Administrative/Environmental Order



AE Order Number Banner

Report Description

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NM2 - 10

WESTERN REFINING COMPANY L.P.

8/24/2017



OIL CONS. DIV DIST. 3 FEB 2 3 2017

2016 Annual Report

Bisti Landfarm

Western Refining Centralized Surface Waste Management Facility NM-02-0010

San Juan County, New Mexico

District Copy For Scanning Only Has NOT been processed.

February 2017



February 22nd, 2017

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

 UPS Tracking #:
 1Z 881 839 01 4130 6752

 UPS Tracking #:
 1Z 881 839 01 4116 8161

(NMOCD - Santa Fe Office) (NMOCD - Aztec Office)

Re: 2016 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 2016 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 2016.

As stated in the attached Annual Report, petroleum hydrocarbon-impacted soils have not been accepted at the Bisti Landfarm since 2010. The treatment zone monitoring results continue to demonstrate concentrations below the Treatment Zone Closure Performance Standards pursuant to Rule 36; however Western continues to till the treatment zone bi-weekly as required by Permit. Western will be requesting a meeting with the New Mexico Oil Conservation Division (NMOCD) to discuss options for permanent closure of the landfarm.

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

Sincerely,

Kelly Robinson

Environmental Supervisor Western Refining Southwest, Inc.

cc: R. Schmaltz – WNR A. Hains – WNR J. Kelly – NMOCD Aztec



OIL CONS. DIV DIST. FEB 2 3 2017

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50 County Road 4990, Bloomfield, New Mexico 87413 • 505 632-4101 • www.wnr.com

2016 ANNUAL REPORT

BISTI LANDFARM WESTERN REFINING CENTRALIZED SURFACE WASTE MANAGEMENT FACILITY NM-02-0010 SAN JUAN COUNTY, NEW MEXICO

FEBRUARY 2017



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

2016 ANNUAL REPORT

BISTI LANDFARM WESTERN REFINING CENTRALIZED SURFACE WASTE MANAGEMENT FACILITY NM-02-0010 SAN JUAN COUNTY, NEW MEXICO

FEBRUARY 2017

Prepared for:

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

Prepared by:

LT ENVIRONMENTAL, INC. 848 East 2nd Avenue 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 compliance-related soil monitoring activities completed between January 2016 through December 2016 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 Site was permitted in February 1998 under New Mexico Oil Conservation Division (NMOCD) Rule 711 to Giant Industries, Arizona (Giant). Giant disposed of petroleum hydrocarbon-impacted soil at the Site resulting in three cells: API Cell, Crude Cell (containing material originating from Pettigrew, East Line, Bisti, and West Line), and Cell 1. Cell 1 is inactive and no longer monitored or maintained. Western acquired the Site from Giant in June 2007.

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

Concentrations of total petroleum hydrocarbons and chloride in the treatment zone are within the range of impacted soil undergoing treatment at the Site 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 with chloride and other major cations/anions exceeding background concentrations in portions of the Crude Cell and API Cell. As treatment zone monitoring results do not exceed Treatment Zone Closure Performance Standards identified in Rule 36, Western will pursue closure of the landfarm in 2017.



1.0 INTRODUCTION

LT Environmental, Inc. (LTE), on behalf of Western Refining Southwest, Inc. (Western), has prepared this report detailing compliance soil sampling completed from January 2016 through December 2016 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 Conservation Division (NMOCD) Rule 711. Giant disposed of petroleum hydrocarbon-impacted soil at the Site resulting in three cells: API Cell, Crude Cell (containing material originating from Pettigrew, East Line, Bisti, and West Line) and Cell 1, which is currently 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 acquired the Site from Giant in June 2007 and disposed of petroleum hydrocarbon-impacted 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 711 and 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 semiannual treatment zone sampling and vadose zone sampling as required by Rule 36. Quarterly and annual vadose zone sampling as required by the original Rule 711 permit was also conducted. Soil sampling was conducted to monitor the natural attenuation of contaminants of concern in the treatment zone and to monitor potential migration of contaminants 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

All samples collected as part of quarterly, semiannual and annual sampling activities were placed on ice and sealed in a cooler for delivery to Hall Environmental Analysis Laboratory, Inc. (HEAL) of Albuquerque, New Mexico, for analysis. Soil samples were labeled with the date and time of collection, sample name, sample collector's name, and parameters to be analyzed. Strict chain-of-custody protocol was documented including the date and time sampled, sample number, type of sample, sample collector's name and signature, preservative used, and analyses required. The following is a summary of the sampling activities completed during 2016.

2.1 SEMIANNUAL TREATMENT ZONE MONITORING

Semiannual sampling activities of the treatment zones were conducted on March 22, 2016 and September 23, 2016 pursuant to the requirements of Rule 36 for treatment zone sampling. Sampling activities included the collection of composite samples in API and Crude cells. Each API Cell treatment zone composite sample included the collection of four aliquots from approximately 6 inches below the landfarm existing surface within the API Cell. Each composite sample collected from the Crude Cell treatment zone included the collection of four aliquots (one aliquot from each of the four source areas: Pettigrew, Bisti, West Line and East Line) 6 inches below existing landfarm surface. Figure 3 shows the approximate location of each aliquot collection point using a field GPS unit. The aliquots were placed into a 1-gallon plastic bag. The soil within the bag was thoroughly homogenized before filling clean glass sampling jars provided by the laboratory. Treatment zone samples were analyzed for total petroleum hydrocarbons (TPH) by United States Environmental Protection Agency (EPA) Method 418.1, TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO), and chloride by EPA Method 300.0.

2.2 QUARTERLY AND SEMI-ANNUAL VADOSE ZONE MONITORING

Discrete vadose zone samples were collected quarterly on March 22, June 16, September 23, and December 9, 2016, from the two active cells (API and Crude cells) to fulfill requirements for Rule 711 quarterly sampling. Samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8021B, and TPH-GRO and TPH-DRO by EPA Method 8015M. Additional analysis which included TPH by EPA Method 418.1 and Chloride by EPA Method 300.0 was run for the samples collected on March 22, 2016 and September 23, 2016 to comply with the requirements for Rule 36 semiannual sampling. The number of vadose zone samples collected within each cell was dependent on the size of the cell. One sample was collected from beneath the API Cell. For each sampling event, four soil samples were collected from the Pettigrew source area, and one beneath the Bisti source area. Figure 4 shows the approximately location of each vadose zone soil sample. All vadose zone soil samples were filled with hydrated bentonite from total depth to existing ground surface upon completion.

2.3 ANNUAL VADOSE ZONE MONITORING

Discrete vadose zone soil samples collected on March 22, 2016 from the Crude Cell source areas (East Line, West Line, Bisti, and Pettigrew) and API cell were additionally analyzed for major anions/cations (alkalinity, bicarbonate, carbonate, sulfate, chloride, calcium, manganese, potassium, and sodium) by EPA Method 300.0, 6010B, and ASA10-3 and metals (arsenic, barium, cadmium, chromium, lead, selenium, silver, and mercury) by EPA Method 6010B and EPA Method 7471 pursuant to the original Rule 711 permit annual sampling requirements. Figure 4 shows the approximately location of each vadose zone soil sample. All vadose zone soil samples were collected from 3 feet to 4 feet below the original ground surface and boreholes were filled with hydrated bentonite from total depth to existing ground surface upon completion.

3.0 ANALYTICAL RESULTS

3.1 SEMIANNUAL TREATMENT ZONE ANALYTICAL RESULTS

Table 1 presents the analytical results from the treatment zone monitoring events conducted in March and September 2016, which are compared to the Treatment Zone Closure Performance Standards defined in Rule 36. Concentrations of TPH and chloride did not exceed Treatment Zone Closure Performance Standards. The complete laboratory analytical reports are presented in Appendix A.

3.2 QUARTERLY AND SEMIANNUAL VADOSE ZONE ANALYTICAL RESULTS

The laboratory analytical results for BTEX and TPH from quarterly vadose zone soil samples compared to the laboratory practical quantitation limit (PQL) and background sample results are presented in Table 2. The laboratory analytical results for BTEX, DRO and GRO as combined fraction, TPH, and chloride from semiannual vadose zone soil samples compared to the laboratory practical quantitation limit (PQL) and background sample results are presented in Table 3. Chloride exceeded background concentrations and PQL in the API Vadose Zone, Bisti Vadose Zone, and Pettigrew Vadose Zone samples collected on March 22, 2016. Chloride also exceeded the background concentration in the Pettigrew Vadose Zone sample collected September 23, 2016. The complete laboratory analytical reports are presented in Appendix A.

3.3 ANNUAL VADOSE ZONE ANALYTICAL RESULTS

Per the original Rule 711 permit requirement for annual soil sampling, each vadose zone soil sample collected on March 22, 2016 was analyzed for alkalinity, bicarbonate, carbonate, sulfate, chloride, calcium, manganese, potassium, sodium, arsenic, barium, cadmium, chromium, lead, selenium, silver, and mercury. The bicarbonate concentrations exceeded the background concentrations in all samples. The sulfate concentration in the API Vadose Zone and Pettigrew Vadose Zone samples exceeded the background sample concentration. Chloride concentrations exceeded the background concentrations in the API Vadose Zone, Bisti Vadose Zone, and Pettigrew Vadose Zone samples. Calcium concentrations were elevated as compared to the background sample result in the West Line, East Line and Bisti source areas of the Crude Cell. Sodium was elevated in the Bisti and Pettigrew source areas, as well as in the API cell. All other analytes were below background concentrations and the PQL. The analytical results are presented in Table 4. The complete laboratory analytical reports are presented in Appendix A.

4.0 CONCLUSIONS

Concentrations of TPH and chloride in the treatment zone have been remediated to below Treatment Zone Closure Performance Standards identified in Rule 36.

Western conducted quarterly vadose zone soil sampling in accordance with the original Rule 711 permit and semiannual vadose zone sampling in accordance with Rule 36. The results for BTEX, TPH, and chloride were compared to laboratory PQLs and background concentrations. In the first quarter 2016 sampling event, chloride exceeded the background concentration from the sample collected from the API Cell and in samples collected from the Bisti and Pettigrew source areas of the Crude Cell. During the third quarter 2016 sampling event, the Pettigrew source area of the Crude Cell exceeded the background concentration.

Annual soil sample results from the vadose zone were also compared to background concentrations for major cations/anions and heavy metals. Bicarbonate, chloride, sulfate, and sodium exceeded the background sample result in the API Cell. The West Line and East Line source areas exceeded the background result for bicarbonate and calcium. The Bisti Source Area exceeded the background result for bicarbonate, calcium, chloride, and sodium. The Pettigrew Source Area exceeded the background concentration for bicarbonate, sulfate, chloride, and sodium. The API Cell exceeded background concentrations for bicarbonate, sulfate, chloride, and sodium. No heavy metals exceeded background concentrations.

5.0 RECOMMENDATIONS

Since 2010, Western is no longer accepting petroleum hydrocarbon-impacted soil at the Site. The treatment zone monitoring results continue to demonstrate concentrations below the Treatment Zone Closure Performance Standards pursuant to Rule 36. Western will be requesting to meet with NMOCD to discuss options for closure. As a follow-up to the agency meeting, Western will submit an Action Plan and pursue closure of the landfarm under a separate submittal. Western will continue monitoring the Site until a closure request is approved.









TABLES



TABLE 1 2016 SEMIANNUAL TREATMENT ZONE SOIL ANALYTICAL RESULTS

Cell	Sample ID	Sample Date	TPH-GRO (mg/Kg)	TPH-DRO (mg/Kg)	TPH 418.1 (mg/Kg)	Chloride (mg/Kg)
Crude Call	Crude Treatment	22-Mar-16	<4.7	<9.1	<19	42
Crude Cell	Crude Cell Treatment Zone	23-Sep-16	<4.9	15	22	<30
A DI Call	API Treatment	22-Mar-16	<4.9	37	140	250
API Cell	API Cell Treatment Zone	23-Sep-16	<4.7	19	<19	150
19.15.3	6.15 Treatment Zone Closure Pe Standards	rformance	GRO + DR	O = 500	2,500	1,000

BISTI LANDFARM SAN JUAN COUNTY, NEW MEXICO WESTERN REFINING SOUTHWEST, INC.

Notes:

GRO - gasoline range organics

DRO - diesel range organics

TPH - total petroleum hydrocarbons

mg/Kg - milligrams per kilograms

< indicates result is less than the stated laboratory practical quantitation limit (PQL)



APPENDIX A

LABORATORY ANALYTICAL REPORTS





July 15, 2016

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

RE: Bisti

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

OrderNo.: 1603B45

Dear Devin Hencmann:

Hall Environmental Analysis Laboratory received 2 sample(s) on 3/23/2016 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 <u>www.hallenvironmental.com</u> 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

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Analytical Report Lab Order 1603B45

Date Reported: 7/15/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Bisti
Lab ID: 1603B45-001 Matrix: SOIL

Client Sample ID: API Treatment Collection Date: 3/22/2016 12:55:00 PM Received Date: 3/23/2016 7:15:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH					Analyst	TOM
Petroleum Hydrocarbons, TR	140	20	mg/Kg	1	3/30/2016 12:00:00 PM	24419
EPA METHOD 300.0: ANIONS					Analyst	LGT
Chloride	250	7.5	mg/Kg	5	4/4/2016 7:21:50 PM	24617
EPA METHOD 8015M/D: DIESEL RANGE		S			Analyst	: KJH
Diesel Range Organics (DRO)	37	9.6	mg/Kg	1	3/29/2016 3:57:21 PM	24429
Surr: DNOP	124	70-130	%Rec	1	3/29/2016 3:57:21 PM	24429
EPA METHOD 8015D: GASOLINE RANG	iΕ				Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	3/24/2016 8:27:42 PM	24391
Surr: BFB	104	66.2-112	%Rec	1	3/24/2016 8:27:42 PM	24391

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank	
	D	Sample Diluted Due to Matrix	E	Value above quantitation range	
	Η	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 1 of	f 7
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range	. /
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	1

Analytical	Report	

Lab Order 1603B45

Date Reported: 7/15/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.ClientProject: BistiColLab ID: 1603B45-002Matrix: SOILRef

Client Sample ID: Crude Treatment Collection Date: 3/22/2016 1:05:00 PM Received Date: 3/23/2016 7:15:00 AM

Analyses	Result	PQL Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH					Analyst	том
Petroleum Hydrocarbons, TR	ND	19	mg/Kg	1	3/30/2016 12:00:00 PM	24419
EPA METHOD 300.0: ANIONS					Analyst	LGT
Chloride	42	1.5	mg/Kg	1	4/4/2016 8:11:29 PM	24617
EPA METHOD 8015M/D: DIESEL RANGE	ORGANIC	5			Analyst	JME
Diesel Range Organics (DRO)	ND	9.1	mg/Kg	1	3/28/2016 7:10:25 PM	24429
Surr: DNOP	75.1	70-130	%Rec	1	3/28/2016 7:10:25 PM	24429
EPA METHOD 8015D: GASOLINE RANGI	E				Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	3/24/2016 8:51:21 PM	24391
Surr: BFB	107	66.2-112	%Rec	1	3/24/2016 8:51:21 PM	24391

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 2 of 7
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Client:	Western Refining Southwest, Inc.
Project:	Bisti

