25/2012 7:54:04 PM
Uranium	ND	50		mg/Kg	10	7/25/2012 7:54:04 PM
Zinc	53	25		mg/Kg	10	7/25/2012 7:54:04 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **JDC**
4-Chloro-3-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 2:56:14 PM
2-Chlorophenol	ND	0.20		mg/Kg	1	6/27/2012 2:56:14 PM
2,4-Dichlorophenol	ND	0.40		mg/Kg	1	6/27/2012 2:56:14 PM
2,4-Dimethylphenol	ND	0.30		mg/Kg	1	6/27/2012 2:56:14 PM
4,6-Dinitro-2-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 2:56:14 PM
2,4-Dinitrophenol	ND	0.40		mg/Kg	1	6/27/2012 2:56:14 PM
2-Methylphenol	ND	0.50		mg/Kg	1	6/27/2012 2:56:14 PM
3+4-Methylphenol	ND	0.20		mg/Kg	1	6/27/2012 2:56:14 PM
2-Nitrophenol	ND	0.20		mg/Kg	1	6/27/2012 2:56:14 PM
4-Nitrophenol	ND	0.25		mg/Kg	1	6/27/2012 2:56:14 PM
Pentachlorophenol	ND	0.40		mg/Kg	1	6/27/2012 2:56:14 PM
Phenol	ND	0.20		mg/Kg	1	6/27/2012 2:56:14 PM
2,4,5-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 2:56:14 PM
2,4,6-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 2:56:14 PM
Surr: 2,4,6-Tribromophenol	76.2	20.1-121		%REC	1	6/27/2012 2:56:14 PM
Surr: 2-Fluorobiphenyl	66.3	19-133		%REC	1	6/27/2012 2:56:14 PM
Surr: 2-Fluorophenol	60.1	20.2-108		%REC	1	6/27/2012 2:56:14 PM
Surr: 4-Terphenyl-d14	61.6	18.9-115		%REC	1	6/27/2012 2:56:14 PM
Surr: Nitrobenzene-d5	65.6	20.8-123		%REC	1	6/27/2012 2:56:14 PM
Surr: Phenol-d5	67.8	19.8-115		%REC	1	6/27/2012 2:56:14 PM
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
Toluene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
Methyl tert-butyl ether (MTBE)	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
1,2,4-Trimethylbenzene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
1,3,5-Trimethylbenzene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
1,2-Dichloroethane (EDC)	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
1,2-Dibromoethane (EDB)	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Westline Crude
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 9:43:00 AM
Lab ID: 1206992-003 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Naphthalene	ND	0.099		mg/Kg	1	6/26/2012 8:47:18 PM
1-Methylnaphthalene	ND	0.20		mg/Kg	1	6/26/2012 8:47:18 PM
2-Methylnaphthalene	ND	0.20		mg/Kg	1	6/26/2012 8:47:18 PM
Acetone	ND	0.74		mg/Kg	1	6/26/2012 8:47:18 PM
Bromobenzene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
Bromodichloromethane	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
Bromoform	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
Bromomethane	ND	0.15		mg/Kg	1	6/26/2012 8:47:18 PM
2-Butanone	ND	0.49		mg/Kg	1	6/26/2012 8:47:18 PM
Carbon disulfide	ND	0.49		mg/Kg	1	6/26/2012 8:47:18 PM
Carbon tetrachloride	ND	0.099		mg/Kg	1	6/26/2012 8:47:18 PM
Chlorobenzene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
Chloroethane	ND	0.099		mg/Kg	1	6/26/2012 8:47:18 PM
Chloroform	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
Chloromethane	ND	0.15		mg/Kg	1	6/26/2012 8:47:18 PM
2-Chlorotoluene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
4-Chlorotoluene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
cis-1,2-DCE	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
cis-1,3-Dichloropropene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
1,2-Dibromo-3-chloropropane	ND	0.099		mg/Kg	1	6/26/2012 8:47:18 PM
Dibromochloromethane	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
Dibromomethane	ND	0.099		mg/Kg	1	6/26/2012 8:47:18 PM
1,2-Dichlorobenzene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
1,3-Dichlorobenzene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
1,4-Dichlorobenzene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
Dichlorodifluoromethane	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
1,1-Dichloroethane	ND	0.099		mg/Kg	1	6/26/2012 8:47:18 PM
1,1-Dichloroethene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
1,2-Dichloropropane	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
1,3-Dichloropropane	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
2,2-Dichloropropane	ND	0.099		mg/Kg	1	6/26/2012 8:47:18 PM
1,1-Dichloropropene	ND	0.099		mg/Kg	1	6/26/2012 8:47:18 PM
Hexachlorobutadiene	ND	0.099		mg/Kg	1	6/26/2012 8:47:18 PM
2-Hexanone	ND	0.49		mg/Kg	1	6/26/2012 8:47:18 PM
Isopropylbenzene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
4-Isopropyltoluene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
4-Methyl-2-pentanone	ND	0.49		mg/Kg	1	6/26/2012 8:47:18 PM
Methylene chloride	ND	0.15		mg/Kg	1	6/26/2012 8:47:18 PM
n-Butylbenzene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
n-Propylbenzene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
sec-Butylbenzene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
Styrene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Westline Crude
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 9:43:00 AM
Lab ID: 1206992-003 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
tert-Butylbenzene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
1,1,1,2-Tetrachloroethane	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
1,1,2,2-Tetrachloroethane	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
Tetrachloroethene (PCE)	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
trans-1,2-DCE	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
trans-1,3-Dichloropropene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
1,2,3-Trichlorobenzene	ND	0.099		mg/Kg	1	6/26/2012 8:47:18 PM
1,2,4-Trichlorobenzene	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
1,1,1-Trichloroethane	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
1,1,2-Trichloroethane	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
Trichloroethene (TCE)	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
Trichlorofluoromethane	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
1,2,3-Trichloropropane	ND	0.099		mg/Kg	1	6/26/2012 8:47:18 PM
Vinyl chloride	ND	0.049		mg/Kg	1	6/26/2012 8:47:18 PM
Xylenes, Total	ND	0.099		mg/Kg	1	6/26/2012 8:47:18 PM
Surr: 1,2-Dichloroethane-d4	91.6	70-130		%REC	1	6/26/2012 8:47:18 PM
Surr: 4-Bromofluorobenzene	97.6	70-130		%REC	1	6/26/2012 8:47:18 PM
Surr: Dibromofluoromethane	114	71.7-132		%REC	1	6/26/2012 8:47:18 PM
Surr: Toluene-d8	98.4	70-130		%REC	1	6/26/2012 8:47:18 PM
SM4500-H+B: PH						Analyst: **KS**
pH	8.57	1.68		pH Units	1	7/5/2012 3:51:00 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Bisti Crude
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 12:48:00 PM
Lab ID: 1206992-004 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **LRW**
1,2-Dibromoethane	ND	0.099		µg/Kg	1	7/2/2012 1:02:11 PM
EPA METHOD 8082: PCB'S						Analyst: **SCC**
Aroclor 1016	ND	0.020		mg/Kg	1	7/4/2012 7:39:35 AM
Aroclor 1221	ND	0.020		mg/Kg	1	7/4/2012 7:39:35 AM
Aroclor 1232	ND	0.020		mg/Kg	1	7/4/2012 7:39:35 AM
Aroclor 1242	ND	0.020		mg/Kg	1	7/4/2012 7:39:35 AM
Aroclor 1248	ND	0.020		mg/Kg	1	7/4/2012 7:39:35 AM
Aroclor 1254	ND	0.020		mg/Kg	1	7/4/2012 7:39:35 AM
Aroclor 1260	ND	0.020		mg/Kg	1	7/4/2012 7:39:35 AM
Surr: Decachlorobiphenyl	60.4	20.7-114		%REC	1	7/4/2012 7:39:35 AM
EPA METHOD 8310: PAHS						Analyst: **SCC**
Naphthalene	ND	0.25		mg/Kg	1	6/30/2012 6:59:43 AM
1-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 6:59:43 AM
2-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 6:59:43 AM
Acenaphthylene	ND	0.25		mg/Kg	1	6/30/2012 6:59:43 AM
Acenaphthene	ND	0.25		mg/Kg	1	6/30/2012 6:59:43 AM
Fluorene	ND	0.030		mg/Kg	1	6/30/2012 6:59:43 AM
Phenanthrene	ND	0.015		mg/Kg	1	6/30/2012 6:59:43 AM
Anthracene	ND	0.015		mg/Kg	1	6/30/2012 6:59:43 AM
Fluoranthene	ND	0.020		mg/Kg	1	6/30/2012 6:59:43 AM
Pyrene	ND	0.025		mg/Kg	1	6/30/2012 6:59:43 AM
Benz(a)anthracene	ND	0.010		mg/Kg	1	6/30/2012 6:59:43 AM
Chrysene	ND	0.011		mg/Kg	1	6/30/2012 6:59:43 AM
Benzo(b)fluoranthene	ND	0.010		mg/Kg	1	6/30/2012 6:59:43 AM
Benzo(k)fluoranthene	ND	0.010		mg/Kg	1	6/30/2012 6:59:43 AM
Benzo(a)pyrene	ND	0.010		mg/Kg	1	6/30/2012 6:59:43 AM
Dibenz(a,h)anthracene	ND	0.010		mg/Kg	1	6/30/2012 6:59:43 AM
Benzo(g,h,i)perylene	ND	0.010		mg/Kg	1	6/30/2012 6:59:43 AM
Indeno(1,2,3-cd)pyrene	ND	0.010		mg/Kg	1	6/30/2012 6:59:43 AM
Surr: Benzo(e)pyrene	93.8	35.9-103		%REC	1	6/30/2012 6:59:43 AM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Fluoride	1.9	1.5		mg/Kg	5	6/26/2012 2:20:07 PM
Chloride	8.5	7.5		mg/Kg	5	6/26/2012 2:20:07 PM
Nitrogen, Nitrate (As N)	2.4	1.5		mg/Kg	5	6/26/2012 2:20:07 PM
Sulfate	20	7.5		mg/Kg	5	6/26/2012 2:20:07 PM
EPA METHOD 7471: MERCURY						Analyst: **DBD**
Mercury	ND	0.033		mg/Kg	1	6/26/2012 3:28:19 PM
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**
Arsenic	ND	25		mg/Kg	10	7/25/2012 7:59:37 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Bisti Crude
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 12:48:00 PM
Lab ID: 1206992-004 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**
Barium	110	1.0		mg/Kg	10	7/25/2012 7:59:37 PM
Cadmium	ND	1.0		mg/Kg	10	7/25/2012 7:59:37 PM
Chromium	4.6	3.0		mg/Kg	10	7/25/2012 7:59:37 PM
Copper	4.7	3.0		mg/Kg	10	7/25/2012 7:59:37 PM
Iron	7300	200		mg/Kg	200	7/25/2012 8:02:20 PM
Lead	5.0	2.5		mg/Kg	10	7/25/2012 7:59:37 PM
Manganese	170	1.0		mg/Kg	10	7/25/2012 7:59:37 PM
Selenium	ND	25		mg/Kg	10	7/26/2012 8:56:41 PM
Silver	ND	2.5		mg/Kg	10	7/25/2012 7:59:37 PM
Uranium	ND	50		mg/Kg	10	7/25/2012 7:59:37 PM
Zinc	ND	25		mg/Kg	10	7/25/2012 7:59:37 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **JDC**
4-Chloro-3-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 7:59:36 PM
2-Chlorophenol	ND	0.20		mg/Kg	1	6/27/2012 7:59:36 PM
2,4-Dichlorophenol	ND	0.40		mg/Kg	1	6/27/2012 7:59:36 PM
2,4-Dimethylphenol	ND	0.30		mg/Kg	1	6/27/2012 7:59:36 PM
4,6-Dinitro-2-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 7:59:36 PM
2,4-Dinitrophenol	ND	0.40		mg/Kg	1	6/27/2012 7:59:36 PM
2-Methylphenol	ND	0.50		mg/Kg	1	6/27/2012 7:59:36 PM
3+4-Methylphenol	ND	0.20		mg/Kg	1	6/27/2012 7:59:36 PM
2-Nitrophenol	ND	0.20		mg/Kg	1	6/27/2012 7:59:36 PM
4-Nitrophenol	ND	0.25		mg/Kg	1	6/27/2012 7:59:36 PM
Pentachlorophenol	ND	0.40		mg/Kg	1	6/27/2012 7:59:36 PM
Phenol	ND	0.20		mg/Kg	1	6/27/2012 7:59:36 PM
2,4,5-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 7:59:36 PM
2,4,6-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 7:59:36 PM
Surr: 2,4,6-Tribromophenol	47.1	20.1-121		%REC	1	6/27/2012 7:59:36 PM
Surr: 2-Fluorobiphenyl	41.1	19-133		%REC	1	6/27/2012 7:59:36 PM
Surr: 2-Fluorophenol	38.0	20.2-108		%REC	1	6/27/2012 7:59:36 PM
Surr: 4-Terphenyl-d14	41.1	18.9-115		%REC	1	6/27/2012 7:59:36 PM
Surr: Nitrobenzene-d5	42.2	20.8-123		%REC	1	6/27/2012 7:59:36 PM
Surr: Phenol-d5	39.6	19.8-115		%REC	1	6/27/2012 7:59:36 PM
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
Toluene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
Ethylbenzene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
Methyl tert-butyl ether (MTBE)	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
1,2,4-Trimethylbenzene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
1,3,5-Trimethylbenzene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
1,2-Dichloroethane (EDC)	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
1,2-Dibromoethane (EDB)	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Bisti Crude
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 12:48:00 PM
Lab ID: 1206992-004 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Naphthalene	ND	0.098		mg/Kg	1	6/26/2012 11:07:48 PM
1-Methylnaphthalene	ND	0.20		mg/Kg	1	6/26/2012 11:07:48 PM
2-Methylnaphthalene	ND	0.20		mg/Kg	1	6/26/2012 11:07:48 PM
Acetone	ND	0.74		mg/Kg	1	6/26/2012 11:07:48 PM
Bromobenzene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
Bromodichloromethane	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
Bromoform	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
Bromomethane	ND	0.15		mg/Kg	1	6/26/2012 11:07:48 PM
2-Butanone	ND	0.49		mg/Kg	1	6/26/2012 11:07:48 PM
Carbon disulfide	ND	0.49		mg/Kg	1	6/26/2012 11:07:48 PM
Carbon tetrachloride	ND	0.098		mg/Kg	1	6/26/2012 11:07:48 PM
Chlorobenzene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
Chloroethane	ND	0.098		mg/Kg	1	6/26/2012 11:07:48 PM
Chloroform	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
Chloromethane	ND	0.15		mg/Kg	1	6/26/2012 11:07:48 PM
2-Chlorotoluene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
4-Chlorotoluene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
cis-1,2-DCE	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
cis-1,3-Dichloropropene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
1,2-Dibromo-3-chloropropane	ND	0.098		mg/Kg	1	6/26/2012 11:07:48 PM
Dibromochloromethane	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
Dibromomethane	ND	0.098		mg/Kg	1	6/26/2012 11:07:48 PM
1,2-Dichlorobenzene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
1,3-Dichlorobenzene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
1,4-Dichlorobenzene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
Dichlorodifluoromethane	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
1,1-Dichloroethane	ND	0.098		mg/Kg	1	6/26/2012 11:07:48 PM
1,1-Dichloroethene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
1,2-Dichloropropane	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
1,3-Dichloropropane	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
2,2-Dichloropropane	ND	0.098		mg/Kg	1	6/26/2012 11:07:48 PM
1,1-Dichloropropene	ND	0.098		mg/Kg	1	6/26/2012 11:07:48 PM
Hexachlorobutadiene	ND	0.098		mg/Kg	1	6/26/2012 11:07:48 PM
2-Hexanone	ND	0.49		mg/Kg	1	6/26/2012 11:07:48 PM
Isopropylbenzene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
4-Isopropyltoluene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
4-Methyl-2-pentanone	ND	0.49		mg/Kg	1	6/26/2012 11:07:48 PM
Methylene chloride	ND	0.15		mg/Kg	1	6/26/2012 11:07:48 PM
n-Butylbenzene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
n-Propylbenzene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
sec-Butylbenzene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
Styrene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Client Sample ID: Bisti Crude
Project: Bisti Landfarm Vadose Zone 5 Yr
Collection Date: 6/20/2012 12:48:00 PM
Lab ID: 1206992-004
Matrix: SOIL
Received Date: 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
tert-Butylbenzene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
1,1,1,2-Tetrachloroethane	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
1,1,2,2-Tetrachloroethane	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
Tetrachloroethene (PCE)	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
trans-1,2-DCE	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
trans-1,3-Dichloropropene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
1,2,3-Trichlorobenzene	ND	0.098		mg/Kg	1	6/26/2012 11:07:48 PM
1,2,4-Trichlorobenzene	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
1,1,1-Trichloroethane	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
1,1,2-Trichloroethane	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
Trichloroethene (TCE)	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
Trichlorofluoromethane	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
1,2,3-Trichloropropane	ND	0.098		mg/Kg	1	6/26/2012 11:07:48 PM
Vinyl chloride	ND	0.049		mg/Kg	1	6/26/2012 11:07:48 PM
Xylenes, Total	ND	0.098		mg/Kg	1	6/26/2012 11:07:48 PM
Surr: 1,2-Dichloroethane-d4	89.3	70-130		%REC	1	6/26/2012 11:07:48 PM
Surr: 4-Bromofluorobenzene	99.6	70-130		%REC	1	6/26/2012 11:07:48 PM
Surr: Dibromofluoromethane	111	71.7-132		%REC	1	6/26/2012 11:07:48 PM
Surr: Toluene-d8	99.0	70-130		%REC	1	6/26/2012 11:07:48 PM
SM4500-H+B: PH						Analyst: **KS**
pH	8.83	1.68		pH Units	1	7/5/2012 3:51:00 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** API-1
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 2:03:00 PM
Lab ID: 1206992-005 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **LRW**
1,2-Dibromoethane	ND	0.10		µg/Kg	1	7/2/2012 1:15:02 PM
EPA METHOD 8082: PCB'S						Analyst: **SCC**
Aroclor 1016	ND	0.020		mg/Kg	1	7/4/2012 8:24:39 AM
Aroclor 1221	ND	0.020		mg/Kg	1	7/4/2012 8:24:39 AM
Aroclor 1232	ND	0.020		mg/Kg	1	7/4/2012 8:24:39 AM
Aroclor 1242	ND	0.020		mg/Kg	1	7/4/2012 8:24:39 AM
Aroclor 1248	ND	0.020		mg/Kg	1	7/4/2012 8:24:39 AM
Aroclor 1254	ND	0.020		mg/Kg	1	7/4/2012 8:24:39 AM
Aroclor 1260	ND	0.020		mg/Kg	1	7/4/2012 8:24:39 AM
Surr: Decachlorobiphenyl	99.2	20.7-114		%REC	1	7/4/2012 8:24:39 AM
EPA METHOD 8310: PAHS						Analyst: **SCC**
Naphthalene	ND	0.25		mg/Kg	1	6/30/2012 7:42:23 AM
1-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 7:42:23 AM
2-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 7:42:23 AM
Acenaphthylene	ND	0.25		mg/Kg	1	6/30/2012 7:42:23 AM
Acenaphthene	ND	0.25		mg/Kg	1	6/30/2012 7:42:23 AM
Fluorene	ND	0.030		mg/Kg	1	6/30/2012 7:42:23 AM
Phenanthrene	ND	0.015		mg/Kg	1	6/30/2012 7:42:23 AM
Anthracene	ND	0.015		mg/Kg	1	6/30/2012 7:42:23 AM
Fluoranthene	ND	0.020		mg/Kg	1	6/30/2012 7:42:23 AM
Pyrene	ND	0.025		mg/Kg	1	6/30/2012 7:42:23 AM
Benz(a)anthracene	ND	0.0099		mg/Kg	1	6/30/2012 7:42:23 AM
Chrysene	ND	0.011		mg/Kg	1	6/30/2012 7:42:23 AM
Benzo(b)fluoranthene	ND	0.0099		mg/Kg	1	6/30/2012 7:42:23 AM
Benzo(k)fluoranthene	ND	0.0099		mg/Kg	1	6/30/2012 7:42:23 AM
Benzo(a)pyrene	ND	0.0099		mg/Kg	1	6/30/2012 7:42:23 AM
Dibenz(a,h)anthracene	ND	0.0099		mg/Kg	1	6/30/2012 7:42:23 AM
Benzo(g,h,i)perylene	ND	0.0099		mg/Kg	1	6/30/2012 7:42:23 AM
Indeno(1,2,3-cd)pyrene	ND	0.0099		mg/Kg	1	6/30/2012 7:42:23 AM
Surr: Benzo(e)pyrene	92.7	35.9-103		%REC	1	6/30/2012 7:42:23 AM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Fluoride	2.0	1.5		mg/Kg	5	6/26/2012 2:44:55 PM
Chloride	ND	7.5		mg/Kg	5	6/26/2012 2:44:55 PM
Nitrogen, Nitrate (As N)	2.4	1.5		mg/Kg	5	6/26/2012 2:44:55 PM
Sulfate	15	7.5		mg/Kg	5	6/26/2012 2:44:55 PM
EPA METHOD 7471: MERCURY						Analyst: **DBD**
Mercury	ND	0.033		mg/Kg	1	6/26/2012 3:30:04 PM
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**
Arsenic	ND	25		mg/Kg	10	7/25/2012 8:05:12 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** API-1
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 2:03:00 PM
Lab ID: 1206992-005 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**
Barium	83	1.0		mg/Kg	10	7/25/2012 8:05:12 PM
Cadmium	ND	1.0		mg/Kg	10	7/25/2012 8:05:12 PM
Chromium	3.4	3.0		mg/Kg	10	7/25/2012 8:05:12 PM
Copper	3.9	3.0		mg/Kg	10	7/25/2012 8:05:12 PM
Iron	6000	200		mg/Kg	200	7/25/2012 8:07:53 PM
Lead	4.1	2.5		mg/Kg	10	7/25/2012 8:05:12 PM
Manganese	120	1.0		mg/Kg	10	7/25/2012 8:05:12 PM
Selenium	ND	25		mg/Kg	10	7/26/2012 8:59:11 PM
Silver	ND	2.5		mg/Kg	10	7/25/2012 8:05:12 PM
Uranium	ND	50		mg/Kg	10	7/25/2012 8:05:12 PM
Zinc	ND	25		mg/Kg	10	7/25/2012 8:05:12 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **JDC**
4-Chloro-3-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 3:26:22 PM
2-Chlorophenol	ND	0.20		mg/Kg	1	6/27/2012 3:26:22 PM
2,4-Dichlorophenol	ND	0.40		mg/Kg	1	6/27/2012 3:26:22 PM
2,4-Dimethylphenol	ND	0.30		mg/Kg	1	6/27/2012 3:26:22 PM
4,6-Dinitro-2-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 3:26:22 PM
2,4-Dinitrophenol	ND	0.40		mg/Kg	1	6/27/2012 3:26:22 PM
2-Methylphenol	ND	0.50		mg/Kg	1	6/27/2012 3:26:22 PM
3+4-Methylphenol	ND	0.20		mg/Kg	1	6/27/2012 3:26:22 PM
2-Nitrophenol	ND	0.20		mg/Kg	1	6/27/2012 3:26:22 PM
4-Nitrophenol	ND	0.25		mg/Kg	1	6/27/2012 3:26:22 PM
Pentachlorophenol	ND	0.40		mg/Kg	1	6/27/2012 3:26:22 PM
Phenol	ND	0.20		mg/Kg	1	6/27/2012 3:26:22 PM
2,4,5-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 3:26:22 PM
2,4,6-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 3:26:22 PM
Surr: 2,4,6-Tribromophenol	86.9	20.1-121		%REC	1	6/27/2012 3:26:22 PM
Surr: 2-Fluorobiphenyl	73.3	19-133		%REC	1	6/27/2012 3:26:22 PM
Surr: 2-Fluorophenol	75.1	20.2-108		%REC	1	6/27/2012 3:26:22 PM
Surr: 4-Terphenyl-d14	74.5	18.9-115		%REC	1	6/27/2012 3:26:22 PM
Surr: Nitrobenzene-d5	72.3	20.8-123		%REC	1	6/27/2012 3:26:22 PM
Surr: Phenol-d5	83.0	19.8-115		%REC	1	6/27/2012 3:26:22 PM
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
Toluene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
Ethylbenzene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
Methyl tert-butyl ether (MTBE)	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
1,2,4-Trimethylbenzene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
1,3,5-Trimethylbenzene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
1,2-Dichloroethane (EDC)	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
1,2-Dibromoethane (EDB)	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** API-1
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 2:03:00 PM
Lab ID: 1206992-005 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Naphthalene	ND	0.10		mg/Kg	1	6/26/2012 11:35:53 PM
1-Methylnaphthalene	ND	0.20		mg/Kg	1	6/26/2012 11:35:53 PM
2-Methylnaphthalene	ND	0.20		mg/Kg	1	6/26/2012 11:35:53 PM
Acetone	ND	0.75		mg/Kg	1	6/26/2012 11:35:53 PM
Bromobenzene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
Bromodichloromethane	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
Bromoform	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
Bromomethane	ND	0.15		mg/Kg	1	6/26/2012 11:35:53 PM
2-Butanone	ND	0.50		mg/Kg	1	6/26/2012 11:35:53 PM
Carbon disulfide	ND	0.50		mg/Kg	1	6/26/2012 11:35:53 PM
Carbon tetrachloride	ND	0.10		mg/Kg	1	6/26/2012 11:35:53 PM
Chlorobenzene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
Chloroethane	ND	0.10		mg/Kg	1	6/26/2012 11:35:53 PM
Chloroform	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
Chloromethane	ND	0.15		mg/Kg	1	6/26/2012 11:35:53 PM
2-Chlorotoluene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
4-Chlorotoluene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
cis-1,2-DCE	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
cis-1,3-Dichloropropene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
1,2-Dibromo-3-chloropropane	ND	0.10		mg/Kg	1	6/26/2012 11:35:53 PM
Dibromochloromethane	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
Dibromomethane	ND	0.10		mg/Kg	1	6/26/2012 11:35:53 PM
1,2-Dichlorobenzene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
1,3-Dichlorobenzene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
1,4-Dichlorobenzene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
Dichlorodifluoromethane	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
1,1-Dichloroethane	ND	0.10		mg/Kg	1	6/26/2012 11:35:53 PM
1,1-Dichloroethene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
1,2-Dichloropropane	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
1,3-Dichloropropane	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
2,2-Dichloropropane	ND	0.10		mg/Kg	1	6/26/2012 11:35:53 PM
1,1-Dichloropropene	ND	0.10		mg/Kg	1	6/26/2012 11:35:53 PM
Hexachlorobutadiene	ND	0.10		mg/Kg	1	6/26/2012 11:35:53 PM
2-Hexanone	ND	0.50		mg/Kg	1	6/26/2012 11:35:53 PM
Isopropylbenzene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
4-Isopropyltoluene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
4-Methyl-2-pentanone	ND	0.50		mg/Kg	1	6/26/2012 11:35:53 PM
Methylene chloride	ND	0.15		mg/Kg	1	6/26/2012 11:35:53 PM
n-Butylbenzene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
n-Propylbenzene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
sec-Butylbenzene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
Styrene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** API-1
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 2:03:00 PM
Lab ID: 1206992-005 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
tert-Butylbenzene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
1,1,1,2-Tetrachloroethane	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
Tetrachloroethene (PCE)	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
trans-1,2-DCE	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
trans-1,3-Dichloropropene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
1,2,3-Trichlorobenzene	ND	0.10		mg/Kg	1	6/26/2012 11:35:53 PM
1,2,4-Trichlorobenzene	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
1,1,1-Trichloroethane	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
1,1,2-Trichloroethane	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
Trichloroethene (TCE)	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
Trichlorofluoromethane	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
1,2,3-Trichloropropane	ND	0.10		mg/Kg	1	6/26/2012 11:35:53 PM
Vinyl chloride	ND	0.050		mg/Kg	1	6/26/2012 11:35:53 PM
Xylenes, Total	ND	0.10		mg/Kg	1	6/26/2012 11:35:53 PM
Surr: 1,2-Dichloroethane-d4	91.6	70-130		%REC	1	6/26/2012 11:35:53 PM
Surr: 4-Bromofluorobenzene	98.6	70-130		%REC	1	6/26/2012 11:35:53 PM
Surr: Dibromofluoromethane	116	71.7-132		%REC	1	6/26/2012 11:35:53 PM
Surr: Toluene-d8	94.1	70-130		%REC	1	6/26/2012 11:35:53 PM
SM4500-H+B: PH						Analyst: **KS**
pH	9.34	1.68		pH Units	1	7/5/2012 3:51:00 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** API-2
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 1:58:00 PM
Lab ID: 1206992-006 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **LRW**
1,2-Dibromoethane	ND	0.10		µg/Kg	1	7/2/2012 1:27:58 PM
EPA METHOD 8082: PCB'S						Analyst: **SCC**
Aroclor 1016	ND	0.020		mg/Kg	1	7/4/2012 9:09:43 AM
Aroclor 1221	ND	0.020		mg/Kg	1	7/4/2012 9:09:43 AM
Aroclor 1232	ND	0.020		mg/Kg	1	7/4/2012 9:09:43 AM
Aroclor 1242	ND	0.020		mg/Kg	1	7/4/2012 9:09:43 AM
Aroclor 1248	ND	0.020		mg/Kg	1	7/4/2012 9:09:43 AM
Aroclor 1254	ND	0.020		mg/Kg	1	7/4/2012 9:09:43 AM
Aroclor 1260	ND	0.020		mg/Kg	1	7/4/2012 9:09:43 AM
Surr: Decachlorobiphenyl	91.2	20.7-114		%REC	1	7/4/2012 9:09:43 AM
EPA METHOD 8310: PAHS						Analyst: **SCC**
Naphthalene	ND	0.25		mg/Kg	1	6/30/2012 8:03:37 AM
1-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 8:03:37 AM
2-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 8:03:37 AM
Acenaphthylene	ND	0.25		mg/Kg	1	6/30/2012 8:03:37 AM
Acenaphthene	ND	0.25		mg/Kg	1	6/30/2012 8:03:37 AM
Fluorene	ND	0.030		mg/Kg	1	6/30/2012 8:03:37 AM
Phenanthrene	ND	0.015		mg/Kg	1	6/30/2012 8:03:37 AM
Anthracene	ND	0.015		mg/Kg	1	6/30/2012 8:03:37 AM
Fluoranthene	ND	0.020		mg/Kg	1	6/30/2012 8:03:37 AM
Pyrene	ND	0.025		mg/Kg	1	6/30/2012 8:03:37 AM
Benz(a)anthracene	ND	0.0099		mg/Kg	1	6/30/2012 8:03:37 AM
Chrysene	ND	0.011		mg/Kg	1	6/30/2012 8:03:37 AM
Benzo(b)fluoranthene	ND	0.0099		mg/Kg	1	6/30/2012 8:03:37 AM
Benzo(k)fluoranthene	ND	0.0099		mg/Kg	1	6/30/2012 8:03:37 AM
Benzo(a)pyrene	ND	0.0099		mg/Kg	1	6/30/2012 8:03:37 AM
Dibenz(a,h)anthracene	ND	0.0099		mg/Kg	1	6/30/2012 8:03:37 AM
Benzo(g,h,i)perylene	ND	0.0099		mg/Kg	1	6/30/2012 8:03:37 AM
Indeno(1,2,3-cd)pyrene	ND	0.0099		mg/Kg	1	6/30/2012 8:03:37 AM
Surr: Benzo(e)pyrene	87.1	35.9-103		%REC	1	6/30/2012 8:03:37 AM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Fluoride	1.6	1.5		mg/Kg	5	6/26/2012 4:49:01 PM
Chloride	15	7.5		mg/Kg	5	6/26/2012 4:49:01 PM
Nitrogen, Nitrate (As N)	2.6	1.5		mg/Kg	5	6/26/2012 4:49:01 PM
Sulfate	100	7.5		mg/Kg	5	6/26/2012 4:49:01 PM
EPA METHOD 7471: MERCURY						Analyst: **DBD**
Mercury	ND	0.033		mg/Kg	1	6/26/2012 3:31:49 PM
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**
Arsenic	ND	25		mg/Kg	10	7/25/2012 8:10:45 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** API-2
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 1:58:00 PM
Lab ID: 1206992-006 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**
Barium	72	1.0		mg/Kg	10	7/25/2012 8:10:45 PM
Cadmium	ND	1.0		mg/Kg	10	7/25/2012 8:10:45 PM
Chromium	ND	3.0		mg/Kg	10	7/25/2012 8:10:45 PM
Copper	4.3	3.0		mg/Kg	10	7/25/2012 8:10:45 PM
Iron	5600	200		mg/Kg	200	7/25/2012 8:13:22 PM
Lead	5.0	2.5		mg/Kg	10	7/25/2012 8:10:45 PM
Manganese	120	1.0		mg/Kg	10	7/25/2012 8:10:45 PM
Selenium	ND	25		mg/Kg	10	7/26/2012 9:01:47 PM
Silver	ND	2.5		mg/Kg	10	7/25/2012 8:10:45 PM
Uranium	ND	50		mg/Kg	10	7/25/2012 8:10:45 PM
Zinc	ND	25		mg/Kg	10	7/25/2012 8:10:45 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **JDC**
4-Chloro-3-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 3:56:51 PM
2-Chlorophenol	ND	0.20		mg/Kg	1	6/27/2012 3:56:51 PM
2,4-Dichlorophenol	ND	0.40		mg/Kg	1	6/27/2012 3:56:51 PM
2,4-Dimethylphenol	ND	0.30		mg/Kg	1	6/27/2012 3:56:51 PM
4,6-Dinitro-2-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 3:56:51 PM
2,4-Dinitrophenol	ND	0.40		mg/Kg	1	6/27/2012 3:56:51 PM
2-Methylphenol	ND	0.50		mg/Kg	1	6/27/2012 3:56:51 PM
3+4-Methylphenol	ND	0.20		mg/Kg	1	6/27/2012 3:56:51 PM
2-Nitrophenol	ND	0.20		mg/Kg	1	6/27/2012 3:56:51 PM
4-Nitrophenol	ND	0.25		mg/Kg	1	6/27/2012 3:56:51 PM
Pentachlorophenol	ND	0.40		mg/Kg	1	6/27/2012 3:56:51 PM
Phenol	ND	0.20		mg/Kg	1	6/27/2012 3:56:51 PM
2,4,5-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 3:56:51 PM
2,4,6-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 3:56:51 PM
Surr: 2,4,6-Tribromophenol	93.0	20.1-121		%REC	1	6/27/2012 3:56:51 PM
Surr: 2-Fluorobiphenyl	90.2	19-133		%REC	1	6/27/2012 3:56:51 PM
Surr: 2-Fluorophenol	78.1	20.2-108		%REC	1	6/27/2012 3:56:51 PM
Surr: 4-Terphenyl-d14	71.0	18.9-115		%REC	1	6/27/2012 3:56:51 PM
Surr: Nitrobenzene-d5	83.9	20.8-123		%REC	1	6/27/2012 3:56:51 PM
Surr: Phenol-d5	81.6	19.8-115		%REC	1	6/27/2012 3:56:51 PM
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
Toluene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
Methyl tert-butyl ether (MTBE)	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
1,2,4-Trimethylbenzene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
1,3,5-Trimethylbenzene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
1,2-Dichloroethane (EDC)	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
1,2-Dibromoethane (EDB)	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bisti Landfarm Vadose Zone 5 Yr
Lab ID: 1206992-006 **Matrix:** SOIL