Sample ID MB-24617	Tes	TestCode: EPA Method 300.0: Anions									
Client ID: PBS	Batch ID: 24617				RunNo: 33305						
Prep Date: 4/4/2016	Analysis [Date: 4	/4/2016	5	SeqNo: 1023338			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, Nitrite (As N)	ND	0.30									
Bromide	ND	0.30									
Nitrogen, Nitrate (As N)	ND	0.30									
Phosphorus, Orthophosphate (As P	ND	1.5									
Sulfate	ND	1.5									
Sample ID LCS-24617	Samp	Type: LC	s	Tes	tCode: E	PA Method	300.0: Anion	IS			
Client ID: LCSS	Batc	h ID: 24	617	F	RunNo: 3	3305					
Prep Date: 4/4/2016	Analysis [Date: 4	4/2016	S	SeqNo: 1	023339	Units: mg/k	(g			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Fluoride	1.5	0.30	1.500	0	101	90	110				
Chloride	14	1.5	15.00	0	95.3	90	110				
Nitrogen, Nitrite (As N)	2.9	0.30	3.000	0	96.5	90	110				
Bromide	8.4	0.30	7.500	0	111	90	110			S	
Nitrogen, Nitrate (As N)	7.5	0.30	7.500	0	100	90	110				
Phosphorus, Orthophosphate (As P	14	1.5	15.00	0	95.6	90	110				
Sulfate	31	1.5	30.00	0	102	90	110				
Sample ID 1603B45-001AMS	Samp	ype: M	8	Tes	tCode: E	PA Method	300.0: Anion	S			
Client ID: API Treatment	Batc	h ID: 24	617	RunNo: 33305							
Prep Date: 4/4/2016	Analysis [Date: 4	4/2016	S	SeqNo: 1	023341	Units: mg/k	(g			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Fluoride	1.5	1.5	1.500	0.5170	66.2	15	100				
Chloride	270	7.5	15.00	253.4	113	64.2	131				
Nitrogen, Nitrite (As N)	2.5	1.5	3.000	0	83.6	76.9	103				
Nitrogen, Nitrate (As N)	25	1.5	7.500	17.31	99.0	87.6	109				
Phosphorus, Orthophosphate (As P	13	7.5	15.00	5.088	52.5	16.5	79.8				
Sample ID 1603B45-001AMS	D Samp	ype: MS	SD	Tes	tCode: El	PA Method	300.0: Anion	S			
Client ID: API Treatment	Batcl	n ID: 24	617	F	RunNo: 3	3305					
Prep Date: 4/4/2016	Analysis E	ate: 4/	4/2016	S	SeqNo: 1	023342	Units: mg/K	(g			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Fluoride	ND	1.5	1.500	0.5170	64.3	15	100	200	20		
Chloride	250	7.5	15.00	253.4	5.64	64.2	131	6.13	20	S	
Nitrogen, Nitrite (As N)	2.4	1.5	3.000	0	80.0	76.9	103	4 34	20		

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix D
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank

Е Value above quantitation range

- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Detection Limit

W Sample container temperature is out of limit as specified 15-Jul-16

WO#:

Page 3 of 7

1603B45

Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc. **Project:** Bisti

Sample ID 1603B45-001AMS	D SampT	ype: MS	D	TestCode: EPA Method 300.0: Anions						
Client ID: API Treatment	eatment Batch ID: 24617				RunNo: 33305					
Prep Date: 4/4/2016 Analysis Date: 4/4/2016				SeqNo: 1023342 Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Nitrogen, Nitrate (As N)	23	1.5	7.500	17.31	80.6	87.6	109	5.76	20	S
Phosphorus, Orthophosphate (As P	13	7.5	15.00	5.088	51.2	16.5	79.8	1.49	20	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Value above quantitation range Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL
- W Sample container temperature is out of limit as specified

1603B45 15-Jul-16

WO#:

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Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc.

Bisti

Project:

Sample ID MB-24419	SampType: MBLK	TestCode: EPA Method	418.1: TPH	
Client ID: PBS	Batch ID: 24419	RunNo: 33169		
Prep Date: 3/24/2016	Analysis Date: 3/30/2016	SeqNo: 1018640	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-24419	SampType: LCS	TestCode: EPA Method	418.1: TPH	
Client ID: LCSS	Batch ID: 24419	RunNo: 33169		
Prep Date: 3/24/2016	Analysis Date: 3/30/2016	SeqNo: 1018641	Units: mg/Kg	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Petroleum Hydrocarbons, TR	110 20 100.0	0 109 83.4	127	
Sample ID LCSD-24419	SampType: LCSD	TestCode: EPA Method	418.1: TPH	
Client ID: LCSS02	Batch ID: 24419	RunNo: 33169		
Prep Date: 3/24/2016	Analysis Date: 3/30/2016	SeqNo: 1018642	Units: mg/Kg	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Batralaum Hudraaarbana TD	100 20 100.0	0 100 024	107 6 60	20

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

1603B45 15-Jul-16

WO#:

- tion limits
- Page 5 of 7

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603B45

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15-Jul-16

Client:Western Refining Southwest, Inc.Project:Bisti

Sample ID LCS-24429	SampType: I	LCS	Tes	tCode: E	PA Method	8015M/D: Di	iesel Rang	e Organics	
Client ID: LCSS	Batch ID:	24429	F	RunNo: 3	3066				
Prep Date: 3/24/2016	Analysis Date:	3/25/2016	S	SeqNo: 1	015745	Units: mg/l	Kg		
Analyte	Result PQI	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50 1	0 50.00	0	99.9	65.8	136			
Surr: DNOP	6.3	5.000		127	70	130			
Sample ID MB-24429	SampType: I	WBLK	Tes	tCode: E	PA Method	8015M/D: Di	iesel Rang	e Organics	
Client ID: PBS	Batch ID:	24429	F	RunNo: 3	3066				
Prep Date: 3/24/2016	Analysis Date:	3/25/2016	S	SeqNo: 1	015746	Units: mg/l	Kg		
Analyte	Result PQI	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND 1	0							
Surr: DNOP	13	10.00		126	70	130			
Sample ID 1603B45-001AMS	SampType: I	VIS	Tes	tCode: E	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID: API Treatment	Batch ID:	24429	F	RunNo: 3	3126				
Prep Date: 3/24/2016	Analysis Date:	3/29/2016	5	SeqNo: 1	017669	Units: mg/Kg			
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	57 9.	5 47.53	36.50	44.0	31.2	162			
Surr: DNOP	5.1	4.753		108	70	130			
Sample ID 1603B45-001AMS	D SampType: I	WSD	Tes	tCode: El	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID: API Treatment	Batch ID:	24429	F	RunNo: 3	3126				
Prep Date: 3/24/2016	Analysis Date:	3/29/2016	5	SeqNo: 1	017670	Units: mg/ł	٨g		
Analyte	Result PQL	. SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	62 9.	6 47.89	36.50	52.6	31.2	162	7.21	31.7	
Surr: DNOP	5.3	4.789		111	70	130	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1603B45

15-Jul-16

Client:WesternProject:Bisti	n Refining Sou	thwest, Inc.							
Sample ID MB-24391	SampType	e: MBLK	Tes	tCode: EF	PA Method	8015D: Gaso	line Rang	е	
Client ID: PBS	Batch ID	D: 24391	RunNo: 33039						
Prep Date: 3/23/2016	Analysis Date	e: 3/24/2016	S	SeqNo: 10	014105	Units: mg/K	g		
Analyte	Result F	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO) Surr: BFB	ND 1000	5.0 1000		<mark>103</mark>	66.2	112			
Sample ID LCS-24391	SampType	e: LCS	Tes	tCode: EF	PA Method	8015D: Gaso	line Rang	е	
Client ID: LCSS	Batch ID	D: 24391	F	RunNo: 3	3039				
Prep Date: 3/23/2016	Analysis Date	e: 3/24/2016	5	SeqNo: 10	014106	Units: mg/K	g		
Analyte	Result F	PQL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0 25.00	0	98.5	80	120			
Surr: BFB	1100	1000		111	66.2	112			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Page 7 of 7

HALL ENVIRONMENTAL ANALYSIS LABORATORY	Iall Environmental Analys 4901 Albuquerqi TEL: 505-345-3975 FAX: 2 Website: www.hallenviro	is Laboratory Hawkins NE we, NM 87109 105-345-4107 mmental.com	Samp	ole Log-In	Check List
Client Name: Western Refining Southw Wo	rk Order Number: 1603	B45		Rcpt	No: 1
Received by/date:	2/11			••••	
Longed By: Lindsay Mangin 3/23/	2016 7:15:00 AM	/	timber Alland		
Completed By: Lindsay Mangin 3/23/	2016 9:53:25 AM	U	timber Allahor		
Reviewed By: ACA	3/23/14	0			· · · · · · · · · · · · · · · · · · ·
Chain of Custody	, ,				_
1. Custody seals intact on sample bottles?	Yes		No 🗌	Not Present	
2. Is Chain of Custody complete?	Yes	\checkmark	No	Not Present	
3. How was the sample delivered?	Cou	rier			
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	\checkmark	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 pres	served? Yes	\checkmark	No 🗌		_
9. Was preservative added to bottles?	Yes		No 🗹	NA	
10.VOA vials have zero headspace?	Yes		No 🗌	No VOA Vials	\checkmark
11. Were any sample containers received broken?	Yes	, 🗆	No 🗹	# of preserved	
12. Does paperwork match bottle labels?	Yes		No 🗌	bottles checke for pH:	d
(Note discrepancies on chain of custody)	dv? 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 or	der? Yes		No 🗌	NA	
Person Notified:	Date		<u></u>		
By Whom:	Via: 🗌 eN	lail 🗌 Pho	one 🗌 Fax	In Person	
Regarding:				18.00 March 100 March	
Client Instructions:					
17. Additional remarks:					
18. <u>Cooler Information</u> Cooler No Temp °C Condition Seal Int	act Seal No Seal I	Date S	igned By		
1 1.6 Good Yes					

and and		1 WHE AVE 1818		AND 10	1 112 30	8 1		1		- 30									
Chain-	of-Cu	istody Record	Turn-Around	Time:							-								
ent: U	ilui	20 hinson	Standard	🗆 Rush			35.0	E		NA		N V Sts				20	ΓO	RY	
Mester	nin	ofining	Project Name	ə:						MANN h	allen	viron	nenta	al.co	m				
ling Address:	111	CR 4990	Bist	7			49	01 H	awki	ns NE	- All	ouque	erque	, NN	M 871	09			
BLOD	mAlei	d. NM	Project #:				Te	el. 50)5-34	5-397	5	Fax	505-3	345-	4107				
one #: St	5-6	32-8013	WIL	NS							Anal	ysis	Requ	uest					l i
ail or Fax#:	celly.	RODINSONGWAR	Project Mana	iger:		(F	(fluc	RO)				SO4)	S			E.	Unit		
'QC Package:			Devi	n Henc	mann	(802	Bas (N/C		10M		04,5	PCB.			2	12	1	
reditation			Sampler: A	11. 1/ 1000	12 LIASNadan	VB's)) Hc	DR(_	() 0	5	0 ₂ ,F	082		-	5.	10	220	
NELAP	□ Othe	er	On Ice:	A Yes			11 +	RO/	118.1	504.1	0	O ₃ ,N	s / 8		(Y)	Z ?	100	or N	
EDD (Type)			Sample Ten	perature: Zilo	-1.0e==1.6	H	TBE	B (G	por	por of	letal	CI,N	icide	(YC	ni-VO		100	S E S	
ate Time	Matrix	Sample Request ID	Container	Preservative		×	×	3015	Meth	(Meth	A 8 M	s (F,	Pest	3 (V	(Sen	X	NIO	ibble	
	Matrix	Dample Request ID	Type and #	Туре	VOZRUP		TEX	Hd	Hd	EDB	SCR/	Anion	081	3260	270	9.0	110	A B	
2/10/1255	50,1	API Theatment	1 Hoz	6001	raco.			F				4	8	8		i	Ĩ		
1/10 1305	Soil	CWNE TREatment	1402	coul	-007-											VI			
											-					_			
																	_		
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							-					-		_			_		-
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e: Time:	Relinquish	ed by:	Received by:	1	Date Time	Re	mark	s:											-
2/16/455	RU	EX GROOM	Must	Walte	3/20/10 143	3													
e: Time:	Relinquish	ed by:	Received by	1	Date Time														
41, 17-57	In	ist Waller	1	£ 192	73/16075														
If necessary,	amples sub	mitted to Hall Environmental may be subc	ontracted to other a	credited laboratorie	s. This serves as notice of	this poss	sibility.	Any si	ub-cont	racted da	ita will t	e clear	ly nota	ted on	the and	alytical	report.		

TABLE 3

BISTI LANDFARM 2015 SAMPLING SCHEDULE WESTERN REFINING SOUTHWEST, INC

	March	June	September	Decmeber	
TUR DAVING TO SPIC ZAODARD				in the second	
Il additionation and a state of the state of	ilite (NBC and I compressive from th	ie Guni Philis	araph i figura	ositin ,	
weathrengeniprovoj.	All the second	<u> </u>	· 12.1	· / . 132 6	
DRO and GRO as Combined Fraction					
(USEPA 8015M)	x				
TPH		N	N		
(USEPA 418.1)	x				
Chlorides					
(USEPA 300.0)	x		X		
		+).			
AVANDIOSIB, 7403 ND;		, J	1.		
Colleagangites Sicaritates of gively our	il sanditate		· 121.		
BTEX					
(USEPA 8021)	x		K	x	
DRO and GRO as Combined Fraction					
(USEPA 8015M)***	x			X	
TPH		N			
(USEPA 418.1)	x		x		
Chlorides					
(USEPA 300.0)	x	_	x		
Major Cations/					
Anions	x				
Heavy Metals	x				

NOTE: Discuss Method 8015M with lab

1

1

10

Major Cattons Andors	di in Marila
((OSIDIYXY)(cilitai))	(CORSTOPANY COLORD)
Alkalinity (ASA10-3)	Arsenic (6010B)
Bicarbonate (ASA10-3	Barium (6010B)
Carbonate (ASA10-3)	Cadmium (6010B)
Sulfate (300.0)	Chromium (6010B)
Chloride (300.0)	Lead (6010B)
Calcium (6010B)	Selenium (6010B)
Manganese (6010B)	Silver (6010B)
Potassium (6010B)	Mercury (7471)
Sodium (6010B)	



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

February 17, 2017

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

RE: Bisti Landfarm

OrderNo.: 1603B48

Dear Devin Hencmann:

Hall Environmental Analysis Laboratory received 5 sample(s) on 3/23/2016 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued April 08, 2016.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <u>www.hallenvironmental.com</u> 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

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Analytical Report Lab Order 1603B48

Date Reported: 2/17/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.Project:Bisti LandfarmLab ID:1603B48-001Matrix: SOIL

Client Sample ID: Westline Vadose Zone Collection Date: 3/22/2016 12:35:00 PM Received Date: 3/23/2016 7:15:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst:	том
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	3/30/2016 12:00:00 PM	24419
EPA METHOD 300.0: ANIONS						Analyst:	LGT
Chloride	22	1.5		ma/Ka	1	4/4/2016 9:01:08 PM	24617
Sulfate	14	1.5		ma/Ka	1	4/4/2016 9:01:08 PM	24617
ERA METHOD 7471: MERCURY						Analyst	nmf
Manual Manual	ND	0.000					pini
Mercury	ND	0.033		mg/Kg	1	3/29/2016 5:57:50 PM	24495
EPA METHOD 6010B: SOIL METALS						Analyst:	MED
Arsenic	ND	2.5		mg/Kg	1	3/29/2016 2:53:56 PM	24470
Barium	79	0.10		mg/Kg	1	3/29/2016 2:53:56 PM	24470
Cadmium	ND	0.10		mg/Kg	1	3/29/2016 2:53:56 PM	24470
Calcium	4800	25		mg/Kg	1	3/29/2016 2:53:56 PM	24470
Chromium	1.6	0.30		mg/Kg	1	3/29/2016 2:53:56 PM	24470
Lead	2.1	0.25		mg/Kg	1	3/29/2016 2:53:56 PM	24470
Manganese	110	0.10		mg/Kg	1	3/29/2016 2:53:56 PM	24470
Potassium	510	50		mg/Kg	1	3/29/2016 2:53:56 PM	24470
Selenium	ND	2.5		mg/Kg	1	3/29/2016 2:53:56 PM	24470
Silver	ND	0.25		mg/Kg	1	3/29/2016 2:53:56 PM	24470
Sodium	45	25		mg/Kg	1	3/29/2016 2:53:56 PM	24470
EPA METHOD 8015M/D: DIESEL RANGE	ORGANIC	S				Analyst:	KJH
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/25/2016 6:06:07 PM	24429
Surr: DNOP	131	70-130	S	%Rec	1	3/25/2016 6:06:07 PM	24429
EPA METHOD 8015D: GASOLINE RANG	E					Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/24/2016 9:14:56 PM	24391
Surr: BFB	107	66.2-112		%Rec	1	3/24/2016 9:14:56 PM	24391
EPA METHOD 8021B: VOLATILES						Analyst:	NSB
Benzene	ND	0.024		ma/Ka	1	3/24/2016 9:14:56 PM	24391
Toluene	ND	0.047		mg/Ka	1	3/24/2016 9:14:56 PM	24391
Ethylbenzene	ND	0.047		mg/Ka	1	3/24/2016 9:14:56 PM	24391
Xylenes, Total	ND	0.095		mg/Ka	1	3/24/2016 9:14:56 PM	24391
Surr: 4-Bromofluorobenzene	111	80-120		%Rec	1	3/24/2016 9:14:56 PM	24391

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 1 of 13
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1603B48

Date Reported: 2/17/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Project: Bisti Landfarm

1603B48-002

Lab ID:

Client Sample ID: Eastline Vadose Zone Collection Date: 3/22/2016 12:45:00 PM Received Date: 3/23/2016 7:15:00 AM

Analyses	Result	PQL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH					Analyst:	том
Petroleum Hydrocarbons, TR	36	20	mg/Kg	1	3/30/2016 12:00:00 PM	24419
EPA METHOD 300.0: ANIONS					Analyst:	LGT
Chloride	1.6	1.5	ma/Ka	1	4/4/2016 9:50:47 PM	24617
Sulfate	94	1.5	mg/Kg	1	4/4/2016 9:50:47 PM	24617
EPA METHOD 7471: MERCURY			0 0		Analyst:	omf
Morouny		0.022	malka	1	2/20/2016 5:50:34 DM	24405
	ND	0.032	nig/kg	1	3/29/2010 5.59.54 FW	24495
EPA METHOD 6010B: SOIL METALS					Analyst:	MED
Arsenic	ND	2.5	mg/Kg	1	3/29/2016 2:57:22 PM	24470
Barium	98	0.10	mg/Kg	1	3/29/2016 2:57:22 PM	24470
Cadmium	ND	0.10	mg/Kg	1	3/29/2016 2:57:22 PM	24470
Calcium	4500	25	mg/Kg	1	3/29/2016 2:57:22 PM	24470
Chromium	1.8	0.30	mg/Kg	1	3/29/2016 2:57:22 PM	24470
Lead	2.2	0.25	mg/Kg	1	3/29/2016 2:57:22 PM	24470
Manganese	100	0.10	mg/Kg	1	3/29/2016 2:57:22 PM	24470
Potassium	680	51	mg/Kg	1	3/29/2016 2:57:22 PM	24470
Selenium	ND	2.5	mg/Kg	1	3/29/2016 2:57:22 PM	24470
Silver	ND	0.25	mg/Kg	1	3/29/2016 2:57:22 PM	24470
Sodium	50	25	mg/Kg	1	3/29/2016 2:57:22 PM	24470
EPA METHOD 8015M/D: DIESEL RANGE	ORGANIC	s			Analyst:	KJH
Diesel Range Organics (DRO)	15	9.9	mg/Kg	1	3/25/2016 6:27:31 PM	24429
Surr: DNOP	109	70-130	%Rec	1	3/25/2016 6:27:31 PM	24429
EPA METHOD 8015D: GASOLINE RANG	E				Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.9	ma/Ka	1	3/24/2016 9:38:25 PM	24391
Surr: BFB	106	66.2-112	%Rec	1	3/24/2016 9:38:25 PM	24391
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.025	ma/Ka	1	3/24/2016 9:38:25 PM	24391
Toluene	ND	0.049	ma/Ka	1	3/24/2016 9:38:25 PM	24391
Ethylbenzene	ND	0.049	ma/Ka	1	3/24/2016 9:38:25 PM	24391
Xylenes, Total	ND	0.099	ma/Ka	1	3/24/2016 9:38:25 PM	24391
Surr: 4-Bromofluorobenzene	109	80-120	%Rec	1	3/24/2016 9:38:25 PM	24391

Matrix: SOIL

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 2 of 13
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report
Lab Order 1603B48

Date Reported: 2/17/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT:Western Refining Southwest, Inc.Client Sample ID: Bisti Vadose ZoneProject:Bisti LandfarmCollection Date: 3/22/2016 12:25:00 PMLab ID:1603B48-003Matrix: SOILReceived Date: 3/23/2016 7:15:00 AM

Analyses	Result	PQL Qua	l Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH					Analyst:	том
Petroleum Hydrocarbons, TR	ND	20	mg/Kg	1	3/30/2016 12:00:00 PM	24419
EPA METHOD 300.0: ANIONS					Analyst	LGT
Chloride	80	30	malka	20	4/4/2016 10:29:01 DM	24617
Sulfate	60	1.5	mg/Kg	1	4/4/2016 10:25:01 PM	24017
	00	1.0	mg/rg		47472010 10.10.071 W	24017
EPA METHOD 7471: MERCURY					Analyst:	pmf
Mercury	ND	0.032	mg/Kg	1	3/29/2016 6:01:18 PM	24495
EPA METHOD 6010B: SOIL METALS					Analyst:	MED
Arsenic	ND	2.5	mg/Kg	1	3/29/2016 3:00:43 PM	24470
Barium	120	0.10	mg/Kg	1	3/29/2016 3:00:43 PM	24470
Cadmium	ND	0.10	mg/Kg	1	3/29/2016 3:00:43 PM	24470
Calcium	3800	25	mg/Kg	1	3/29/2016 3:00:43 PM	24470
Chromium	2.1	0.30	mg/Kg	1	3/29/2016 3:00:43 PM	24470
Lead	2.3	0.25	mg/Kg	1	3/29/2016 3:00:43 PM	24470
Manganese	120	0.10	mg/Kg	1	3/29/2016 3:00:43 PM	24470
Potassium	750	51	mg/Kg	1	3/29/2016 3:00:43 PM	24470
Selenium	ND	2.5	mg/Kg	1	3/29/2016 3:00:43 PM	24470
Silver	ND	0.25	mg/Kg	1	3/29/2016 3:00:43 PM	24470
Sodium	210	25	mg/Kg	1	3/29/2016 3:00:43 PM	24470
EPA METHOD 8015M/D: DIESEL RANGE	ORGANIC	S			Analyst:	KJH
Diesel Range Organics (DRO)	ND	9.5	mg/Kg	1	3/25/2016 6:49:02 PM	24429
Surr: DNOP	103	70-130	%Rec	1	3/25/2016 6:49:02 PM	24429
EPA METHOD 8015D: GASOLINE RANG	E				Analyst:	NSB
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	3/24/2016 10:01:55 PM	24391
Surr: BFB	105	66.2-112	%Rec	1	3/24/2016 10:01:55 PM	24391
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.025	mg/Kg	1	3/24/2016 10:01:55 PM	24391
Toluene	ND	0.050	mg/Kg	1	3/24/2016 10:01:55 PM	24391
Ethylbenzene	ND	0.050	mg/Kg	1	3/24/2016 10:01:55 PM	24391
Xylenes, Total	ND	0.099	mg/Kg	1	3/24/2016 10:01:55 PM	24391
Surr: 4-Bromofluorobenzene	106	80-120	%Rec	1	3/24/2016 10:01:55 PM	24391

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Н	H Holding times for preparation or analysis exceeded		Analyte detected below quantitation limits Page 3 of 13
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Report

Lab Order 1603B48

Date Reported: 2/17/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Project: Bisti Landfarm

1603B48-004

Lab ID:

Client Sample ID: Pedigrew Vadose Zone Collection Date: 3/22/2016 12:05:00 PM Received Date: 3/23/2016 7:15:00 AM

Analyses	Result	PQL Q	ual Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH					Analyst:	том
Petroleum Hydrocarbons, TR	ND	20	mg/Kg	1	3/30/2016 12:00:00 PM	24419
FPA METHOD 300 0' ANIONS					Analyst	LGT
Chloride	3500	150	ma/Ka	100	4/5/2016 7:26:22 PM	24617
Sulfate	340	30	mg/Kg	20	4/4/2016 10:52:51 PM	24617
	010				Analyst	nmf
EPA METHOD 7471: MERCURY					Analyst.	pmr
Mercury	ND	0.033	mg/Kg	1	3/29/2016 6:03:02 PM	24495
EPA METHOD 6010B: SOIL METALS					Analyst:	MED
Arsenic	ND	2.5	mg/Kg	1	3/29/2016 3:09:35 PM	24470
Barium	71	0.098	mg/Kg	1	3/29/2016 3:09:35 PM	24470
Cadmium	ND	0.098	mg/Kg	1	3/29/2016 3:09:35 PM	24470
Calcium	2100	25	mg/Kg	1	3/29/2016 3:09:35 PM	24470
Chromium	1.5	0.29	mg/Kg	1	3/29/2016 3:09:35 PM	24470
Lead	1.9	0.25	mg/Kg	1	3/29/2016 3:09:35 PM	24470
Manganese	84	0.098	mg/Kg	1	3/29/2016 3:09:35 PM	24470
Potassium	550	49	mg/Kg	1	3/29/2016 3:09:35 PM	24470
Selenium	ND	2.5	mg/Kg	1	3/29/2016 3:09:35 PM	24470
Silver	ND	0.25	mg/Kg	1	3/29/2016 3:09:35 PM	24470
Sodium	2800	25	mg/Kg	1	3/29/2016 3:09:35 PM	24470
EPA METHOD 8015M/D: DIESEL RANGI		CS			Analyst:	KJH
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	3/25/2016 7:10:24 PM	24429
Surr: DNOP	124	70-130	%Rec	1	3/25/2016 7:10:24 PM	24429
EPA METHOD 8015D: GASOLINE RANG	E				Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	3/24/2016 10:25:26 PM	24391
Surr: BFB	105	66.2-112	%Rec	1	3/24/2016 10:25:26 PM	24391
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	ma/Ka	1	3/24/2016 10:25:26 PM	24391
Toluene	ND	0.048	mg/Kg	1	3/24/2016 10:25:26 PM	24391
Ethylbenzene	ND	0.048	mg/Kg	1	3/24/2016 10:25:26 PM	24391
Xylenes, Total	ND	0.097	mg/Kg	1	3/24/2016 10:25:26 PM	24391
Surr: 4-Bromofluorobenzene	107	80-120	%Rec	1	3/24/2016 10:25:26 PM	24391

Matrix: SOIL

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	H Holding times for preparation or analysis exceeded		Analyte detected below quantitation limits Page 4 of 13
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified
Analytical Report Lab Order 1603B48

Date Reported: 2/17/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Project: Bisti Landfarm

1603B48-005

Lab ID:

Client Sample ID: API Vadose Zone Collection Date: 3/22/2016 12:15:00 PM Received Date: 3/23/2016 7:15:00 AM

Analyses	Result	PQL (Qual Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH					Analyst	том
Petroleum Hydrocarbons, TR	ND	20	mg/Kg	1	3/30/2016 12:00:00 PM	24419
EPA METHOD 300.0: ANIONS					Analyst	LGT
Chloride	4800	300	ma/Ka	200	4/5/2016 8·16·01 PM	24617
Sulfate	800	30	mg/Kg	200	4/4/2016 11:42:30 PM	24617
EBA METHOD 7471. MERCURY					Analyst	nmf
Marguna	ND	0.000		4	Analyst.	pini
Mercury	ND	0.033	mg/Kg	1	3/29/2016 6:04:47 PM	24495
EPA METHOD 6010B: SOIL METALS					Analyst	MED
Arsenic	ND	2.5	mg/Kg	1	3/29/2016 3:12:59 PM	24470
Barium	60	0.10	mg/Kg	1	3/29/2016 3:12:59 PM	24470
Cadmium	ND	0.10	mg/Kg	1	3/29/2016 3:12:59 PM	24470
Calcium	2300	25	mg/Kg	1	3/29/2016 3:12:59 PM	24470
Chromium	2.1	0.30	mg/Kg	1	3/29/2016 3:12:59 PM	24470
Lead	2.4	0.25	mg/Kg	1	3/29/2016 3:12:59 PM	24470
Manganese	110	0.10	mg/Kg	1	3/29/2016 3:12:59 PM	24470
Potassium	670	50	mg/Kg	1	3/29/2016 3:12:59 PM	24470
Selenium	ND	2.5	mg/Kg	1	3/29/2016 3:12:59 PM	24470
Silver	ND	0.25	mg/Kg	1	3/29/2016 3:12:59 PM	24470
Sodium	3600	25	mg/Kg	1	3/29/2016 3:12:59 PM	24470
EPA METHOD 8015M/D: DIESEL RANG	E ORGANIC	S			Analyst:	KJH
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	3/25/2016 7:31:52 PM	24429
Surr: DNOP	113	70-130	%Rec	1	3/25/2016 7:31:52 PM	24429
EPA METHOD 8015D: GASOLINE RANG	θE				Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.8	ma/Ka	1	3/24/2016 10:48:52 PM	24391
Surr: BFB	106	66.2-112	%Rec	1	3/24/2016 10:48:52 PM	24391
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	ma/Ka	1	3/24/2016 10:48:52 PM	24391
Toluene	ND	0.048	ma/Ka	1	3/24/2016 10:48:52 PM	24391
Ethylbenzene	ND	0.048	mg/Ka	1	3/24/2016 10:48:52 PM	24391
Xylenes, Total	ND	0.096	mg/Ka	1	3/24/2016 10:48:52 PM	24391
Surr: 4-Bromofluorobenzene	109	80-120	%Rec	1	3/24/2016 10:48:52 PM	24391

Matrix: SOIL

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Η	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 5 of 13
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified



Trust our People, Trust our Data.

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client:	Hall Environmental
Project:	Not Indicated
Lab ID:	B16031988-001
Client Sample ID:	1603B48-001B Westline Vadose Zone

 Revised Date:
 07/20/16

 Report Date:
 04/01/16

 Collection Date:
 03/22/16 12:35

 DateReceived:
 03/24/16

 Matrix:
 Soil

Analyses	Result	Units	Qualifiers	RL.	MCL/ QCL	Method	Analysis Date / By
WATER EXTRACTABLE CONSTITUENTS							
Alkalinity, 1:2	116	mg/kg		4		ASA10-3	03/31/16 15:50 / cnm
Bicarbonate, 1:2	142	mg/kg		4		ASA10-3	03/31/16 15:50 / cnm
Carbonate, 1:2	ND	mg/kg		4		ASA10-3	03/31/16 15:50 / cnm

Report Definitions: RL - Analyte reporting limit. QCL - Quality control limit.