Client Sample ID: API-2
Collection Date: 6/20/2012 1:58:00 PM
Received Date: 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Naphthalene	ND	0.098		mg/Kg	1	6/27/2012 12:03:56 AM
1-Methylnaphthalene	ND	0.20		mg/Kg	1	6/27/2012 12:03:56 AM
2-Methylnaphthalene	ND	0.20		mg/Kg	1	6/27/2012 12:03:56 AM
Acetone	ND	0.73		mg/Kg	1	6/27/2012 12:03:56 AM
Bromobenzene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
Bromodichloromethane	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
Bromoform	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
Bromomethane	ND	0.15		mg/Kg	1	6/27/2012 12:03:56 AM
2-Butanone	ND	0.49		mg/Kg	1	6/27/2012 12:03:56 AM
Carbon disulfide	ND	0.49		mg/Kg	1	6/27/2012 12:03:56 AM
Carbon tetrachloride	ND	0.098		mg/Kg	1	6/27/2012 12:03:56 AM
Chlorobenzene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
Chloroethane	ND	0.098		mg/Kg	1	6/27/2012 12:03:56 AM
Chloroform	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
Chloromethane	ND	0.15		mg/Kg	1	6/27/2012 12:03:56 AM
2-Chlorotoluene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
4-Chlorotoluene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
cis-1,2-DCE	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
cis-1,3-Dichloropropene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
1,2-Dibromo-3-chloropropane	ND	0.098		mg/Kg	1	6/27/2012 12:03:56 AM
Dibromochloromethane	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
Dibromomethane	ND	0.098		mg/Kg	1	6/27/2012 12:03:56 AM
1,2-Dichlorobenzene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
1,3-Dichlorobenzene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
1,4-Dichlorobenzene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
Dichlorodifluoromethane	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
1,1-Dichloroethane	ND	0.098		mg/Kg	1	6/27/2012 12:03:56 AM
1,1-Dichloroethene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
1,2-Dichloropropane	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
1,3-Dichloropropane	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
2,2-Dichloropropane	ND	0.098		mg/Kg	1	6/27/2012 12:03:56 AM
1,1-Dichloropropene	ND	0.098		mg/Kg	1	6/27/2012 12:03:56 AM
Hexachlorobutadiene	ND	0.098		mg/Kg	1	6/27/2012 12:03:56 AM
2-Hexanone	ND	0.49		mg/Kg	1	6/27/2012 12:03:56 AM
Isopropylbenzene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
4-Isopropyltoluene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
4-Methyl-2-pentanone	ND	0.49		mg/Kg	1	6/27/2012 12:03:56 AM
Methylene chloride	ND	0.15		mg/Kg	1	6/27/2012 12:03:56 AM
n-Butylbenzene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
n-Propylbenzene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
sec-Butylbenzene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
Styrene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** API-2
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 1:58:00 PM
Lab ID: 1206992-006 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
tert-Butylbenzene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
1,1,1,2-Tetrachloroethane	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
1,1,2,2-Tetrachloroethane	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
Tetrachloroethene (PCE)	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
trans-1,2-DCE	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
trans-1,3-Dichloropropene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
1,2,3-Trichlorobenzene	ND	0.098		mg/Kg	1	6/27/2012 12:03:56 AM
1,2,4-Trichlorobenzene	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
1,1,1-Trichloroethane	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
1,1,2-Trichloroethane	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
Trichloroethene (TCE)	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
Trichlorofluoromethane	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
1,2,3-Trichloropropane	ND	0.098		mg/Kg	1	6/27/2012 12:03:56 AM
Vinyl chloride	ND	0.049		mg/Kg	1	6/27/2012 12:03:56 AM
Xylenes, Total	ND	0.098		mg/Kg	1	6/27/2012 12:03:56 AM
Surr: 1,2-Dichloroethane-d4	91.5	70-130		%REC	1	6/27/2012 12:03:56 AM
Surr: 4-Bromofluorobenzene	99.3	70-130		%REC	1	6/27/2012 12:03:56 AM
Surr: Dibromofluoromethane	116	71.7-132		%REC	1	6/27/2012 12:03:56 AM
Surr: Toluene-d8	95.0	70-130		%REC	1	6/27/2012 12:03:56 AM
SM4500-H+B: PH						Analyst: **KS**
pH	8.72	1.68		pH Units	1	7/5/2012 3:51:00 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** API-3
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 1:10:00 PM
Lab ID: 1206992-007 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **LRW**
1,2-Dibromoethane	ND	0.10		µg/Kg	1	7/2/2012 1:53:59 PM
EPA METHOD 8082: PCB'S						Analyst: **SCC**
Aroclor 1016	ND	0.020		mg/Kg	1	7/4/2012 1:40:13 PM
Aroclor 1221	ND	0.020		mg/Kg	1	7/4/2012 1:40:13 PM
Aroclor 1232	ND	0.020		mg/Kg	1	7/4/2012 1:40:13 PM
Aroclor 1242	ND	0.020		mg/Kg	1	7/4/2012 1:40:13 PM
Aroclor 1248	ND	0.020		mg/Kg	1	7/4/2012 1:40:13 PM
Aroclor 1254	ND	0.020		mg/Kg	1	7/4/2012 1:40:13 PM
Aroclor 1260	ND	0.020		mg/Kg	1	7/4/2012 1:40:13 PM
Surr: Decachlorobiphenyl	84.8	20.7-114		%REC	1	7/4/2012 1:40:13 PM
EPA METHOD 8310: PAHS						Analyst: **SCC**
Naphthalene	ND	0.25		mg/Kg	1	6/30/2012 8:24:54 AM
1-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 8:24:54 AM
2-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 8:24:54 AM
Acenaphthylene	ND	0.25		mg/Kg	1	6/30/2012 8:24:54 AM
Acenaphthene	ND	0.25		mg/Kg	1	6/30/2012 8:24:54 AM
Fluorene	ND	0.030		mg/Kg	1	6/30/2012 8:24:54 AM
Phenanthrene	ND	0.015		mg/Kg	1	6/30/2012 8:24:54 AM
Anthracene	ND	0.015		mg/Kg	1	6/30/2012 8:24:54 AM
Fluoranthene	ND	0.020		mg/Kg	1	6/30/2012 8:24:54 AM
Pyrene	ND	0.025		mg/Kg	1	6/30/2012 8:24:54 AM
Benz(a)anthracene	ND	0.0099		mg/Kg	1	6/30/2012 8:24:54 AM
Chrysene	ND	0.011		mg/Kg	1	6/30/2012 8:24:54 AM
Benzo(b)fluoranthene	ND	0.0099		mg/Kg	1	6/30/2012 8:24:54 AM
Benzo(k)fluoranthene	ND	0.0099		mg/Kg	1	6/30/2012 8:24:54 AM
Benzo(a)pyrene	ND	0.0099		mg/Kg	1	6/30/2012 8:24:54 AM
Dibenz(a,h)anthracene	ND	0.0099		mg/Kg	1	6/30/2012 8:24:54 AM
Benzo(g,h,i)perylene	ND	0.0099		mg/Kg	1	6/30/2012 8:24:54 AM
Indeno(1,2,3-cd)pyrene	ND	0.0099		mg/Kg	1	6/30/2012 8:24:54 AM
Surr: Benzo(e)pyrene	98.2	35.9-103		%REC	1	6/30/2012 8:24:54 AM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Fluoride	4.4	0.30		mg/Kg	1	6/26/2012 5:13:52 PM
Chloride	110	30		mg/Kg	20	6/26/2012 5:26:17 PM
Nitrogen, Nitrate (As N)	ND	0.30		mg/Kg	1	6/26/2012 5:13:52 PM
Sulfate	460	30		mg/Kg	20	6/26/2012 5:26:17 PM
EPA METHOD 7471: MERCURY						Analyst: **DBD**
Mercury	ND	0.033		mg/Kg	1	6/26/2012 3:37:05 PM
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**
Arsenic	ND	25		mg/Kg	10	7/25/2012 8:16:14 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** API-3
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 1:10:00 PM
Lab ID: 1206992-007 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**
Barium	85	1.0		mg/Kg	10	7/25/2012 8:16:14 PM
Cadmium	ND	1.0		mg/Kg	10	7/25/2012 8:16:14 PM
Chromium	ND	3.0		mg/Kg	10	7/25/2012 8:16:14 PM
Copper	4.5	3.0		mg/Kg	10	7/25/2012 8:16:14 PM
Iron	6200	200		mg/Kg	200	7/25/2012 8:29:41 PM
Lead	5.6	2.5		mg/Kg	10	7/25/2012 8:16:14 PM
Manganese	120	1.0		mg/Kg	10	7/25/2012 8:16:14 PM
Selenium	ND	25		mg/Kg	10	7/26/2012 9:04:13 PM
Silver	ND	2.5		mg/Kg	10	7/25/2012 8:16:14 PM
Uranium	ND	50		mg/Kg	10	7/25/2012 8:16:14 PM
Zinc	ND	25		mg/Kg	10	7/25/2012 8:16:14 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **JDC**
4-Chloro-3-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 4:26:56 PM
2-Chlorophenol	ND	0.20		mg/Kg	1	6/27/2012 4:26:56 PM
2,4-Dichlorophenol	ND	0.40		mg/Kg	1	6/27/2012 4:26:56 PM
2,4-Dimethylphenol	ND	0.30		mg/Kg	1	6/27/2012 4:26:56 PM
4,6-Dinitro-2-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 4:26:56 PM
2,4-Dinitrophenol	ND	0.40		mg/Kg	1	6/27/2012 4:26:56 PM
2-Methylphenol	ND	0.50		mg/Kg	1	6/27/2012 4:26:56 PM
3+4-Methylphenol	ND	0.20		mg/Kg	1	6/27/2012 4:26:56 PM
2-Nitrophenol	ND	0.20		mg/Kg	1	6/27/2012 4:26:56 PM
4-Nitrophenol	ND	0.25		mg/Kg	1	6/27/2012 4:26:56 PM
Pentachlorophenol	ND	0.40		mg/Kg	1	6/27/2012 4:26:56 PM
Phenol	ND	0.20		mg/Kg	1	6/27/2012 4:26:56 PM
2,4,5-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 4:26:56 PM
2,4,6-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 4:26:56 PM
Surr: 2,4,6-Tribromophenol	89.5	20.1-121		%REC	1	6/27/2012 4:26:56 PM
Surr: 2-Fluorobiphenyl	79.2	19-133		%REC	1	6/27/2012 4:26:56 PM
Surr: 2-Fluorophenol	83.5	20.2-108		%REC	1	6/27/2012 4:26:56 PM
Surr: 4-Terphenyl-d14	76.9	18.9-115		%REC	1	6/27/2012 4:26:56 PM
Surr: Nitrobenzene-d5	82.7	20.8-123		%REC	1	6/27/2012 4:26:56 PM
Surr: Phenol-d5	87.8	19.8-115		%REC	1	6/27/2012 4:26:56 PM
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
Toluene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
Methyl tert-butyl ether (MTBE)	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
1,2,4-Trimethylbenzene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
1,3,5-Trimethylbenzene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
1,2-Dichloroethane (EDC)	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
1,2-Dibromoethane (EDB)	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** API-3
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 1:10:00 PM
Lab ID: 1206992-007 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Naphthalene	ND	0.098		mg/Kg	1	6/27/2012 12:31:51 AM
1-Methylnaphthalene	ND	0.20		mg/Kg	1	6/27/2012 12:31:51 AM
2-Methylnaphthalene	ND	0.20		mg/Kg	1	6/27/2012 12:31:51 AM
Acetone	ND	0.73		mg/Kg	1	6/27/2012 12:31:51 AM
Bromobenzene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
Bromodichloromethane	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
Bromoform	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
Bromomethane	ND	0.15		mg/Kg	1	6/27/2012 12:31:51 AM
2-Butanone	ND	0.49		mg/Kg	1	6/27/2012 12:31:51 AM
Carbon disulfide	ND	0.49		mg/Kg	1	6/27/2012 12:31:51 AM
Carbon tetrachloride	ND	0.098		mg/Kg	1	6/27/2012 12:31:51 AM
Chlorobenzene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
Chloroethane	ND	0.098		mg/Kg	1	6/27/2012 12:31:51 AM
Chloroform	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
Chloromethane	ND	0.15		mg/Kg	1	6/27/2012 12:31:51 AM
2-Chlorotoluene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
4-Chlorotoluene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
cis-1,2-DCE	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
cis-1,3-Dichloropropene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
1,2-Dibromo-3-chloropropane	ND	0.098		mg/Kg	1	6/27/2012 12:31:51 AM
Dibromochloromethane	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
Dibromomethane	ND	0.098		mg/Kg	1	6/27/2012 12:31:51 AM
1,2-Dichlorobenzene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
1,3-Dichlorobenzene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
1,4-Dichlorobenzene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
Dichlorodifluoromethane	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
1,1-Dichloroethane	ND	0.098		mg/Kg	1	6/27/2012 12:31:51 AM
1,1-Dichloroethene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
1,2-Dichloropropane	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
1,3-Dichloropropane	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
2,2-Dichloropropane	ND	0.098		mg/Kg	1	6/27/2012 12:31:51 AM
1,1-Dichloropropene	ND	0.098		mg/Kg	1	6/27/2012 12:31:51 AM
Hexachlorobutadiene	ND	0.098		mg/Kg	1	6/27/2012 12:31:51 AM
2-Hexanone	ND	0.49		mg/Kg	1	6/27/2012 12:31:51 AM
Isopropylbenzene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
4-Isopropyltoluene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
4-Methyl-2-pentanone	ND	0.49		mg/Kg	1	6/27/2012 12:31:51 AM
Methylene chloride	ND	0.15		mg/Kg	1	6/27/2012 12:31:51 AM
n-Butylbenzene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
n-Propylbenzene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
sec-Butylbenzene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
Styrene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** API-3
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 1:10:00 PM
Lab ID: 1206992-007 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
tert-Butylbenzene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
1,1,1,2-Tetrachloroethane	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
1,1,2,2-Tetrachloroethane	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
Tetrachloroethene (PCE)	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
trans-1,2-DCE	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
trans-1,3-Dichloropropene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
1,2,3-Trichlorobenzene	ND	0.098		mg/Kg	1	6/27/2012 12:31:51 AM
1,2,4-Trichlorobenzene	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
1,1,1-Trichloroethane	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
1,1,2-Trichloroethane	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
Trichloroethene (TCE)	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
Trichlorofluoromethane	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
1,2,3-Trichloropropane	ND	0.098		mg/Kg	1	6/27/2012 12:31:51 AM
Vinyl chloride	ND	0.049		mg/Kg	1	6/27/2012 12:31:51 AM
Xylenes, Total	ND	0.098		mg/Kg	1	6/27/2012 12:31:51 AM
Surr: 1,2-Dichloroethane-d4	89.9	70-130		%REC	1	6/27/2012 12:31:51 AM
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	6/27/2012 12:31:51 AM
Surr: Dibromofluoromethane	115	71.7-132		%REC	1	6/27/2012 12:31:51 AM
Surr: Toluene-d8	95.5	70-130		%REC	1	6/27/2012 12:31:51 AM
SM4500-H+B: PH						Analyst: **KS**
pH	8.28	1.68		pH Units	1	7/5/2012 3:51:00 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** API-4
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 11:43:00 AM
Lab ID: 1206992-008 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **LRW**
1,2-Dibromoethane	ND	0.099		µg/Kg	1	7/2/2012 2:06:58 PM
EPA METHOD 8082: PCB'S						Analyst: **SCC**
Aroclor 1016	ND	0.020		mg/Kg	1	7/4/2012 2:25:57 PM
Aroclor 1221	ND	0.020		mg/Kg	1	7/4/2012 2:25:57 PM
Aroclor 1232	ND	0.020		mg/Kg	1	7/4/2012 2:25:57 PM
Aroclor 1242	ND	0.020		mg/Kg	1	7/4/2012 2:25:57 PM
Aroclor 1248	ND	0.020		mg/Kg	1	7/4/2012 2:25:57 PM
Aroclor 1254	ND	0.020		mg/Kg	1	7/4/2012 2:25:57 PM
Aroclor 1260	ND	0.020		mg/Kg	1	7/4/2012 2:25:57 PM
Surr: Decachlorobiphenyl	88.0	20.7-114		%REC	1	7/4/2012 2:25:57 PM
EPA METHOD 8310: PAHS						Analyst: **SCC**
Naphthalene	ND	0.25		mg/Kg	1	6/30/2012 8:46:14 AM
1-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 8:46:14 AM
2-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 8:46:14 AM
Acenaphthylene	ND	0.25		mg/Kg	1	6/30/2012 8:46:14 AM
Acenaphthene	ND	0.25		mg/Kg	1	6/30/2012 8:46:14 AM
Fluorene	ND	0.030		mg/Kg	1	6/30/2012 8:46:14 AM
Phenanthrene	ND	0.015		mg/Kg	1	6/30/2012 8:46:14 AM
Anthracene	ND	0.015		mg/Kg	1	6/30/2012 8:46:14 AM
Fluoranthene	ND	0.020		mg/Kg	1	6/30/2012 8:46:14 AM
Pyrene	ND	0.025		mg/Kg	1	6/30/2012 8:46:14 AM
Benz(a)anthracene	ND	0.010		mg/Kg	1	6/30/2012 8:46:14 AM
Chrysene	ND	0.011		mg/Kg	1	6/30/2012 8:46:14 AM
Benzo(b)fluoranthene	ND	0.010		mg/Kg	1	6/30/2012 8:46:14 AM
Benzo(k)fluoranthene	ND	0.010		mg/Kg	1	6/30/2012 8:46:14 AM
Benzo(a)pyrene	ND	0.010		mg/Kg	1	6/30/2012 8:46:14 AM
Dibenz(a,h)anthracene	ND	0.010		mg/Kg	1	6/30/2012 8:46:14 AM
Benzo(g,h,i)perylene	ND	0.010		mg/Kg	1	6/30/2012 8:46:14 AM
Indeno(1,2,3-cd)pyrene	ND	0.010		mg/Kg	1	6/30/2012 8:46:14 AM
Surr: Benzo(e)pyrene	89.6	35.9-103		%REC	1	6/30/2012 8:46:14 AM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Fluoride	2.7	0.30		mg/Kg	1	6/26/2012 6:03:31 PM
Chloride	2700	150		mg/Kg	100	6/27/2012 2:08:54 PM
Nitrogen, Nitrate (As N)	4.2	0.30		mg/Kg	1	6/26/2012 6:03:31 PM
Sulfate	300	30		mg/Kg	20	6/26/2012 6:15:56 PM
EPA METHOD 7471: MERCURY						Analyst: **DBD**
Mercury	ND	0.033		mg/Kg	1	6/26/2012 3:38:51 PM
EPA METHOD 6010B: SOIL METALS						Analyst: **JLF**
Arsenic	ND	25		mg/Kg	10	7/26/2012 5:23:31 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** API-4
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 11:43:00 AM
Lab ID: 1206992-008 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 6010B: SOIL METALS						Analyst: **JLF**
Barium	100	1.0		mg/Kg	10	7/25/2012 8:32:32 PM
Cadmium	ND	1.0		mg/Kg	10	7/25/2012 8:32:32 PM
Chromium	ND	3.0		mg/Kg	10	7/25/2012 8:32:32 PM
Copper	4.5	3.0		mg/Kg	10	7/25/2012 8:32:32 PM
Iron	5000	200		mg/Kg	200	7/25/2012 8:35:06 PM
Lead	4.1	2.5		mg/Kg	10	7/25/2012 8:32:32 PM
Manganese	120	1.0		mg/Kg	10	7/25/2012 8:32:32 PM
Selenium	ND	25		mg/Kg	10	7/26/2012 9:06:41 PM
Silver	ND	2.5		mg/Kg	10	7/25/2012 8:32:32 PM
Uranium	ND	50		mg/Kg	10	7/25/2012 8:32:32 PM
Zinc	ND	25		mg/Kg	10	7/25/2012 8:32:32 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **JDC**
4-Chloro-3-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 7:29:13 PM
2-Chlorophenol	ND	0.20		mg/Kg	1	6/27/2012 7:29:13 PM
2,4-Dichlorophenol	ND	0.40		mg/Kg	1	6/27/2012 7:29:13 PM
2,4-Dimethylphenol	ND	0.30		mg/Kg	1	6/27/2012 7:29:13 PM
4,6-Dinitro-2-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 7:29:13 PM
2,4-Dinitrophenol	ND	0.40		mg/Kg	1	6/27/2012 7:29:13 PM
2-Methylphenol	ND	0.50		mg/Kg	1	6/27/2012 7:29:13 PM
3+4-Methylphenol	ND	0.20		mg/Kg	1	6/27/2012 7:29:13 PM
2-Nitrophenol	ND	0.20		mg/Kg	1	6/27/2012 7:29:13 PM
4-Nitrophenol	ND	0.25		mg/Kg	1	6/27/2012 7:29:13 PM
Pentachlorophenol	ND	0.40		mg/Kg	1	6/27/2012 7:29:13 PM
Phenol	ND	0.20		mg/Kg	1	6/27/2012 7:29:13 PM
2,4,5-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 7:29:13 PM
2,4,6-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 7:29:13 PM
Surr: 2,4,6-Tribromophenol	66.5	20.1-121		%REC	1	6/27/2012 7:29:13 PM
Surr: 2-Fluorobiphenyl	54.8	19-133		%REC	1	6/27/2012 7:29:13 PM
Surr: 2-Fluorophenol	50.4	20.2-108		%REC	1	6/27/2012 7:29:13 PM
Surr: 4-Terphenyl-d14	53.1	18.9-115		%REC	1	6/27/2012 7:29:13 PM
Surr: Nitrobenzene-d5	55.7	20.8-123		%REC	1	6/27/2012 7:29:13 PM
Surr: Phenol-d5	56.7	19.8-115		%REC	1	6/27/2012 7:29:13 PM
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
Toluene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
Ethylbenzene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
Methyl tert-butyl ether (MTBE)	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
1,2,4-Trimethylbenzene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
1,3,5-Trimethylbenzene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
1,2-Dichloroethane (EDC)	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
1,2-Dibromoethane (EDB)	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bisti Landfarm Vadose Zone 5 Yr
Lab ID: 1206992-008 **Matrix:** SOIL