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Billings. MT 800.735.4489 • Casper, WY 888.235.0515 College Station, TX 888.690.2218 • Gillette. WY 866.686.7175 • Helena. MT 877.472.0711

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client:Hall EnvironmentalProject:Not IndicatedLab ID:B16031988-002Client Sample ID:1603B48-002B Eastline Vadose Zone

 Revised Date:
 07/20/16

 Report Date:
 04/01/16

 Collection Date:
 03/22/16 12:45

 DateReceived:
 03/24/16

 Matrix:
 Soil

Aug. 1					MCL		
Analyses	Result	Units	Qualifiers	RL	QCL	Method	Analysis Date / By
WATER EXTRACTABLE CONSTITUENTS							
Alkalinity, 1:2	247	mg/kg		4		ASA10-3	03/30/16 17:05 / cnm
Bicarbonate, 1:2	302	mg/kg		4		ASA10-3	03/30/16 17:05 / cnm
Carbonate, 1:2	ND	mg/kg		4		ASA10-3	03/30/16 17:05 / cnm

Report Definitions: RL - Analyte reporting limit. QCL - Quality control limit.



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LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client:Hall EnvironmentalProject:Not IndicatedLab ID:B16031988-003Client Sample ID:1603B48-003B Bisti Vadose Zone

 Revised Date:
 07/20/16

 Report Date:
 04/01/16

 Collection Date:
 03/22/16 12:25

 DateReceived:
 03/24/16

 Matrix:
 Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
WATER EXTRACTABLE CONSTITUENTS							
Alkalinity, 1:2	164	mg/kg		4		ASA10-3	03/30/16 17:17 / cnm
Bicarbonate, 1:2	200	mg/kg		4		ASA10-3	03/30/16 17:17 / cnm
Carbonate, 1:2	ND	mg/kg		4		ASA10-3	03/30/16 17:17 / cnm

Report Definitions: RL - Analyte reporting limit. QCL - Quality control limit.



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LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client:Hall EnvironmentalProject:Not IndicatedLab ID:B16031988-004Client Sample ID:1603B48-004B Pedigrew Vadose Zone

 Revised Date:
 07/20/16

 Report Date:
 04/01/16

 Collection Date:
 03/22/16 12:05

 DateReceived:
 03/24/16

 Matrix:
 Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
WATER EXTRACTABLE CONSTITUENTS							
Alkalinity, 1:2	105	mg/kg		4		ASA10-3	03/30/16 17:27 / cnm
Bicarbonate, 1:2	128	mg/kg		4		ASA10-3	03/30/16 17:27 / cnm
Carbonate, 1:2	ND	mg/kg		4		ASA10-3	03/30/16 17:27 / cnm

Report Definitions: RL - Analyte reporting limit. QCL - Quality control limit.



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client:Hall EnvironmentalProject:Not IndicatedLab ID:B16031988-005Client Sample ID:1603B48-005B API Vadose Zone

 Revised Date:
 07/20/16

 Report Date:
 04/01/16

 Collection Date:
 03/22/16 12:15

 DateReceived:
 03/24/16

 Matrix:
 Soil

......

					MCL		
Analyses	Result	Units	Qualifiers	RL	QCL	Method	Analysis Date / By
WATER EXTRACTABLE CONSTITUENTS							
Alkalinity, 1:2	120	mg/kg		4		ASA10-3	03/30/16 17:34 / cnm
Bicarbonate, 1:2	147	mg/kg		4		ASA10-3	03/30/16 17:34 / cnm
Carbonate, 1:2	ND	mg/kg		4		ASA10-3	03/30/16 17:34 / cnm

Report Definitions: RL - Analyte reporting limit. QCL - Quality control limit.



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental

Project: Not Indicated

Revised Date: 07/20/16 Report Date: 04/01/16 Work Order: B16031988

Analyte	Result Units	RL %REC Low Limit High Limit RPD RPDLimit Qual
Method: ASA10-3		Batch: 980
Lab ID: LCS-98022 Alkalinity, 1:2	Laboratory Control Sample 107 mg/kg	Run: AR50_160330A 03/30/16 16: 4.0 97 70 130
Method: ASA10-3		Batch: 980
Lab ID: B16031988-001A DUP Alkalinity, 1:2 Carbonate, 1:2	Sample Duplicate 119 mg/kg ND mg/kg	Run: AR50_160331A 03/31/16 15: 4.0 2.5 20 4.0 20 20

Qualifiers: RL - Analyte reporting limit.

ND - Not detected at the reporting limit.

Hall Environment	al Anal	ysis I	Laborat	ory, Inc.						17-Feb-17
Client: Western	Refining S	Southwe	st, Inc.							
Project: Bisti La	ndfarm									
Sample ID MB-24617	Samp	Type: MI	BLK	Tes	stCode: E	PA Method	300.0: Anion	IS		
Client ID: PBS	Batc	h ID: 24	617	F	RunNo: 3	3305				
Prep Date: 4/4/2016	Analysis [Date: 4/	4/2016	5	SeqNo: 1	023338	Units: mg/k	٢g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								
Nitrogen, Nitrite (As N)	ND	0.30								
Bromide	ND	0.30								
Nitrogen, Nitrate (As N)	ND	0.30								
Phosphorus, Orthophosphate (As P	ND	1.5								
Sulfate	ND	1.5								
Sample ID LCS-24617	Samp	Type: LC	s	Tes	tCode: E	PA Method	300.0: Anion	IS		
Client ID: LCSS	Batc	h ID: 24	617	RunNo: 33305						
Prep Date: 4/4/2016	Analysis [Date: 4/	4/2016	SeqNo: 1023339 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	101	90	110			
Chloride	14	1.5	15.00	0	95.3	90	110			
Nitrogen, Nitrite (As N)	2.9	0.30	3.000	0	96.5	90	110			
Bromide	8.4	0.30	7.500	0	111	90	110			S
Nitrogen, Nitrate (As N)	7.5	0.30	7.500	0	100	90	110			
Phosphorus, Orthophosphate (As P	14	1.5	15.00	0	95.6	90	110			
Sulfate	31	1.5	30.00	0	102	90	110			
Sample ID 1603B48-001AMS	S Samp	Гуре: МS	3	Tes	tCode: E	PA Method	300.0: Anion	S		
Client ID: Westline Vadose	Zo Batc	h ID: 24	617	F	RunNo: 3	3305				
Prep Date: 4/4/2016	Analysis [Date: 4/	4/2016	S	SeqNo: 1	023349	Units: mg/K	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.4	0.30	1.500	1.481	63.4	15	100			
Chloride	37	1.5	15.00	21.68	104	64.2	131			
Nitrogen, Nitrite (As N)	2.8	0.30	3.000	0	94.0	76.9	103			
Nitrogen, Nitrate (As N)	8.7	0.30	7.500	1.180	99.7	87.6	109			
Phosphorus, Orthophosphate (As P	7.1	1.5	15.00	0	47.2	16.5	79.8			
Sulfate	43	1.5	30.00	13.62	98.1	44.1	140			
Comple ID 4000D40 004 AM	DD Comm	Super Mar	10	Tee	Caday E					

ND SampType Batch ID: nalysis Date: Result P 1.5 (14 2.9 (8.4 (7.5 (1.5 : LCS : 24617 : 4/4/2016 QL SPK value 0.30 1.500 1.5 15.00 0.30 3.000 0.30 7.500	Tes F SPK Ref Val 0 0 0	tCode: El RunNo: 3 SeqNo: 1 %REC 101 95 3	PA Method 3305 023339 LowLimit 90	300.0: Anion Units: mg/K HighLimit	s g %RPD	RPDLimit	Qual			
SampType Batch ID: nalysis Date: Result P 1.5 () 14 2.9 () 8.4 () 7.5 ()	E LCS 24617 4/4/2016 QL SPK value 0.30 1.500 1.5 15.00 0.30 3.000 0.30 7.500	Tes F SPK Ref Val 0 0 0	tCode: El RunNo: 3 SeqNo: 1 %REC 101 95.3	PA Method 3305 023339 LowLimit 90	300.0: Anion Units: mg/K HighLimit	s g %RPD	RPDLimit	Qual			
Batch ID nalysis Date: <u>Result P</u> 1.5 (14 2.9 (8.4 (7.5 (24617 4/4/2016 QL SPK value 0.30 1.500 1.5 15.00 0.30 3.000 0.30 7.500	F SPK Ref Val 0 0 0	RunNo: 3 SeqNo: 1 %REC 101	3305 023339 LowLimit 90	Units: mg/K HighLimit	g %RPD	RPDLimit	Qual			
nalysis Date <u>Result P</u> 1.5 (14 2.9 (8.4 (7.5 (244/2016 QL SPK value 0.30 1.500 1.5 15.00 0.30 3.000 0.30 7.500	 SPK Ref Val 0 0 0 	SeqNo: 1 %REC 101	023339 LowLimit 90	Units: mg/K HighLimit	g %RPD	RPDLimit	Qual			
Result P 1.5 (14 (2.9 (8.4 (7.5 (QL SPK value 0.30 1.500 1.5 15.00 0.30 3.000 0.30 7.500	SPK Ref Val	%REC 101	LowLimit 90	HighLimit	9 %RPD	RPDLimit	Qual			
Result P 1.5 () 14 () 2.9 () 8.4 () 7.5 ()	QL SPK value 0.30 1.500 1.5 15.00 0.30 3.000 0.30 7.500	SPK Ref Val	%REC 101	LowLimit 90	HighLimit	%RPD	RPDLimit	Qual			
1.5 (14 2.9 (8.4 (7.5 (0.30 1.500 1.5 15.00 0.30 3.000 0.30 7.500		101	90	110						
14 2.9 (8.4 (7.5 (1.5 15.00 0.30 3.000 0.30 7.500	0	05 3		110						
2.9 (8.4 (7.5 (0.30 3.000 0.30 7.500	0	35.5	90	110						
8.4 (7.5 (30 7 500		96.5	90	110						
7.5 0	7.500	0	111	90	110			S			
	0.30 7.500	0	100	90	110						
14	1.5 15.00	0	95.6	90	110						
31	1.5 30.00	0	102	90	110						
SampType	MS	Tes	tCode: El	PA Method	300.0: Anion	s					
Client ID: Westline Vadose Zo Batch ID: 24617 RunNo: 33305											
nalysis Date:	4/4/2016	5	SeqNo: 1	023349	Units: mg/K	g					
Result P	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
2.4 (0.30 1.500	1.481	63.4	15	100						
37	1.5 15.00	21.68	104	64.2	131						
2.8 (0.30 3.000	0	94.0	76.9	103						
8.7 (0.30 7.500	1.180	99.7	87.6	109						
7.1	1.5 15.00	0	47.2	16.5	79.8						
43	1.5 30.00	13.62	98.1	44.1	140						
SampType	MSD	Tes	tCode: El	PA Method	300.0: Anion	s					
Batch ID:	24617	F	RunNo: 3	3305							
nalysis Date:	4/4/2016	5	SeqNo: 1	023350	Units: mg/K	g					
Result P	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
2.5 0	0.30 1.500	1.481	65.1	15	100	1.07	20				
39	1.5 15.00	21.68	114	64.2	131	3.74	20				
	31 SampType Batch ID: nalysis Date: Result P 2.4 (37 2.8 (8.7 (7.1 43 SampType Batch ID: nalysis Date: Result P 2.5 (39	31 1.5 30.00 SampType: MS Batch ID: 24617 nalysis Date: 4/4/2016 Result PQL SPK value 2.4 0.30 1.500 37 1.5 15.00 2.8 0.30 3.000 8.7 0.30 7.500 7.1 1.5 15.00 43 1.5 30.00 SampType: MSD Batch ID: 24617 nalysis Date: 4/4/2016 Result PQL SPK value 2.5 0.30 1.500 39 1.5 15.00	31 1.5 30.00 0 SampType: MS Tes Batch ID: 24617 F nalysis Date: 4/4/2016 S Result PQL SPK value SPK Ref Val 2.4 0.30 1.500 1.481 37 1.5 15.00 21.68 2.8 0.30 3.000 0 8.7 0.30 7.500 1.180 7.1 1.5 15.00 0 43 1.5 30.00 13.62 SampType: MSD Tes Batch ID: 24617 F nalysis Date: 4/4/2016 S Result PQL SPK value SPK Ref Val 2.5 0.30 1.500 1.481 39 1.5 15.00 21.68	31 1.5 30.00 0 102 SampType: MS TestCode: El Batch ID: 24617 RunNo: 3 nalysis Date: 4/4/2016 SeqNo: 10 Result PQL SPK value SPK Ref Val %REC 2.4 0.30 1.500 1.481 63.4 37 1.5 15.00 21.68 104 2.8 0.30 3.000 0 94.0 8.7 0.30 7.500 1.180 99.7 7.1 1.5 15.00 0 47.2 43 1.5 30.00 13.62 98.1 SampType: MSD TestCode: Eff Batch ID: 24617 RunNo: 32 nalysis Date: 4/4/2016 SeqNo: 10 Result PQL SPK value SPK Ref Val %REC 2.5 0.30 1.500 1.481 65.1 39 1.5 <td>31 1.5 30.00 0 102 90 SampType: MS TestCode: EPA Method Batch ID: 24617 RunNo: 33305 nalysis Date: 4/4/2016 SeqNo: 1023349 Result PQL SPK value SPK Ref Val %REC LowLimit 2.4 0.30 1.500 1.481 63.4 15 37 1.5 15.00 21.68 104 64.2 2.8 0.30 3.000 0 94.0 76.9 8.7 0.30 7.500 1.180 99.7 87.6 7.1 1.5 15.00 0 47.2 16.5 43 1.5 30.00 13.62 98.1 44.1 SampType: MSD TestCode: EPA Method Batch ID: 24617 RunNo: 33305 nalysis Date: 4/4/2016 SeqNo: 1023350 Result PQL SPK value SPK Ref Val</td> <td>31 1.5 30.00 0 102 90 110 SampType: MS TestCode: EPA Method 300.0: Anion: Batch ID: 24617 RunNo: 33305 nalysis Date: 4/4/2016 SeqNo: 1023349 Units: mg/K Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit 2.4 0.30 1.500 1.481 63.4 15 100 37 1.5 15.00 21.68 104 64.2 131 2.8 0.30 3.000 0 94.0 76.9 103 8.7 0.30 7.500 1.180 99.7 87.6 109 7.1 1.5 15.00 0 47.2 16.5 79.8 43 1.5 30.00 13.62 98.1 44.1 140 SampType: MSD TestCode: EPA Method 300.0: Anion: Batch ID: 24617 Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit 2.5 0.30 1.500 1.481 65.1 15</td> <td>31 1.5 30.00 0 102 90 110 SampType: MS TestCode: EPA Method 300.0: Anions Batch ID: 24617 RunNo: 33305 nalysis Date: 4/4/2016 SeqNo: 1023349 Units: mg/Kg Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD 2.4 0.30 1.500 1.481 63.4 15 100 37 1.5 15.00 21.68 104 64.2 131 2.8 0.30 3.000 0 94.0 76.9 103 8.7 0.30 7.500 1.180 99.7 87.6 109 7.1 1.5 15.00 0 47.2 16.5 79.8 43 1.5 30.00 13.62 98.1 44.1 140 SampType: MSD TestCode: EPA Method 300.0: Anions Batch ID: 24617 RunNo: 33305 malysis Date: 4/4/2016 SeqNo: 1023350</td> <td>31 1.5 30.00 0 102 90 110 SampType: MS TestCode: EPA Method 300.0: Anions Batch ID: 24617 RunNo: 33305 nalysis Date: 4/4/2016 SeqNo: 1023349 Units: mg/Kg Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit 2.4 0.30 1.500 1.481 63.4 15 100 37 1.5 15.00 21.68 104 64.2 131 2.8 0.30 3.000 0 94.0 76.9 103 8.7 0.30 7.500 1.180 99.7 87.6 109 7.1 1.5 15.00 0 47.2 16.5 79.8 43 1.5 30.00 13.62 98.1 44.1 140 SampType: MSD TestCode: EPA Method 300.0: Anions Batch ID: 24617 RunNo: 33305 malysis Date: 4/4/2016 SeqNo: 1023350 <th c<="" td=""></th></td>	31 1.5 30.00 0 102 90 SampType: MS TestCode: EPA Method Batch ID: 24617 RunNo: 33305 nalysis Date: 4/4/2016 SeqNo: 1023349 Result PQL SPK value SPK Ref Val %REC LowLimit 2.4 0.30 1.500 1.481 63.4 15 37 1.5 15.00 21.68 104 64.2 2.8 0.30 3.000 0 94.0 76.9 8.7 0.30 7.500 1.180 99.7 87.6 7.1 1.5 15.00 0 47.2 16.5 43 1.5 30.00 13.62 98.1 44.1 SampType: MSD TestCode: EPA Method Batch ID: 24617 RunNo: 33305 nalysis Date: 4/4/2016 SeqNo: 1023350 Result PQL SPK value SPK Ref Val	31 1.5 30.00 0 102 90 110 SampType: MS TestCode: EPA Method 300.0: Anion: Batch ID: 24617 RunNo: 33305 nalysis Date: 4/4/2016 SeqNo: 1023349 Units: mg/K Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit 2.4 0.30 1.500 1.481 63.4 15 100 37 1.5 15.00 21.68 104 64.2 131 2.8 0.30 3.000 0 94.0 76.9 103 8.7 0.30 7.500 1.180 99.7 87.6 109 7.1 1.5 15.00 0 47.2 16.5 79.8 43 1.5 30.00 13.62 98.1 44.1 140 SampType: MSD TestCode: EPA Method 300.0: Anion: Batch ID: 24617 Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit 2.5 0.30 1.500 1.481 65.1 15	31 1.5 30.00 0 102 90 110 SampType: MS TestCode: EPA Method 300.0: Anions Batch ID: 24617 RunNo: 33305 nalysis Date: 4/4/2016 SeqNo: 1023349 Units: mg/Kg Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD 2.4 0.30 1.500 1.481 63.4 15 100 37 1.5 15.00 21.68 104 64.2 131 2.8 0.30 3.000 0 94.0 76.9 103 8.7 0.30 7.500 1.180 99.7 87.6 109 7.1 1.5 15.00 0 47.2 16.5 79.8 43 1.5 30.00 13.62 98.1 44.1 140 SampType: MSD TestCode: EPA Method 300.0: Anions Batch ID: 24617 RunNo: 33305 malysis Date: 4/4/2016 SeqNo: 1023350	31 1.5 30.00 0 102 90 110 SampType: MS TestCode: EPA Method 300.0: Anions Batch ID: 24617 RunNo: 33305 nalysis Date: 4/4/2016 SeqNo: 1023349 Units: mg/Kg Result PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit 2.4 0.30 1.500 1.481 63.4 15 100 37 1.5 15.00 21.68 104 64.2 131 2.8 0.30 3.000 0 94.0 76.9 103 8.7 0.30 7.500 1.180 99.7 87.6 109 7.1 1.5 15.00 0 47.2 16.5 79.8 43 1.5 30.00 13.62 98.1 44.1 140 SampType: MSD TestCode: EPA Method 300.0: Anions Batch ID: 24617 RunNo: 33305 malysis Date: 4/4/2016 SeqNo: 1023350 <th c<="" td=""></th>			