Client Sample ID: API-4
Collection Date: 6/20/2012 11:43:00 AM
Received Date: 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Naphthalene	ND	0.097		mg/Kg	1	6/27/2012 12:59:41 AM
1-Methylnaphthalene	ND	0.19		mg/Kg	1	6/27/2012 12:59:41 AM
2-Methylnaphthalene	ND	0.19		mg/Kg	1	6/27/2012 12:59:41 AM
Acetone	ND	0.73		mg/Kg	1	6/27/2012 12:59:41 AM
Bromobenzene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
Bromodichloromethane	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
Bromoform	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
Bromomethane	ND	0.15		mg/Kg	1	6/27/2012 12:59:41 AM
2-Butanone	ND	0.48		mg/Kg	1	6/27/2012 12:59:41 AM
Carbon disulfide	ND	0.48		mg/Kg	1	6/27/2012 12:59:41 AM
Carbon tetrachloride	ND	0.097		mg/Kg	1	6/27/2012 12:59:41 AM
Chlorobenzene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
Chloroethane	ND	0.097		mg/Kg	1	6/27/2012 12:59:41 AM
Chloroform	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
Chloromethane	ND	0.15		mg/Kg	1	6/27/2012 12:59:41 AM
2-Chlorotoluene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
4-Chlorotoluene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
cis-1,2-DCE	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
cis-1,3-Dichloropropene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
1,2-Dibromo-3-chloropropane	ND	0.097		mg/Kg	1	6/27/2012 12:59:41 AM
Dibromochloromethane	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
Dibromomethane	ND	0.097		mg/Kg	1	6/27/2012 12:59:41 AM
1,2-Dichlorobenzene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
1,3-Dichlorobenzene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
1,4-Dichlorobenzene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
Dichlorodifluoromethane	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
1,1-Dichloroethane	ND	0.097		mg/Kg	1	6/27/2012 12:59:41 AM
1,1-Dichloroethene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
1,2-Dichloropropane	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
1,3-Dichloropropane	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
2,2-Dichloropropane	ND	0.097		mg/Kg	1	6/27/2012 12:59:41 AM
1,1-Dichloropropene	ND	0.097		mg/Kg	1	6/27/2012 12:59:41 AM
Hexachlorobutadiene	ND	0.097		mg/Kg	1	6/27/2012 12:59:41 AM
2-Hexanone	ND	0.48		mg/Kg	1	6/27/2012 12:59:41 AM
Isopropylbenzene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
4-Isopropyltoluene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
4-Methyl-2-pentanone	ND	0.48		mg/Kg	1	6/27/2012 12:59:41 AM
Methylene chloride	ND	0.15		mg/Kg	1	6/27/2012 12:59:41 AM
n-Butylbenzene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
n-Propylbenzene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
sec-Butylbenzene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
Styrene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** API-4
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 11:43:00 AM
Lab ID: 1206992-008 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
tert-Butylbenzene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
1,1,1,2-Tetrachloroethane	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
1,1,2,2-Tetrachloroethane	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
Tetrachloroethene (PCE)	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
trans-1,2-DCE	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
trans-1,3-Dichloropropene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
1,2,3-Trichlorobenzene	ND	0.097		mg/Kg	1	6/27/2012 12:59:41 AM
1,2,4-Trichlorobenzene	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
1,1,1-Trichloroethane	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
1,1,2-Trichloroethane	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
Trichloroethene (TCE)	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
Trichlorofluoromethane	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
1,2,3-Trichloropropane	ND	0.097		mg/Kg	1	6/27/2012 12:59:41 AM
Vinyl chloride	ND	0.048		mg/Kg	1	6/27/2012 12:59:41 AM
Xylenes, Total	ND	0.097		mg/Kg	1	6/27/2012 12:59:41 AM
Surr: 1,2-Dichloroethane-d4	91.3	70-130		%REC	1	6/27/2012 12:59:41 AM
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	6/27/2012 12:59:41 AM
Surr: Dibromofluoromethane	117	71.7-132		%REC	1	6/27/2012 12:59:41 AM
Surr: Toluene-d8	98.5	70-130		%REC	1	6/27/2012 12:59:41 AM
SM4500-H+B: PH						Analyst: **KS**
pH	7.98	1.68		pH Units	1	7/5/2012 3:51:00 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Cell 1-1
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 3:08:00 PM
Lab ID: 1206992-009 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **LRW**
1,2-Dibromoethane	ND	0.099		µg/Kg	1	7/2/2012 2:19:52 PM
EPA METHOD 8082: PCB'S						Analyst: **SCC**
Aroclor 1016	ND	0.020		mg/Kg	1	7/4/2012 3:11:08 PM
Aroclor 1221	ND	0.020		mg/Kg	1	7/4/2012 3:11:08 PM
Aroclor 1232	ND	0.020		mg/Kg	1	7/4/2012 3:11:08 PM
Aroclor 1242	ND	0.020		mg/Kg	1	7/4/2012 3:11:08 PM
Aroclor 1248	ND	0.020		mg/Kg	1	7/4/2012 3:11:08 PM
Aroclor 1254	ND	0.020		mg/Kg	1	7/4/2012 3:11:08 PM
Aroclor 1260	ND	0.020		mg/Kg	1	7/4/2012 3:11:08 PM
Surr: Decachlorobiphenyl	92.0	20.7-114		%REC	1	7/4/2012 3:11:08 PM
EPA METHOD 8310: PAHS						Analyst: **SCC**
Naphthalene	ND	0.25		mg/Kg	1	6/30/2012 9:07:33 AM
1-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 9:07:33 AM
2-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 9:07:33 AM
Acenaphthylene	ND	0.25		mg/Kg	1	6/30/2012 9:07:33 AM
Acenaphthene	ND	0.25		mg/Kg	1	6/30/2012 9:07:33 AM
Fluorene	ND	0.030		mg/Kg	1	6/30/2012 9:07:33 AM
Phenanthrene	ND	0.015		mg/Kg	1	6/30/2012 9:07:33 AM
Anthracene	ND	0.015		mg/Kg	1	6/30/2012 9:07:33 AM
Fluoranthene	ND	0.020		mg/Kg	1	6/30/2012 9:07:33 AM
Pyrene	ND	0.025		mg/Kg	1	6/30/2012 9:07:33 AM
Benz(a)anthracene	ND	0.010		mg/Kg	1	6/30/2012 9:07:33 AM
Chrysene	ND	0.011		mg/Kg	1	6/30/2012 9:07:33 AM
Benzo(b)fluoranthene	ND	0.010		mg/Kg	1	6/30/2012 9:07:33 AM
Benzo(k)fluoranthene	ND	0.010		mg/Kg	1	6/30/2012 9:07:33 AM
Benzo(a)pyrene	ND	0.010		mg/Kg	1	6/30/2012 9:07:33 AM
Dibenz(a,h)anthracene	ND	0.010		mg/Kg	1	6/30/2012 9:07:33 AM
Benzo(g,h,i)perylene	ND	0.010		mg/Kg	1	6/30/2012 9:07:33 AM
Indeno(1,2,3-cd)pyrene	ND	0.010		mg/Kg	1	6/30/2012 9:07:33 AM
Surr: Benzo(e)pyrene	92.5	35.9-103		%REC	1	6/30/2012 9:07:33 AM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Fluoride	4.3	1.5		mg/Kg	5	6/26/2012 6:28:21 PM
Chloride	ND	7.5		mg/Kg	5	6/26/2012 6:28:21 PM
Nitrogen, Nitrate (As N)	ND	1.5		mg/Kg	5	6/26/2012 6:28:21 PM
Sulfate	31	7.5		mg/Kg	5	6/26/2012 6:28:21 PM
EPA METHOD 7471: MERCURY						Analyst: **DBD**
Mercury	ND	0.033		mg/Kg	1	6/26/2012 3:40:37 PM
EPA METHOD 6010B: SOIL METALS						Analyst: **JLF**
Arsenic	ND	25		mg/Kg	10	7/26/2012 5:25:58 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Cell 1-1
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 3:08:00 PM
Lab ID: 1206992-009 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 6010B: SOIL METALS						Analyst: **JLF**
Barium	60	1.0		mg/Kg	10	7/25/2012 8:37:55 PM
Cadmium	ND	1.0		mg/Kg	10	7/25/2012 8:37:55 PM
Chromium	ND	3.0		mg/Kg	10	7/25/2012 8:37:55 PM
Copper	3.9	3.0		mg/Kg	10	7/25/2012 8:37:55 PM
Iron	4600	200		mg/Kg	200	7/25/2012 8:40:29 PM
Lead	3.8	2.5		mg/Kg	10	7/25/2012 8:37:55 PM
Manganese	81	1.0		mg/Kg	10	7/25/2012 8:37:55 PM
Selenium	ND	25		mg/Kg	10	7/26/2012 9:09:07 PM
Silver	ND	2.5		mg/Kg	10	7/25/2012 8:37:55 PM
Uranium	ND	50		mg/Kg	10	7/25/2012 8:37:55 PM
Zinc	ND	25		mg/Kg	10	7/25/2012 8:37:55 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **JDC**
4-Chloro-3-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 4:56:57 PM
2-Chlorophenol	ND	0.20		mg/Kg	1	6/27/2012 4:56:57 PM
2,4-Dichlorophenol	ND	0.40		mg/Kg	1	6/27/2012 4:56:57 PM
2,4-Dimethylphenol	ND	0.30		mg/Kg	1	6/27/2012 4:56:57 PM
4,6-Dinitro-2-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 4:56:57 PM
2,4-Dinitrophenol	ND	0.40		mg/Kg	1	6/27/2012 4:56:57 PM
2-Methylphenol	ND	0.50		mg/Kg	1	6/27/2012 4:56:57 PM
3+4-Methylphenol	ND	0.20		mg/Kg	1	6/27/2012 4:56:57 PM
2-Nitrophenol	ND	0.20		mg/Kg	1	6/27/2012 4:56:57 PM
4-Nitrophenol	ND	0.25		mg/Kg	1	6/27/2012 4:56:57 PM
Pentachlorophenol	ND	0.40		mg/Kg	1	6/27/2012 4:56:57 PM
Phenol	ND	0.20		mg/Kg	1	6/27/2012 4:56:57 PM
2,4,5-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 4:56:57 PM
2,4,6-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 4:56:57 PM
Surr: 2,4,6-Tribromophenol	52.2	20.1-121		%REC	1	6/27/2012 4:56:57 PM
Surr: 2-Fluorobiphenyl	46.8	19-133		%REC	1	6/27/2012 4:56:57 PM
Surr: 2-Fluorophenol	46.3	20.2-108		%REC	1	6/27/2012 4:56:57 PM
Surr: 4-Terphenyl-d14	51.1	18.9-115		%REC	1	6/27/2012 4:56:57 PM
Surr: Nitrobenzene-d5	46.1	20.8-123		%REC	1	6/27/2012 4:56:57 PM
Surr: Phenol-d5	48.7	19.8-115		%REC	1	6/27/2012 4:56:57 PM
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
Toluene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
Ethylbenzene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
Methyl tert-butyl ether (MTBE)	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
1,2,4-Trimethylbenzene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
1,3,5-Trimethylbenzene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
1,2-Dichloroethane (EDC)	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
1,2-Dibromoethane (EDB)	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Cell 1-1
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 3:08:00 PM
Lab ID: 1206992-009 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Naphthalene	ND	0.095		mg/Kg	1	6/27/2012 1:27:26 AM
1-Methylnaphthalene	ND	0.19		mg/Kg	1	6/27/2012 1:27:26 AM
2-Methylnaphthalene	ND	0.19		mg/Kg	1	6/27/2012 1:27:26 AM
Acetone	ND	0.71		mg/Kg	1	6/27/2012 1:27:26 AM
Bromobenzene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
Bromodichloromethane	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
Bromoform	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
Bromomethane	ND	0.14		mg/Kg	1	6/27/2012 1:27:26 AM
2-Butanone	ND	0.47		mg/Kg	1	6/27/2012 1:27:26 AM
Carbon disulfide	ND	0.47		mg/Kg	1	6/27/2012 1:27:26 AM
Carbon tetrachloride	ND	0.095		mg/Kg	1	6/27/2012 1:27:26 AM
Chlorobenzene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
Chloroethane	ND	0.095		mg/Kg	1	6/27/2012 1:27:26 AM
Chloroform	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
Chloromethane	ND	0.14		mg/Kg	1	6/27/2012 1:27:26 AM
2-Chlorotoluene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
4-Chlorotoluene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
cis-1,2-DCE	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
cis-1,3-Dichloropropene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
1,2-Dibromo-3-chloropropane	ND	0.095		mg/Kg	1	6/27/2012 1:27:26 AM
Dibromochloromethane	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
Dibromomethane	ND	0.095		mg/Kg	1	6/27/2012 1:27:26 AM
1,2-Dichlorobenzene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
1,3-Dichlorobenzene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
1,4-Dichlorobenzene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
Dichlorodifluoromethane	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
1,1-Dichloroethane	ND	0.095		mg/Kg	1	6/27/2012 1:27:26 AM
1,1-Dichloroethene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
1,2-Dichloropropane	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
1,3-Dichloropropane	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
2,2-Dichloropropane	ND	0.095		mg/Kg	1	6/27/2012 1:27:26 AM
1,1-Dichloropropene	ND	0.095		mg/Kg	1	6/27/2012 1:27:26 AM
Hexachlorobutadiene	ND	0.095		mg/Kg	1	6/27/2012 1:27:26 AM
2-Hexanone	ND	0.47		mg/Kg	1	6/27/2012 1:27:26 AM
Isopropylbenzene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
4-Isopropyltoluene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
4-Methyl-2-pentanone	ND	0.47		mg/Kg	1	6/27/2012 1:27:26 AM
Methylene chloride	ND	0.14		mg/Kg	1	6/27/2012 1:27:26 AM
n-Butylbenzene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
n-Propylbenzene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
sec-Butylbenzene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
Styrene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Cell 1-1
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 3:08:00 PM
Lab ID: 1206992-009 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
tert-Butylbenzene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
1,1,1,2-Tetrachloroethane	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
1,1,2,2-Tetrachloroethane	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
Tetrachloroethene (PCE)	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
trans-1,2-DCE	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
trans-1,3-Dichloropropene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
1,2,3-Trichlorobenzene	ND	0.095		mg/Kg	1	6/27/2012 1:27:26 AM
1,2,4-Trichlorobenzene	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
1,1,1-Trichloroethane	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
1,1,2-Trichloroethane	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
Trichloroethene (TCE)	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
Trichlorofluoromethane	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
1,2,3-Trichloropropane	ND	0.095		mg/Kg	1	6/27/2012 1:27:26 AM
Vinyl chloride	ND	0.047		mg/Kg	1	6/27/2012 1:27:26 AM
Xylenes, Total	ND	0.095		mg/Kg	1	6/27/2012 1:27:26 AM
Surr: 1,2-Dichloroethane-d4	94.3	70-130		%REC	1	6/27/2012 1:27:26 AM
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	6/27/2012 1:27:26 AM
Surr: Dibromofluoromethane	118	71.7-132		%REC	1	6/27/2012 1:27:26 AM
Surr: Toluene-d8	95.2	70-130		%REC	1	6/27/2012 1:27:26 AM
SM4500-H+B: PH						Analyst: **KS**
pH	9.26	1.68		pH Units	1	7/5/2012 3:51:00 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Cell 1-2
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 3:26:00 PM
Lab ID: 1206992-010 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **LRW**
1,2-Dibromoethane	ND	0.10		µg/Kg	1	7/2/2012 2:32:47 PM
EPA METHOD 8082: PCB'S						Analyst: **SCC**
Aroclor 1016	ND	0.020		mg/Kg	1	7/4/2012 3:56:36 PM
Aroclor 1221	ND	0.020		mg/Kg	1	7/4/2012 3:56:36 PM
Aroclor 1232	ND	0.020		mg/Kg	1	7/4/2012 3:56:36 PM
Aroclor 1242	ND	0.020		mg/Kg	1	7/4/2012 3:56:36 PM
Aroclor 1248	ND	0.020		mg/Kg	1	7/4/2012 3:56:36 PM
Aroclor 1254	ND	0.020		mg/Kg	1	7/4/2012 3:56:36 PM
Aroclor 1260	ND	0.020		mg/Kg	1	7/4/2012 3:56:36 PM
Surr: Decachlorobiphenyl	50.0	20.7-114		%REC	1	7/4/2012 3:56:36 PM
EPA METHOD 8310: PAHS						Analyst: **SCC**
Naphthalene	ND	0.25		mg/Kg	1	6/30/2012 9:28:53 AM
1-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 9:28:53 AM
2-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 9:28:53 AM
Acenaphthylene	ND	0.25		mg/Kg	1	6/30/2012 9:28:53 AM
Acenaphthene	ND	0.25		mg/Kg	1	6/30/2012 9:28:53 AM
Fluorene	ND	0.030		mg/Kg	1	6/30/2012 9:28:53 AM
Phenanthrene	ND	0.015		mg/Kg	1	6/30/2012 9:28:53 AM
Anthracene	ND	0.015		mg/Kg	1	6/30/2012 9:28:53 AM
Fluoranthene	ND	0.020		mg/Kg	1	6/30/2012 9:28:53 AM
Pyrene	ND	0.025		mg/Kg	1	6/30/2012 9:28:53 AM
Benz(a)anthracene	ND	0.010		mg/Kg	1	6/30/2012 9:28:53 AM
Chrysene	ND	0.011		mg/Kg	1	6/30/2012 9:28:53 AM
Benzo(b)fluoranthene	ND	0.010		mg/Kg	1	6/30/2012 9:28:53 AM
Benzo(k)fluoranthene	ND	0.010		mg/Kg	1	6/30/2012 9:28:53 AM
Benzo(a)pyrene	ND	0.010		mg/Kg	1	6/30/2012 9:28:53 AM
Dibenz(a,h)anthracene	ND	0.010		mg/Kg	1	6/30/2012 9:28:53 AM
Benzo(g,h,i)perylene	ND	0.010		mg/Kg	1	6/30/2012 9:28:53 AM
Indeno(1,2,3-cd)pyrene	ND	0.010		mg/Kg	1	6/30/2012 9:28:53 AM
Surr: Benzo(e)pyrene	95.5	35.9-103		%REC	1	6/30/2012 9:28:53 AM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Fluoride	6.0	1.5		mg/Kg	5	6/26/2012 6:53:11 PM
Chloride	ND	7.5		mg/Kg	5	6/26/2012 6:53:11 PM
Nitrogen, Nitrate (As N)	ND	1.5		mg/Kg	5	6/26/2012 6:53:11 PM
Sulfate	21	7.5		mg/Kg	5	6/26/2012 6:53:11 PM
EPA METHOD 7471: MERCURY						Analyst: **DBD**
Mercury	ND	0.033		mg/Kg	1	6/26/2012 3:42:24 PM
EPA METHOD 6010B: SOIL METALS						Analyst: **JLF**
Arsenic	ND	25		mg/Kg	10	7/26/2012 5:28:35 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Client Sample ID: Cell 1-2
Project: Bisti Landfarm Vadose Zone 5 Yr
Collection Date: 6/20/2012 3:26:00 PM
Lab ID: 1206992-010
Matrix: SOIL
Received Date: 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 6010B: SOIL METALS						Analyst: **JLF**
Barium	110	0.50		mg/Kg	5	7/20/2012 11:39:44 AM
Cadmium	ND	0.50		mg/Kg	5	7/20/2012 11:39:44 AM
Chromium	3.6	1.5		mg/Kg	5	7/20/2012 11:39:44 AM
Copper	4.5	3.0		mg/Kg	10	7/25/2012 8:43:17 PM
Iron	6300	200		mg/Kg	200	7/26/2012 5:31:02 PM
Lead	4.0	2.5		mg/Kg	10	7/25/2012 8:43:17 PM
Manganese	130	0.50		mg/Kg	5	7/20/2012 11:39:44 AM
Selenium	ND	12		mg/Kg	5	7/20/2012 11:39:44 AM
Silver	ND	1.2		mg/Kg	5	7/20/2012 11:39:44 AM
Uranium	ND	25		mg/Kg	5	7/20/2012 11:39:44 AM
Zinc	ND	25		mg/Kg	10	7/25/2012 8:43:17 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **JDC**
4-Chloro-3-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 8:29:58 PM
2-Chlorophenol	ND	0.20		mg/Kg	1	6/27/2012 8:29:58 PM
2,4-Dichlorophenol	ND	0.40		mg/Kg	1	6/27/2012 8:29:58 PM
2,4-Dimethylphenol	ND	0.30		mg/Kg	1	6/27/2012 8:29:58 PM
4,6-Dinitro-2-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 8:29:58 PM
2,4-Dinitrophenol	ND	0.40		mg/Kg	1	6/27/2012 8:29:58 PM
2-Methylphenol	ND	0.50		mg/Kg	1	6/27/2012 8:29:58 PM
3+4-Methylphenol	ND	0.20		mg/Kg	1	6/27/2012 8:29:58 PM
2-Nitrophenol	ND	0.20		mg/Kg	1	6/27/2012 8:29:58 PM
4-Nitrophenol	ND	0.25		mg/Kg	1	6/27/2012 8:29:58 PM
Pentachlorophenol	ND	0.40		mg/Kg	1	6/27/2012 8:29:58 PM
Phenol	ND	0.20		mg/Kg	1	6/27/2012 8:29:58 PM
2,4,5-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 8:29:58 PM
2,4,6-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 8:29:58 PM
Surr: 2,4,6-Tribromophenol	45.3	20.1-121		%REC	1	6/27/2012 8:29:58 PM
Surr: 2-Fluorobiphenyl	39.0	19-133		%REC	1	6/27/2012 8:29:58 PM
Surr: 2-Fluorophenol	39.3	20.2-108		%REC	1	6/27/2012 8:29:58 PM
Surr: 4-Terphenyl-d14	42.5	18.9-115		%REC	1	6/27/2012 8:29:58 PM
Surr: Nitrobenzene-d5	42.1	20.8-123		%REC	1	6/27/2012 8:29:58 PM
Surr: Phenol-d5	43.1	19.8-115		%REC	1	6/27/2012 8:29:58 PM
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
Toluene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
Ethylbenzene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
Methyl tert-butyl ether (MTBE)	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
1,2,4-Trimethylbenzene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
1,3,5-Trimethylbenzene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
1,2-Dichloroethane (EDC)	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
1,2-Dibromoethane (EDB)	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Cell 1-2
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 3:26:00 PM
Lab ID: 1206992-010 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Naphthalene	ND	0.098		mg/Kg	1	6/27/2012 1:55:12 AM
1-Methylnaphthalene	ND	0.20		mg/Kg	1	6/27/2012 1:55:12 AM
2-Methylnaphthalene	ND	0.20		mg/Kg	1	6/27/2012 1:55:12 AM
Acetone	ND	0.74		mg/Kg	1	6/27/2012 1:55:12 AM
Bromobenzene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
Bromodichloromethane	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
Bromoform	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
Bromomethane	ND	0.15		mg/Kg	1	6/27/2012 1:55:12 AM
2-Butanone	ND	0.49		mg/Kg	1	6/27/2012 1:55:12 AM
Carbon disulfide	ND	0.49		mg/Kg	1	6/27/2012 1:55:12 AM
Carbon tetrachloride	ND	0.098		mg/Kg	1	6/27/2012 1:55:12 AM
Chlorobenzene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
Chloroethane	ND	0.098		mg/Kg	1	6/27/2012 1:55:12 AM
Chloroform	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
Chloromethane	ND	0.15		mg/Kg	1	6/27/2012 1:55:12 AM
2-Chlorotoluene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
4-Chlorotoluene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
cis-1,2-DCE	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
cis-1,3-Dichloropropene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
1,2-Dibromo-3-chloropropane	ND	0.098		mg/Kg	1	6/27/2012 1:55:12 AM
Dibromochloromethane	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
Dibromomethane	ND	0.098		mg/Kg	1	6/27/2012 1:55:12 AM
1,2-Dichlorobenzene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
1,3-Dichlorobenzene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
1,4-Dichlorobenzene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
Dichlorodifluoromethane	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
1,1-Dichloroethane	ND	0.098		mg/Kg	1	6/27/2012 1:55:12 AM
1,1-Dichloroethene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
1,2-Dichloropropane	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
1,3-Dichloropropane	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
2,2-Dichloropropane	ND	0.098		mg/Kg	1	6/27/2012 1:55:12 AM
1,1-Dichloropropene	ND	0.098		mg/Kg	1	6/27/2012 1:55:12 AM
Hexachlorobutadiene	ND	0.098		mg/Kg	1	6/27/2012 1:55:12 AM
2-Hexanone	ND	0.49		mg/Kg	1	6/27/2012 1:55:12 AM
Isopropylbenzene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
4-Isopropyltoluene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
4-Methyl-2-pentanone	ND	0.49		mg/Kg	1	6/27/2012 1:55:12 AM
Methylene chloride	ND	0.15		mg/Kg	1	6/27/2012 1:55:12 AM
n-Butylbenzene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
n-Propylbenzene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
sec-Butylbenzene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
Styrene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Cell 1-2
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 3:26:00 PM
Lab ID: 1206992-010 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
tert-Butylbenzene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
1,1,1,2-Tetrachloroethane	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
1,1,2,2-Tetrachloroethane	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
Tetrachloroethene (PCE)	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
trans-1,2-DCE	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
trans-1,3-Dichloropropene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
1,2,3-Trichlorobenzene	ND	0.098		mg/Kg	1	6/27/2012 1:55:12 AM
1,2,4-Trichlorobenzene	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
1,1,1-Trichloroethane	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
1,1,2-Trichloroethane	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
Trichloroethene (TCE)	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
Trichlorofluoromethane	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
1,2,3-Trichloropropane	ND	0.098		mg/Kg	1	6/27/2012 1:55:12 AM
Vinyl chloride	ND	0.049		mg/Kg	1	6/27/2012 1:55:12 AM
Xylenes, Total	ND	0.098		mg/Kg	1	6/27/2012 1:55:12 AM
Surr: 1,2-Dichloroethane-d4	92.0	70-130		%REC	1	6/27/2012 1:55:12 AM
Surr: 4-Bromofluorobenzene	100	70-130		%REC	1	6/27/2012 1:55:12 AM
Surr: Dibromofluoromethane	112	71.7-132		%REC	1	6/27/2012 1:55:12 AM
Surr: Toluene-d8	95.7	70-130		%REC	1	6/27/2012 1:55:12 AM
SM4500-H+B: PH						Analyst: **KS**
pH	9.27	1.68		pH Units	1	7/5/2012 3:51:00 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Cell 1-3
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 3:49:00 PM
Lab ID: 1206992-011 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **LRW**
1,2-Dibromoethane	ND	0.10		µg/Kg	1	7/2/2012 2:45:45 PM
EPA METHOD 8082: PCB'S						Analyst: **SCC**
Aroclor 1016	ND	0.020		mg/Kg	1	7/4/2012 4:41:58 PM
Aroclor 1221	ND	0.020		mg/Kg	1	7/4/2012 4:41:58 PM
Aroclor 1232	ND	0.020		mg/Kg	1	7/4/2012 4:41:58 PM
Aroclor 1242	ND	0.020		mg/Kg	1	7/4/2012 4:41:58 PM
Aroclor 1248	ND	0.020		mg/Kg	1	7/4/2012 4:41:58 PM
Aroclor 1254	ND	0.020		mg/Kg	1	7/4/2012 4:41:58 PM
Aroclor 1260	ND	0.020		mg/Kg	1	7/4/2012 4:41:58 PM
Surr: Decachlorobiphenyl	91.6	20.7-114		%REC	1	7/4/2012 4:41:58 PM
EPA METHOD 8310: PAHS						Analyst: **SCC**
Naphthalene	ND	0.25		mg/Kg	1	6/30/2012 9:50:12 AM
1-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 9:50:12 AM
2-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 9:50:12 AM
Acenaphthylene	ND	0.25		mg/Kg	1	6/30/2012 9:50:12 AM
Acenaphthene	ND	0.25		mg/Kg	1	6/30/2012 9:50:12 AM
Fluorene	ND	0.030		mg/Kg	1	6/30/2012 9:50:12 AM
Phenanthrene	ND	0.015		mg/Kg	1	6/30/2012 9:50:12 AM
Anthracene	ND	0.015		mg/Kg	1	6/30/2012 9:50:12 AM
Fluoranthene	ND	0.020		mg/Kg	1	6/30/2012 9:50:12 AM
Pyrene	ND	0.025		mg/Kg	1	6/30/2012 9:50:12 AM
Benz(a)anthracene	ND	0.0098		mg/Kg	1	6/30/2012 9:50:12 AM
Chrysene	ND	0.011		mg/Kg	1	6/30/2012 9:50:12 AM
Benzo(b)fluoranthene	ND	0.0098		mg/Kg	1	6/30/2012 9:50:12 AM
Benzo(k)fluoranthene	ND	0.0098		mg/Kg	1	6/30/2012 9:50:12 AM
Benzo(a)pyrene	ND	0.0098		mg/Kg	1	6/30/2012 9:50:12 AM
Dibenz(a,h)anthracene	ND	0.0098		mg/Kg	1	6/30/2012 9:50:12 AM
Benzo(g,h,i)perylene	ND	0.0098		mg/Kg	1	6/30/2012 9:50:12 AM
Indeno(1,2,3-cd)pyrene	ND	0.0098		mg/Kg	1	6/30/2012 9:50:12 AM
Surr: Benzo(e)pyrene	98.3	35.9-103		%REC	1	6/30/2012 9:50:12 AM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Fluoride	3.3	1.5		mg/Kg	5	6/26/2012 7:18:00 PM
Chloride	ND	7.5		mg/Kg	5	6/26/2012 7:18:00 PM
Nitrogen, Nitrate (As N)	ND	1.5		mg/Kg	5	6/26/2012 7:18:00 PM
Sulfate	17	7.5		mg/Kg	5	6/26/2012 7:18:00 PM
EPA METHOD 7471: MERCURY						Analyst: **DBD**
Mercury	ND	0.033		mg/Kg	1	6/26/2012 3:44:10 PM
EPA METHOD 6010B: SOIL METALS						Analyst: **JLF**
Arsenic	ND	25		mg/Kg	10	7/26/2012 5:33:51 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Cell 1-3
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 3:49:00 PM
Lab ID: 1206992-011 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 6010B: SOIL METALS						Analyst: **JLF**
Barium	130	0.50		mg/Kg	5	7/20/2012 11:44:24 AM
Cadmium	ND	0.50		mg/Kg	5	7/20/2012 11:44:24 AM
Chromium	2.4	1.5		mg/Kg	5	7/20/2012 11:44:24 AM
Copper	4.1	3.0		mg/Kg	10	7/25/2012 8:45:58 PM
Iron	5600	200		mg/Kg	200	7/26/2012 5:36:10 PM
Lead	3.9	2.5		mg/Kg	10	7/25/2012 8:45:58 PM
Manganese	170	0.50		mg/Kg	5	7/20/2012 11:44:24 AM
Selenium	ND	12		mg/Kg	5	7/20/2012 11:44:24 AM
Silver	ND	1.2		mg/Kg	5	7/20/2012 11:44:24 AM
Uranium	ND	25		mg/Kg	5	7/20/2012 11:44:24 AM
Zinc	ND	25		mg/Kg	10	7/25/2012 8:45:58 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **JDC**
4-Chloro-3-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 6:58:46 PM
2-Chlorophenol	ND	0.20		mg/Kg	1	6/27/2012 6:58:46 PM
2,4-Dichlorophenol	ND	0.40		mg/Kg	1	6/27/2012 6:58:46 PM
2,4-Dimethylphenol	ND	0.30		mg/Kg	1	6/27/2012 6:58:46 PM
4,6-Dinitro-2-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 6:58:46 PM
2,4-Dinitrophenol	ND	0.40		mg/Kg	1	6/27/2012 6:58:46 PM
2-Methylphenol	ND	0.50		mg/Kg	1	6/27/2012 6:58:46 PM
3+4-Methylphenol	ND	0.20		mg/Kg	1	6/27/2012 6:58:46 PM
2-Nitrophenol	ND	0.20		mg/Kg	1	6/27/2012 6:58:46 PM
4-Nitrophenol	ND	0.25		mg/Kg	1	6/27/2012 6:58:46 PM
Pentachlorophenol	ND	0.40		mg/Kg	1	6/27/2012 6:58:46 PM
Phenol	ND	0.20		mg/Kg	1	6/27/2012 6:58:46 PM
2,4,5-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 6:58:46 PM
2,4,6-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 6:58:46 PM
Surr: 2,4,6-Tribromophenol	89.6	20.1-121		%REC	1	6/27/2012 6:58:46 PM
Surr: 2-Fluorobiphenyl	83.9	19-133		%REC	1	6/27/2012 6:58:46 PM
Surr: 2-Fluorophenol	75.7	20.2-108		%REC	1	6/27/2012 6:58:46 PM
Surr: 4-Terphenyl-d14	70.8	18.9-115		%REC	1	6/27/2012 6:58:46 PM
Surr: Nitrobenzene-d5	81.4	20.8-123		%REC	1	6/27/2012 6:58:46 PM
Surr: Phenol-d5	81.0	19.8-115		%REC	1	6/27/2012 6:58:46 PM
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
Toluene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
Ethylbenzene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
Methyl tert-butyl ether (MTBE)	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
1,2,4-Trimethylbenzene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
1,3,5-Trimethylbenzene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
1,2-Dichloroethane (EDC)	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
1,2-Dibromoethane (EDB)	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Cell 1-3
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 3:49:00 PM
Lab ID: 1206992-011 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Naphthalene	ND	0.093		mg/Kg	1	6/27/2012 2:22:54 AM
1-Methylnaphthalene	ND	0.19		mg/Kg	1	6/27/2012 2:22:54 AM
2-Methylnaphthalene	ND	0.19		mg/Kg	1	6/27/2012 2:22:54 AM
Acetone	ND	0.70		mg/Kg	1	6/27/2012 2:22:54 AM
Bromobenzene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
Bromodichloromethane	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
Bromoform	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
Bromomethane	ND	0.14		mg/Kg	1	6/27/2012 2:22:54 AM
2-Butanone	ND	0.46		mg/Kg	1	6/27/2012 2:22:54 AM
Carbon disulfide	ND	0.46		mg/Kg	1	6/27/2012 2:22:54 AM
Carbon tetrachloride	ND	0.093		mg/Kg	1	6/27/2012 2:22:54 AM
Chlorobenzene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
Chloroethane	ND	0.093		mg/Kg	1	6/27/2012 2:22:54 AM
Chloroform	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
Chloromethane	ND	0.14		mg/Kg	1	6/27/2012 2:22:54 AM
2-Chlorotoluene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
4-Chlorotoluene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
cis-1,2-DCE	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
cis-1,3-Dichloropropene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
1,2-Dibromo-3-chloropropane	ND	0.093		mg/Kg	1	6/27/2012 2:22:54 AM
Dibromochloromethane	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
Dibromomethane	ND	0.093		mg/Kg	1	6/27/2012 2:22:54 AM
1,2-Dichlorobenzene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
1,3-Dichlorobenzene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
1,4-Dichlorobenzene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
Dichlorodifluoromethane	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
1,1-Dichloroethane	ND	0.093		mg/Kg	1	6/27/2012 2:22:54 AM
1,1-Dichloroethene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
1,2-Dichloropropane	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
1,3-Dichloropropane	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
2,2-Dichloropropane	ND	0.093		mg/Kg	1	6/27/2012 2:22:54 AM
1,1-Dichloropropene	ND	0.093		mg/Kg	1	6/27/2012 2:22:54 AM
Hexachlorobutadiene	ND	0.093		mg/Kg	1	6/27/2012 2:22:54 AM
2-Hexanone	ND	0.46		mg/Kg	1	6/27/2012 2:22:54 AM
Isopropylbenzene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
4-Isopropyltoluene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
4-Methyl-2-pentanone	ND	0.46		mg/Kg	1	6/27/2012 2:22:54 AM
Methylene chloride	ND	0.14		mg/Kg	1	6/27/2012 2:22:54 AM
n-Butylbenzene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
n-Propylbenzene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
sec-Butylbenzene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
Styrene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Cell 1-3
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012 3:49:00 PM
Lab ID: 1206992-011 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
tert-Butylbenzene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
1,1,1,2-Tetrachloroethane	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
1,1,2,2-Tetrachloroethane	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
Tetrachloroethene (PCE)	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
trans-1,2-DCE	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
trans-1,3-Dichloropropene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
1,2,3-Trichlorobenzene	ND	0.093		mg/Kg	1	6/27/2012 2:22:54 AM
1,2,4-Trichlorobenzene	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
1,1,1-Trichloroethane	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
1,1,2-Trichloroethane	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
Trichloroethene (TCE)	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
Trichlorofluoromethane	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
1,2,3-Trichloropropane	ND	0.093		mg/Kg	1	6/27/2012 2:22:54 AM
Vinyl chloride	ND	0.046		mg/Kg	1	6/27/2012 2:22:54 AM
Xylenes, Total	ND	0.093		mg/Kg	1	6/27/2012 2:22:54 AM
Surr: 1,2-Dichloroethane-d4	94.1	70-130		%REC	1	6/27/2012 2:22:54 AM
Surr: 4-Bromofluorobenzene	104	70-130		%REC	1	6/27/2012 2:22:54 AM
Surr: Dibromofluoromethane	117	71.7-132		%REC	1	6/27/2012 2:22:54 AM
Surr: Toluene-d8	97.8	70-130		%REC	1	6/27/2012 2:22:54 AM
SM4500-H+B: PH						Analyst: **KS**
pH	9.23	1.68		pH Units	1	7/5/2012 3:51:00 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Cell 1-4
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012
Lab ID: 1206992-012 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **LRW**
1,2-Dibromoethane	ND	0.10		µg/Kg	1	7/2/2012 2:58:40 PM
EPA METHOD 8082: PCB'S						Analyst: **SCC**
Aroclor 1016	ND	0.020		mg/Kg	1	7/4/2012 5:27:39 PM
Aroclor 1221	ND	0.020		mg/Kg	1	7/4/2012 5:27:39 PM
Aroclor 1232	ND	0.020		mg/Kg	1	7/4/2012 5:27:39 PM
Aroclor 1242	ND	0.020		mg/Kg	1	7/4/2012 5:27:39 PM
Aroclor 1248	ND	0.020		mg/Kg	1	7/4/2012 5:27:39 PM
Aroclor 1254	ND	0.020		mg/Kg	1	7/4/2012 5:27:39 PM
Aroclor 1260	ND	0.020		mg/Kg	1	7/4/2012 5:27:39 PM
Surr: Decachlorobiphenyl	91.6	20.7-114		%REC	1	7/4/2012 5:27:39 PM
EPA METHOD 8310: PAHS						Analyst: **SCC**
Naphthalene	ND	0.25		mg/Kg	1	6/30/2012 10:11:37 AM
1-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 10:11:37 AM
2-Methylnaphthalene	ND	0.25		mg/Kg	1	6/30/2012 10:11:37 AM
Acenaphthylene	ND	0.25		mg/Kg	1	6/30/2012 10:11:37 AM
Acenaphthene	ND	0.25		mg/Kg	1	6/30/2012 10:11:37 AM
Fluorene	ND	0.030		mg/Kg	1	6/30/2012 10:11:37 AM
Phenanthrene	ND	0.015		mg/Kg	1	6/30/2012 10:11:37 AM
Anthracene	ND	0.015		mg/Kg	1	6/30/2012 10:11:37 AM
Fluoranthene	ND	0.020		mg/Kg	1	6/30/2012 10:11:37 AM
Pyrene	ND	0.025		mg/Kg	1	6/30/2012 10:11:37 AM
Benz(a)anthracene	ND	0.0099		mg/Kg	1	6/30/2012 10:11:37 AM
Chrysene	ND	0.011		mg/Kg	1	6/30/2012 10:11:37 AM
Benzo(b)fluoranthene	ND	0.0099		mg/Kg	1	6/30/2012 10:11:37 AM
Benzo(k)fluoranthene	ND	0.0099		mg/Kg	1	6/30/2012 10:11:37 AM
Benzo(a)pyrene	ND	0.0099		mg/Kg	1	6/30/2012 10:11:37 AM
Dibenz(a,h)anthracene	ND	0.0099		mg/Kg	1	6/30/2012 10:11:37 AM
Benzo(g,h,i)perylene	ND	0.0099		mg/Kg	1	6/30/2012 10:11:37 AM
Indeno(1,2,3-cd)pyrene	ND	0.0099		mg/Kg	1	6/30/2012 10:11:37 AM
Surr: Benzo(e)pyrene	93.2	35.9-103		%REC	1	6/30/2012 10:11:37 AM
EPA METHOD 300.0: ANIONS						Analyst: **BRM**
Fluoride	1.5	1.5		mg/Kg	5	6/26/2012 7:42:50 PM
Chloride	ND	7.5		mg/Kg	5	6/26/2012 7:42:50 PM
Nitrogen, Nitrate (As N)	ND	1.5		mg/Kg	5	6/26/2012 7:42:50 PM
Sulfate	12	7.5		mg/Kg	5	6/26/2012 7:42:50 PM
EPA METHOD 7471: MERCURY						Analyst: **DBD**
Mercury	ND	0.033		mg/Kg	1	6/26/2012 3:45:57 PM
EPA METHOD 6010B: SOIL METALS						Analyst: **JLF**
Arsenic	ND	25		mg/Kg	10	7/26/2012 5:38:49 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Cell 1-4
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012
Lab ID: 1206992-012 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 6010B: SOIL METALS						Analyst: **JLF**
Barium	160	0.50		mg/Kg	5	7/20/2012 11:48:59 AM
Cadmium	ND	0.50		mg/Kg	5	7/20/2012 11:48:59 AM
Chromium	4.0	1.5		mg/Kg	5	7/20/2012 11:48:59 AM
Copper	5.3	3.0		mg/Kg	10	7/25/2012 8:48:34 PM
Iron	6200	200		mg/Kg	200	7/26/2012 5:41:21 PM
Lead	4.4	2.5		mg/Kg	10	7/25/2012 8:48:34 PM
Manganese	130	0.50		mg/Kg	5	7/20/2012 11:48:59 AM
Selenium	ND	12		mg/Kg	5	7/20/2012 11:48:59 AM
Silver	ND	1.2		mg/Kg	5	7/20/2012 11:48:59 AM
Uranium	ND	25		mg/Kg	5	7/20/2012 11:48:59 AM
Zinc	ND	25		mg/Kg	10	7/25/2012 8:48:34 PM
EPA METHOD 8270C: SEMIVOLATILES						Analyst: **JDC**
4-Chloro-3-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 9:00:18 PM
2-Chlorophenol	ND	0.20		mg/Kg	1	6/27/2012 9:00:18 PM
2,4-Dichlorophenol	ND	0.40		mg/Kg	1	6/27/2012 9:00:18 PM
2,4-Dimethylphenol	ND	0.30		mg/Kg	1	6/27/2012 9:00:18 PM
4,6-Dinitro-2-methylphenol	ND	0.50		mg/Kg	1	6/27/2012 9:00:18 PM
2,4-Dinitrophenol	ND	0.40		mg/Kg	1	6/27/2012 9:00:18 PM
2-Methylphenol	ND	0.50		mg/Kg	1	6/27/2012 9:00:18 PM
3+4-Methylphenol	ND	0.20		mg/Kg	1	6/27/2012 9:00:18 PM
2-Nitrophenol	ND	0.20		mg/Kg	1	6/27/2012 9:00:18 PM
4-Nitrophenol	ND	0.25		mg/Kg	1	6/27/2012 9:00:18 PM
Pentachlorophenol	ND	0.40		mg/Kg	1	6/27/2012 9:00:18 PM
Phenol	ND	0.20		mg/Kg	1	6/27/2012 9:00:18 PM
2,4,5-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 9:00:18 PM
2,4,6-Trichlorophenol	ND	0.20		mg/Kg	1	6/27/2012 9:00:18 PM
Surr: 2,4,6-Tribromophenol	86.1	20.1-121		%REC	1	6/27/2012 9:00:18 PM
Surr: 2-Fluorobiphenyl	75.6	19-133		%REC	1	6/27/2012 9:00:18 PM
Surr: 2-Fluorophenol	72.3	20.2-108		%REC	1	6/27/2012 9:00:18 PM
Surr: 4-Terphenyl-d14	69.8	18.9-115		%REC	1	6/27/2012 9:00:18 PM
Surr: Nitrobenzene-d5	78.9	20.8-123		%REC	1	6/27/2012 9:00:18 PM
Surr: Phenol-d5	83.2	19.8-115		%REC	1	6/27/2012 9:00:18 PM
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Benzene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
Toluene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
Ethylbenzene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
Methyl tert-butyl ether (MTBE)	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
1,2,4-Trimethylbenzene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
1,3,5-Trimethylbenzene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
1,2-Dichloroethane (EDC)	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
1,2-Dibromoethane (EDB)	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Cell 1-4
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012
Lab ID: 1206992-012 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
Naphthalene	ND	0.095		mg/Kg	1	6/27/2012 2:50:42 AM
1-Methylnaphthalene	ND	0.19		mg/Kg	1	6/27/2012 2:50:42 AM
2-Methylnaphthalene	ND	0.19		mg/Kg	1	6/27/2012 2:50:42 AM
Acetone	ND	0.72		mg/Kg	1	6/27/2012 2:50:42 AM
Bromobenzene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
Bromodichloromethane	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
Bromoform	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
Bromomethane	ND	0.14		mg/Kg	1	6/27/2012 2:50:42 AM
2-Butanone	ND	0.48		mg/Kg	1	6/27/2012 2:50:42 AM
Carbon disulfide	ND	0.48		mg/Kg	1	6/27/2012 2:50:42 AM
Carbon tetrachloride	ND	0.095		mg/Kg	1	6/27/2012 2:50:42 AM
Chlorobenzene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
Chloroethane	ND	0.095		mg/Kg	1	6/27/2012 2:50:42 AM
Chloroform	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
Chloromethane	ND	0.14		mg/Kg	1	6/27/2012 2:50:42 AM
2-Chlorotoluene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
4-Chlorotoluene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
cis-1,2-DCE	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
cis-1,3-Dichloropropene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
1,2-Dibromo-3-chloropropane	ND	0.095		mg/Kg	1	6/27/2012 2:50:42 AM
Dibromochloromethane	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
Dibromomethane	ND	0.095		mg/Kg	1	6/27/2012 2:50:42 AM
1,2-Dichlorobenzene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
1,3-Dichlorobenzene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
1,4-Dichlorobenzene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
Dichlorodifluoromethane	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
1,1-Dichloroethane	ND	0.095		mg/Kg	1	6/27/2012 2:50:42 AM
1,1-Dichloroethene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
1,2-Dichloropropane	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
1,3-Dichloropropane	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
2,2-Dichloropropane	ND	0.095		mg/Kg	1	6/27/2012 2:50:42 AM
1,1-Dichloropropene	ND	0.095		mg/Kg	1	6/27/2012 2:50:42 AM
Hexachlorobutadiene	ND	0.095		mg/Kg	1	6/27/2012 2:50:42 AM
2-Hexanone	ND	0.48		mg/Kg	1	6/27/2012 2:50:42 AM
Isopropylbenzene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
4-Isopropyltoluene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
4-Methyl-2-pentanone	ND	0.48		mg/Kg	1	6/27/2012 2:50:42 AM
Methylene chloride	ND	0.14		mg/Kg	1	6/27/2012 2:50:42 AM
n-Butylbenzene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
n-Propylbenzene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
sec-Butylbenzene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
Styrene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Cell 1-4
Project: Bisti Landfarm Vadose Zone 5 Yr **Collection Date:** 6/20/2012
Lab ID: 1206992-012 **Matrix:** SOIL **Received Date:** 6/22/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8260B: VOLATILES						Analyst: **RAA**
tert-Butylbenzene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
1,1,1,2-Tetrachloroethane	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
1,1,2,2-Tetrachloroethane	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
Tetrachloroethene (PCE)	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
trans-1,2-DCE	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
trans-1,3-Dichloropropene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
1,2,3-Trichlorobenzene	ND	0.095		mg/Kg	1	6/27/2012 2:50:42 AM
1,2,4-Trichlorobenzene	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
1,1,1-Trichloroethane	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
1,1,2-Trichloroethane	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
Trichloroethene (TCE)	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
Trichlorofluoromethane	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
1,2,3-Trichloropropane	ND	0.095		mg/Kg	1	6/27/2012 2:50:42 AM
Vinyl chloride	ND	0.048		mg/Kg	1	6/27/2012 2:50:42 AM
Xylenes, Total	ND	0.095		mg/Kg	1	6/27/2012 2:50:42 AM
Surr: 1,2-Dichloroethane-d4	94.0	70-130		%REC	1	6/27/2012 2:50:42 AM
Surr: 4-Bromofluorobenzene	96.7	70-130		%REC	1	6/27/2012 2:50:42 AM
Surr: Dibromofluoromethane	115	71.7-132		%REC	1	6/27/2012 2:50:42 AM
Surr: Toluene-d8	97.8	70-130		%REC	1	6/27/2012 2:50:42 AM
SM4500-H+B: PH						Analyst: **KS**
pH	8.79	1.68		pH Units	1	7/5/2012 3:51:00 PM

Qualifiers:

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

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	120626048
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1206992
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	120626048-001	**Sampling Date**	6/20/2012	**Date/Time Received**	6/26/2012 1:00 PM
Client Sample ID	1206992-001C / EASTLINE CRUDE	**Sampling Time**	10:05 AM		
Matrix	Soil				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.257	7/3/2012	CRW	EPA 335.4	
%moisture	3.2	Percent		7/2/2012	CRW	%moisture	

Sample Number	120626048-002	**Sampling Date**	6/20/2012	**Date/Time Received**	6/26/2012 1:00 PM
Client Sample ID	1206992-002C / PETTIGREW CRUDE	**Sampling Time**	1:33 PM		
Matrix	Soil				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.265	7/3/2012	CRW	EPA 335.4	
%moisture	6.2	Percent		7/2/2012	CRW	%moisture	

Sample Number	120626048-003	**Sampling Date**	6/20/2012	**Date/Time Received**	6/26/2012 1:00 PM
Client Sample ID	1206992-003C / WESTLINE CRUDE	**Sampling Time**	9:43 AM		
Matrix	Soil				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.244	7/3/2012	CRW	EPA 335.4	
%moisture	2.4	Percent		7/2/2012	CRW	%moisture	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	120626048
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1206992
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	120626048-004	**Sampling Date**	6/20/2012	**Date/Time Received**	6/26/2012 1:00 PM
Client Sample ID	1206992-004C / BISTI CRUDE	**Sampling Time**	12:48 PM		
Matrix	Soil				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.261	7/3/2012	CRW	EPA 335.4	
%moisture	5.6	Percent		7/2/2012	CRW	%moisture	

Sample Number	120626048-005	**Sampling Date**	6/20/2012	**Date/Time Received**	6/26/2012 1:00 PM
Client Sample ID	1206992-005C / API-1	**Sampling Time**	2:03 PM		
Matrix	Soil				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.262	7/3/2012	CRW	EPA 335.4	
%moisture	5.1	Percent		7/2/2012	CRW	%moisture	

Sample Number	120626048-006	**Sampling Date**	6/20/2012	**Date/Time Received**	6/26/2012 1:00 PM
Client Sample ID	1206992-006C / API-2	**Sampling Time**	1:58 PM		
Matrix	Soil				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.252	7/3/2012	CRW	EPA 335.4	
%moisture	4.2	Percent		7/2/2012	CRW	%moisture	

Sample Number	120626048-007	**Sampling Date**	6/20/2012	**Date/Time Received**	6/26/2012 1:00 PM
Client Sample ID	1206992-007C / API-3	**Sampling Time**	1:10 PM		
Matrix	Soil				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.254	7/3/2012	CRW	EPA 335.4	
%moisture	1.9	Percent		7/2/2012	CRW	%moisture	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	120626048
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1206992
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	120626048-008	**Sampling Date**	6/20/2012	**Date/Time Received**	6/26/2012 1:00 PM
Client Sample ID	1206992-008C / API-4	**Sampling Time**	11:43 AM		
Matrix	Soil				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.254	7/3/2012	CRW	EPA 335.4	
%moisture	4.1	Percent		7/2/2012	CRW	%moisture	

Sample Number	120626048-009	**Sampling Date**	6/20/2012	**Date/Time Received**	6/26/2012 1:00 PM
Client Sample ID	1206992-009C / CELL 1-1	**Sampling Time**	3:08 PM		
Matrix	Soil				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.259	7/3/2012	CRW	EPA 335.4	
%moisture	1.4	Percent		7/2/2012	CRW	%moisture	

Sample Number	120626048-010	**Sampling Date**	6/20/2012	**Date/Time Received**	6/26/2012 1:00 PM
Client Sample ID	1206992-010C / CELL 1-2	**Sampling Time**	3:26 PM		
Matrix	Soil				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.254	7/3/2012	CRW	EPA 335.4	
%moisture	1.5	Percent		7/2/2012	CRW	%moisture	

Sample Number	120626048-011	**Sampling Date**	6/20/2012	**Date/Time Received**	6/26/2012 1:00 PM
Client Sample ID	1206992-011C / CELL 1-3	**Sampling Time**	3:49 PM		
Matrix	Soil				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.252	7/3/2012	CRW	EPA 335.4	
%moisture	1.1	Percent		7/2/2012	CRW	%moisture	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	120626048
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1206992
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	120626048-012	**Sampling Date**	6/20/2012	**Date/Time Received**	6/26/2012 1:00 PM
Client Sample ID	1206992-012C / CELL 1-4	**Sampling Time**			
Matrix	Soil				
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.251	7/3/2012	CRW	EPA 335.4	
%moisture	2.2	Percent		7/2/2012	CRW	%moisture	

Authorized Signature

John Coddington, Lab Manager

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

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

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ANALYTICAL RESULTS

Project: 1206992
Pace Project No.: 3072123

Sample: 1206992-001D Eastline Crude **Lab ID: 3072123001** Collected: 06/20/12 10:05 Received: 06/26/12 09:30 Matrix: Solid
PWS: Site ID: Sample Type:
Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1m	**0.522 ± 0.151 (0.155)**	pCi/g	07/23/12 14:17	13982-63-3	
Radium-228	EPA 901.1m	**0.581 ± 0.201 (0.189)**	pCi/g	07/23/12 14:17	15262-20-1	

Sample: 1206992-002D Pettigrew Crude **Lab ID: 3072123002** Collected: 06/20/12 13:33 Received: 06/26/12 09:30 Matrix: Solid
PWS: Site ID: Sample Type:
Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1m	**0.531 ± 0.147 (0.148)**	pCi/g	07/23/12 14:49	13982-63-3	
Radium-228	EPA 901.1m	**0.314 ± 0.152 (0.377)**	pCi/g	07/23/12 14:49	15262-20-1	

Sample: 1206992-003D Westline Crude **Lab ID: 3072123003** Collected: 06/20/12 09:43 Received: 06/26/12 09:30 Matrix: Solid
PWS: Site ID: Sample Type:
Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1m	**0.593 ± 0.166 (0.142)**	pCi/g	07/24/12 07:32	13982-63-3	
Radium-228	EPA 901.1m	**0.795 ± 0.266 (0.213)**	pCi/g	07/24/12 07:32	15262-20-1	

Sample: 1206992-004D Bisti Crude **Lab ID: 3072123004** Collected: 06/20/12 12:48 Received: 06/26/12 09:30 Matrix: Solid
PWS: Site ID: Sample Type:
Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1m	**0.518 ± 0.127 (0.151)**	pCi/g	07/24/12 08:03	13982-63-3	
Radium-228	EPA 901.1m	**0.809 ± 0.227 (0.202)**	pCi/g	07/24/12 08:03	15262-20-1	

Sample: 1206992-005D API-1 **Lab ID: 3072123005** Collected: 06/20/12 14:03 Received: 06/26/12 09:30 Matrix: Solid
PWS: Site ID: Sample Type:
Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1m	**0.310 ± 0.0920 (0.204)**	pCi/g	07/24/12 08:40	13982-63-3	
Radium-228	EPA 901.1m	**0.752 ± 0.246 (0.206)**	pCi/g	07/24/12 08:40	15262-20-1	

Sample: 1206992-006D API-2 **Lab ID: 3072123006** Collected: 06/20/12 13:58 Received: 06/26/12 09:30 Matrix: Solid
PWS: Site ID: Sample Type:
Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1m	**0.826 ± 0.179 (0.146)**	pCi/g	07/24/12 09:14	13982-63-3	

Date: 07/25/2012 03:16 PM

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ANALYTICAL RESULTS

Project: 1206992
Pace Project No.: 3072123

Sample: 1206992-006D API-2 **Lab ID: 3072123006** Collected: 06/20/12 13:58 Received: 06/26/12 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Radium-228	EPA 901.1m	**0.640 ± 0.239 (0.236)**	pCi/g	07/24/12 09:14	15262-20-1	

Sample: 1206992-007D API-3 **Lab ID: 3072123007** Collected: 06/20/12 13:10 Received: 06/26/12 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1m	**0.654 ± 0.147 (0.186)**	pCi/g	07/24/12 10:08	13982-63-3	
Radium-228	EPA 901.1m	**0.719 ± 0.259 (0.401)**	pCi/g	07/24/12 10:08	15262-20-1	

Sample: 1206992-008D API-4 **Lab ID: 3072123008** Collected: 06/20/12 11:43 Received: 06/26/12 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1m	**0.428 ± 0.152 (0.165)**	pCi/g	07/24/12 10:50	13982-63-3	
Radium-228	EPA 901.1m	**0.729 ± 0.217 (0.206)**	pCi/g	07/24/12 10:50	15262-20-1	

Sample: 1206992-009D Cell 1-1 **Lab ID: 3072123009** Collected: 06/20/12 15:08 Received: 06/26/12 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1m	**0.464 ± 0.113 (0.149)**	pCi/g	07/24/12 11:21	13982-63-3	
Radium-228	EPA 901.1m	**0.329 ± 0.197 (0.353)**	pCi/g	07/24/12 11:21	15262-20-1	

Sample: 1206992-010D Cell 1-2 **Lab ID: 3072123010** Collected: 06/20/12 15:26 Received: 06/26/12 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1m	**0.569 ± 0.138 (0.152)**	pCi/g	07/24/12 11:54	13982-63-3	
Radium-228	EPA 901.1m	**0.893 ± 0.241 (0.235)**	pCi/g	07/24/12 11:54	15262-20-1	

Sample: 1206992-011D Cell 1-3 **Lab ID: 3072123011** Collected: 06/20/12 15:49 Received: 06/26/12 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1m	**0.455 ± 0.135 (0.131)**	pCi/g	07/24/12 13:05	13982-63-3	
Radium-228	EPA 901.1m	**0.555 ± 0.185 (0.195)**	pCi/g	07/24/12 13:05	15262-20-1	

Date: 07/25/2012 03:16 PM

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ANALYTICAL RESULTS

Project: 1206992
Pace Project No.: 3072123

Sample: 1206992-012D Cell 1-4 **Lab ID: 3072123012** Collected: 06/20/12 00:01 Received: 06/26/12 09:30 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC)	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1m	**0.447 ± 0.116 (0.181)**	pCi/g	07/24/12 14:25	13982-63-3	
Radium-228	EPA 901.1m	**0.497 ± 0.222 (0.354)**	pCi/g	07/24/12 14:25	15262-20-1	

Date: 07/25/2012 03:16 PM

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QUALITY CONTROL DATA

Project: 1206992
Pace Project No.: 3072123

QC Batch: RADC/12427 Analysis Method: EPA 901.1m
QC Batch Method: EPA 901.1m Analysis Description: 901.1 Gamma Spec
Associated Lab Samples: 3072123001, 3072123002, 3072123003, 3072123004, 3072123005, 3072123006, 3072123007, 3072123008, 3072123009, 3072123010, 3072123011, 3072123012

METHOD BLANK: 458426 Matrix: Solid
Associated Lab Samples: 3072123001, 3072123002, 3072123003, 3072123004, 3072123005, 3072123006, 3072123007, 3072123008, 3072123009, 3072123010, 3072123011, 3072123012

Parameter	Act ± Unc (MDC)	Units	Analyzed	Qualifiers
Radium-226	0.00700 ± 0.0130 (0.202)	pCi/g	07/25/12 11:03	
Radium-228	-0.036 ± 1.45 (0.396)	pCi/g	07/25/12 11:03	

REPORT OF LABORATORY ANALYSIS

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206992**

01-Aug-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone 5 Yr

Sample ID **MB-2569**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **2569**	RunNo: **3709**
Prep Date: **6/26/2012**	Analysis Date: **6/26/2012**	SeqNo: **104710** 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-2569**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **2569**	RunNo: **3709**
Prep Date: **6/26/2012**	Analysis Date: **6/26/2012**	SeqNo: **104711** 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	98.0	90	110			
Chloride	15	1.5	15.00	0	97.1	90	110			
Nitrogen, Nitrate (As N)	7.6	0.30	7.500	0	101	90	110			
Sulfate	29	1.5	30.00	0	95.0	90	110			

Sample ID **1206934-008AMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **2569**	RunNo: **3709**
Prep Date: **6/26/2012**	Analysis Date: **6/26/2012**	SeqNo: **104713** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	18	1.5	1.500	18.60	-50.4	18.1	130			S
Chloride	22	7.5	15.00	10.82	75.6	64.4	117			
Nitrogen, Nitrate (As N)	10	1.5	7.500	3.809	87.4	80.1	108			
Sulfate	110	7.5	30.00	103.4	9.82	20.8	141			S

Sample ID **1206934-008AMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **BatchQC**	Batch ID: **2569**	RunNo: **3709**
Prep Date: **6/26/2012**	Analysis Date: **6/26/2012**	SeqNo: **104714** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	19	1.5	1.500	18.60	48.6	18.1	130	8.00	20	
Chloride	30	7.5	15.00	10.82	125	64.4	117	28.5	20	SR
Nitrogen, Nitrate (As N)	13	1.5	7.500	3.809	117	80.1	108	19.2	20	S
Sulfate	97	7.5	30.00	103.4	-20.6	20.8	141	8.97	24.9	S

Sample ID **1206992-002BMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **Pettigrew Crude**	Batch ID: **2569**	RunNo: **3709**
Prep Date: **6/26/2012**	Analysis Date: **6/26/2012**	SeqNo: **104735** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.3	0.30	1.500	1.387	58.8	18.1	130			
Nitrogen, Nitrate (As N)	19	0.30	7.500	11.48	103	80.1	108			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206992**

01-Aug-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone 5 Yr

Sample ID **1206992-002BMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **Pettigrew Crude**	Batch ID: **2569**	RunNo: **3709**
Prep Date: **6/26/2012**	Analysis Date: **6/26/2012**	SeqNo: **104735** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sulfate	84	1.5	30.00	55.46	94.0	20.8	141			