- Qualifiers:
 - * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank

Е Value above quantitation range

- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- Reporting Detection Limit RL

Sample container temperature is out of limit as specified W

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1603B48

WO#:

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QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc.

Bisti Landfarm

Project:

Sample ID 1603B48-001AMSD SampType: MSD TestCode: EPA Method 300.0: Anions											
Client ID: Westline Vadose	Client ID: Westline Vadose Zo Batch ID: 24617 RunNo: 33305										
Prep Date: 4/4/2016 Analysis Date: 4/4/2016 SeqNo: 1023350 Units: mg/Kg											
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Nitrogen, Nitrite (As N)	2.8	0.30	3.000	0	94.6	76.9	103	0.554	20		
Nitrogen, Nitrate (As N)	8.7	0.30	7.500	1.180	101	87.6	109	1.03	20		
Phosphorus, Orthophosphate (As P	7.1	1.5	15.00	0	47.1	16.5	79.8	0.173	20		
Sulfate	42	1.5	30.00	13.62	94.2	44.1	140	2.77	20		

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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WO#: **1603B48** *17-Feb-17*

Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc. **Project:**

Bisti Landfarm

Sample ID MB-24419	SampType: MBLK	TestCode: EPA Method	418.1: TPH	
Client ID: PBS	Batch ID: 24419	RunNo: 33169		
Prep Date: 3/24/2016	Analysis Date: 3/30/2016	SeqNo: 1018640	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-24419	SampType: LCS	TestCode: EPA Method	418.1: TPH	
Client ID: LCSS	Batch ID: 24419	RunNo: 33169		
Prep Date: 3/24/2016	Analysis Date: 3/30/2016	SeqNo: 1018641	Units: mg/Kg	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Petroleum Hydrocarbons, TR	110 20 100.0	0 109 83.4	127	
Sample ID LCSD-24419	SampType: LCSD	TestCode: EPA Method	418.1: TPH	
Client ID: LCSS02	Batch ID: 24419	RunNo: 33169		
Prep Date: 3/24/2016	Analysis Date: 3/30/2016	SeqNo: 1018642	Units: mg/Kg	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Petroleum Hydrocarbons, TR	100 20 100.0	0 102 83.4	127 6.58	20

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Holding times for preparation or analysis exceeded Η
- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits R
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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WO#: 1603B48

17-Feb-17

Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc. **Project:**

Bisti Landfarm

Sample ID LCS-24429	SampType:	SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics							
Client ID: LCSS	Batch ID:	Batch ID: 24429 RunNo: 33066							
Prep Date: 3/24/2016	Analysis Date:	3/25/2016	S	SeqNo: 1	015745	Units: mg/K	g		
Analyte	Result PQ	L SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	50	10 50.00	0	99.9	65.8	136			
Surr: DNOP	6.3	5.000		127	70	130			
Sample ID MB-24429	SampType:	MBLK	Test	tCode: El	PA Method	8015M/D: Die	esel Range	e Organics	
Client ID: PBS	Batch ID:	24429	R	RunNo: 3	3066				
		ysis Date: 3/25/2016 SeqNo: 1015746 Units: mg/Kg							
Prep Date: 3/24/2016	Analysis Date:	3/25/2016	S	SeqNo: 1	015746	Units: mg/K	g		
Prep Date: 3/24/2016 Analyte	Analysis Date: Result PQ	3/25/2016	SPK Ref Val	eqNo: 10%	015746 LowLimit	Units: mg/K HighLimit	g %RPD	RPDLimit	Qual
Prep Date: 3/24/2016 Analyte Diesel Range Organics (DRO)	Analysis Date: Result PQ ND	3/25/2016 L SPK value	SPK Ref Val	SeqNo: 10 %REC	015746 LowLimit	Units: mg/K HighLimit	g %RPD	RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL **Reporting Detection Limit**
- W Sample container temperature is out of limit as specified

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WO#:

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WO#: 1603B48

Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc. **Project:**

Bisti Landfarm

Sample ID MB-24391	SampT	SampType: MBLK TestCode: EPA Method					d 8015D: Gasoline Range				
Client ID: PBS	Batch	Batch ID: 24391 RunNo: 33039									
Prep Date: 3/23/2016	Analysis D	s Date: 3/24/2016 SeqNo: 1014105 U				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		103	66.2	112				
	SampType: LCS TestCode: EPA Method 8015D: Gasoline Range										
Sample ID LCS-24391	SampT	ype: LC	S	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	e		
Sample ID LCS-24391 Client ID: LCSS	SampT Batch	ype: LC	S 391	Tes	tCode: El RunNo: 3	PA Method 3039	8015D: Gaso	line Rang	e		
Sample IDLCS-24391Client ID:LCSSPrep Date:3/23/2016	SampT Batch Analysis D	ype: LC n ID: 24: pate: 3/	S 391 24/2016	Tes F S	tCode: El RunNo: 3 SeqNo: 1	PA Method 3039 014106	8015D: Gaso Units: mg/K	oline Rang	e		
Sample ID LCS-24391 Client ID: LCSS Prep Date: 3/23/2016 Analyte	SampT Batch Analysis D Result	ype: LC 1D: 24: Pate: 3/ PQL	S 391 24/2016 SPK value	Tes F S SPK Ref Val	tCode: El RunNo: 3 SeqNo: 1 %REC	PA Method 3039 014106 LowLimit	8015D: Gasc Units: mg/k HighLimit	oline Rang Kg %RPD	e RPDLimit	Qual	
Sample ID LCS-24391 Client ID: LCSS Prep Date: 3/23/2016 Analyte Gasoline Range Organics (GRO)	SampT Batch Analysis D Result 25	ype: LC 1 ID: 24: Date: 3/ PQL 5.0	S 391 24/2016 SPK value 25.00	Tes F S SPK Ref Val 0	tCode: El RunNo: 3 SeqNo: 1 %REC 98.5	PA Method 3039 014106 LowLimit 80	8015D: Gaso Units: mg/K HighLimit 120	oline Rang (g %RPD	e RPDLimit	Qual	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Holding times for preparation or analysis exceeded Η
- Not Detected at the Reporting Limit ND
- RPD outside accepted recovery limits R
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Value above quantitation range Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- Reporting Detection Limit RL
- W Sample container temperature is out of limit as specified

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QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc.

Bisti Landfarm

Project:

Sample ID MB-24391	SampT	SampType: MBLK TestCode: EPA Method						tiles		
Client ID: PBS	Batcl	n ID: 24	391	F	RunNo: 33039					
Prep Date: 3/23/2016	Analysis D	Date: 3/	24/2016	S	SeqNo: 1014146 Units: mg/			٢g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.1		1.000		107	80	120			
Sample ID LCS-24391	SampT	ype: LC	S	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID: LCSS	Batcl	n ID: 24	391	F	RunNo: 3	3039				
Prep Date: 3/23/2016	Analysis D)ate: 3/	24/2016	S	SeqNo: 1	014147	Units: mg/H	٢g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	101	75.3	123			
Toluene	0.99	0.050	1.000	0	99.3	80	124			
Ethylbenzene	1.0	0.050	1.000	0	99.9	82.8	121			
Xylenes, Total	3.0	0.10	3.000	0	99.4	83.9	122			
Surr: 4-Bromofluorobenzene	1.1		1.000		113	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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WO#: 1603B48

17-Feb-17

WO#: 1603B48 17-Feb-17

Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc.

Bisti Landfarm

Project:

Sample ID MB-24495	SampType: mblk	TestCode: EPA Method	7471: Mercury	
Client ID: PBS	Batch ID: 24495	RunNo: 33146		
Prep Date: 3/29/2016	Analysis Date: 3/29/2016	SeqNo: 1017719	Units: mg/Kg	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Mercury	ND 0.033			
,				
Sample ID LCS-24495	SampType: Ics	TestCode: EPA Method	7471: Mercury	
Sample ID LCS-24495 Client ID: LCSS	SampType: Ics Batch ID: 24495	TestCode: EPA Method RunNo: 33146	7471: Mercury	
Sample ID LCS-24495 Client ID: LCSS Prep Date: 3/29/2016	SampType: Ics Batch ID: 24495 Analysis Date: 3/29/2016	TestCode: EPA Method RunNo: 33146 SeqNo: 1017720	7471: Mercury Units: mg/Kg	
Sample ID LCS-24495 Client ID: LCSS Prep Date: 3/29/2016 Analyte	SampType: Ics Batch ID: 24495 Analysis Date: 3/29/2016 Result PQL SPK value	TestCode: EPA Method RunNo: 33146 SeqNo: 1017720 SPK Ref Val %REC LowLimit	7471: Mercury Units: mg/Kg HighLimit %RPD	RPDLimit Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc.

Bisti Landfarm

Project:

Client ID: PBS Prep Date: 3/28/2016 Analyte Arsenic Barium Cadmium Cadmium Calcium Chromium Lead Manganese Potassium Selenium Silver Sodium Sample ID LCS-24470 Client ID: LCSS Prep Date: 3/28/2016 Analyte Arsenic Barium Cadmium Calcium Chromium Lead Manganese Potassium		Туре: МІ	BLK	Test	tCode: El	PA Method	6010B: Soil	Metals		
Prep Date: 3/28/2016 Analyte Arsenic Barium Cadmium Cadmium Calcium Calcium Chromium Lead Manganese Potassium Selenium Silver Sodium Sodium Client ID: LCSS Prep Date: Arsenic Barium Cadmium Cadmium Calcium Chromium Lead Manganese Potassium Selenium Sample ID LCS-24470 Client ID: LCSS Prep Date: 3/28/2016 Analyte Arsenic Barium Cadmium Calcium Chromium Lead Manganese Potassium Selenium	Bat	ch ID: 24	470	R	RunNo: 3	3133				
Analyte Arsenic Barium Cadmium Cadmium Calcium Chromium Lead Manganese Potassium Selenium Silver Sodium Sample ID LCS-24470 Client ID: LCSS Prep Date: 3/28/2016 Analyte Arsenic Barium Cadmium Calcium Chromium Lead Manganese Potassium Selenium	Analysis	Date: 3	/29/2016	S	SeqNo: 1	017331	Units: mg/K	(g		
Arsenic Barium Cadmium Calcium Chromium Lead Manganese Potassium Selenium Silver Sodium Sample ID LCS-24470 Client ID: LCSS Prep Date: 3/28/2016 Analyte Arsenic Barium Cadmium Calcium Chromium Lead Manganese Potassium	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium Cadmium Calcium Chromium Lead Manganese Potassium Selenium Silver Sodium Sample ID LCS-24470 Client ID: LCSS Prep Date: 3/28/2016 Analyte Arsenic Barium Cadmium Calcium Chromium Lead Manganese Potassium	ND	2.5								
Cadmium Calcium Chromium Lead Manganese Potassium Selenium Silver Sodium Sample ID LCS-24470 Client ID: LCSS Prep Date: 3/28/2016 Analyte Arsenic Barium Cadmium Calcium Chromium Lead Manganese Potassium	ND	0.10								
Calcium Chromium Lead Manganese Potassium Selenium Silver Sodium Sample ID LCS-24470 Client ID: LCSS Prep Date: 3/28/2016 Analyte Arsenic Barium Cadmium Calcium Chromium Lead Manganese Potassium	ND	0.10								
Chromium Lead Manganese Potassium Selenium Silver Sodium Sample ID LCS-24470 Client ID: LCSS Prep Date: 3/28/2016 Analyte Arsenic Barium Cadmium Calcium Chromium Lead Manganese Potassium	ND	25								
Lead Manganese Potassium Selenium Silver Sodium Sample ID LCS-24470 Client ID: LCSS Prep Date: 3/28/2016 Analyte Arsenic Barium Cadmium Calcium Chromium Lead Manganese Potassium	ND	0.30								
Manganese Potassium Selenium Silver Sodium Sample ID LCS-24470 Client ID: LCSS Prep Date: 3/28/2016 Analyte Arsenic Barium Cadmium Calcium Chromium Lead Manganese Potassium	ND	0.25								
Potassium Selenium Silver Sodium Sample ID LCS-24470 Client ID: LCSS Prep Date: 3/28/2016 Analyte Arsenic Barium Cadmium Cadmium Calcium Chromium Lead Manganese Potassium	ND	0.10								
Selenium Silver Sodium Sample ID LCS-24470 Client ID: LCSS Prep Date: 3/28/2016 Analyte Arsenic Barium Cadmium Cadmium Cadmium Lead Manganese Potassium	ND	50								
Silver Sodium Sample ID LCS-24470 Client ID: LCSS Prep Date: 3/28/2016 Analyte Arsenic Barium Cadmium Cadmium Cadmium Lead Manganese Potassium	ND	2.5								
Sodium Sample ID LCS-24470 Client ID: LCSS Prep Date: 3/28/2016 Analyte 3/28/2016 Arsenic Barium Cadmium Cadmium Calcium Chromium Lead Manganese Potassium Solonium	ND	0.25								
Sample ID LCS-24470 Client ID: LCSS Prep Date: 3/28/2016 Analyte Arsenic Barium Cadmium Cadmium Calcium Chromium Lead Manganese Potassium	ND	25								
Client ID: LCSS Prep Date: 3/28/2016 Analyte Arsenic Barium Cadmium Calcium Chromium Lead Manganese Potassium										
Prep Date: 3/28/2016 Analyte Arsenic Barium Cadmium Calcium Chromium Lead Manganese Potassium	170 Samp	Type: LC	s	Test	tCode: El	PA Method	6010B: Soil	Metals		
Analyte Arsenic Barium Cadmium Calcium Chromium Lead Manganese Potassium	170 Samp Bate	Type: LC	S 470	Tes R	tCode: El RunNo: 3	PA Method 3133	6010B: Soil	Metals		
Arsenic Barium Cadmium Calcium Chromium Lead Manganese Potassium	170 Samp Bate 116 Analysis	oType: LC ch ID: 24 Date: 3/	S 470 /29/2016	Test R S	tCode: El RunNo: 3 SeqNo: 1	PA Method 3133 017332	6010B: Soil I Units: mg/K	Metals (g		
Barium Cadmium Calcium Chromium Lead Manganese Potassium	170 Samp Bate 116 Analysis Result	oType: LC ch ID: 24 Date: 3/ PQL	25 470 /29/2016 SPK value	Tesi R SPK Ref Val	tCode: El RunNo: 3 SeqNo: 10 %REC	PA Method 3133 017332 LowLimit	6010B: Soil I Units: mg/K HighLimit	Metals (g %RPD	RPDLimit	Qual
Cadmium Calcium Chromium Lead Manganese Potassium	170 Samp Bate 116 Analysis Result 26	DType: LC ch ID: 24 Date: 3 PQL 2.5	S 470 29/2016 SPK value 25.00	Tesi R SPK Ref Val 0	tCode: El RunNo: 3 SeqNo: 1 %REC 104	PA Method 3133 017332 LowLimit 80	6010B: Soil I Units: mg/K HighLimit 120	Metals Kg %RPD	RPDLimit	Qual
Calcium Chromium Lead Manganese Potassium	170 Samp Bate 116 Analysis Result 26 25	DType: LC ch ID: 24 Date: 3 PQL 2.5 0.10	3 470 /29/2016 SPK value 25.00 25.00	Tesi R SPK Ref Val 0 0	tCode: El RunNo: 3: SeqNo: 1 %REC 104 100	PA Method 3133 017332 LowLimit 80 80	GO10B: Soil I Units: mg/K HighLimit 120 120	Metals (g %RPD	RPDLimit	Qual
Chromium Lead Manganese Potassium	170 Samp Bate 116 Analysis Result 26 25 25	DType: LC ch ID: 24 Date: 3/ PQL 2.5 0.10 0.10	S 470 29/2016 SPK value 25.00 25.00 25.00	Test R SPK Ref Val 0 0 0 0	tCode: El RunNo: 3: SeqNo: 1 %REC 104 100 102	PA Method 3133 017332 LowLimit 80 80 80	6010B: Soil I Units: mg/k HighLimit 120 120 120	Metals (g %RPD	RPDLimit	Qual
Lead Manganese Potassium	170 Samp Bate 116 Analysis Result 26 25 25 2500	DType: LC ch ID: 24 Date: 3/ PQL 2.5 0.10 0.10 25	S 470 29/2016 SPK value 25.00 25.00 25.00 25.00 2500	Test R SPK Ref Val 0 0 0 0 0	tCode: EI RunNo: 3 SeqNo: 1 <u>%REC</u> 104 100 102 101	PA Method 3133 017332 LowLimit 80 80 80 80 80	6010B: Soil I Units: mg/k HighLimit 120 120 120 120	Metals (g %RPD	RPDLimit	Qual
Manganese Potassium	170 Samp Bate 116 Analysis Result 26 25 25 2500 25	DType: LC ch ID: 24 Date: 3 PQL 2.5 0.10 0.10 25 0.30	25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00	Test R SPK Ref Val 0 0 0 0 0 0	tCode: EI RunNo: 3 SeqNo: 1 %REC 104 100 102 101 99.6	PA Method 3133 017332 LowLimit 80 80 80 80 80 80	6010B: Soil I Units: mg/k HighLimit 120 120 120 120 120	Metals (g %RPD	RPDLimit	Qual
Potassium	170 Samp Bate 116 Analysis Result 26 25 25 2500 25 2500 25 24	DType: LC ch ID: 24 Date: 3 PQL 2.5 0.10 0.10 25 0.30 0.25	25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00	Tesi R SPK Ref Val 0 0 0 0 0 0 0 0 0	tCode: EI RunNo: 3 SeqNo: 1 %REC 104 100 102 101 99.6 97.4	PA Method 3133 017332 LowLimit 80 80 80 80 80 80 80	6010B: Soil I Units: mg/k HighLimit 120 120 120 120 120 120 120	Metals (g %RPD	RPDLimit	Qual
Solonium	170 Samp Bate 216 Analysis Result 26 25 25 2500 25 2500 25 24 25	DType: LC ch ID: 24 Date: 3 PQL 2.5 0.10 0.10 25 0.30 0.25 0.10	25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00	Test R SPK Ref Val 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	tCode: EI RunNo: 3: SeqNo: 10 %REC 104 100 102 101 99.6 97.4 98.7	PA Method 3133 017332 LowLimit 80 80 80 80 80 80 80 80 80	6010B: Soil I Units: mg/K HighLimit 120 120 120 120 120 120 120 120	Metals (g %RPD	RPDLimit	Qual
Selelliulli	170 Samp Bate 216 Analysis Result 26 25 25 25 2500 25 24 25 24 25 2500	DType: LC ch ID: 24 Date: 3 PQL 2.5 0.10 0.10 25 0.30 0.25 0.10 50	25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00	Test R SPK Ref Val 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	tCode: EI RunNo: 3: SeqNo: 10 %REC 104 100 102 101 99.6 97.4 98.7 98.8	PA Method 3133 017332 LowLimit 80 80 80 80 80 80 80 80 80 80 80	6010B: Soil I Units: mg/K HighLimit 120 120 120 120 120 120 120 120 120	Metals Kg %RPD	RPDLimit	Qual
Silver	170 Samp Bate 216 Analysis Result 26 25 25 25 2500 25 24 25 2500 25 24 2500 25 24 2500 27	DType: LC ch ID: 24 Date: 3 PQL 2.5 0.10 0.10 25 0.30 0.25 0.10 50 2.5	25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00	Test R SPK Ref Val 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	tCode: El RunNo: 3: SeqNo: 10 %REC 104 100 102 101 99.6 97.4 98.7 98.8 106	PA Method 3133 017332 LowLimit 80 80 80 80 80 80 80 80 80 80 80 80	6010B: Soil I Units: mg/K HighLimit 120 120 120 120 120 120 120 120 120 120	Metals Kg %RPD	RPDLimit	Qual
Sodium	170 Samp Bate 216 Analysis Result 26 25 25 25 25 25 25 25 25 25 25 25 25 25	DType: LC ch ID: 24 Date: 3 PQL 2.5 0.10 0.10 25 0.30 0.25 0.10 50 2.5 0.25	25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00	Test R S SPK Ref Val 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	tCode: El RunNo: 3: SeqNo: 10 %REC 104 100 102 101 99.6 97.4 98.7 98.8 106 98.2	PA Method 3133 017332 LowLimit 80 80 80 80 80 80 80 80 80 80 80 80 80	6010B: Soil I Units: mg/K HighLimit 120 120 120 120 120 120 120 120 120 120	Metals Kg %RPD	RPDLimit	Qual
Silver	170 Samp Bate 216 Analysis Result 26 25 25 25 2500 25 24 25 25 2500	DType: LC ch ID: 24 Date: 3 PQL 2.5 0.10 0.10 25 0.30 0.25 0.10 50	25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00 25.00	Test R SPK Ref Val 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	tCode: EI RunNo: 3: SeqNo: 10 %REC 104 100 102 101 99.6 97.4 98.7 98.8	PA Method 3133 017332 LowLimit 80 80 80 80 80 80 80 80 80 80 80	6010B: Soil I Units: mg/K HighLimit 120 120 120 120 120 120 120 120 120	Metals (g %RPD	RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Holding times for preparation or analysis exceeded Η
- Not Detected at the Reporting Limit ND
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- Analyte detected below quantitation limits J
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Page 13 of 13

1603B48

WO#: 17-Feb-17

HALL Hall Environmental ENVIRONMENTAL ANALYSIS LABORATORY Website: www.h	l Analysis Labon 4901 Hawkin buquerque, NM 8 5 FAX: 505-345- callenvironmental	atory Is NE 7109 Samp 4107 Leom	ble Log-In Che	ck List
Client Name: Western Refining Southw Work Order Numbe	r: 1603B48		RcptNo: 1	
Received by/date: 03 73				· · <u> </u>
.ogged By: Lindsay Mangin 3/23/2016 7:15:00 AM	٨	Junhy Hogo		
Completed By: Lindsay Mangin 3/23/2016 10:12:49	M	Junhy Happ		
Reviewed By: AQ 03/23/	Ιφ	0.000		• • • • • • • • • • • • • • • • • • • •
hain of Custody				
1. Custody seals intact on sample pottles?	Yes 🗌	No L	Not Present	
2. Is Chain of Custody complete?	Yes ⊻	No	Not Present	
3. How was the sample delivered?	Courier			
<u>log In</u>				
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 🗌		
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 🗆	
0.VOA vials have zero headspace?	Yes	No 🗆	No VOA Vials 🗹	
1. Were any sample containers received broken?	Yes	No 🗹	# of preserved	
2 Does paperwork match bottle labels?	Yes 🗸	No 🗌	bottles checked for pH:	
(Note discrepancies on chain of custody)			(<2 or >1	2 unless noted)
3. Are matrices correctly identified on Chain of Custody?	Yes 🗹	No 🗌	Adjusted?	·····
4. Is it clear what analyses were requested?	Yes 🗹	No 🗌 .		
 Were all holding times able to be met? (If no, notify customer for authorization.) 	Yes 🗹	No 🗌	Checked by:	·····
pecial Handling (IT applicable)	Yes	No 🗌	NA 🔽	
Parron Natified: Date		<u></u>		
By Whom: Via:	l 🗌 eMail 🗍	Phone Eax	In Person	
Regarding:				
Client Instructions:				
Paralita Auduonai remarks:				
8. Cooler Information	Soal Data	Signad Bu		
1 16 Good Ves	Seal Date	Signed by		

С	hain	-of-Cu	stody Record	Turn-Around	Time:													NIT		
Client:	1011	, Roh	inson	Standard	□ Rush			ele							AF		DA		AL D	· v
	1 let	1000	Pationa	Project Name	e:					-										•
Mailing	Address	i un	o ingo	Rict:	1 and for					W	ww.n	allen	liton	men	al.co	лп м 07	100			
		1110	R 4970	Project #:	anarai	// 1	Tel. 505-345-3975 Fax 505-345-4107													
Dharad	E	nt 1	CICL, NIN	in ID i D	05	Tel. 505-345-3975 Fax 505-345-4107														
Phone #	F: 60	25 - 6	32-8013 Nava asona G 4/112	Project Mono				5	6				y sis	Rey	uest			0		
	Fax#.	reing.	LOUIDUI (a. WNS	Project Mana	iger:		21)	luo	MRG				SO	3's			5	4101		
Stan	dard		Level 4 (Full Validation)	Devia	Henrman	\sim	(80	Gas	10		W		04	PC			0	4 LI	· ~ `	
Accredit	tation			Sampler: Ale	y Com/s/	Joch Adams	MB's) H	BR	~			021	082			R	170	10	
	AP	□ Othe	r	On Ice:	Ves Yes		F +	₽ +	20	18.1	827		03.N	\$/8		(A)	No.	10	f. 2	PL N
	(Type)			Sample Tem	perature: 21	-1,00F=1,10	BE	ШШ	G	d 4	c po	etals	N,N	sides	(A	2-10	X	0	M	32
				Cantainan	Drananutius		IW	MT	158	letho	R31	N N	(F,	estic	S	Sem	×	de	2	bles
Date	Time	Matrix	Sample Request ID	Type and #	Type	HEAL No.	×	X	H 80	N) H	H'N	RA	suo	EL P	OB	0 (S	TT.	101	ai	Bub
						1603B48	BTE	BTE	TP	TPI		RC	Ani	808	826	827	8	17	¥	Air
3-22-16	1235	Soil	Westline Vadage Zone	1 402	6001	-001											İ	1	i	
	1245		Eastline Varloge Zone			-007												Π	T	
	1225		Bisti Ibidos: 700			ma												11	1	\square
	1205		Periore, iladore 2011			-0001					+	+-						++	+	
J	17.15		APT ILL a Rove	V		-005				-	+	+-	-				V	T	1	\mathbf{V}
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3/27/1	145	A	KIC (MOTAL.	Ala. Ti	1.14		Ken	nark	s.											
Date:	Time	Relinquish	ed by:	Received by	Jallo	122/16 1455 Date Time														
3/221	L-1-7	Ahn	1 1) 1 .	UI	1	11														
00/16	174/	YIN	Ista Wello	U.	A OF	323160715														
If	necessary.	samples subr	nitted to Hall Environmental may be subco	ontracted to other	ccredited laboratorie	es. This serves as notice of this	possil	bility.	Any su	o-contra	cted da	ta will b	e clear	ny nota	ated on	the ar	nalytica	ai repor	1.	

C

TABLE 3

BISTI LANDFARM 2015 SAMPLING SCHEDULE WESTERN REFINING SOUTHWEST, INC

	March	June	September	Decmeber	
TO VE AT WISKIP MONTE					
E composite (character amples and in frame	แล้วงที่ใจเกล่าไป อเอกกรรงเกิดได้ส	an the Gauge (the	weight in Auguro	eastlin (
washilinghostinawaj.	States and the second	<u>: ////////////////////////////////</u>	· 78.1	. //:. 12 1	
DRO and GRO as Combined Fraction					
(USEPA 8015M)	x				
TPH		N	N		
(USEPA 418.1)	X				
Chlorides					
(USEPA 300.0)	X		X		
MANDIOSID ZAOINIS		$\mathbb{E}[\mathbf{r}_{i}]$			
Colleannailes 3 per better within the must	sphilae.	:			
BTEX					
(USEPA 8021)	x		K	X	
DRO and GRO as Combined Fraction					
(USEPA 8015M)***	X			x	
TPH					
(USEPA 418.1)	X		x		
Chlorides					
(USEPA 300.0)	x		х		
Major Cations/					
Anions	x				
Heavy Metals	X			+	

NOTE: Discuss Method 8015M with lab

3.00

Militor Clitons/Andons	Monto
((0154517XV)A(talia))	(USDPANNettor)
Alkalinity (ASA10-3)	Arsenic (6010B)
Bicarbonate (ASA10-3	Barium (6010B)
Carbonate (ASA10-3)	Cadmium (6010B)
Sulfate (300.0)	Chromium (6010B)
Chloride (300.0)	Lead (6010B)
Calcium (6010B)	Selenium (6010B)
Manganese (6010B)	Silver (6010B)
Potassium (6010B)	Mercury (7471)
Sodium (6010B)	



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

June 28, 2016

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

RE: Bisti Landfarm

OrderNo.: 1606A49

Dear Brook Herb:

Hall Environmental Analysis Laboratory received 5 sample(s) on 6/17/2016 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 <u>www.hallenvironmental.com</u> 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,

andig

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Analytical	Report
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Date Reported: 6/28/2016

Hall Environmental Analysis Laboratory, Inc.