Sample ID **1206992-002BMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **Pettigrew Crude**	Batch ID: **2569**	RunNo: **3709**
Prep Date: **6/26/2012**	Analysis Date: **6/26/2012**	SeqNo: **104736** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.2	0.30	1.500	1.387	55.5	18.1	130	2.20	20	
Nitrogen, Nitrate (As N)	20	0.30	7.500	11.48	108	80.1	108	1.86	20	
Sulfate	110	1.5	30.00	55.46	179	20.8	141	26.4	24.9	SR

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206992**

01-Aug-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone 5 Yr

Sample ID **MB-2669**	SampType: **MBLK**	TestCode: **EPA Method 504.1 Modified: EDB**
Client ID: **PBS**	Batch ID: **2669**	RunNo: **3820**
Prep Date: **7/2/2012**	Analysis Date: **7/2/2012**	SeqNo: **108234** Units: **µg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.10								

Sample ID **LCS-2669**	SampType: **LCS**	TestCode: **EPA Method 504.1 Modified: EDB**
Client ID: **LCSS**	Batch ID: **2669**	RunNo: **3820**
Prep Date: **7/2/2012**	Analysis Date: **7/2/2012**	SeqNo: **108235** Units: **µg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	1.0	0.10	1.000	0	105	70	130			

Sample ID **1206992-003BMS**	SampType: **MS**	TestCode: **EPA Method 504.1 Modified: EDB**
Client ID: **Westline Crude**	Batch ID: **2669**	RunNo: **3820**
Prep Date: **7/2/2012**	Analysis Date: **7/2/2012**	SeqNo: **108288** Units: **µg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	1.0	0.099	0.9915	0	104	70	130			

Sample ID **1206992-003BMSD**	SampType: **MSD**	TestCode: **EPA Method 504.1 Modified: EDB**
Client ID: **Westline Crude**	Batch ID: **2669**	RunNo: **3820**
Prep Date: **7/2/2012**	Analysis Date: **7/2/2012**	SeqNo: **108289** Units: **µg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	1.0	0.10	0.9972	0	103	70	130	0.595	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206992**

01-Aug-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone 5 Yr

Sample ID **MB-2621**	SampType: **MBLK**	TestCode: **EPA Method 8082: PCB's**
Client ID: **PBS**	Batch ID: **2621**	RunNo: **3813**
Prep Date: **6/28/2012**	Analysis Date: **7/2/2012**	SeqNo: **109320** 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	0.044		0.06250		70.0	20.7	114			

Sample ID **LCS-2621**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSS**	Batch ID: **2621**	RunNo: **3813**
Prep Date: **6/28/2012**	Analysis Date: **7/2/2012**	SeqNo: **109321** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1260	0.10	0.020	0.1250	0	80.3	21.4	118			
Surr: Decachlorobiphenyl	0.046		0.06250		73.2	20.7	114			

Sample ID **1206992-003BMS**	SampType: **MS**	TestCode: **EPA Method 8082: PCB's**
Client ID: **Westline Crude**	Batch ID: **2621**	RunNo: **3813**
Prep Date: **6/28/2012**	Analysis Date: **7/4/2012**	SeqNo: **109367** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1260	0.10	0.020	0.1249	0	82.3	45	117			
Surr: Decachlorobiphenyl	0.051		0.06244		81.2	20.7	114			

Sample ID **1206992-003BMSD**	SampType: **MSD**	TestCode: **EPA Method 8082: PCB's**
Client ID: **Westline Crude**	Batch ID: **2621**	RunNo: **3813**
Prep Date: **6/28/2012**	Analysis Date: **7/4/2012**	SeqNo: **109368** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1260	0.10	0.020	0.1246	0	82.5	45	117	0.0553	20	
Surr: Decachlorobiphenyl	0.051		0.06228		82.0	20.7	114	0	0	

Qualifiers:

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- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206992**

01-Aug-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone 5 Yr

Sample ID **mb-2561**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBS**	Batch ID: **2561**	RunNo: **3701**
Prep Date: **6/25/2012**	Analysis Date: **6/26/2012**	SeqNo: **104585** 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	0.10								
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	0.10								
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	0.10								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								

Qualifiers:

- */X Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
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- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206992**

01-Aug-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone 5 Yr

Sample ID **mb-2561**	SampType: **MBLK**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **PBS**	Batch ID: **2561**	RunNo: **3701**
Prep Date: **6/25/2012**	Analysis Date: **6/26/2012**	SeqNo: **104585** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
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	0.050								
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: 1,2-Dichloroethane-d4	0.46		0.5000		92.5	70	130			
Surr: 4-Bromofluorobenzene	0.51		0.5000		101	70	130			
Surr: Dibromofluoromethane	0.57		0.5000		113	71.7	132			
Surr: Toluene-d8	0.48		0.5000		96.9	70	130			

Sample ID **lcs-2561**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSS**	Batch ID: **2561**	RunNo: **3701**
Prep Date: **6/25/2012**	Analysis Date: **6/26/2012**	SeqNo: **104593** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.050	1.000	0	95.8	70.7	123			
Toluene	1.0	0.050	1.000	0	101	80	120			
Chlorobenzene	0.98	0.050	1.000	0	97.7	70	130			
1,1-Dichloroethene	1.1	0.050	1.000	0	106	63.1	148			
Trichloroethene (TCE)	0.99	0.050	1.000	0	98.6	63.2	114			
Surr: 1,2-Dichloroethane-d4	0.48		0.5000		95.0	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.5	70	130			

Qualifiers:

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- E Value above quantitation range
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- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206992**

01-Aug-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone 5 Yr

Sample ID **lcs-2561**	SampType: **LCS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **LCSS**	Batch ID: **2561**	RunNo: **3701**
Prep Date: **6/25/2012**	Analysis Date: **6/26/2012**	SeqNo: **104593** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Dibromofluoromethane	0.60		0.5000		119	71.7	132			
Surr: Toluene-d8	0.47		0.5000		95.0	70	130			

Sample ID **1206992-001ams**	SampType: **MS**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **Eastline Crude**	Batch ID: **2561**	RunNo: **3701**
Prep Date: **6/25/2012**	Analysis Date: **6/26/2012**	SeqNo: **104594** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.047	0.9434	0	110	81.3	119			
Toluene	1.1	0.047	0.9434	0.008534	117	75	121			
Chlorobenzene	1.1	0.047	0.9434	0	114	78.5	120			
1,1-Dichloroethene	1.1	0.047	0.9434	0	116	75.3	115			S
Trichloroethene (TCE)	1.0	0.047	0.9434	0	109	67.8	119			
Surr: 1,2-Dichloroethane-d4	0.43		0.4717		91.3	70	130			
Surr: 4-Bromofluorobenzene	0.44		0.4717		93.5	70	130			
Surr: Dibromofluoromethane	0.54		0.4717		114	71.7	132			
Surr: Toluene-d8	0.46		0.4717		97.6	70	130			

Sample ID **1206992-001amsd**	SampType: **MSD**	TestCode: **EPA Method 8260B: VOLATILES**
Client ID: **Eastline Crude**	Batch ID: **2561**	RunNo: **3701**
Prep Date: **6/25/2012**	Analysis Date: **6/26/2012**	SeqNo: **104595** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.047	0.9407	0	115	81.3	119	3.98	15.7	
Toluene	1.1	0.047	0.9407	0.008534	118	75	121	1.10	16.2	
Chlorobenzene	1.1	0.047	0.9407	0	115	78.5	120	0.988	14.9	
1,1-Dichloroethene	1.2	0.047	0.9407	0	124	75.3	115	6.15	31.8	S
Trichloroethene (TCE)	1.1	0.047	0.9407	0	112	67.8	119	1.81	16.5	
Surr: 1,2-Dichloroethane-d4	0.44		0.4704		94.0	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.46		0.4704		97.1	70	130	0	0	
Surr: Dibromofluoromethane	0.55		0.4704		117	71.7	132	0	0	
Surr: Toluene-d8	0.47		0.4704		100	70	130	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206992**

01-Aug-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone 5 Yr

Sample ID **mb-2581**	SampType: **MBLK**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **PBS**	Batch ID: **2581**	RunNo: **3735**
Prep Date: **6/26/2012**	Analysis Date: **6/27/2012**	SeqNo: **105495** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chloro-3-methylphenol	ND	0.50								
2-Chlorophenol	ND	0.20								
2,4-Dichlorophenol	ND	0.40								
2,4-Dimethylphenol	ND	0.30								
4,6-Dinitro-2-methylphenol	ND	0.50								
2,4-Dinitrophenol	ND	0.40								
2-Methylphenol	ND	0.50								
3+4-Methylphenol	ND	0.20								
2-Nitrophenol	ND	0.20								
4-Nitrophenol	ND	0.25								
Pentachlorophenol	ND	0.40								
Phenol	ND	0.20								
2,4,5-Trichlorophenol	ND	0.20								
2,4,6-Trichlorophenol	ND	0.20								
Surr: 2,4,6-Tribromophenol	2.9		3.330		86.0	20.1	121			
Surr: 2-Fluorobiphenyl	1.1		1.670		65.1	19	133			
Surr: 2-Fluorophenol	2.0		3.330		59.2	20.2	108			
Surr: 4-Terphenyl-d14	1.3		1.670		79.0	18.9	115			
Surr: Nitrobenzene-d5	0.98		1.670		59.0	20.8	123			
Surr: Phenol-d5	2.0		3.330		60.7	19.8	115			

Sample ID **lcs-2581**	SampType: **LCS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **LCSS**	Batch ID: **2581**	RunNo: **3735**
Prep Date: **6/26/2012**	Analysis Date: **6/27/2012**	SeqNo: **105496** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chloro-3-methylphenol	3.1	0.50	3.330	0	93.7	43.8	89.1			S
2-Chlorophenol	2.5	0.20	3.330	0	76.3	41.1	96.9			
4-Nitrophenol	3.1	0.25	3.330	0	93.5	44.2	107			
Pentachlorophenol	2.7	0.40	3.330	0	81.1	36.2	80			S
Phenol	2.9	0.20	3.330	0	88.6	42.7	92.7			
Surr: 2,4,6-Tribromophenol	3.5		3.330		106	20.1	121			
Surr: 2-Fluorobiphenyl	1.4		1.670		84.3	19	133			
Surr: 2-Fluorophenol	2.8		3.330		83.2	20.2	108			
Surr: 4-Terphenyl-d14	1.6		1.670		94.5	18.9	115			
Surr: Nitrobenzene-d5	1.4		1.670		81.1	20.8	123			
Surr: Phenol-d5	3.0		3.330		88.9	19.8	115			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206992**

01-Aug-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone 5 Yr

Sample ID **1206992-001Bms**	SampType: **MS**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **Eastline Crude**	Batch ID: **2581**	RunNo: **3735**
Prep Date: **6/26/2012**	Analysis Date: **6/27/2012**	SeqNo: **105513** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chloro-3-methylphenol	2.7	0.50	3.333	0	80.8	35.8	108			
2-Chlorophenol	2.4	0.20	3.333	0	73.4	48.2	96.1			
4-Nitrophenol	3.0	0.25	3.333	0	88.5	22.7	144			
Pentachlorophenol	2.7	0.40	3.333	0	82.2	24	109			
Phenol	2.6	0.20	3.333	0	77.3	33.1	108			
Surr: 2,4,6-Tribromophenol	3.1		3.333		91.6	20.1	121			
Surr: 2-Fluorobiphenyl	1.3		1.672		79.9	19	133			
Surr: 2-Fluorophenol	2.4		3.333		70.8	20.2	108			
Surr: 4-Terphenyl-d14	1.4		1.672		82.5	18.9	115			
Surr: Nitrobenzene-d5	1.3		1.672		77.4	20.8	123			
Surr: Phenol-d5	2.7		3.333		80.4	19.8	115			

Sample ID **1206992-001Bmsd**	SampType: **MSD**	TestCode: **EPA Method 8270C: Semivolatiles**
Client ID: **Eastline Crude**	Batch ID: **2581**	RunNo: **3735**
Prep Date: **6/26/2012**	Analysis Date: **6/27/2012**	SeqNo: **105514** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chloro-3-methylphenol	2.7	0.50	3.337	0	82.0	35.8	108	1.53	20	
2-Chlorophenol	2.5	0.20	3.337	0	73.6	48.2	96.1	0.359	20	
4-Nitrophenol	3.3	0.25	3.337	0	98.2	22.7	144	10.5	20	
Pentachlorophenol	2.8	0.40	3.337	0	83.5	24	109	1.68	20	
Phenol	2.6	0.20	3.337	0	78.0	33.1	108	0.938	20	
Surr: 2,4,6-Tribromophenol	3.2		3.337		97.1	20.1	121	0	0	
Surr: 2-Fluorobiphenyl	1.4		1.673		82.9	19	133	0	0	
Surr: 2-Fluorophenol	2.2		3.337		67.1	20.2	108	0	0	
Surr: 4-Terphenyl-d14	1.4		1.673		81.7	18.9	115	0	0	
Surr: Nitrobenzene-d5	1.3		1.673		79.7	20.8	123	0	0	
Surr: Phenol-d5	2.8		3.337		85.4	19.8	115	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206992**

01-Aug-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone 5 Yr

Sample ID **MB-2600**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**
Client ID: **PBS**	Batch ID: **2600**	RunNo: **3778**
Prep Date: **6/27/2012**	Analysis Date: **6/29/2012**	SeqNo: **106944** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.25								
1-Methylnaphthalene	ND	0.25								
2-Methylnaphthalene	ND	0.25								
Acenaphthylene	ND	0.25								
Acenaphthene	ND	0.25								
Fluorene	ND	0.030								
Phenanthrene	ND	0.015								
Anthracene	ND	0.015								
Fluoranthene	ND	0.020								
Pyrene	ND	0.025								
Benz(a)anthracene	ND	0.010								
Chrysene	ND	0.011								
Benzo(b)fluoranthene	ND	0.010								
Benzo(k)fluoranthene	ND	0.010								
Benzo(a)pyrene	ND	0.010								
Dibenz(a,h)anthracene	ND	0.010								
Benzo(g,h,i)perylene	ND	0.010								
Indeno(1,2,3-cd)pyrene	ND	0.010								
Surr: Benzo(e)pyrene	0.51		0.5000		102	35.9	103			

Sample ID **LCS-2600**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSS**	Batch ID: **2600**	RunNo: **3778**
Prep Date: **6/27/2012**	Analysis Date: **6/29/2012**	SeqNo: **106948** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	1.6	0.25	2.000	0	77.7	32.4	87			
1-Methylnaphthalene	1.5	0.25	2.000	0	74.9	36.9	86.9			
2-Methylnaphthalene	1.6	0.25	2.000	0	77.9	34.4	87.4			
Acenaphthylene	1.6	0.25	2.000	0	80.8	38.9	84.7			
Acenaphthene	1.7	0.25	2.000	0	84.1	41.7	83.4			S
Fluorene	0.11	0.030	0.2000	0	57.0	27.8	72.5			
Phenanthrene	0.073	0.015	0.1006	0	72.3	31.9	79.1			
Anthracene	0.079	0.015	0.1006	0	78.0	38.8	81.2			
Fluoranthene	0.15	0.020	0.2006	0	73.0	40.9	86			
Pyrene	0.16	0.025	0.2000	0	77.5	21.4	90.4			
Benz(a)anthracene	0.018	0.010	0.02000	0	87.5	40.9	92.3			
Chrysene	0.084	0.011	0.1006	0	84.0	35.3	86.6			
Benzo(b)fluoranthene	0.023	0.010	0.02500	0	93.0	42.9	98.1			
Benzo(k)fluoranthene	0.011	0.010	0.01250	0	86.0	50.6	99			
Benzo(a)pyrene	0.012	0.010	0.01250	0	94.0	39.4	105			
Dibenz(a,h)anthracene	0.022	0.010	0.02500	0	89.0	40.5	100			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206992**

01-Aug-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone 5 Yr

Sample ID **LCS-2600**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSS**	Batch ID: **2600**	RunNo: **3778**
Prep Date: **6/27/2012**	Analysis Date: **6/29/2012**	SeqNo: **106948** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(g,h,i)perylene	0.018	0.010	0.02500	0	71.0	39.4	90.3			
Indeno(1,2,3-cd)pyrene	0.032	0.010	0.05002	0	65.0	39.3	94.7			
Surr: Benzo(e)pyrene	0.49		0.5000		98.3	35.9	103			

Sample ID **1206992-002BMS**	SampType: **MS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **Pettigrew Crude**	Batch ID: **2600**	RunNo: **3778**
Prep Date: **6/27/2012**	Analysis Date: **6/30/2012**	SeqNo: **107117** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	1.6	0.25	1.981	0	78.7	42.9	109			
1-Methylnaphthalene	1.6	0.25	1.981	0	79.9	45	117			
2-Methylnaphthalene	1.6	0.25	1.981	0	80.5	41.3	109			
Acenaphthylene	1.6	0.25	1.981	0	81.6	36.1	118			
Acenaphthene	1.7	0.25	1.981	0	87.4	42.1	117			
Fluorene	0.13	0.030	0.1981	0	64.1	10.2	103			
Phenanthrene	0.082	0.015	0.09965	0	82.8	25.5	113			
Anthracene	0.086	0.015	0.09965	0	86.2	38.3	108			
Fluoranthene	0.17	0.020	0.1987	0	86.5	28.4	121			
Pyrene	0.16	0.025	0.1981	0	80.8	23.6	115			
Benz(a)anthracene	0.020	0.0099	0.01981	0	101	17.5	126			
Chrysene	0.086	0.011	0.09965	0	86.0	39.7	110			
Benzo(b)fluoranthene	0.026	0.0099	0.02476	0	105	38.7	114			
Benzo(k)fluoranthene	0.013	0.0099	0.01238	0	102	30.5	132			
Benzo(a)pyrene	0.012	0.0099	0.01238	0	96.0	43.1	115			
Dibenz(a,h)anthracene	0.021	0.0099	0.02476	0	85.0	38.7	122			
Benzo(g,h,i)perylene	0.027	0.0099	0.02476	0.003006	96.9	36.2	121			
Indeno(1,2,3-cd)pyrene	0.045	0.0099	0.04955	0	90.5	42.5	122			
Surr: Benzo(e)pyrene	0.50		0.4953		101	35.9	103			

Sample ID **1206992-002BMSD**	SampType: **MSD**	TestCode: **EPA Method 8310: PAHs**
Client ID: **Pettigrew Crude**	Batch ID: **2600**	RunNo: **3778**
Prep Date: **6/27/2012**	Analysis Date: **6/30/2012**	SeqNo: **107118** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	1.5	0.25	1.990	0	77.7	42.9	109	0.864	20	
1-Methylnaphthalene	1.6	0.25	1.990	0	78.3	45	117	1.64	20	
2-Methylnaphthalene	1.6	0.25	1.990	0	79.5	41.3	109	0.834	20	
Acenaphthylene	1.6	0.25	1.990	0	80.2	36.1	118	1.21	20	
Acenaphthene	1.7	0.25	1.990	0	84.7	42.1	117	2.69	20	
Fluorene	0.12	0.030	0.1990	0	62.3	10.2	103	2.52	20	
Phenanthrene	0.085	0.015	0.1001	0	85.0	25.5	113	3.11	20	
Anthracene	0.085	0.015	0.1001	0	84.5	38.3	108	1.59	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206992**

01-Aug-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone 5 Yr

Sample ID **1206992-002BMSD**	SampType: **MSD**	TestCode: **EPA Method 8310: PAHs**	
Client ID: **Pettigrew Crude**	Batch ID: **2600**	RunNo: **3778**	
Prep Date: **6/27/2012**	Analysis Date: **6/30/2012**	SeqNo: **107118**	Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	0.18	0.020	0.1996	0	89.4	28.4	121	3.71	20	
Pyrene	0.16	0.025	0.1990	0	79.1	23.6	115	1.59	20	
Benz(a)anthracene	0.019	0.010	0.01990	0	96.3	17.5	126	4.62	20	
Chrysene	0.084	0.011	0.1001	0	84.0	39.7	110	1.89	20	
Benzo(b)fluoranthene	0.025	0.010	0.02488	0	100	38.7	114	4.43	20	
Benzo(k)fluoranthene	0.012	0.010	0.01244	0	94.0	30.5	132	7.72	20	
Benzo(a)pyrene	0.012	0.010	0.01244	0	94.0	43.1	115	1.66	20	
Dibenz(a,h)anthracene	0.020	0.010	0.02488	0	81.0	38.7	122	4.37	20	
Benzo(g,h,i)perylene	0.025	0.010	0.02488	0.003006	86.9	36.2	121	9.17	20	
Indeno(1,2,3-cd)pyrene	0.043	0.010	0.04977	0	86.0	42.5	122	4.65	20	
Surr: Benzo(e)pyrene	0.48		0.4975		97.2	35.9	103	0	20	

Qualifiers:

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- B Analyte detected in the associated Method Blank
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- ND Not Detected at the Reporting Limit
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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206992**

01-Aug-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone 5 Yr

Sample ID **MB-2576**	SampType: **MBLK**	TestCode: **EPA Method 7471: Mercury**
Client ID: **PBS**	Batch ID: **2576**	RunNo: **3688**
Prep Date: **6/26/2012**	Analysis Date: **6/26/2012**	SeqNo: **104205** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID **LCS-2576**	SampType: **LCS**	TestCode: **EPA Method 7471: Mercury**
Client ID: **LCSS**	Batch ID: **2576**	RunNo: **3688**
Prep Date: **6/26/2012**	Analysis Date: **6/26/2012**	SeqNo: **104206** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1667	0	102	80	120			

Sample ID **1206992-001BMS**	SampType: **MS**	TestCode: **EPA Method 7471: Mercury**
Client ID: **Eastline Crude**	Batch ID: **2576**	RunNo: **3688**
Prep Date: **6/26/2012**	Analysis Date: **6/26/2012**	SeqNo: **104208** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1663	0	104	75	125			

Sample ID **1206992-001BMSD**	SampType: **MSD**	TestCode: **EPA Method 7471: Mercury**
Client ID: **Eastline Crude**	Batch ID: **2576**	RunNo: **3688**
Prep Date: **6/26/2012**	Analysis Date: **6/26/2012**	SeqNo: **104209** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1668	0	103	75	125	0.0496	20	

Qualifiers:

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- R RPD outside accepted recovery limits
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206992**

01-Aug-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone 5 Yr

Sample ID **MB-2649**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **2649**	RunNo: **3851**
Prep Date: **6/29/2012**	Analysis Date: **7/3/2012**	SeqNo: **109205** 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	1.0								
Lead	ND	0.25								
Manganese	ND	0.10								
Selenium	ND	2.5								
Uranium	ND	5.0								
Zinc	ND	2.5								

Sample ID **LCS-2649**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **2649**	RunNo: **3851**
Prep Date: **6/29/2012**	Analysis Date: **7/3/2012**	SeqNo: **109232** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	2.5	25.00	0	98.0	80	120			
Barium	25	0.10	25.00	0	98.9	80	120			
Cadmium	25	0.10	25.00	0	98.8	80	120			
Chromium	25	0.30	25.00	0	98.7	80	120			
Copper	26	0.30	25.00	0.2900	101	80	120			
Iron	25	1.0	25.00	0	100	80	120			
Lead	25	0.25	25.00	0.1995	98.8	80	120			
Manganese	24	0.10	25.00	0	97.6	80	120			
Selenium	24	2.5	25.00	1.790	89.2	80	120			
Uranium	26	5.0	25.00	0	104	80	120			
Zinc	24	2.5	25.00	0	97.6	80	120			

Sample ID **MB-2649**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **2649**	RunNo: **3876**
Prep Date: **6/29/2012**	Analysis Date: **7/6/2012**	SeqNo: **110447** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	ND	0.25								

Sample ID **LCS-2649**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **2649**	RunNo: **3876**
Prep Date: **6/29/2012**	Analysis Date: **7/6/2012**	SeqNo: **110448** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Silver	4.4	0.25	5.000	0.09350	86.7	80	120			

Qualifiers:

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- RL Reporting Detection Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206992**

01-Aug-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone 5 Yr

Sample ID **1206A86-004AMS**	SampType: **MS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **BatchQC**	Batch ID: **2649**	RunNo: **4426**
Prep Date: **6/29/2012**	Analysis Date: **7/25/2012**	SeqNo: **123311** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	26	1.3	24.91	2.937	94.3	75	125			

Sample ID **1206A86-004AMSD**	SampType: **MSD**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **BatchQC**	Batch ID: **2649**	RunNo: **4426**
Prep Date: **6/29/2012**	Analysis Date: **7/25/2012**	SeqNo: **123312** Units: **mg/L**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	26	1.3	24.66	2.937	91.7	75	125	3.34	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1206992**

01-Aug-12

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm Vadose Zone 5 Yr

Sample ID	**1206992-001BDUP**	SampType: **DUP**			TestCode: **SM4500-H+B: pH**						
Client ID:	**Eastline Crude**	Batch ID: **R3869**			RunNo: **3869**						
Prep Date:		Analysis Date: **7/5/2012**			SeqNo: **110082**		Units: **pH Units**				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH		8.46	1.68								

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Western Refining Southwest, Inc Bloomfield Work Order Number: 1206992

Received by/date: AG 06/22/12

Logged By: **Ashley Gallegos** 6/22/2012 10:00:00 AM AG

Completed By: **Ashley Gallegos** 6/22/2012 3:14:18 PM AG

Reviewed By: AT 06/25/12

Chain of Custody

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

Log In

4. Coolers are present? (see 19. for cooler specific information)	Yes ☑	No ☐	NA ☐
5. Was an attempt made to cool the samples?	Yes ☑	No ☐	NA ☐
6. Were all samples received at a temperature of >0° C to 6.0°C	Yes ☑	No ☐	NA ☐
7. Sample(s) in proper container(s)?	Yes ☑	No ☐	
8. Sufficient sample volume for indicated test(s)?	Yes ☑	No ☐	
9. Are samples (except VOA and ONG) properly preserved?	Yes ☑	No ☐	
10. Was preservative added to bottles?	Yes ☐	No ☑	NA ☐
11. VOA vials have zero headspace?	Yes ☑	No ☐	No VOA Vials ☐
12. Were any sample containers received broken?	Yes ☐	No ☑	
13. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ☑	No ☐	
14. Are matrices correctly identified on Chain of Custody?	Yes ☑	No ☐	
15. Is it clear what analyses were requested?	Yes ☑	No ☐	
16. Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ☑	No ☐	

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

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

17. 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: _____

18. Additional remarks:

19. Cooler Information

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

Chain-of-Custody Record

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

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Vadose Zone
Bisti Landfarm 5-yr
Project #:
WR1005
Project Manager:
Ashley Ager
Sampler: Brooke Herb/Kyla Vaughan
On Ice: ☒ Yes
Sample Temperature:

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1305229	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	see attached list				Air Bubbles (Y or N)
6/20/12	10:05	Soil	Eastline Crude	4oz/4	COOL	-001												✓				
6/20/12	13:33	Soil	Pettigrew Crude			-002												✓				
6/20/12	~~12:48~~	Soil	Westline Crude			Time=9:43 -003												✓				
6/20/12	12:48	Soil	Bisti Crude			-004												✓				
6/20/12	14:03	Soil	API-1			-005												✓				
6/20/12	13:58	Soil	API-2			-006												✓				
6/20/12	13:10	Soil	API-3			-007												✓				
6/20/12	11:43	Soil	API-4			-008												✓				
6/20/12	15:08	Soil	Cell 1-1			-009												✓				
6/20/12	15:26	Soil	Cell 1-2			-010												✓				
6/20/12	15:49	Soil	Cell 1-3			-011												✓				
6/20/12			Cell 1-4	↓	↓	-012												✓				

Date:	Time:	Relinquished by:	Received by:	Date	Time
6/21/12	1520	Kyla Vaughan	Christine Walker	6/21/12	1520
6/21/12	1700	Christine Walker		06/22/12	0900

Remarks:

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

(1) Arsenic (As)

(2) Barium (Ba)

(3) Cadmium (Cd)

(4) Chromium (Cr)

(5) Cyanide (CN)

(6) Fluoride (F)

(7) Lead (Pb)

(8) Total Mercury (Hg)

(9) Nitrate (NO3 as N)

(10) Selenium (Se)

(11) Silver (Ag)

(12) Uranium (U)

(13) Radioactivity: Combined Radium-226 & Radium-228

(14) Benzene

(15) Polychlorinated biphenyls (PCB's)

(16) Toluene

(17) Carbon Tetrachloride

(18) 1,2-dichloroethane (EDC)

(19) 1,1-dichloroethylene (1,1-DCE)

(20) 1,1,2,2-tetrachloroethylene (PCE)

(21) 1,1,2-trichloroethylene (TCE)

(22) ethylbenzene

(23) total xylenes

(24) methylene chloride

(25) chloroform

(26) 1,1-dichloroethane

(27) ethylene dibromide (EDB)

(28) 1,1,1-trichloroethane

(29) 1,1,2-trichloroethane

(30) 1,1,2,2-tetrachloroethane

(31) vinyl chloride

(32) PAHs: total naphthalene plus monomethylnaphthalenes

(33) benzo-a-pyrene

(34) Chloride (Cl)

(35) Copper (Cu)

(36) Iron (Fe)

(37) Manganese (Mn)

(38) Phenols

(39) Sulfate (SO4)

(40) Total Dissolved Solids (TDS)

(41) Zinc (Zn)

(42) pH

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

October 09, 2012

Ashley Ager
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (970) 946-1093
FAX (505) 632-3911

RE: Treatment Zone Bisti Landfarm OrderNo.: 1210002

Dear Ashley Ager:

Hall Environmental Analysis Laboratory received 2 sample(s) on 9/29/2012 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. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated. 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.

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1210002**
Date Reported: **10/9/2012**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Treatment Zone Bisti Landfarm
Lab ID: 1210002-001 **Matrix:** SOIL

Client Sample ID: Crude TZ
Collection Date: 9/28/2012 11:12:00 AM
Received Date: 9/29/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	70	9.6		mg/Kg	1	10/2/2012 7:48:41 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	10/2/2012 7:48:41 AM
Surr: DNOP	115	77.6-140		%REC	1	10/2/2012 7:48:41 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/5/2012 3:56:36 PM
Surr: BFB	99.3	84-116		%REC	1	10/5/2012 3:56:36 PM
EPA METHOD 300.0: ANIONS						Analyst: **SRM**
Chloride	38	7.5		mg/Kg	5	10/3/2012 9:08:25 PM

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
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Client Sample ID: API TZ
Project: Treatment Zone Bisti Landfarm
Collection Date: 9/28/2012 11:32:00 AM
Lab ID: 1210002-002 **Matrix:** SOIL **Received Date:** 9/29/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	76	10		mg/Kg	1	10/2/2012 9:18:08 AM
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	10/2/2012 9:18:08 AM
Surr: DNOP	121	77.6-140		%REC	1	10/2/2012 9:18:08 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/5/2012 4:25:22 PM
Surr: BFB	98.4	84-116		%REC	1	10/5/2012 4:25:22 PM
EPA METHOD 300.0: ANIONS						Analyst: **SRM**
Chloride	100	7.5		mg/Kg	5	10/3/2012 9:33:14 PM

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
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1210002**

09-Oct-12

Client: Western Refining Southwest, Inc.

Project: Treatment Zone Bisti Landfarm

Sample ID **MB-4069**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **4069**	RunNo: **5954**
Prep Date: **10/3/2012**	Analysis Date: **10/3/2012**	SeqNo: **171480** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID **LCS-4069**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **4069**	RunNo: **5954**
Prep Date: **10/3/2012**	Analysis Date: **10/3/2012**	SeqNo: **171481** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.6	90	110			

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
P	Sample pH greater than 2	R	RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1210002**

09-Oct-12

Client: Western Refining Southwest, Inc.

Project: Treatment Zone Bisti Landfarm

Sample ID **MB-4019**	SampType: **MBLK**	TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **4019**	RunNo: **5904**
Prep Date: **10/1/2012**	Analysis Date: **10/2/2012**	SeqNo: **170131** 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	11		10.00		106	77.6	140			

Sample ID **LCS-4019**	SampType: **LCS**	TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **4019**	RunNo: **5904**
Prep Date: **10/1/2012**	Analysis Date: **10/2/2012**	SeqNo: **170132** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	10	50.00	0	84.2	52.6	130			
Surr: DNOP	4.4		5.000		88.0	77.6	140			

Sample ID **1210002-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **Crude TZ**	Batch ID: **4019**	RunNo: **5904**
Prep Date: **10/1/2012**	Analysis Date: **10/2/2012**	SeqNo: **170137** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	130	10	50.86	69.87	120	57.2	146			
Surr: DNOP	5.6		5.086		110	77.6	140			

Sample ID **1210002-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **Crude TZ**	Batch ID: **4019**	RunNo: **5904**
Prep Date: **10/1/2012**	Analysis Date: **10/2/2012**	SeqNo: **170138** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	140	10	50.35	69.87	144	57.2	146	8.36	24.5	
Surr: DNOP	5.7		5.035		113	77.6	140	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1210002**

09-Oct-12

Client: Western Refining Southwest, Inc.

Project: Treatment Zone Bisti Landfarm

Sample ID **MB-4015**	SampType: **MBLK**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **PBS**	Batch ID: **4015**	RunNo: **6019**
Prep Date: **10/1/2012**	Analysis Date: **10/5/2012**	SeqNo: **173412** 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	1000		1000		100	84	116			

Sample ID **LCS-4015**	SampType: **LCS**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **LCSS**	Batch ID: **4015**	RunNo: **6019**
Prep Date: **10/1/2012**	Analysis Date: **10/5/2012**	SeqNo: **173413** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	101	74	117			
Surr: BFB	1000		1000		103	84	116			

Sample ID **1210002-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **Crude TZ**	Batch ID: **4015**	RunNo: **6019**
Prep Date: **10/1/2012**	Analysis Date: **10/5/2012**	SeqNo: **173418** 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	106	70	130			
Surr: BFB	1100		984.3		108	84	116			

Sample ID **1210002-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **Crude TZ**	Batch ID: **4015**	RunNo: **6019**
Prep Date: **10/1/2012**	Analysis Date: **10/5/2012**	SeqNo: **173419** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.9	24.61	0	97.4	70	130	8.23	22.1	
Surr: BFB	1100		984.3		110	84	116	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1210002**

09-Oct-12

Client: Western Refining Southwest, Inc.

Project: Treatment Zone Bisti Landfarm

Sample ID **MB-4015**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **4015**	RunNo: **5980**
Prep Date: **10/1/2012**	Analysis Date: **10/4/2012**	SeqNo: **172741** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.1		1.000		108	80	120			

Sample ID **LCS-4015**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **4015**	RunNo: **5980**
Prep Date: **10/1/2012**	Analysis Date: **10/4/2012**	SeqNo: **172742** Units: **%REC**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	1.1		1.000		111	80	120			

Qualifiers:

*	Value exceeds Maximum Contaminant Level.	B	Analyte detected in the associated Method Blank
E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit
P	Sample pH greater than 2	R	RPD 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 Southwest, Inc Bloomfield Work Order Number: 1210002

Received by/date: AF 09/29/12

Logged By: Lindsay Mangin 9/29/2012 10:00:00 AM

Completed By: Lindsay Mangin 10/1/2012 4:50:43 AM

Reviewed By: 10/01/12

Chain of Custody

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

Log In

4. Coolers are present? (see 19. for cooler specific information) Yes ☑ No ☐ NA ☐
5. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
6. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☑ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
10. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
11. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
12. Were any sample containers received broken? Yes ☐ No ☑
13. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
15. Is it clear what analyses were requested? Yes ☑ No ☐
16. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

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

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

17. 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: _____

18. Additional remarks:

19. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.8	Good	Yes			

Chain-of-Custody Record

Client: WESTERN REFINING
KELLY ROBINSON
Mailing Address: 111 CR 4990
Bloomfield NM 87413
Phone #:
email or Fax#:
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: TREATMENT ZONE BIS.1 LANDFARM
Project #: WR1005
Project Manager: Ashley Ager
Sampler: BROOKE HERB / Kyla Vaughan
On Ice:
Sample Temperature:

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride				Air Bubbles (Y or N)
9/28/12	11:12	SOIL	Crude TZ	4oz/2	Cool	-001			✓									✓				
9/28/12	11:32	SOIL	API TZ	4oz/2	Cool	-002			✓									✓				

Date	Time	Relinquished by:	Received by:	Date	Time
9/28/12	15:29	Kyla Vaughan	Christine Walker	9/28/12	1525
9/28/12	1700	Christine Walker		9/29/12	10:00

Remarks:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

October 09, 2012

Ashley Ager

Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (970) 946-1093
FAX (505) 632-3911

RE: Vadose Zone Bisti Landfarm OrderNo.: 1210003

Dear Ashley Ager:

Hall Environmental Analysis Laboratory received 5 sample(s) on 9/29/2012 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. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated. 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.

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1210003**
Date Reported: **10/9/2012**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Client Sample ID: Eastline VZ
Project: Vadose Zone Bisti Landfarm
Collection Date: 9/28/2012 10:24:00 AM
Lab ID: 1210003-001
Matrix: SOIL
Received Date: 9/29/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	10/2/2012 9:42:57 AM
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	10/2/2012 9:42:57 AM
Surr: DNOP	118	77.6-140		%REC	1	10/2/2012 9:42:57 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/5/2012 4:54:06 PM
Surr: BFB	100	84-116		%REC	1	10/5/2012 4:54:06 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.049		mg/Kg	1	10/4/2012 3:02:19 PM
Toluene	ND	0.049		mg/Kg	1	10/4/2012 3:02:19 PM
Ethylbenzene	ND	0.049		mg/Kg	1	10/4/2012 3:02:19 PM
Xylenes, Total	ND	0.098		mg/Kg	1	10/4/2012 3:02:19 PM
Surr: 4-Bromofluorobenzene	105	80-120		%REC	1	10/4/2012 3:02:19 PM
EPA METHOD 300.0: ANIONS						Analyst: **SRM**
Chloride	4.3	1.5		mg/Kg	1	10/4/2012 4:38:11 PM

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
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Client Sample ID: Pettigrew VZ
Project: Vadose Zone Bisti Landfarm
Collection Date: 9/28/2012 11:22:00 AM
Lab ID: 1210003-002 **Matrix:** SOIL **Received Date:** 9/29/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	10/2/2012 10:07:45 AM
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	10/2/2012 10:07:45 AM
Surr: DNOP	111	77.6-140		%REC	1	10/2/2012 10:07:45 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/5/2012 5:22:55 PM
Surr: BFB	98.5	84-116		%REC	1	10/5/2012 5:22:55 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.048		mg/Kg	1	10/4/2012 3:31:07 PM
Toluene	ND	0.048		mg/Kg	1	10/4/2012 3:31:07 PM
Ethylbenzene	ND	0.048		mg/Kg	1	10/4/2012 3:31:07 PM
Xylenes, Total	ND	0.096		mg/Kg	1	10/4/2012 3:31:07 PM
Surr: 4-Bromofluorobenzene	107	80-120		%REC	1	10/4/2012 3:31:07 PM
EPA METHOD 300.0: ANIONS						Analyst: **SRM**
Chloride	46	7.5		mg/Kg	5	10/4/2012 1:37:20 PM

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
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Westline VZ
Project: Vadose Zone Bisti Landfarm **Collection Date:** 9/28/2012 9:56:00 AM
Lab ID: 1210003-003 **Matrix:** SOIL **Received Date:** 9/29/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	10/2/2012 10:32:24 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/2/2012 10:32:24 AM
Surr: DNOP	110	77.6-140		%REC	1	10/2/2012 10:32:24 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	10/5/2012 5:51:45 PM
Surr: BFB	98.9	84-116		%REC	1	10/5/2012 5:51:45 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.049		mg/Kg	1	10/4/2012 3:59:57 PM
Toluene	ND	0.049		mg/Kg	1	10/4/2012 3:59:57 PM
Ethylbenzene	ND	0.049		mg/Kg	1	10/4/2012 3:59:57 PM
Xylenes, Total	ND	0.097		mg/Kg	1	10/4/2012 3:59:57 PM
Surr: 4-Bromofluorobenzene	107	80-120		%REC	1	10/4/2012 3:59:57 PM
EPA METHOD 300.0: ANIONS						Analyst: **SRM**
Chloride	ND	7.5		mg/Kg	5	10/4/2012 2:58:52 PM

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
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Client Sample ID: Bisti VZ
Project: Vadose Zone Bisti Landfarm
Collection Date: 9/28/2012 11:43:00 AM
Lab ID: 1210003-004 **Matrix:** SOIL **Received Date:** 9/29/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	10/2/2012 10:57:15 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	10/2/2012 10:57:15 AM
Surr: DNOP	108	77.6-140		%REC	1	10/2/2012 10:57:15 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/5/2012 11:37:02 PM
Surr: BFB	98.0	84-116		%REC	1	10/5/2012 11:37:02 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.048		mg/Kg	1	10/4/2012 4:28:46 PM
Toluene	ND	0.048		mg/Kg	1	10/4/2012 4:28:46 PM
Ethylbenzene	ND	0.048		mg/Kg	1	10/4/2012 4:28:46 PM
Xylenes, Total	ND	0.095		mg/Kg	1	10/4/2012 4:28:46 PM
Surr: 4-Bromofluorobenzene	109	80-120		%REC	1	10/4/2012 4:28:46 PM
EPA METHOD 300.0: ANIONS						Analyst: **SRM**
Chloride	12	7.5		mg/Kg	5	10/4/2012 3:23:42 PM

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
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** API VZ
Project: Vadose Zone Bisti Landfarm **Collection Date:** 9/28/2012 10:49:00 AM
Lab ID: 1210003-005 **Matrix:** SOIL **Received Date:** 9/29/2012 10:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JMP**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	10/2/2012 11:47:03 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	10/2/2012 11:47:03 AM
Surr: DNOP	110	77.6-140		%REC	1	10/2/2012 11:47:03 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	10/6/2012 12:05:51 AM
Surr: BFB	99.2	84-116		%REC	1	10/6/2012 12:05:51 AM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.048		mg/Kg	1	10/4/2012 4:57:31 PM
Toluene	ND	0.048		mg/Kg	1	10/4/2012 4:57:31 PM
Ethylbenzene	ND	0.048		mg/Kg	1	10/4/2012 4:57:31 PM
Xylenes, Total	ND	0.096		mg/Kg	1	10/4/2012 4:57:31 PM
Surr: 4-Bromofluorobenzene	112	80-120		%REC	1	10/4/2012 4:57:31 PM
EPA METHOD 300.0: ANIONS						Analyst: **SRM**
Chloride	ND	7.5		mg/Kg	5	10/4/2012 4:13:21 PM

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
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1210003**

09-Oct-12

Client: Western Refining Southwest, Inc.

Project: Vadose Zone Bisti Landfarm

Sample ID **MB-4115**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **PBS**	Batch ID: **4115**	RunNo: **5979**							
Prep Date: **10/4/2012**	Analysis Date: **10/4/2012**	SeqNo: **172234**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID **LCS-4115**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **LCSS**	Batch ID: **4115**	RunNo: **5979**							
Prep Date: **10/4/2012**	Analysis Date: **10/4/2012**	SeqNo: **172235**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.3	90	110			

Sample ID **1210003-002AMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **Pettigrew VZ**	Batch ID: **4115**	RunNo: **6011**							
Prep Date: **10/4/2012**	Analysis Date: **10/4/2012**	SeqNo: **173248**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	62	7.5	15.00	45.57	111	64.4	117			

Sample ID **1210003-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**							
Client ID: **Pettigrew VZ**	Batch ID: **4115**	RunNo: **6011**							
Prep Date: **10/4/2012**	Analysis Date: **10/4/2012**	SeqNo: **173249**	Units: **mg/Kg**						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	60	7.5	15.00	45.57	95.3	64.4	117	3.81	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1210003**

09-Oct-12

Client: Western Refining Southwest, Inc.

Project: Vadose Zone Bisti Landfarm

Sample ID **MB-4019**	SampType: **MBLK**	TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **4019**	RunNo: **5904**
Prep Date: **10/1/2012**	Analysis Date: **10/2/2012**	SeqNo: **170131** 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	11		10.00		106	77.6	140			

Sample ID **LCS-4019**	SampType: **LCS**	TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **4019**	RunNo: **5904**
Prep Date: **10/1/2012**	Analysis Date: **10/2/2012**	SeqNo: **170132** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	10	50.00	0	84.2	52.6	130			
Surr: DNOP	4.4		5.000		88.0	77.6	140			

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
- P Sample pH greater than 2
- R RPD outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1210003**

09-Oct-12

Client: Western Refining Southwest, Inc.

Project: Vadose Zone Bisti Landfarm

Sample ID **MB-4015**	SampType: **MBLK**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **PBS**	Batch ID: **4015**	RunNo: **6019**
Prep Date: **10/1/2012**	Analysis Date: **10/5/2012**	SeqNo: **173412** 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	1000		1000		100	84	116			

Sample ID **LCS-4015**	SampType: **LCS**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **LCSS**	Batch ID: **4015**	RunNo: **6019**
Prep Date: **10/1/2012**	Analysis Date: **10/5/2012**	SeqNo: **173413** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	101	74	117			
Surr: BFB	1000		1000		103	84	116			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1210003**

09-Oct-12

Client: Western Refining Southwest, Inc.

Project: Vadose Zone Bisti Landfarm

Sample ID **MB-4015**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **4015**	RunNo: **5980**
Prep Date: **10/1/2012**	Analysis Date: **10/4/2012**	SeqNo: **172741** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		108	80	120			

Sample ID **LCS-4015**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **4015**	RunNo: **5980**
Prep Date: **10/1/2012**	Analysis Date: **10/4/2012**	SeqNo: **172742** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.050	1.000	0	101	76.3	117			
Toluene	1.0	0.050	1.000	0	103	80	120			
Ethylbenzene	1.1	0.050	1.000	0	105	77	116			
Xylenes, Total	3.2	0.10	3.000	0	105	76.7	117			
Surr: 4-Bromofluorobenzene	1.1		1.000		111	80	120			

Sample ID **1210003-001AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **Eastline VZ**	Batch ID: **4015**	RunNo: **5980**
Prep Date: **10/1/2012**	Analysis Date: **10/4/2012**	SeqNo: **172746** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.049	0.9881	0.006000	104	67.2	113			
Toluene	1.0	0.049	0.9881	0	105	62.1	116			
Ethylbenzene	1.1	0.049	0.9881	0	108	67.9	127			
Xylenes, Total	3.2	0.099	2.964	0	107	60.6	134			
Surr: 4-Bromofluorobenzene	1.1		0.9881		112	80	120			

Sample ID **1210003-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **Eastline VZ**	Batch ID: **4015**	RunNo: **5980**
Prep Date: **10/1/2012**	Analysis Date: **10/4/2012**	SeqNo: **172747** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.049	0.9872	0.006000	97.0	67.2	113	7.01	14.3	
Toluene	0.98	0.049	0.9872	0	99.4	62.1	116	5.49	15.9	
Ethylbenzene	1.0	0.049	0.9872	0	102	67.9	127	5.10	14.4	
Xylenes, Total	3.0	0.099	2.962	0	102	60.6	134	4.78	12.6	
Surr: 4-Bromofluorobenzene	1.1		0.9872		113	80	120	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD 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 Southwest, Inc Bloomfield Work Order Number: 1210003

Received by/date: AF 09/29/12

Logged By: Lindsay Mangin 9/29/2012 10:00:00 AM

Completed By: Lindsay Mangin 10/1/2012 4:54:25 AM

Reviewed By: 10/01/12

Chain of Custody

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

Log In

4. Coolers are present? (see 19. for cooler specific information) Yes ☑ No ☐ NA ☐
5. Was an attempt made to cool the samples? Yes ☑ No ☐ NA ☐
6. Were all samples received at a temperature of >0° C to 6.0°C Yes ☑ No ☐ NA ☐
7. Sample(s) in proper container(s)? Yes ☑ No ☐
8. Sufficient sample volume for indicated test(s)? Yes ☑ No ☐
9. Are samples (except VOA and ONG) properly preserved? Yes ☑ No ☐
10. Was preservative added to bottles? Yes ☐ No ☑ NA ☐
11. VOA vials have zero headspace? Yes ☐ No ☐ No VOA Vials ☑
12. Were any sample containers received broken? Yes ☐ No ☑
13. Does paperwork match bottle labels? (Note discrepancies on chain of custody) Yes ☑ No ☐
14. Are matrices correctly identified on Chain of Custody? Yes ☑ No ☐
15. Is it clear what analyses were requested? Yes ☑ No ☐
16. Were all holding times able to be met? (If no, notify customer for authorization.) Yes ☑ No ☐

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

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

17. 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: _____

18. Additional remarks:

19. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.8	Good	Yes			

Chain-of-Custody Record

Client: WESTERN REFINING
KELLY ROBINSON
Mailing Address: 111 CR 4990
Bloomfield NM 87413
Phone #:
email or Fax#:
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: BISTI LANDFARM VADOSE ZONE
Project #: WR1005
Project Manager: Ashley Ager
Sampler: BROOKE HERB/Kyla Vaughan
Sample Temperature:

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type		BTEX + MTBE + TPH (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel) MRO	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chloride				Air Bubbles (Y or N)
9/28/12	10:24	SOIL	Eastline VZ ~~Kw~~	4oz/2	Cool	-001	✓		✓									✓				
9/28/12	11:22	SOIL	PETTIGREW VZ	4oz/2	Cool	-002	✓		✓									✓				
9/28/12	9:56	SOIL	WESTLINE VZ	4oz/2	Cool	-003	✓		✓									✓				
9/28/12	11:43	SOIL	BISTI VZ	4oz/2	Cool	-004	✓		✓									✓				
9/28/12	10:49	SOIL	API VZ	4oz/2	Cool	-005	✓		✓									✓				

Date:	Time:	Relinquished by:	Received by:	Date	Time
9/28/12	15:29	Kyla Vaughan	Christ Walters	9/28/12	1529
9/28/12	1700	Christ Walters		9/29/12	10:00

Remarks:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

January 02, 2013

Ashley Ager
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413
TEL: (970) 946-1093
FAX (505) 632-3911

RE: Vadose Zone Bisti Landfarm Quarterly OrderNo.: 1212978

Dear Ashley Ager:

Hall Environmental Analysis Laboratory received 5 sample(s) on 12/21/2012 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. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. All samples are reported as received unless otherwise indicated. 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.

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1212978**
Date Reported: **1/2/2013**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Client Sample ID: Westline VS
Project: Vadose Zone Bisti Landfarm Quarterly
Collection Date: 12/20/2012 11:56:00 AM
Lab ID: 1212978-001 **Matrix:** SOIL **Received Date:** 12/21/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **MMD**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	12/27/2012 10:15:39 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/27/2012 10:15:39 AM
Surr: DNOP	89.4	72.4-120		%REC	1	12/27/2012 10:15:39 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/26/2012 4:21:22 PM
Surr: BFB	106	84-116		%REC	1	12/26/2012 4:21:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.047		mg/Kg	1	12/26/2012 4:21:22 PM
Toluene	ND	0.047		mg/Kg	1	12/26/2012 4:21:22 PM
Ethylbenzene	ND	0.047		mg/Kg	1	12/26/2012 4:21:22 PM
Xylenes, Total	ND	0.095		mg/Kg	1	12/26/2012 4:21:22 PM
Surr: 4-Bromofluorobenzene	105	80-120		%REC	1	12/26/2012 4:21:22 PM
EPA METHOD 300.0: ANIONS						Analyst: **JRR**
Chloride	ND	7.5		mg/Kg	5	12/31/2012 5:01:41 PM

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
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Client Sample ID: Bisti VS
Project: Vadose Zone Bisti Landfarm Quarterly
Collection Date: 12/20/2012 12:11:00 PM
Lab ID: 1212978-002 **Matrix:** SOIL **Received Date:** 12/21/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **MMD**
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	12/27/2012 11:20:50 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	12/27/2012 11:20:50 AM
Surr: DNOP	87.2	72.4-120		%REC	1	12/27/2012 11:20:50 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/26/2012 4:50:06 PM
Surr: BFB	99.5	84-116		%REC	1	12/26/2012 4:50:06 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.047		mg/Kg	1	12/26/2012 4:50:06 PM
Toluene	ND	0.047		mg/Kg	1	12/26/2012 4:50:06 PM
Ethylbenzene	ND	0.047		mg/Kg	1	12/26/2012 4:50:06 PM
Xylenes, Total	ND	0.094		mg/Kg	1	12/26/2012 4:50:06 PM
Surr: 4-Bromofluorobenzene	104	80-120		%REC	1	12/26/2012 4:50:06 PM
EPA METHOD 300.0: ANIONS						Analyst: **JRR**
Chloride	11	7.5		mg/Kg	5	12/31/2012 5:14:06 PM

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
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Vadose Zone Bisti Landfarm Quarterly
Lab ID: 1212978-003 **Matrix:** SOIL

Client Sample ID: Pettigrew VS
Collection Date: 12/20/2012 12:31:00 PM
Received Date: 12/21/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **MMD**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	12/27/2012 11:42:32 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/27/2012 11:42:32 AM
Surr: DNOP	88.9	72.4-120		%REC	1	12/27/2012 11:42:32 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	12/26/2012 5:18:51 PM
Surr: BFB	96.6	84-116		%REC	1	12/26/2012 5:18:51 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.049		mg/Kg	1	12/26/2012 5:18:51 PM
Toluene	ND	0.049		mg/Kg	1	12/26/2012 5:18:51 PM
Ethylbenzene	ND	0.049		mg/Kg	1	12/26/2012 5:18:51 PM
Xylenes, Total	ND	0.098		mg/Kg	1	12/26/2012 5:18:51 PM
Surr: 4-Bromofluorobenzene	103	80-120		%REC	1	12/26/2012 5:18:51 PM
EPA METHOD 300.0: ANIONS						Analyst: **JRR**
Chloride	1700	75		mg/Kg	50	12/31/2012 5:26:31 PM

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
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Vadose Zone Bisti Landfarm Quarterly
Lab ID: 1212978-004 **Matrix:** SOIL

Client Sample ID: API VS
Collection Date: 12/20/2012 12:51:00 PM
Received Date: 12/21/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **MMD**
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	12/27/2012 12:04:24 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/27/2012 12:04:24 PM
Surr: DNOP	86.6	72.4-120		%REC	1	12/27/2012 12:04:24 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/26/2012 5:47:41 PM
Surr: BFB	93.4	84-116		%REC	1	12/26/2012 5:47:41 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.047		mg/Kg	1	12/26/2012 5:47:41 PM
Toluene	ND	0.047		mg/Kg	1	12/26/2012 5:47:41 PM
Ethylbenzene	ND	0.047		mg/Kg	1	12/26/2012 5:47:41 PM
Xylenes, Total	ND	0.093		mg/Kg	1	12/26/2012 5:47:41 PM
Surr: 4-Bromofluorobenzene	101	80-120		%REC	1	12/26/2012 5:47:41 PM
EPA METHOD 300.0: ANIONS						Analyst: **JRR**
Chloride	ND	7.5		mg/Kg	5	12/28/2012 3:23:52 PM

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
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. **Client Sample ID:** Eastline VS
Project: Vadose Zone Bisti Landfarm Quarterly **Collection Date:** 12/20/2012 1:02:00 PM
Lab ID: 1212978-005 **Matrix:** SOIL **Received Date:** 12/21/2012 9:55:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **MMD**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	12/27/2012 12:26:07 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	12/27/2012 12:26:07 PM
Surr: DNOP	76.9	72.4-120		%REC	1	12/27/2012 12:26:07 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **NSB**
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	12/26/2012 6:16:32 PM
Surr: BFB	93.1	84-116		%REC	1	12/26/2012 6:16:32 PM
EPA METHOD 8021B: VOLATILES						Analyst: **NSB**
Benzene	ND	0.047		mg/Kg	1	12/26/2012 6:16:32 PM
Toluene	ND	0.047		mg/Kg	1	12/26/2012 6:16:32 PM
Ethylbenzene	ND	0.047		mg/Kg	1	12/26/2012 6:16:32 PM
Xylenes, Total	ND	0.094		mg/Kg	1	12/26/2012 6:16:32 PM
Surr: 4-Bromofluorobenzene	102	80-120		%REC	1	12/26/2012 6:16:32 PM
EPA METHOD 300.0: ANIONS						Analyst: **JRR**
Chloride	7.8	7.5		mg/Kg	5	12/28/2012 3:48:40 PM

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
P	Sample pH greater than 2	R	RPD outside accepted recovery limits
RL	Reporting Detection Limit	S	Spike Recovery outside accepted recovery limits

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1212978**

02-Jan-13

Client: Western Refining Southwest, Inc.

Project: Vadose Zone Bisti Landfarm Quarterly

Sample ID **MB-5470**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **5470**	RunNo: **7775**
Prep Date: **12/28/2012**	Analysis Date: **12/28/2012**	SeqNo: **226027** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID **LCS-5470**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **5470**	RunNo: **7775**
Prep Date: **12/28/2012**	Analysis Date: **12/28/2012**	SeqNo: **226028** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	95.6	90	110			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1212978**

02-Jan-13

Client: Western Refining Southwest, Inc.

Project: Vadose Zone Bisti Landfarm Quarterly

Sample ID **MB-5421**	SampType: **MBLK**	TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **5421**	RunNo: **7701**
Prep Date: **12/26/2012**	Analysis Date: **12/26/2012**	SeqNo: **223834** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.0		10.00		90.4	72.4	120			

Sample ID **LCS-5421**	SampType: **LCS**	TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **5421**	RunNo: **7701**
Prep Date: **12/26/2012**	Analysis Date: **12/26/2012**	SeqNo: **223839** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	89.8	47.4	122			
Surr: DNOP	4.0		5.000		80.1	72.4	120			

Sample ID **1212978-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **Westline VS**	Batch ID: **5421**	RunNo: **7718**
Prep Date: **12/26/2012**	Analysis Date: **12/27/2012**	SeqNo: **224598** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	9.9	49.31	0	98.0	12.6	148			
Surr: DNOP	4.1		4.931		82.9	72.4	120			

Sample ID **1212978-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015B: Diesel Range Organics**
Client ID: **Westline VS**	Batch ID: **5421**	RunNo: **7718**
Prep Date: **12/26/2012**	Analysis Date: **12/27/2012**	SeqNo: **224636** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	9.8	49.07	0	102	12.6	148	3.95	22.5	
Surr: DNOP	4.0		4.907		82.0	72.4	120	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1212978**

02-Jan-13

Client: Western Refining Southwest, Inc.

Project: Vadose Zone Bisti Landfarm Quarterly

Sample ID **MB-5407**	SampType: **MBLK**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **PBS**	Batch ID: **5407**	RunNo: **7708**
Prep Date: **12/21/2012**	Analysis Date: **12/26/2012**	SeqNo: **224296** 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	930		1000		93.0	84	116			

Sample ID **LCS-5407**	SampType: **LCS**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **LCSS**	Batch ID: **5407**	RunNo: **7708**
Prep Date: **12/21/2012**	Analysis Date: **12/26/2012**	SeqNo: **224300** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	21	5.0	25.00	0	83.2	74	117			
Surr: BFB	960		1000		95.8	84	116			

Sample ID **1212978-002AMS**	SampType: **MS**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **Bisti VS**	Batch ID: **5407**	RunNo: **7708**
Prep Date: **12/21/2012**	Analysis Date: **12/26/2012**	SeqNo: **224352** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	19	4.8	24.11	0	78.1	70	130			
Surr: BFB	950		964.3		98.6	84	116			

Sample ID **1212978-002AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015B: Gasoline Range**
Client ID: **Bisti VS**	Batch ID: **5407**	RunNo: **7708**
Prep Date: **12/21/2012**	Analysis Date: **12/26/2012**	SeqNo: **224357** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	20	4.8	24.06	0	83.5	70	130	6.54	22.1	
Surr: BFB	920		962.5		95.3	84	116	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1212978**

02-Jan-13

Client: Western Refining Southwest, Inc.