12

 CLIENT:
 Western Refining Southwest, Inc.
 Client Sample ID: East Line Vadose Zone

 Project:
 Bisti Landfarm
 Collection Date: 6/16/2016 12:30:00 PM

 Lab ID:
 1606A49-001
 Matrix: SOIL
 Received Date: 6/17/2016 7:45:00 AM

 Analyses
 Result
 PQL
 Qual
 Units
 DF Date Analyzed
 Batch

EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS	6			Analyst	JME
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	6/23/2016 2:07:43 PM	25944
Surr: DNOP	119	70-130	%Rec	1	6/23/2016 2:07:43 PM	25944
EPA METHOD 8015D: GASOLINE RANGE	1				Analyst	RAA
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	6/25/2016 2:10:32 AM	25945
Surr: BFB	96.9	80-120	%Rec	1	6/25/2016 2:10:32 AM	25945
EPA METHOD 8021B: VOLATILES					Analyst	RAA
Benzene	ND	0.024	mg/Kg	1	6/25/2016 2:10:32 AM	25945
Toluene	ND	0.048	mg/Kg	1	6/25/2016 2:10:32 AM	25945
Ethylbenzene	ND	0.048	mg/Kg	1	6/25/2016 2:10:32 AM	25945
Xylenes, Total	ND	0.095	mg/Kg	1	6/25/2016 2:10:32 AM	25945
Surr: 4-Bromofluorobenzene	92.2	80-120	%Rec	1	6/25/2016 2:10:32 AM	25945

the state of the s				
Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Η	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 1 of 8
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical Re	port
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Date Reported: 6/28/2016

Hall Environmental Analysis Laboratory, Inc.

 CLIENT: Western Refining Southwest, Inc.
 Client Sample ID: West Line Vadose Zone

 Project:
 Bisti Landfarm
 Collection Date: 6/16/2016 12:45:00 PM

 Lab ID:
 1606A49-002
 Matrix: SOIL
 Received Date: 6/17/2016 7:45:00 AM

Analyses	Result	PQL Qua	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS	5			Analyst	JME
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	6/23/2016 4:42:44 PM	25944
Surr: DNOP	91.4	70-130	%Rec	1	6/23/2016 4:42:44 PM	25944
EPA METHOD 8015D: GASOLINE RANG	E				Analyst	RAA
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	6/25/2016 2:33:56 AM	25945
Surr: BFB	96.7	80-120	%Rec	1	6/25/2016 2:33:56 AM	25945
EPA METHOD 8021B: VOLATILES					Analyst	RAA
Benzene	ND	0.025	mg/Kg	1	6/25/2016 2:33:56 AM	25945
Toluene	ND	0.049	mg/Kg	1	6/25/2016 2:33:56 AM	25945
Ethylbenzene	ND	0.049	mg/Kg	1	6/25/2016 2:33:56 AM	25945
Xylenes, Total	ND	0.099	mg/Kg	1	6/25/2016 2:33:56 AM	25945
Surr: 4-Bromofluorobenzene	90.2	80-120	%Rec	1	6/25/2016 2:33:56 AM	25945

the second				
Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Η	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 2 of 8
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Anal	ytical	Re	port
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Date Reported: 6/28/2016

Hall Environmental Analysis Laboratory, Inc.

110

 CLIENT:
 Western Refining Southwest, Inc.
 Client Sample ID: Bisti Vadose Zone

 Project:
 Bisti Landfarm
 Collection Date: 6/16/2016 12:55:00 PM

 Lab ID:
 1606A49-003
 Matrix: SOIL
 Received Date: 6/17/2016 7:45:00 AM

 Analyses
 Pol.
 Qual. Units
 DF. Date Analyzed
 Batch

Analyses	Kesuit	TQL Qu	al Units	Dr	Date Analyzeu	Datti
EPA METHOD 8015M/D: DIESEL RANG	GE ORGANICS				Analyst	JME
Diesel Range Organics (DRO)	ND	9.7	mg/Kg	1	6/23/2016 5:05:02 PM	25944
Surr: DNOP	92.9	70-130	%Rec	1	6/23/2016 5:05:02 PM	25944
EPA METHOD 8015D: GASOLINE RAN	IGE				Analyst	RAA
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	6/25/2016 2:57:23 AM	25945
Surr: BFB	97.1	80-120	%Rec	1	6/25/2016 2:57:23 AM	25945
EPA METHOD 8021B: VOLATILES					Analyst	RAA
Benzene	ND	0.024	mg/Kg	1	6/25/2016 2:57:23 AM	25945
Toluene	ND	0.048	mg/Kg	1	6/25/2016 2:57:23 AM	25945
Ethylbenzene	ND	0.048	mg/Kg	1	6/25/2016 2:57:23 AM	25945
Xylenes, Total	ND	0.096	mg/Kg	1	6/25/2016 2:57:23 AM	25945
Surr: 4-Bromofluorobenzene	92.3	80-120	%Rec	1	6/25/2016 2:57:23 AM	25945

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank	
	D Sample Diluted Due to Matrix E Value above quantitation range		Value above quantitation range		
	Η	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 3 of 8	
ND Not Detected at the Reporting Limit P Sar		Sample pH Not In Range			
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified	

Analy	tical	Re	port
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Hall Environmental Analysis Laboratory, Inc.

1918

Lab Order 1606A49 Date Reported: 6/28/2016

CLIENT:	Western Refining Southwest, Inc.			Client Sample ID: API Vadose Zone
Project:	Bisti Landfarm			Collection Date: 6/16/2016 1:00:00 PM
Lab ID:	1606A49-004	Matrix:	SOIL	Received Date: 6/17/2016 7:45:00 AM

Analyses	Result	PQL Qua	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE	E ORGANICS				Analyst	JME
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	6/23/2016 5:27:07 PM	25944
Surr: DNOP	94.8	70-130	%Rec	1	6/23/2016 5:27:07 PM	25944
EPA METHOD 8015D: GASOLINE RANG	ε				Analyst	RAA
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	6/25/2016 3:20:45 AM	25945
Surr: BFB	97.5	80-120	%Rec	1	6/25/2016 3:20:45 AM	25945
EPA METHOD 8021B: VOLATILES					Analyst	RAA
Benzene	ND	0.024	mg/Kg	1	6/25/2016 3:20:45 AM	25945
Toluene	ND	0.047	mg/Kg	1	6/25/2016 3:20:45 AM	25945
Ethylbenzene	ND	0.047	mg/Kg	1	6/25/2016 3:20:45 AM	25945
Xylenes, Total	ND	0.094	mg/Kg	1	6/25/2016 3:20:45 AM	25945
Surr: 4-Bromofluorobenzene	93.4	80-120	%Rec	1	6/25/2016 3:20:45 AM	25945

the second s				
Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Η	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 4 of 8
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical	Report
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Date Reported: 6/28/2016

Hall Environmental Analysis Laboratory, Inc.

 CLIENT:
 Western Refining Southwest, Inc.
 Client Sample ID: Petigrew Vadose Zone

 Project:
 Bisti Landfarm
 Collection Date: 6/16/2016 1:15:00 PM

 Lab ID:
 1606A49-005
 Matrix: SOIL
 Received Date: 6/17/2016 7:45:00 AM

 Analyses
 Result
 PQL
 Qual
 Units
 DF
 Date Analyzed
 I

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS				Analyst	JME
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	6/23/2016 5:49:10 PM	25944
Surr: DNOP	91.7	70-130	%Rec	1	6/23/2016 5:49:10 PM	25944
EPA METHOD 8015D: GASOLINE RANG	E				Analyst	RAA
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	6/25/2016 3:44:04 AM	25945
Surr: BFB	95.5	80-120	%Rec	1	6/25/2016 3:44:04 AM	25945
EPA METHOD 8021B: VOLATILES					Analyst	RAA
Benzene	ND	0.024	mg/Kg	1	6/25/2016 3:44:04 AM	25945
Toluene	ND	0.047	mg/Kg	1	6/25/2016 3:44:04 AM	25945
Ethylbenzene	ND	0.047	mg/Kg	1	6/25/2016 3:44:04 AM	25945
Xylenes, Total	ND	0.095	mg/Kg	1	6/25/2016 3:44:04 AM	25945
Surr: 4-Bromofluorobenzene	89.7	80-120	%Rec	1	6/25/2016 3:44:04 AM	25945

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Η	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 5 of 8
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

37

4.8

9.6

48.22

4.822

1606A49 28-Jun-16

WO#:

Client: Project:	Western H Bisti Lano	Refining S Ifarm	outhwe	st, Inc.							
Sample ID	MB-25944	SampT	Гуре: МІ	BLK	Tes	tCode: E	PA Method	8015M/D: Di	esel Range	e Organics	
Client ID:	PBS	Batch	h ID: 25	944	F	RunNo: 3	5116				
Prep Date:	6/20/2016	Analysis D	Date: 6/	/23/2016	5	SeqNo: 1	086562	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range	Organics (DRO)	ND	10								
Surr: DNOP		8.8		10.00		88.1	70	130			
Sample ID	LCS-25944	SampT	Type: LC	s	Tes	tCode: El	PA Method	8015M/D: Di	esel Range	e Organics	
Client ID:	LCSS	Batch	h ID: 25	944	F	RunNo: 3	5116				
Prep Date:	6/20/2016	Analysis D	Date: 6/	23/2016	S	SeqNo: 1	086657	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range (Organics (DRO)	38	10	50.00	0	75.2	62.6	124			
Surr: DNOP		4.4		5.000		87.1	70	130			
Sample ID	1606A49-001AMS	SampT	ype: MS	S	Tes	tCode: El	PA Method	8015M/D: Di	esel Range	e Organics	
Client ID:	East Line Vadose	Z Batch	h ID: 25	944	F	RunNo: 3	5116				
Prep Date:	6/20/2016	Analysis D)ate: 6/	23/2016	S	SeqNo: 1	087103	Units: mg/k	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range (Organics (DRO)	36	9.5	47.71	0	74.5	33.9	141			
Surr: DNOP		4.7		4.771		98.4	70	130			
Sample ID	1606A49-001AMS) SampT	уре: М	SD	Tes	tCode: El	PA Method	8015M/D: Di	esel Range	e Organics	
Client ID:	East Line Vadose	z Batch	n ID: 25	944	F	RunNo: 3	5116				
Prep Date:	6/20/2016	Analysis D	ate: 6/	23/2016	S	eqNo: 1	087104	Units: mg/k	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

0

76.1

98.6

33.9

70

141

130

3.27

0

20

0

Page 6 of 8

Qualifiers:

Diesel Range Organics (DRO)

Surr: DNOP

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

WO#: 1606A49

28-Jun-16

Client: Project:	Western Bisti Lan	Refining Sc dfarm	outhwe	st, Inc.							
Sample ID	MB-25945	SampTy	/pe: MI	BLK	Tes	tCode: E	PA Method	8015D: Gaso	line Rang	e	
Client ID:	PBS	Batch	ID: 25	945	F	RunNo: 3	5048				
Prep Date:	6/20/2016	Analysis Da	ate: 6	/21/2016	5	SeqNo: 1	084262	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	ND	5.0								
Surr: BFB		1100		1000		105	80	120			
Sample ID	LCS-25945 C	SampTy	/pe: LC	s	Tes	tCode: E	PA Method	8015D: Gaso	line Rang	e	
Client ID:	LCSS	Batch	ID: 25	945	F	RunNo: 3	5048				
Prep Date:		Analysis Da	ate: 6	/21/2016	S	SeqNo: 1	084263	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	25	5.0	25.00	0	99.4	80	120			
Surr: BFB		1200		1000		117	80	120			
Sample ID	5ML-RB	SampTy	/pe: MI	BLK	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	е	
Client ID:	PBS	Batch	ID: R3	35158	F	RunNo: 3	5158				
Prep Date:		Analysis Da	ate: 6	/24/2016	S	SeqNo: 1	087655	Units: %Ree	C		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB		970		1000		97.3	80	120			
Sample ID	2.5NG GRO LCS	SampTy	/pe: LC	s	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	e	
Client ID:	LCSS	Batch	ID: R3	35158	F	RunNo: 3	5158		9		
Prep Date:		Analysis Da	ate: 6/	/24/2016	S	SegNo: 1	088007	Units: %Red	0		
Analyte		Result	POI	SPK value	SPK Ref Val	%REC	I owl imit	Highl imit	%RPD	RPDI imit	Qual
Surr: BFB		1100	TOL	1000	of it it is a	113	80	120	Jord D	TH DEIM	Quui
Sample ID	LCS-26055	Samu		19	Tee	Code: E	PA Method	8015D: Gaso	line Para	0	
Client ID	LCSS	Batch	ID: 26	055	res R	unNo: 3	5174	5515D. Gasu	ane nang		
Pren Date	6/24/2016	Analysis Da	ate: 6	25/2016		SeaNo: 1	088117	Units: %Reg			
Anakta	012-112010	Destil		ODV			Loudinat	Light in th	0/ 000		Que
Surr: BFB		1100	PQL	1000	SPK KET VAL	107	LOWLIMIT 80		%RPD	RPDLIMI	Quai
					_						
Sample ID	MB-26055	SampTy	pe: MI	BLK	Tes	Code: El	PA Method	8015D: Gaso	line Rang	e	
Client ID:	PBS	Batch	ID: 26	055	H C	unNo: 3	5174				
Prep Date:	6/24/2016	Analysis Da	ate: 6/	25/2016	5	eqNo: 1	088118	Units: %Red	2		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
		3/0		1000		51.4	00	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Page 7 of 8

Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc. **Project:**

Bisti Landfarm

Sample ID LCS-25945	SampType: LC	s	Tes	tCode: EP	A Method	8021B: Volat	iles		
Client ID: LCSS	Batch ID: 25	945	F	unNo: 35	5158				
Prep Date: 6/20/2016	Analysis Date: 6/	24/2016	S	SeqNo: 10	88034	Units: mg/K	g		
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99 0.025	1.000	0	98.7	75.3	123			
Toluene	0.98 0.050	1.000	0	98.1	80	124			
Ethylbenzene	1.0 0.050	1.000	0	100	82.8	121			
Xylenes, Total	3.0 0.10	3.000	0	99.4	83.9	122			
Surr: 4-Bromofluorobenzene	1.0	1.000		101	80	120			
Sample ID MB-25945	SampType: ME	BLK	Tes	tCode: EP	A Method	8021B: Volat	iles		
Client ID: PBS	Batch ID: 25	945	R	anNo: 35	5158				
Prep Date: 6/20/2016	Analysis Date: 6/	25/2016	S	eqNo: 10	88035	Units: mg/K	g		
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND 0.025								
Toluene	ND 0.050								
Ethylbenzene	ND 0.050								
Xylenes, Total	ND 0.10								
Surr: 4-Bromofluorobenzene	0.95	1.000		95.4	80	120	0		
Sample ID LCS-26055	SampType: LC	s	Test	Code: EP	A Method	8021B: Volat	iles		
Client ID: LCSS	Batch ID: 26	055	R	unNo: 35	174				
Prep Date: 6/24/2016	Analysis Date: 6/	25/2016	S	eqNo: 10	88135	Units: %Red	;		
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.99	1.000		98.6	80	120			
Sample ID MB-26055	SampType: ME	BLK	Test	Code: EP	A Method	8021B: Volat	iles		
Client ID: PBS	Batch ID: 26	055	R	unNo: 35	174				
Prep Date: 6/24/2016	Analysis Date: 6/	25/2016	S	eqNo: 10	88136	Units: %Red	;		
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 4-Bromofluorobenzene	0.94	1.000		94.4	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits R
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