Project: Vadose Zone Bisti Landfarm Quarterly

Sample ID **MB-5407**	SampType: **MBLK**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **PBS**	Batch ID: **5407**	RunNo: **7708**
Prep Date: **12/21/2012**	Analysis Date: **12/26/2012**	SeqNo: **224391** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		104	80	120			

Sample ID **LCS-5407**	SampType: **LCS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **LCSS**	Batch ID: **5407**	RunNo: **7708**
Prep Date: **12/21/2012**	Analysis Date: **12/26/2012**	SeqNo: **224392** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.050	1.000	0	104	80	120			
Toluene	1.0	0.050	1.000	0	102	80	120			
Ethylbenzene	1.0	0.050	1.000	0	103	80	120			
Xylenes, Total	3.1	0.10	3.000	0	102	80	120			
Surr: 4-Bromofluorobenzene	1.1		1.000		111	80	120			

Sample ID **1212978-001AMS**	SampType: **MS**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **Westline VS**	Batch ID: **5407**	RunNo: **7708**
Prep Date: **12/21/2012**	Analysis Date: **12/26/2012**	SeqNo: **224399** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.047	0.9425	0	102	67.2	113			
Toluene	0.97	0.047	0.9425	0	103	62.1	116			
Ethylbenzene	0.96	0.047	0.9425	0.005480	102	67.9	127			
Xylenes, Total	2.9	0.094	2.828	0	102	60.6	134			
Surr: 4-Bromofluorobenzene	1.0		0.9425		109	80	120			

Sample ID **1212978-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8021B: Volatiles**
Client ID: **Westline VS**	Batch ID: **5407**	RunNo: **7708**
Prep Date: **12/21/2012**	Analysis Date: **12/26/2012**	SeqNo: **224400** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.047	0.9407	0	102	67.2	113	0.321	14.3	
Toluene	0.94	0.047	0.9407	0	100	62.1	116	2.53	15.9	
Ethylbenzene	0.94	0.047	0.9407	0.005480	99.7	67.9	127	2.15	14.4	
Xylenes, Total	2.8	0.094	2.822	0	99.2	60.6	134	2.49	12.6	
Surr: 4-Bromofluorobenzene	0.98		0.9407		104	80	120	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH greater than 2
- B Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD 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 Southwest, Inc Bloomfield** Work Order Number: **1212978**

Received by/date: 12/21/12

Logged By: **Ashley Gallegos** **12/21/2012 9:55:00 AM**

Completed By: **Ashley Gallegos** **12/21/2012 11:23:44 AM**

Reviewed By: 12/21/12

Chain of Custody

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

Log In

4.	Coolers are present? (see 19. for cooler specific information)	Yes ✔	No	NA
5.	Was an attempt made to cool the samples?	Yes ✔	No	NA
6.	Were all samples received at a temperature of >0° C to 6.0°C	Yes ✔	No	NA
7.	Sample(s) in proper container(s)?	Yes ✔	No	
8.	Sufficient sample volume for indicated test(s)?	Yes ✔	No	
9.	Are samples (except VOA and ONG) properly preserved?	Yes ✔	No	
10.	Was preservative added to bottles?	Yes	No ✔	NA
11.	VOA vials have zero headspace?	Yes	No	No VOA Vials ✔
12.	Were any sample containers received broken?	Yes	No ✔	
13.	Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ✔	No	# of preserved bottles checked for pH:
14.	Are matrices correctly identified on Chain of Custody?	Yes ✔	No	(<2 or >12 unless noted)
15.	Is it clear what analyses were requested?	Yes ✔	No	Adjusted?
16.	Were all holding times able to be met? (If no, notify customer for authorization.)	Yes ✔	No	Checked by:

Special Handling (if applicable)

17. 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:

18. Additional remarks:

19. **Cooler Information**

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

Chain-of-Custody Record

Client: Western Refining
Kelly Robinson
Mailing Address: 111 CR 4990
Bloomfield, NM 87413
Phone #: 505 632 8013
email or Fax#:
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____
Project Name: Bisti Landfarm Quarterly (vadose zone)
Project #: WR1005
Project Manager: Ashley Ager
Sampler: Brooke Herb / Devin Hen
On Ice: ☒ Yes ☐ No
Sample Temperature: [illegible]

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

Analysis Request

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No.	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	TPH 8015B GRO/DRO/MRO	Chloride 300.1			Air Bubbles (Y or N)
2/20/12	11:56	Soil	Westline VS	4oz/2	cool	-001	✓											✓	✓			
2/20/12	12:11	Soil	Bisti VS	4oz/2	cool	-002	✓											✓	✓			
2/20/12	12:31	Soil	Pettigrew VS	4oz/2	cool	-003	✓											✓	✓			
2/20/12	12:51	Soil	API VS	4oz/2	cool	-004	✓											✓	✓			
2/20/12	13:02	Soil	Eastline VS	4oz/2	cool	-005	✓											✓	✓			

Date:	Time:	Relinquished by:	Received by:	Date	Time
2/20/12	13:57	[signature]	Christin Walters	12/20/12	1357
2/20/12	1647	Christin Walters	[signature]	12/21/12	0955

Remarks:

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

Western Refining
LOGISTICS

WNR LISTED NYSE

RECEIVED OCD

2011 MAY 11 A 11:50

May 10, 2011

Mr. Brad Jones
New Mexico Energy, Minerals, & Natural Resources Department
Oil Conservation Division
1220 South St. Francis Drive
Santa Fe, New Mexico 87505

Certified Mail: 7009 3410 0000 3636 2244

Re: 2011 Annual Sampling Report
Western Refining Centralized Surface Waste Management Facility
Permit #: NM-02-0010
San Juan County, New Mexico

Dear Mr. Jones:

Please find enclosed the 2011 Annual Sampling Report for the Western Refining Centralized Surface Waste Management Facility located in San Juan County, New Mexico. This report summarizes activities performed as part of the 2011 Annual Sampling Event that was conducted in March 2011.

If you have any questions or require additional information, please do not hesitate to contact me at (505) 632-4171.

Sincerely,

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

cc: A. Hains – WNR

COMPLIANCE / ENGINEERING / REMEDIATION

LT Environmental Inc.
2243 Main Avenue, Suite 3
Durango, Colorado 81301
T 970.385.1096 / F 970.385.1873

April 12, 2011

Mr. Randy Schmaltz
Western Refining Southwest, Inc.
111 CR 4990
Bloomfield, New Mexico 87413

RE: Annual Soil Sampling Western Refining Centralized Surface Waste Management Facility
NM-02-0010
Bisti Landfarm
San Juan County, New Mexico

Dear Mr. Schmaltz:

On March 8, 2011, LT Environmental, Inc. (LTE) collected annual soil samples from the Western Refining Southwest, Inc. (Western) Bisti Landfarm, permit number NM-02-0010, located in the northwest quarter of the southeast quarter of Section 16, Township 25 North, Range 12 West in San Juan County, New Mexico. The Bisti Landfarm was permitted in February 1998 under 711 Permit NM-02-0010 to Giant Industries, Arizona (Giant). Giant disposed of impacted soils at the Bisti Landfarm resulting in three cells: API Cell, Crude Cell (containing material originating from Pettigrew, East Line, Bisti and West Line), and Cell 1, which operated from 1998 until 2004 and is currently inactive (Figure 1). Western procured the Bisti Landfarm from Giant in June of 2007.

Annual soil sampling consisted of vadose zone and treatment zone monitoring. Discrete vadose zone samples were collected from the two active cells (API and Crude cells) to be analyzed for total petroleum hydrocarbons (TPH), benzene, toluene, ethylbenzene, and total xylenes (BTEX), chlorides, heavy metals, and general chemistry. Three discrete vadose zone samples were collected from inactive Cell 1 and analyzed for chlorides. Vadose zone samples were collected from 3 feet to 4 feet below the natural ground surface. The number of vadose zone samples collected within each cell was dependent on the size of the cell. Sampling locations are depicted on Figure 1.

Treatment zones in the API and Crude cells were composite sampled by placing discrete samples collected from approximately 6 inches below the ground surface into a 1-gallon plastic bag. The "Crude Treatment Zone Composite" sample included discrete samples from the Pettigrew, Bisti, West Line, and East Line source areas. The "API Treatment Zone Composite" sample included five discrete samples from the API Cell. The soil within the bag was thoroughly mixed before filling glass sampling jars provided by the laboratory. Treatment zone samples were analyzed for TPH and chlorides.

All samples were placed in a cooler on ice and sent to Hall Environmental Analysis Laboratory for analysis. Samples were labeled with the date and time of collection, sample name, collector's name and parameters to be analyzed. Strict chain-of-custody (COC) protocol was followed.

Results of laboratory analysis of vadose zone samples are presented in Table 1 and compared to background sample results. The complete laboratory analytical reports and COC forms are attached to the end of this report. Chloride was detected at an elevated concentration of 1,800 milligrams per kilograms (mg/kg) in the vadose zone sample from the Pettigrew portion of the Crude Cell. Chloride was detected in the AVS S1 sample from Cell 1 at a concentration of 62 mg/kg, which exceeds the practical quantitation limit of the original baseline sample (50 mg/kg). No other constituents in vadose zone soil samples exceeded background concentrations.

The treatment zone analytical results are presented in Table 2. Resultant concentrations of TPH and chloride are within the range of impacted soil undergoing treatment at the landfarm.

The presence of elevated chloride concentrations in the vadose zone at the Bisti Landfarm has previously been identified. A Release Response Plan dated December 31, 2009, was approved by the New Mexico Oil Conservation Division (NMOCD) and has been initiated. The results of delineation sampling were submitted to the NMOCD on June 6, 2010. Western is awaiting comments from the NMOCD before proceeding with remedial actions.

If you have any questions or require additional information, please contact me at (970) 946-1093.

Sincerely,

LT ENVIRONMENTAL, INC.

Ashley L. Ager
Senior Geologist/Office Manager

ATTACHMENTS

Figure 1 – Site Map

Table 1 – Annual Vadose Zone Soil Analytical Results
Table 2 – Annual Treatment Zone Soil Analytical Results

Attachment – Laboratory Analytical Reports

FIGURE

IMAGE COURTESY OF GOOGLE EARTH, 2005

LEGEND

- VADOSE ZONE SAMPLE (COLLECTED 03/08/2011 AND 3/15/2011)
- TREATMENT ZONE ALIQUOT SAMPLE
- CELL BOUNDARY
- APPROXIMATE SOURCE IDENTITY BOUNDARY
- FENCE

0 200 400
Feet

N

FIGURE 1
SITE MAP
BISTI LANDFARM
SEC 16 T25N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1005\WR1005_BISTI_LANDFARM_FIG02_SITEMAP.mxd

TABLES

TABLE 1

ANNUAL VADOSE ZONE SOIL ANALYTICAL RESULTS
BISTI LANDFARM
WESTERN REFINING SOUTHWEST, INC.

		Sample ID								
			Crude Cell				API Cell	Cell 1		
	Units	Baseline	Westline AVS	Eastline AVS	Bisti AVS	Pettigrew AVS	API AVS	Cell 1 AVS S1	Cell 1 AVS S2	Cell 1 AVS S3
Sample Date		27-Mar-98	8-Mar-11	8-Mar-11	8-Mar-11	15-Mar-11	8-Mar-11	8-Mar-11	8-Mar-11	8-Mar-11
GRO	mg/kg	NA	<5.0	<5.0	<5.0	<5.0	<5.0	NA	NA	NA
DRO	mg/kg	<50	<10	<10	<10	<10	<10	NA	NA	NA
MRO	mg/kg	NA	<50	<50	<50	<50	<50	NA	NA	NA
Benzene	mg/kg	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NA	NA	NA
Toluene	mg/kg	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NA	NA	NA
Ethylbenzene	mg/kg	<0.05	<0.050	<0.050	<0.050	<0.050	<0.050	NA	NA	NA
Total xylenes	mg/kg	<0.05	<0.10	<0.10	<0.10	<0.10	<0.10	NA	NA	NA
Alkalinity	mg/kg	NA	272	119	95	46	85	NA	NA	NA
Arsenic	mg/kg	2.8	<2.5	<2.5	<2.5	<2.5	<2.5	NA	NA	NA
Barium	mg/kg	180	250	200	82	88	25	NA	NA	NA
Cadmium	mg/kg	<1.3	<0.10	<0.10	<0.10	<0.10	<0.10	NA	NA	NA
Calcium	mg/kg	NA	9,200	8,000	2,400	3,700	1,100	NA	NA	NA
Chromium	mg/kg	<5.0	2.1	2.7	2.8	2.2	1.9	NA	NA	NA
Lead	mg/kg	6.8	1.8	1.7	2.3	1.8	1.8	NA	NA	NA
Magnesium	mg/kg	NA	1,000	1,200	990	1,100	850	NA	NA	NA
Potassium	mg/kg	NA	550	770	830	630	530	NA	NA	NA
Selenium	mg/kg	<2.5	<2.5	<2.5	<2.5	<2.5	<2.5	NA	NA	NA
Silver	mg/kg	<1.3	<0.25	<0.25	<0.25	<0.25	<0.25	NA	NA	NA
Sodium	mg/kg	NA	170	44	40	250	75	NA	NA	NA
Mercury	mg/kg	<0.50	<0.033	<0.033	<0.033	<0.033	<0.033	NA	NA	NA
Sulfate	mg/kg	140	33	50	16	15	22	NA	NA	NA
Chloride	mg/kg	<50	<7.5	<7.5	31	**1,800**	34	**62**	<7.5	<7.5

Notes:
AVS - Annual Vadose Zone Sample
DRO - Diesel Range Organics
GRO - Gasoline Range Organics
MRO - Motor Oil Range Organics
mg/kg - milligrams per kilograms
NA - Not Analyzed
< indicates result is less than the stated method reporting limit
Bold indicates results exceeds the baseline concentration

TABLE 2

ANNUAL TREATMENT ZONE SOIL ANALYTICAL RESULTS
BISTI LANDFARM
WESTERN REFINING SOUTHWEST, INC.

Sample ID	Sample Date	Chloride (mg/kg)	GRO mg/kg	DRO (mg/kg)	MRO (mg/kg)
Crude Treatment Zone Composite	8-Mar-11	15	<50	82	110
API Treatment Zone Composite	8-Mar-11	200	<50	42	56

Notes:

DRO - Diesel Range Organics

GRO - Gasoline Range Organics

MRO - Motor Oil Range Organics

mg/kg - milligrams per kiliograms

< indicates result is less than the stated method reporting limit

LABORATORY ANALYTICAL REPORTS

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Friday, March 25, 2011

Randy Schmaltz
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413

TEL: (505) 632-4161
FAX (505) 632-3911

RE: Annual Vadose Zone Sampling Bisti Landfarm

Order No.: 1103438

Dear Randy Schmaltz:

Hall Environmental Analysis Laboratory, Inc. received 8 sample(s) on 3/9/2011 for the analyses presented in the following report.

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

Reporting limits are determined by EPA methodology.

Please do not hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Laboratory Manager

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

Hall Environmental Analysis Laboratory, Inc.

Date: *25-Mar-11*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	Westline AVS
Lab Order:	1103438	**Collection Date:**	3/8/2011 9:50:00 AM
Project:	Annual Vadose Zone Sampling Bisti Landfarm	**Date Received:**	3/9/2011
Lab ID:	1103438-01	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JB**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/13/2011 10:24:07 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/13/2011 10:24:07 PM
Surr: DNOP	93.9	81.8-129		%REC	1	3/13/2011 10:24:07 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **DAM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/16/2011 1:33:03 AM
Surr: BFB	99.5	89.7-125		%REC	1	3/16/2011 1:33:03 AM
EPA METHOD 8021B: VOLATILES						Analyst: **DAM**
Benzene	ND	0.050		mg/Kg	1	3/16/2011 1:33:03 AM
Toluene	ND	0.050		mg/Kg	1	3/16/2011 1:33:03 AM
Ethylbenzene	ND	0.050		mg/Kg	1	3/16/2011 1:33:03 AM
Xylenes, Total	ND	0.10		mg/Kg	1	3/16/2011 1:33:03 AM
Surr: 4-Bromofluorobenzene	109	85.3-139		%REC	1	3/16/2011 1:33:03 AM
EPA METHOD 300.0: ANIONS						Analyst: **LJB**
Chloride	ND	7.5		mg/Kg	5	3/14/2011 7:36:14 PM
Sulfate	33	7.5		mg/Kg	5	3/14/2011 7:36:14 PM
EPA METHOD 7471: MERCURY						Analyst: **ELS**
Mercury	ND	0.033		mg/Kg	1	3/16/2011 10:59:43 AM
EPA METHOD 6010B: SOIL METALS						Analyst: **RAGS**
Arsenic	ND	2.5		mg/Kg	1	3/22/2011 5:11:47 PM
Barium	250	0.50		mg/Kg	5	3/22/2011 5:14:27 PM
Cadmium	ND	0.10		mg/Kg	1	3/22/2011 5:11:47 PM
Calcium	9200	130		mg/Kg	5	3/22/2011 5:14:27 PM
Chromium	2.1	0.30		mg/Kg	1	3/22/2011 5:11:47 PM
Lead	1.8	0.25		mg/Kg	1	3/22/2011 5:11:47 PM
Magnesium	1000	25		mg/Kg	1	3/22/2011 5:11:47 PM
Potassium	550	50		mg/Kg	1	3/22/2011 5:11:47 PM
Selenium	ND	2.5		mg/Kg	1	3/22/2011 5:11:47 PM
Silver	ND	0.25		mg/Kg	1	3/22/2011 5:11:47 PM
Sodium	170	25		mg/Kg	1	3/22/2011 5:11:47 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *25-Mar-11*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	Bish AVS
Lab Order:	1103438	**Collection Date:**	3/8/2011 10:35:00 AM
Project:	Annual Vadose Zone Sampling Bisti Landfarm	**Date Received:**	3/9/2011
Lab ID:	1103438-02	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JB**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/13/2011 10:58:01 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/13/2011 10:58:01 PM
Surr: DNOP	95.4	81.8-129		%REC	1	3/13/2011 10:58:01 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **DAM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/16/2011 2:03:00 AM
Surr: BFB	97.7	89.7-125		%REC	1	3/16/2011 2:03:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: **DAM**
Benzene	ND	0.050		mg/Kg	1	3/16/2011 2:03:00 AM
Toluene	ND	0.050		mg/Kg	1	3/16/2011 2:03:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	3/16/2011 2:03:00 AM
Xylenes, Total	ND	0.10		mg/Kg	1	3/16/2011 2:03:00 AM
Surr: 4-Bromofluorobenzene	107	85.3-139		%REC	1	3/16/2011 2:03:00 AM
EPA METHOD 300.0: ANIONS						Analyst: **LJB**
Chloride	31	7.5		mg/Kg	5	3/14/2011 9:20:43 PM
Sulfate	16	7.5		mg/Kg	5	3/14/2011 9:20:43 PM
EPA METHOD 7471: MERCURY						Analyst: **ELS**
Mercury	ND	0.033		mg/Kg	1	3/16/2011 11:01:30 AM
EPA METHOD 6010B: SOIL METALS						Analyst: **RAGS**
Arsenic	ND	2.5		mg/Kg	1	3/22/2011 5:17:00 PM
Barium	82	0.50		mg/Kg	5	3/22/2011 5:19:36 PM
Cadmium	ND	0.10		mg/Kg	1	3/22/2011 5:17:00 PM
Calcium	2400	25		mg/Kg	1	3/22/2011 5:17:00 PM
Chromium	2.8	0.30		mg/Kg	1	3/22/2011 5:17:00 PM
Lead	2.3	0.25		mg/Kg	1	3/22/2011 5:17:00 PM
Magnesium	990	25		mg/Kg	1	3/22/2011 5:17:00 PM
Potassium	830	50		mg/Kg	1	3/22/2011 5:17:00 PM
Selenium	ND	2.5		mg/Kg	1	3/22/2011 5:17:00 PM
Silver	ND	0.25		mg/Kg	1	3/22/2011 5:17:00 PM
Sodium	40	25		mg/Kg	1	3/22/2011 5:17:00 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *25-Mar-11*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	Eastline AVS
Lab Order:	1103438	**Collection Date:**	3/8/2011 10:16:00 AM
Project:	Annual Vadose Zone Sampling Bisti Landfarm	**Date Received:**	3/9/2011
Lab ID:	1103438-03	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JB**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/13/2011 11:31:54 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/13/2011 11:31:54 PM
Surr: DNOP	96.6	81.8-129		%REC	1	3/13/2011 11:31:54 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **DAM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/16/2011 9:44:32 PM
Surr: BFB	98.5	89.7-125		%REC	1	3/16/2011 9:44:32 PM
EPA METHOD 8021B: VOLATILES						Analyst: **DAM**
Benzene	ND	0.050		mg/Kg	1	3/16/2011 9:44:32 PM
Toluene	ND	0.050		mg/Kg	1	3/16/2011 9:44:32 PM
Ethylbenzene	ND	0.050		mg/Kg	1	3/16/2011 9:44:32 PM
Xylenes, Total	ND	0.10		mg/Kg	1	3/16/2011 9:44:32 PM
Surr: 4-Bromofluorobenzene	111	85.3-139		%REC	1	3/16/2011 9:44:32 PM
EPA METHOD 300.0: ANIONS						Analyst: **LJB**
Chloride	ND	7.5		mg/Kg	5	3/14/2011 9:55:33 PM
Sulfate	50	7.5		mg/Kg	5	3/14/2011 9:55:33 PM
EPA METHOD 7471: MERCURY						Analyst: **ELS**
Mercury	ND	0.033		mg/Kg	1	3/16/2011 11:03:17 AM
EPA METHOD 6010B: SOIL METALS						Analyst: **RAGS**
Arsenic	ND	2.5		mg/Kg	1	3/22/2011 5:22:10 PM
Barium	200	0.50		mg/Kg	5	3/22/2011 5:26:29 PM
Cadmium	ND	0.10		mg/Kg	1	3/22/2011 5:22:10 PM
Calcium	8000	130		mg/Kg	5	3/22/2011 5:26:29 PM
Chromium	2.7	0.30		mg/Kg	1	3/22/2011 5:22:10 PM
Lead	1.7	0.25		mg/Kg	1	3/22/2011 5:22:10 PM
Magnesium	1200	25		mg/Kg	1	3/22/2011 5:22:10 PM
Potassium	770	50		mg/Kg	1	3/22/2011 5:22:10 PM
Selenium	ND	2.5		mg/Kg	1	3/22/2011 5:22:10 PM
Silver	ND	0.25		mg/Kg	1	3/22/2011 5:22:10 PM
Sodium	44	25		mg/Kg	1	3/22/2011 5:22:10 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *25-Mar-11*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	Pethgrew AVS
Lab Order:	1103438	**Collection Date:**	3/8/2011 11:15:00 AM
Project:	Annual Vadose Zone Sampling Bisti Landfarm	**Date Received:**	3/9/2011
Lab ID:	1103438-04	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JB**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/14/2011 12:05:45 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/14/2011 12:05:45 AM
Surr: DNOP	95.6	81.8-129		%REC	1	3/14/2011 12:05:45 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **DAM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/16/2011 10:14:31 PM
Surr: BFB	92.2	89.7-125		%REC	1	3/16/2011 10:14:31 PM
EPA METHOD 8021B: VOLATILES						Analyst: **DAM**
Benzene	ND	0.050		mg/Kg	1	3/16/2011 10:14:31 PM
Toluene	ND	0.050		mg/Kg	1	3/16/2011 10:14:31 PM
Ethylbenzene	ND	0.050		mg/Kg	1	3/16/2011 10:14:31 PM
Xylenes, Total	ND	0.10		mg/Kg	1	3/16/2011 10:14:31 PM
Surr: 4-Bromofluorobenzene	101	85.3-139		%REC	1	3/16/2011 10:14:31 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *25-Mar-11*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	API AVS
Lab Order:	1103438	**Collection Date:**	3/8/2011 10:57:00 AM
Project:	Annual Vadose Zone Sampling Bisti Landfarm	**Date Received:**	3/9/2011
Lab ID:	1103438-05	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						**Analyst: JB**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/14/2011 12:39:36 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/14/2011 12:39:36 AM
Surr: DNOP	94.7	61.8-129		%REC	1	3/14/2011 12:39:36 AM
EPA METHOD 8015B: GASOLINE RANGE						**Analyst: DAM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/16/2011 10:44:40 PM
Surr: BFB	94.1	89.7-125		%REC	1	3/16/2011 10:44:40 PM
EPA METHOD 8021B: VOLATILES						**Analyst: DAM**
Benzene	ND	0.050		mg/Kg	1	3/16/2011 10:44:40 PM
Toluene	ND	0.050		mg/Kg	1	3/16/2011 10:44:40 PM
Ethylbenzene	ND	0.050		mg/Kg	1	3/16/2011 10:44:40 PM
Xylenes, Total	ND	0.10		mg/Kg	1	3/16/2011 10:44:40 PM
Surr: 4-Bromofluorobenzene	104	85.3-139		%REC	1	3/16/2011 10:44:40 PM
EPA METHOD 300.0: ANIONS						**Analyst: LJB**
Chloride	34	7.5		mg/Kg	5	3/14/2011 10:30:21 PM
Sulfate	22	7.5		mg/Kg	5	3/14/2011 10:30:21 PM
EPA METHOD 7471: MERCURY						**Analyst: ELS**
Mercury	ND	0.033		mg/Kg	1	3/16/2011 11:05:05 AM
EPA METHOD 6010B: SOIL METALS						**Analyst: RAGS**
Arsenic	ND	2.5		mg/Kg	1	3/22/2011 5:29:02 PM
Barium	25	0.10		mg/Kg	1	3/22/2011 5:29:02 PM
Cadmium	ND	0.10		mg/Kg	1	3/22/2011 5:29:02 PM
Calcium	1100	25		mg/Kg	1	3/22/2011 5:29:02 PM
Chromium	1.9	0.30		mg/Kg	1	3/22/2011 5:29:02 PM
Lead	1.8	0.25		mg/Kg	1	3/22/2011 5:29:02 PM
Magnesium	850	25		mg/Kg	1	3/22/2011 5:29:02 PM
Potassium	530	50		mg/Kg	1	3/22/2011 5:29:02 PM
Selenium	ND	2.5		mg/Kg	1	3/22/2011 5:29:02 PM
Silver	ND	0.25		mg/Kg	1	3/22/2011 5:29:02 PM
Sodium	75	25		mg/Kg	1	3/22/2011 5:29:02 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *25-Mar-11*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	Cell 1 AVS S-1
Lab Order:	1103438	**Collection Date:**	3/8/2011 11:57:00 AM
Project:	Annual Vadose Zone Sampling Bisti Landfarm	**Date Received:**	3/9/2011
Lab ID:	1103438-06	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: LJB
Chloride	62	7.5		mg/Kg	5	3/14/2011 11:05:09 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *25-Mar-11*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	Cell 1 AVS S-2
Lab Order:	1103438	**Collection Date:**	3/8/2011 12:10:00 PM
Project:	Annual Vadose Zone Sampling Bisti Landfarm	**Date Received:**	3/9/2011
Lab ID:	1103438-07	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: LJB
Chloride	ND	7.5		mg/Kg	5	3/15/2011 12:32:12 AM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *25-Mar-11*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	Cell 1 AVS S-3
Lab Order:	1103438	**Collection Date:**	3/8/2011 12:23:00 PM
Project:	Annual Vadose Zone Sampling Bisti Landfarm	**Date Received:**	3/9/2011
Lab ID:	1103438-08	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 300.0: ANIONS						Analyst: LJB
Chloride	ND	7.5		mg/Kg	5	3/15/2011 12:49:37 AM

Qualifiers:

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

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Site Name: 1103438
Report Date: 03/23/11

Lab ID: B11031242-001
Client Sample ID: 1103438-01B, Westline AVS
Matrix: Soil
Collection Date: 03/08/11 09:50
DateReceived: 03/15/11

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Alkalinity, 1:2	272	mg/kg	D	4		ASA10-3	03/22/11 18:05 / ksp

Lab ID: B11031242-002
Client Sample ID: 1103438-02B, Bish AVS
Matrix: Soil
Collection Date: 03/08/11 10:35
DateReceived: 03/15/11

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Alkalinity, 1:2	95	mg/kg	D	4		ASA10-3	03/22/11 18:17 / ksp

Lab ID: B11031242-003
Client Sample ID: 1103438-03B, Eastline AVS
Matrix: Soil
Collection Date: 03/08/11 10:16
DateReceived: 03/15/11

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Alkalinity, 1:2	119	mg/kg	D	4		ASA10-3	03/22/11 18:23 / ksp

Lab ID: B11031242-004
Client Sample ID: 1103438-04B, Pethgrew AVS
Matrix: Soil
Collection Date: 03/08/11 11:15
DateReceived: 03/15/11

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Alkalinity, 1:2	70	mg/kg	D	4		ASA10-3	03/22/11 18:28 / ksp

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Site Name: 1103438
Report Date: 03/23/11

Lab ID: B11031242-005
Client Sample ID: 1103438-05B, API AVS
Matrix: Soil
Collection Date: 03/08/11 10:57
DateReceived: 03/15/11

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS							
Alkalinity, 1:2	85	mg/kg	D	4		ASA10-3	03/22/11 18:34 / ksp

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: 1103438

Report Date: 03/23/11
Work Order: B11031242

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA10-3									Batch: 52773
Sample ID: LCS-52773	Laboratory Control Sample				Run: MAN-TECH_110322A				03/22/11 17:59
Alkalinity, 1:2	167	mg/kg	4.0	122	50	150			
Sample ID: B11031242-001ADUP	Sample Duplicate				Run: MAN-TECH_110322A				03/22/11 18:11
Alkalinity, 1:2	297	mg/kg	4.0				8.7	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Annual Vadose Zone Sampling Bisti Landfarm **Work Order:** 1103438

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions											
Sample ID: 1103438-01AMSD		*MSD*				**Batch ID: 25945**		**Analysis Date:**		3/14/2011 8:11:04 PM	
Chloride	14.77	mg/Kg	7.5	15	0	98.5	53.9	146	2.23	20	
Sulfate	41.76	mg/Kg	7.5	30	32.56	30.7	50.8	114	3.03	20	S
Sample ID: MB-25945		*MBLK*				**Batch ID: 25945**		**Analysis Date:**		3/14/2011 2:05:25 PM	
Chloride	ND	mg/Kg	1.5								
Sulfate	ND	mg/Kg	1.5								
Sample ID: LCS-25945		*LCS*				**Batch ID: 25945**		**Analysis Date:**		3/14/2011 2:22:50 PM	
Chloride	14.53	mg/Kg	1.5	15	0	96.9	90	110			
Sulfate	29.17	mg/Kg	1.5	30	0.3969	95.9	90	110			
Sample ID: 1103438-01AMS		*MS*				**Batch ID: 25945**		**Analysis Date:**		3/14/2011 7:53:39 PM	
Chloride	15.10	mg/Kg	7.5	15	0	101	53.9	146			
Sulfate	40.51	mg/Kg	7.5	30	32.56	26.5	50.8	114			S
Method: EPA Method 8015B: Diesel Range Organics											
Sample ID: MB-25937		*MBLK*				**Batch ID: 25937**		**Analysis Date:**		3/13/2011 3:03:47 PM	
Diesel Range Organics (DRO)	ND	mg/Kg	10								
Motor Oil Range Organics (MRO)	ND	mg/Kg	50								
Sample ID: LCS-25937		*LCS*				**Batch ID: 25937**		**Analysis Date:**		3/13/2011 3:37:44 PM	
Diesel Range Organics (DRO)	49.90	mg/Kg	10	50	0	99.8	66.2	120			
Sample ID: LCSD-25937		*LCSD*				**Batch ID: 25937**		**Analysis Date:**		3/13/2011 4:11:36 PM	
Diesel Range Organics (DRO)	50.99	mg/Kg	10	50	0	102	66.2	120	2.16	14.3	
Method: EPA Method 8015B: Gasoline Range											
Sample ID: MB-25932		*MBLK*				**Batch ID: 25932**		**Analysis Date:**		3/15/2011 5:56:51 PM	
Gasoline Range Organics (GRO)	ND	mg/Kg	5.0								
Sample ID: LCS-25932		*LCS*				**Batch ID: 25932**		**Analysis Date:**		3/15/2011 5:26:56 PM	
Gasoline Range Organics (GRO)	24.37	mg/Kg	5.0	25	0	97.5	88.8	124			
Method: EPA Method 8021B: Volatiles											
Sample ID: MB-25932		*MBLK*				**Batch ID: 25932**		**Analysis Date:**		3/15/2011 5:56:51 PM	
Benzene	ND	mg/Kg	0.050								
Toluene	ND	mg/Kg	0.050								
Ethylbenzene	ND	mg/Kg	0.050								
Xylenes, Total	ND	mg/Kg	0.10								
Sample ID: LCS-25932		*LCS*				**Batch ID: 25932**		**Analysis Date:**		3/15/2011 5:56:49 PM	
Benzene	1.007	mg/Kg	0.050	1	0	101	83.3	107			
Toluene	0.9556	mg/Kg	0.050	1	0.0063	94.9	74.3	115			
Ethylbenzene	1.025	mg/Kg	0.050	1	0	103	80.9	122			
Xylenes, Total	3.194	mg/Kg	0.10	3	0	106	85.2	123			

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Annual Vadose Zone Sampling Bisti Landfarm **Work Order:** 1103438

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 7471: Mercury											
Sample ID: MB-25971		*MBLK*				Batch ID:	**25971**	Analysis Date:	3/16/2011 10:48:37 AM		
Mercury	ND	mg/Kg	0.033								
Sample ID: LCS-25971		*LCS*				Batch ID:	**25971**	Analysis Date:	3/16/2011 10:50:22 AM		
Mercury	0.1726	mg/Kg	0.033	0.167	0	104	80	120			
Method: EPA Method 6010B: Soil Metals											
Sample ID: MB-25949		*MBLK*				Batch ID:	**25949**	Analysis Date:	3/22/2011 5:08:06 PM		
Arsenic	ND	mg/Kg	2.5								
Barium	ND	mg/Kg	0.10								
Cadmium	ND	mg/Kg	0.10								
Calcium	ND	mg/Kg	25								
Chromium	ND	mg/Kg	0.30								
Lead	ND	mg/Kg	0.25								
Magnesium	ND	mg/Kg	25								
Potassium	ND	mg/Kg	50								
Selenium	ND	mg/Kg	2.5								
Silver	ND	mg/Kg	0.25								
Sodium	ND	mg/Kg	25								
Sample ID: LCS-25949		*LCS*				Batch ID:	**25949**	Analysis Date:	3/22/2011 5:09:06 PM		
Arsenic	23.97	mg/Kg	2.5	25	0	95.9	80	120			
Barium	23.78	mg/Kg	0.10	25	0	95.1	80	120			
Cadmium	24.04	mg/Kg	0.10	25	0	96.1	80	120			
Calcium	2443	mg/Kg	25	2500	0	97.7	80	120			
Chromium	24.21	mg/Kg	0.30	25	0	96.8	80	120			
Lead	23.19	mg/Kg	0.25	25	0	92.8	80	120			
Magnesium	2569	mg/Kg	25	2500	0	103	80	120			
Potassium	2719	mg/Kg	50	2500	20.67	108	80	120			
Selenium	22.90	mg/Kg	2.5	25	0.7324	88.7	80	120			
Silver	24.53	mg/Kg	0.25	25	0	98.1	80	120			
Sodium	2539	mg/Kg	25	2500	0	102	80	120			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name WESTERN REFINING SOUT | Date Received: 3/9/2011

Work Order Number 1103438 | Received by: LNM

Checklist completed by: _____ 03/09/11 | Sample ID labels checked by: _____

Signature | Date | Initials

Matrix: | Carrier name: UPS

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐		
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐	
Custody seals intact on sample bottles?	Yes ☑	No ☐	N/A ☐		
Chain of custody present?	Yes ☑	No ☐			
Chain of custody signed when relinquished and received?	Yes ☑	No ☐			
Chain of custody agrees with sample labels?	Yes ☑	No ☐			
Samples in proper container/bottle?	Yes ☑	No ☐			
Sample containers intact?	Yes ☑	No ☐			
Sufficient sample volume for indicated test?	Yes ☑	No ☐			
All samples received within holding time?	Yes ☑	No ☐		Number of preserved bottles checked for pH:	
Water - VOA vials have zero headspace? No VOA vials submitted ☑		Yes ☐	No ☐		
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑		
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	<2 >12 unless noted below.	
Container/Temp Blank temperature?	2.6°	<6° C Acceptable If given sufficient time to cool.			

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: 3/14/11 Per AA for Pre-Nigrew AVS Cancel any analysis that has not been started for AA 3/14/11

Corrective Action _____

Chain-of-Custody Record

Client: Western Refining
Randy Schmaltz
Mailing Address: 111 CR 4990
Bloomfield, NM 87413
Phone #: 505-632-8013
email or Fax#:
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other
☐ EDD (Type)

Turn-Around Time:
☒ Standard ☐ Rush
Project Name: Annual Vadose Zone Sampling Bisti landfarm
Project #: WR1005
Project Manager: Ashley Ager
Sampler: Brooke Herb & Devin Herrmann
On Ice: ☒ Yes ☐ No
Sample Temperature: 2.6

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1103438	BTEX + ~~MTBE + TMB~~s (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals + Cations	Anions (F^-, Cl^-, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Soil Alkalinity	Chlorides 300.0			Air Bubbles (Y or N)
3/8/11	9:50	Soil	Westline AVS	4oz/4	NONE	-1	✓		✓				✓	✓				✓	✓			
3/8/11	10:35	Soil	Bisti AVS	4oz/4	NONE	-2	✓		✓				✓	✓				✓	✓			
3/8/11	10:16	Soil	Eastline AVS	4oz/4	NONE	-3	✓		✓				✓	✓				✓	✓			
3/8/11	11:15	Soil	Pettigrew AVS	4oz/4	NONE	-4	✓		✓				✓	✓				✓	✓			
3/8/11	10:57	Soil	API AVS	4oz/4	NONE	-5	✓		✓				✓	✓				✓	✓			
3/8/11	11:57	Soil	Cell 1 AVS S-1	4oz/1	NONE	-6													✓			
3/8/11	12:10	Soil	Cell 1 AVS S-2	4oz/1	NONE	-7													✓			
3/8/11	12:23	Soil	Cell 1 AVS S-3	4oz/1	NONE	-8													✓			

Date	Time	Relinquished by:	Received by:	Date	Time
3/8/11	13:46			3/8/11	1346
3/8/11	1430			3/9/11	1030

Remarks:
Please Copy Results to:
aager@Henv.com

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

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Tuesday, March 22, 2011

Ashley Ager
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413

TEL: (970) 946-1093
FAX (505) 632-3911

RE: Bisti Landfarm Annual Treatment Zone Sampling

Order No.: 1103451

Dear Ashley Ager:

Hall Environmental Analysis Laboratory, Inc. received 2 sample(s) on 3/9/2011 for the analyses presented in the following report.

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

Reporting limits are determined by EPA methodology.

Please do not hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Laboratory Manager

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

Hall Environmental Analysis Laboratory, Inc.

Date: *22-Mar-11*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	API Treatment Zone Comp
Lab Order:	1103451	**Collection Date:**	3/8/2011 11:26:00 AM
Project:	Bisti Landfarm Annual Treatment Zone Samplin	**Date Received:**	3/9/2011
Lab ID:	1103451-01	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JB**
Diesel Range Organics (DRO)	42	10		mg/Kg	1	3/15/2011 9:37:35 AM
Motor Oil Range Organics (MRO)	56	50		mg/Kg	1	3/15/2011 9:37:35 AM
Surr: DNOP	105	81.8-129		%REC	1	3/15/2011 9:37:35 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **DAM**
Gasoline Range Organics (GRO)	ND	50		mg/Kg	10	3/16/2011 11:14:50 PM
Surr: BFB	97.2	89.7-125		%REC	10	3/16/2011 11:14:50 PM
EPA METHOD 300.0: ANIONS						Analyst: **LJB**
Chloride	200	7.5		mg/Kg	5	3/16/2011 10:11:49 PM

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Date: *22-Mar-11*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	Crude Treatment Zone Comp
Lab Order:	1103451	**Collection Date:**	3/8/2011 11:25:00 AM
Project:	Bisti Landfarm Annual Treatment Zone Samplin	**Date Received:**	3/9/2011
Lab ID:	1103451-02	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JB**
Diesel Range Organics (DRO)	82	10		mg/Kg	1	3/15/2011 11:19:54 AM
Motor Oil Range Organics (MRO)	110	50		mg/Kg	1	3/15/2011 11:19:54 AM
Surr: DNOP	95.4	81.8-129		%REC	1	3/15/2011 11:19:54 AM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **DAM**
Gasoline Range Organics (GRO)	ND	50		mg/Kg	10	3/16/2011 11:44:58 PM
Surr: BFB	91.7	89.7-125		%REC	10	3/16/2011 11:44:58 PM
EPA METHOD 300.0: ANIONS						Analyst: **LJB**
Chloride	15	1.5		mg/Kg	1	3/16/2011 10:46:38 PM

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Bisti Landfarm Annual Treatment Zone Samplin **Work Order:** 1103451

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions											
Sample ID: MB-25996		*MBLK*				Batch ID: **25996**		Analysis Date:		3/16/2011 6:08:06 PM	
Chloride	ND	mg/Kg	1.5								
Sample ID: LCS-25996		*LCS*				Batch ID: **25996**		Analysis Date:		3/16/2011 6:25:30 PM	
Chloride	14.01	mg/Kg	1.5	15	0	93.4	90	110			
Method: EPA Method 8015B: Diesel Range Organics											
Sample ID: 1103451-01AMSD		*MSD*				Batch ID: **25962**		Analysis Date:		3/15/2011 10:45:38 AM	
Diesel Range Organics (DRO)	81.41	mg/Kg	10	50	41.8	79.2	57.5	128	3.32	19.7	
Sample ID: MB-25962		*MBLK*				Batch ID: **25962**		Analysis Date:		3/15/2011 4:29:27 AM	
Diesel Range Organics (DRO)	ND	mg/Kg	10								
Motor Oil Range Organics (MRO)	ND	mg/Kg	50								
Sample ID: LCS-25962		*LCS*				Batch ID: **25962**		Analysis Date:		3/15/2011 5:03:17 AM	
Diesel Range Organics (DRO)	46.03	mg/Kg	10	50	0	92.1	66.2	120			
Sample ID: LCSD-25962		*LCSD*				Batch ID: **25962**		Analysis Date:		3/15/2011 5:37:28 AM	
Diesel Range Organics (DRO)	48.49	mg/Kg	10	50	0	97.0	66.2	120	5.21	14.3	
Sample ID: 1103451-01AMS		*MS*				Batch ID: **25962**		Analysis Date:		3/15/2011 10:11:39 AM	
Diesel Range Organics (DRO)	84.16	mg/Kg	10	50	41.8	84.7	57.5	128			
Method: EPA Method 8015B: Gasoline Range											
Sample ID: MB-25932		*MBLK*				Batch ID: **25932**		Analysis Date:		3/15/2011 5:56:51 PM	
Gasoline Range Organics (GRO)	ND	mg/Kg	5.0								
Sample ID: LCS-25932		*LCS*				Batch ID: **25932**		Analysis Date:		3/15/2011 5:26:56 PM	
Gasoline Range Organics (GRO)	24.37	mg/Kg	5.0	25	0	97.5	88.8	124			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name WESTERN REFINING SOUT

Date Received: 3/9/2011

Work Order Number 1103451

Received by: LNM

Checklist completed by: Signature 3/9/11 Date

Sample ID labels checked by: Initials

Matrix:

Carrier name: Greyhound

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐		
Custody seals intact on shipping container/cooler?	Yes ☑	No ☐	Not Present ☐	Not Shipped ☐	
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑		
Chain of custody present?	Yes ☑	No ☐			
Chain of custody signed when relinquished and received?	Yes ☑	No ☐			
Chain of custody agrees with sample labels?	Yes ☑	No ☐			
Samples in proper container/bottle?	Yes ☑	No ☐			
Sample containers intact?	Yes ☑	No ☐			
Sufficient sample volume for indicated test?	Yes ☑	No ☐			
All samples received within holding time?	Yes ☑	No ☐		Number of preserved bottles checked for pH:	
Water - VOA vials have zero headspace?	No VOA vials submitted ☐	Yes ☑	No ☐		
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑		
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	*<2 >12 unless noted below.*	
Container/Temp Blank temperature?	**2.6°**	*<6° C Acceptable* If given sufficient time to cool.			

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Chain-of-Custody Record

Client: Western Refining
Randy Schmaltz
Mailing Address: 111 CR 4990
Bloomfield, NM 87413
Phone #: 505·632·8013
email or Fax#:
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____
Project Name:
Annual Treatment Zone Sampling
Bisti Landfarm
Project #:
WR1005
Project Manager:
Ashley Ager
Sampler: Brooke Herb & Devin Hermann
On Ice: ☒ Yes ☐ No
Sample Temperature: 2 °C

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1103461	BTEX + MTBE + TMBs (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Chlorides 300.0				Air Bubbles (Y or N)
3/8/11	11:26	Soil	API Treatment Zone Comp	4oz/1	NONE	1			✓									✓				
3/8/11	11:25	Soil	Crude Treatment Zone Comp	4oz/1	NONE	2			✓									✓				

Date:	Time:	Relinquished by:	Received by:	Date	Time
3/8/11	13:46	Brooke Herb	Chester Wade	3/8/11	1346
3/8/11	1430	Chester Wade		3/9/11	1030

Remarks:
Please Forward results to:
aager@itenv.com

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

HALL
ENVIRONMENTAL
ANALYSIS
LABORATORY

COVER LETTER

Wednesday, March 30, 2011

Ashley Ager
Western Refining Southwest, Inc.
#50 CR 4990
Bloomfield, NM 87413

TEL: (970) 946-1093
FAX (505) 632-3911

RE: Annual Vadose Zone Bisti Landfarm

Order No.: 1103613

Dear Ashley Ager:

Hall Environmental Analysis Laboratory, Inc. received 1 sample(s) on 3/15/2011 for the analyses presented in the following report.

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

Reporting limits are determined by EPA methodology.

Please do not hesitate to contact HEAL for any additional information or clarifications.

Sincerely,

Andy Freeman, Laboratory Manager

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

Hall Environmental Analysis Laboratory, Inc.

Date: *30-Mar-11*

CLIENT:	Western Refining Southwest, Inc.	**Client Sample ID:**	Pettigrew AVS
Lab Order:	1103613	**Collection Date:**	3/15/2011 9:46:00 AM
Project:	Annual Vadose Zone Bisti Landfarm	**Date Received:**	3/15/2011
Lab ID:	1103613-01	**Matrix:**	SOIL

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015B: DIESEL RANGE ORGANICS						Analyst: **JB**
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/19/2011 8:51:12 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/19/2011 8:51:12 PM
Surr: DNOP	105	81.8-129		%REC	1	3/19/2011 8:51:12 PM
EPA METHOD 8015B: GASOLINE RANGE						Analyst: **DAM**
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/17/2011 9:48:44 PM
Surr: BFB	117	89.7-125		%REC	1	3/17/2011 9:48:44 PM
EPA METHOD 8021B: VOLATILES						Analyst: **DAM**
Benzene	ND	0.050		mg/Kg	1	3/17/2011 9:48:44 PM
Toluene	ND	0.050		mg/Kg	1	3/17/2011 9:48:44 PM
Ethylbenzene	ND	0.050		mg/Kg	1	3/17/2011 9:48:44 PM
Xylenes, Total	ND	0.10		mg/Kg	1	3/17/2011 9:48:44 PM
Surr: 4-Bromofluorobenzene	113	85.3-139		%REC	1	3/17/2011 9:48:44 PM
EPA METHOD 300.0: ANIONS						Analyst: **SRM**
Chloride	1800	75		mg/Kg	50	3/25/2011 3:52:45 AM
Sulfate	15	1.5		mg/Kg	1	3/23/2011 2:05:08 PM
EPA METHOD 7471: MERCURY						Analyst: **ELS**
Mercury	ND	0.033		mg/Kg	1	3/29/2011 11:14:16 AM
EPA METHOD 6010B: SOIL METALS						Analyst: **RAGS**
Arsenic	ND	2.5		mg/Kg	1	3/24/2011 5:35:52 PM
Barium	88	0.50		mg/Kg	5	3/24/2011 5:58:38 PM
Cadmium	ND	0.10		mg/Kg	1	3/24/2011 5:35:52 PM
Calcium	3700	130		mg/Kg	5	3/28/2011 10:34:51 AM
Chromium	2.2	0.30		mg/Kg	1	3/24/2011 5:35:52 PM
Lead	1.8	0.25		mg/Kg	1	3/24/2011 5:35:52 PM
Magnesium	1100	25		mg/Kg	1	3/24/2011 5:35:52 PM
Potassium	630	50		mg/Kg	1	3/24/2011 5:35:52 PM
Selenium	ND	2.5		mg/Kg	1	3/24/2011 5:35:52 PM
Silver	ND	0.25		mg/Kg	1	3/24/2011 5:35:52 PM
Sodium	250	25		mg/Kg	1	3/24/2011 5:35:52 PM

Qualifiers:

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

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Client Sample ID: 1103613-01A Pettigrew AVS
Location:
Samp TRQ/Type:
Lab ID: B11031633-001

Report Date: 03/23/11
Collection Date: 03/15/11 09:46
Date Received: 03/17/11
Matrix: Soil
Sampled By: Not Provided

Analyses	Result	Units	Qualifier	Method	Analysis Date / By
CHEMICAL CHARACTERISTICS					
Total Alkalinity	46	mg/kg	D	ASA10-3	03/22/11 18:39 / ksp

Report Definitions:
RL - Analyte reporting limit.
QCL - Quality control limit.
D - RL increased due to sample matrix.
MCL - Maximum contaminant level.
ND - Not detected at the reporting limit.

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 03/28/11
Work Order: B11031533

Analyte	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA10-3									Batch: 52773
Sample ID: LCS-52773	Laboratory Control Sample				Run: MAN-TECH_110322A				03/22/11 17:59
Total Alkalinity	187	mg/kg	4.0	114	50	150			
Sample ID: B11031242-001ADUR	Sample Duplicate				Run: MAN-TECH_110322A				03/22/11 18:11
Total Alkalinity	297	mg/kg	4.0				6.7	30	

Qualifiers:

RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Annual Vadose Zone Bisti Landfarm **Work Order:** 1103613

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 300.0: Anions											
Sample ID: MB-26083		*MBLK*				**Batch ID: 26083**		**Analysis Date: 3/23/2011 1:12:53 PM**			
Chloride	ND	mg/Kg	1.5								
Sulfate	ND	mg/Kg	1.5								
Sample ID: LCS-26083		*LCS*				**Batch ID: 26083**		**Analysis Date: 3/23/2011 1:47:43 PM**			
Chloride	14.38	mg/Kg	1.5	15	0	95.8	90	110			
Sulfate	29.65	mg/Kg	1.5	30	0	99.5	90	110			
Method: EPA Method 8015B: Diesel Range Organics											
Sample ID: MB-26033		*MBLK*				**Batch ID: 26033**		**Analysis Date: 3/19/2011 3:10:19 PM**			
Diesel Range Organics (DRO)	ND	mg/Kg	10								
Motor Oil Range Organics (MRO)	ND	mg/Kg	50								
Sample ID: LCS-26033		*LCS*				**Batch ID: 26033**		**Analysis Date: 3/19/2011 3:44:30 PM**			
Diesel Range Organics (DRO)	52.44	mg/Kg	10	50	0	105	66.2	120			
Sample ID: LCSD-26033		*LCSD*				**Batch ID: 26033**		**Analysis Date: 3/19/2011 4:18:38 PM**			
Diesel Range Organics (DRO)	52.24	mg/Kg	10	50	0	104	66.2	120	0.378	14.3	
Method: EPA Method 8015B: Gasoline Range											
Sample ID: MB-26008		*MBLK*				**Batch ID: 26008**		**Analysis Date: 3/17/2011 1:13:31 PM**			
Gasoline Range Organics (GRO)	ND	mg/Kg	5.0								
Sample ID: LCS-26008		*LCS*				**Batch ID: 26008**		**Analysis Date: 3/17/2011 2:43:46 PM**			
Gasoline Range Organics (GRO)	26.58	mg/Kg	5.0	25	0	106	88.8	124			
Method: EPA Method 8021B: Volatiles											
Sample ID: MB-26008		*MBLK*				**Batch ID: 26008**		**Analysis Date: 3/17/2011 1:13:31 PM**			
Benzene	ND	mg/Kg	0.050								
Toluene	ND	mg/Kg	0.050								
Ethylbenzene	ND	mg/Kg	0.050								
Xylenes, Total	ND	mg/Kg	0.10								
Sample ID: LCS-26008		*LCS*				**Batch ID: 26008**		**Analysis Date: 3/18/2011 3:49:25 AM**			
Benzene	1.012	mg/Kg	0.050	1	0	101	83.3	107			
Toluene	0.9613	mg/Kg	0.050	1	0.005	95.6	74.3	115			
Ethylbenzene	1.025	mg/Kg	0.050	1	0	102	80.9	122			
Xylenes, Total	3.202	mg/Kg	0.10	3	0	107	85.2	123			
Method: EPA Method 7471: Mercury											
Sample ID: 1103613-01AMSD		*MSD*				**Batch ID: 26150**		**Analysis Date: 3/29/2011 11:17:46 AM**			
Mercury	0.1612	mg/Kg	0.033	0.167	0	96.8	75	125	1.75	20	
Sample ID: MB-26150		*MBLK*				**Batch ID: 26150**		**Analysis Date: 3/29/2011 11:10:46 AM**			
Mercury	ND	mg/Kg	0.033								
Sample ID: LCS-26150		*LCS*				**Batch ID: 26150**		**Analysis Date: 3/29/2011 11:12:30 AM**			
Mercury	0.1890	mg/Kg	0.033	0.167	0	113	80	120			
Sample ID: 1103613-01AMS		*MS*				**Batch ID: 26150**		**Analysis Date: 3/29/2011 11:16:00 AM**			
Mercury	0.1640	mg/Kg	0.033	0.166	0	98.6	75	125			

Qualifiers:

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

QA/QC SUMMARY REPORT

Client: Western Refining Southwest, Inc.
Project: Annual Vadose Zone Bisti Landfarm **Work Order:** 1103613

Analyte	Result	Units	PQL	SPK Va	SPK ref	%Rec	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Method: EPA Method 6010B: Soil Metals											
Sample ID: 1103613-01AMSD		*MSD*				Batch ID:	26087	Analysis Date:		3/24/2011 5:55:47 PM	
Arsenic	21.97	mg/Kg	2.5	24.88	1.556	82.0	75	125	1.70	20	
Cadmium	20.99	mg/Kg	0.10	24.88	0	84.4	75	125	3.96	20	
Chromium	23.50	mg/Kg	0.30	24.88	2.193	85.6	75	125	3.31	20	
Lead	21.11	mg/Kg	0.25	24.88	1.807	77.6	75	125	3.34	20	
Magnesium	3316	mg/Kg	25	2488	1089	89.5	75	125	1.92	20	
Potassium	3064	mg/Kg	50	2488	629.3	97.9	75	125	2.72	20	
Selenium	19.46	mg/Kg	2.5	24.88	0	78.2	75	125	3.37	20	
Silver	21.98	mg/Kg	0.25	24.88	0	88.3	75	125	4.10	20	
Sodium	2370	mg/Kg	25	2488	246.3	85.3	75	125	3.09	20	
Sample ID: MB-26087		*MBLK*				Batch ID:	26087	Analysis Date:		3/24/2011 5:19:33 PM	
Arsenic	ND	mg/Kg	2.5	25	24.63	-98.5	0	0			
Barium	ND	mg/Kg	0.10	25	24.25	-97.0	0	0			
Cadmium	ND	mg/Kg	0.10	25	24.76	-99.0	0	0			
Chromium	ND	mg/Kg	0.30	25	24.92	-99.7	0	0			
Lead	ND	mg/Kg	0.25	25	24	-96.0	0	0			
Selenium	ND	mg/Kg	2.5	25	24.12	-94.8	0	0			
Silver	ND	mg/Kg	0.25	25	25.38	-102	0	0			
Sample ID: LCS-26087		*LCS*				Batch ID:	26087	Analysis Date:		3/24/2011 5:16:52 PM	
Arsenic	24.63	mg/Kg	2.5	25	0	98.5	80	120			
Barium	24.25	mg/Kg	0.10	25	0	97.0	80	120			
Cadmium	24.76	mg/Kg	0.10	25	0	99.0	80	120			
Chromium	24.92	mg/Kg	0.30	25	0	99.7	80	120			
Lead	24.00	mg/Kg	0.25	25	0	96.0	80	120			
Selenium	24.12	mg/Kg	2.5	25	0.426	94.8	80	120			
Silver	25.38	mg/Kg	0.25	25	0	102	80	120			
Sample ID: 1103613-01AMS		*MS*				Batch ID:	26087	Analysis Date:		3/24/2011 5:38:41 PM	
Arsenic	21.60	mg/Kg	2.5	23.9	1.556	83.9	75	125			
Cadmium	20.17	mg/Kg	0.10	23.9	0	84.4	75	125			
Chromium	22.73	mg/Kg	0.30	23.9	2.193	85.9	75	125			
Lead	20.42	mg/Kg	0.25	23.9	1.807	77.9	75	125			
Magnesium	3253	mg/Kg	25	2390	1089	90.5	75	125			
Potassium	2981	mg/Kg	50	2390	629.3	98.4	75	125			
Selenium	18.82	mg/Kg	2.5	23.9	0	78.7	75	125			
Silver	21.08	mg/Kg	0.25	23.9	0	88.2	75	125			
Sodium	2298	mg/Kg	25	2390	246.3	85.8	75	125			

Qualifiers:

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

Hall Environmental Analysis Laboratory, Inc.

Sample Receipt Checklist

Client Name **WESTERN REFINING SOUT** Date Received: **3/15/2011**

Work Order Number **1103613** Received by: **CW**

Checklist completed by: _____ Signature _____ Date **3/15/11** Sample ID labels checked by: _____ Initials

Matrix: Carrier name: Client drop-off

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐	
Custody seals intact on shipping container/cooler?	Yes ☐	No ☐	Not Present ☐	Not Shipped ☑
Custody seals intact on sample bottles?	Yes ☐	No ☐	N/A ☑	
Chain of custody present?	Yes ☑	No ☐		
Chain of custody signed when relinquished and received?	Yes ☑	No ☐		
Chain of custody agrees with sample labels?	Yes ☑	No ☐		
Samples in proper container/bottle?	Yes ☑	No ☐		
Sample containers intact?	Yes ☑	No ☐		
Sufficient sample volume for indicated test?	Yes ☑	No ☐		
All samples received within holding time?	Yes ☑	No ☐		Number of preserved bottles checked for pH:
Water - VOA vials have zero headspace? No VOA vials submitted ☑		Yes ☐	No ☐	
Water - Preservation labels on bottle and cap match?	Yes ☐	No ☐	N/A ☑	
Water - pH acceptable upon receipt?	Yes ☐	No ☐	N/A ☑	*<2 >12 unless noted below.*
Container/Temp Blank temperature?	**3.9°**	*<6° C Acceptable If given sufficient time to cool.*		

COMMENTS:

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Chain-of-Custody Record

Client: Western Refining
Randy Schmaltz
Mailing Address: 111 CR 4990
Bloomfield NM 87413
Phone #: 505·632·8013
email or Fax#:
QA/QC Package:
☒ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☒ Standard ☐ Rush _____
Project Name: Annual Vadose Zone Bisti Landfarm
Project #: WR1005
Project Manager: Ashley Ager
Sampler: Sam LaRue
On Ice: ☒ Yes ☐ No
Sample Temperature: 3.9

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

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1103613	BTEX + ~~MTBE~~ + ~~TMB's~~ (8021)	BTEX + MTBE + TPH (Gas only)	TPH Method 8015B (Gas/Diesel)	TPH (Method 418.1)	EDB (Method 504.1)	8310 (PNA or PAH)	RCRA 8 Metals + Cations	Anions (F, Cl, NO_3, NO_2, PO_4, SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)	Soil Alkalinity	Chlorides 300.0			Air Bubbles (Y or N)
3/15/11	9:46	Soil	Pettigrew AVS	4oz / 4	NONE	-1	✓		✓				✓	✓				✓	✓			

Analysis Request

Date:	Time:	Relinquished by:	Received by:	Date	Time
3/15/11	11:41		Christine Walters	3/15/11	1141
Date:	Time:	Relinquished by:	Received by:	Date	Time
				3/15	

Remarks: Please copy results to: aager@henv.com

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