1606A49 28-Jun-16

WO#:

Page 8 of 8

HALL ENVIRONMENTAL ANALYSIS LABORATORY	Hall Environmental Albu TEL: 505-345-3975 Website: www.hau	Analysi 4901 querqu FAX: 5 llenviro	s Laboratory Hawkins NE e, NM 87109 05-345-4107 nmental.com	Sam	ple Log-In C	Check List
Client Name: Western Refining Southw	Work Order Number:	1606/	49		RcptNo	: 1
Received by/date: AT Logged By: Lindsay Mangin	06/17/16 6/17/2016 7:45:00 AM		C	findsy Alafaji		
Completed By: Lindsay Mangin	6/20/2016 5:58:28 AM		(Junky Hopp		-
Reviewed By:	06/20/16					
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?		UPŞ				
Log In						
4. Was an attempt made to cool the sample	s?	Yes		No 🗌		
5. Were all samples received at a temperatu	re of >0° C to 6.0°C	Yes		No 🗌		
6. Sample(s) in proper container(s)?		Yes		No 🗌		
7. Sufficient sample volume for indicated tes	t(s)?	Yes		No 🗆		
8. Are samples (except VOA and ONG) prop	erly 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 bro	ken?	Yes		No 🛃	# of preserved	
12.Does paperwork match bottle labels?		Yes		No 🗌	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 wit	h this order?	Yes		No 🗌	NA 🛃	
Person Notified:	Date:	ann mi Stá Jeá Jeá Vald Vald VII I		25 M 107 A 107 A 10 A 10 A 10 A 10 A 10 A 10		
By Whom:	Via: [eMa	ail 🗌 Phor	ne 🗌 Fax	In Person	
Regarding:						
Client Instructions:						i.
17. Additional remarks:						
18. <u>Cooler Information</u> Cooler No Temp °C Condition	Seal Intact Seal No	Seal Da	ate Si	gned By		
1 1.4 Good Y	es		l			
Page 1 of 1						

:

С	hain	of-Cu	istody Record	Turn-Around	Time:								E		тс	20	NR	лFI	NT	41	
ent:	Kelly	Robins	NA	Standard	🗆 Rush						N		YS	STS	5 I	AF	30	RA	то	RY	,
	Meta	a Del	laviad	Project Name):		÷,					hall	env	iron	neni	tal co	om				
ailing	Address	: 111 (R LIDAN	Bist	1 and R	1cha	4901 Hawkins NE - Albuquerque, NM 87109														
	Blan	nRield	NM	Project #:	Lunasa			Te	1 50	5-34	5-39	75	F	-aqui	505-	5-345-4107					
none #	#: (50	5) 632.	- 8013	PO#	126155	25	3. P.		1. 00		0.00	A	naly	/sis	Req	ues	t				
nail oi	Fax#:	Kelly, Rok	MASON & WNR. com	Project Mana	iger:		((ylı	Ô					04)		•		-		Τ	\square
VQC	Package:	1					3021	as or	/ MF			3		4,SC	CB's			alande	cher		
Stan	dard		Level 4 (Full Validation)	Biook	ke Herb		S (8	(Ge	RO			SIM		PO.	2 P(Cale	×4		
credi	tation	C Othe		Sampler: Mic	Mael A Wic	ker/Josh Adami		TPH	0/0	÷.	=	270		NO	808				SS SS		Î
EDD				On Ice:	Yes	<u> </u>	ŀ	+ ш	GRO	418	504	or 8.	s	NO3	es /		(VO)		2		, or
				Sample -Len			4	ATB	5B (thod	thod	310	Vieta	,CI,I	ticid	(VO)	-im		5		es (
Date	Time	Matrix	Sample Request ID	Container	Preservative	HEAL NO	£	+ >	801	(Met	(Me	s (8;	A 8	IS (F	Pes	BS	(Sel		M		lqqn
				Type and #	Type	11 NALA	3TE)	BTE)	H	H	8	AH	SCR	Anior	3081	3260	3270	2	100		Air B
16-16	1230	Soil	East Line Vadose Zome	(2) 402	Cool	-001	3						-	-	~				1	1	
1	1245	١	West Line Vadose Zone	i	1	-002-													\square	\top	Π
	1255		Bisti Vadose Zone			-003													\square	+	\square
	1300		API Vadose Zone			-004													Π		
	1315	V	Petigren Vadose Zone	V	·V	-205	V											1	1		
		_																			
					D ,	h															
ate:	Time:	Relinquish	ed by:	Received by:	17	A Date Time	Rer	nark	s: (cc	P	SHe	-60	DL7	En	Vice	nu				
16-16	1500	Polizzuich	12/ P		and	Lott 5					M	Wie	ker	-@	LTE	Env	1.001	4			
ate:	nme:	Relinquish	ed by	Received by:		Date lime					5	Ada	alli	C	LTE	Env	, cow	1			
			(~				-			

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

February 15, 2017

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

RE: Bisti Landfarm

OrderNo.: 1609D98

Dear Devin Hencmann:

Hall Environmental Analysis Laboratory received 2 sample(s) on 9/24/2016 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued October 05, 2016.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <u>www.hallenvironmental.com</u> 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

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Analytical Report Lab Order 1609D98

Date Reported: 2/15/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc. Project: Bisti Landfarm

1609D98-001

Lab ID:

Client Sample ID: Crude Cell Treatment Zone Collection Date: 9/23/2016 11:05:00 AM Received Date: 9/24/2016 9:30:00 AM

Result	PQL Qua	Units	DF	Date Analyzed	Batch
				Analyst	MAB
22	19	mg/Kg	1	9/27/2016 12:00:00 PM	27703
				Analyst	MRA
ND	30	mg/Kg	20	10/4/2016 2:22:51 AM	27860
ORGANICS	6			Analyst	TOM
15	9.1	mg/Kg	1	9/28/2016 2:16:32 PM	27707
100	70-130	%Rec	1	9/28/2016 2:16:32 PM	27707
E				Analyst	NSB
ND	4.9	mg/Kg	1	9/29/2016 11:38:54 PM	27690
81.2	68.3-144	%Rec	1	9/29/2016 11:38:54 PM	27690
	Result 22 ND CORGANICS 15 100 E ND 81.2	Result PQL Qual 22 19 ND 30 SORGANICS 9.1 100 70-130 E ND 4.9 81.2 68.3-144	Result PQL Qual Units 22 19 mg/Kg ND 30 mg/Kg SORGANICS	Result PQL Qual Units DF 22 19 mg/Kg 1 ND 30 mg/Kg 20 E 15 9.1 mg/Kg 1 100 70-130 %Rec 1 E ND 4.9 mg/Kg 1 81.2 68.3-144 %Rec 1	Result PQL Qual Units DF Date Analyzed 22 19 mg/Kg 1 9/27/2016 12:00:00 PM 22 19 mg/Kg 1 9/27/2016 12:00:00 PM ND 30 mg/Kg 20 10/4/2016 2:22:51 AM ND 30 mg/Kg 20 10/4/2016 2:22:51 AM E Analyst Analyst 15 9.1 mg/Kg 1 9/28/2016 2:16:32 PM 100 70-130 %Rec 1 9/28/2016 2:16:32 PM E Analyst ND 4.9 mg/Kg 1 9/29/2016 11:38:54 PM 81.2 68.3-144 %Rec 1 9/29/2016 11:38:54 PM

Matrix: SOIL

And and a second s					
Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method	Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range	
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits	Page 1 of 6
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range	1 age 1 01 0
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit	it as specified

Analytical Report Lab Order 1609D98

Date Reported: 2/15/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.ClientProject:Bisti LandfarmCLab ID:1609D98-002Matrix: SOIL

Client Sample ID: API Cell Treatment Zone Collection Date: 9/23/2016 11:15:00 AM Received Date: 9/24/2016 9:30:00 AM

Analyses	Result	PQL Qua	l Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH					Analyst	MAB
Petroleum Hydrocarbons, TR	ND	19	mg/Kg	1	9/27/2016 12:00:00 PM	27703
EPA METHOD 300.0: ANIONS					Analyst	MRA
Chloride	150	30	mg/Kg	20	10/4/2016 2:35:15 AM	27860
EPA METHOD 8015M/D: DIESEL RANGE	ORGANIC	S			Analyst	TOM
Diesel Range Organics (DRO)	19	9.8	mg/Kg	1	9/28/2016 5:51:09 AM	27706
Surr: DNOP	106	70-130	%Rec	1	9/28/2016 5:51:09 AM	27706
EPA METHOD 8015D: GASOLINE RANGE	E				Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	9/28/2016 10:03:38 PM	27699
Surr: BFB	92.3	68.3-144	%Rec	1	9/28/2016 10:03:38 PM	27699

I wanted and the second s				
Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Η	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 2 of 6
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

WO#: 1609D98

15-Feb-17

Hall Environmental Analysis Laboratory, Inc.

Client:	Western Refining Southwest, Inc.
Project:	Bisti Landfarm

Sample ID MB-27860	SampType: mblk	Tes	tCode: EPA Method	300.0: Anions	5		
Client ID: PBS	Batch ID: 27860	F	RunNo: 37656				
Prep Date: 10/3/2016	Analysis Date: 10/3/20	016 5	SeqNo: 1172612	Units: mg/K	g		
Analyte	Result PQL SPI	K value SPK Ref Val	%REC LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND 1.5						
Sample ID LCS-27860	SampType: Ics	Tes	tCode: EPA Method	300.0: Anions	3		
Sample ID LCS-27860 Client ID: LCSS	SampType: Ics Batch ID: 27860	Tes	tCode: EPA Method RunNo: 37656	300.0: Anions	5		
Sample ID LCS-27860 Client ID: LCSS Prep Date: 10/3/2016	SampType: Ics Batch ID: 27860 Analysis Date: 10/3/20	Tes F 016 S	tCode: EPA Method RunNo: 37656 SeqNo: 1172613	300.0: Anions Units: mg/K	9		
Sample ID LCS-27860 Client ID: LCSS Prep Date: 10/3/2016 Analyte	SampType: I cs Batch ID: 27860 Analysis Date: 10/3/20 Result PQL SPF	Tes F 016 S K value SPK Ref Val	tCode: EPA Method RunNo: 37656 SeqNo: 1172613 %REC LowLimit	300.0: Anions Units: mg/K HighLimit	s g %RPD	RPDLimit	Qual

Qualifiers:

- Value exceeds Maximum Contaminant Level. *
- D Sample Diluted Due to Matrix
- Η Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- W Sample container temperature is out of limit as specified

Page 3 of 6

Reporting Detection Limit RL

Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc. **Project:**

Bisti Landfarm

Sample ID MB-27703	SampType: MBLK TestCode: EPA Method		418.1: TPH		
Client ID: PBS	Batch ID: 27703	RunNo: 37499			
Prep Date: 9/26/2016	Analysis Date: 9/27/2016	SeqNo: 1165981	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-27703	BID LCS-27703 SampType: LCS TestCode: EPA Method 418.1: TPH				
Client ID: LCSS	Batch ID: 27703	RunNo: 37499			
Prep Date: 9/26/2016	Analysis Date: 9/27/2016	SeqNo: 1165982	Units: mg/Kg		
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual	
Petroleum Hydrocarbons, TR	100 20 100.0	0 101 80.7	121		
Sample ID LCSD-27703	SampType: LCSD	TestCode: EPA Method	418.1: TPH		
Client ID: LCSS02	Batch ID: 27703	Batch ID: 27703 RunNo: 37499			
Prep Date: 9/26/2016	Analysis Date: 9/27/2016	SeqNo: 1165983	Units: mg/Kg		
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual	
Petroleum Hydrocarbons, TR	110 20 100.0	0 105 80.7	121 4.00	20	

Qualifiers:

- Value exceeds Maximum Contaminant Level. *
- D Sample Diluted Due to Matrix
- Η Holding times for preparation or analysis exceeded
- Not Detected at the Reporting Limit ND
- RPD outside accepted recovery limits R
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Value above quantitation range Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL **Reporting Detection Limit**
- W Sample container temperature is out of limit as specified

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1609D98

15-Feb-17

WO#:

Hall Environmental Analysis Laboratory, Inc.

WO#:	1609D98

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	and the second						
Client:WesterProject:Bisti La	n Refining Southwest, Inc. andfarm						
Sample ID MB-27707	SampType: MBLK	Te	TestCode: EPA Method 8015M/D: Diesel Range Organics				
Client ID: PBS	Batch ID: 27707		RunNo: 37494				
Prep Date: 9/26/2016	Analysis Date: 9/27/2016	6	SeqNo: 1166802	Units: mg/Kg			
Analyte	Result PQL SPK v	alue SPK Ref Val	%REC LowLimit	HighLimit %RF	D RPDLimit	Qual	
Diesel Range Organics (DRO)	ND 10						
Surr: DNOP	8.7 1	0.00	87.3 70	130			
Sample ID LCS-27707	SampType: LCS	SampType: LCS TestCode: EPA Method 8015M/D: Diesel Range Organics					
Client ID: LCSS	Batch ID: 27707		RunNo: 37494				
Prep Date: 9/26/2016	Analysis Date: 9/27/2016	(SeqNo: 1166803	Units: mg/Kg			
Analyte	Result PQL SPK v	alue SPK Ref Val	%REC LowLimit	HighLimit %RP	D RPDLimit	Qual	
Diesel Range Organics (DRO)	55 10 5	0.00	111 62.6	124			
Surr: DNOP	4.9 5	000	98.9 70	130			
Sample ID MB-27706	SampType: MBLK	Te	stCode: EPA Method	8015M/D: Diesel Range Organics			
Client ID: PBS	Batch ID: 27706		RunNo: 37493				
Prep Date: 9/26/2016	Analysis Date: 9/27/2016		SeqNo: 1166914 Units: mg/Kg				
Analyte	Result PQL SPK v	alue SPK Ref Val	%REC LowLimit	HighLimit %RP	D RPDLimit	Qual	
Diesel Range Organics (DRO)	ND 10						
Surr: DNOP	9.4 1	0.00	94.4 70	130			
Sample ID LCS-27706	SampType: LCS	ampType: LCS TestCode: EPA Method			inge Organics		
Client ID: LCSS	Batch ID: 27706		RunNo: 37493				
Prep Date: 9/26/2016	Analysis Date: 9/27/2016		SeqNo: 1166917	Units: mg/Kg			
Analyte	Result PQL SPK v	alue SPK Ref Val	%REC LowLimit	HighLimit %RP	D RPDLimit	Qual	
Diesel Range Organics (DRO)	49 10 5	0.00 0	98.1 62.6	124			
Surr: DNOP	5.2 5.	000	104 70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Client:	Western Refining Southwest, Inc.

Bisti Landfarm

Project:

Sample ID MB-27699	SampType: MBLK TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 27699 RunNo: 37497						
Prep Date: 9/26/2016	Analysis Date: 9/27/2016	SeqNo: 1	166632	Units: mg/Kg			
Analyte	Result PQL SPK v	lue SPK Ref Val %REC	LowLimit	HighLimit %I	RPD RPDLimit	Qual	
Gasoline Range Organics (GRO)	ND 5.0						
Surr: BFB	810 1	000 81.5	68.3	144			
Sample ID LCS-27699	SampType: LCS TestCode: EPA Method		PA Method	8015D: Gasoline Range			
Client ID: LCSS	Batch ID: 27699	RunNo: 3	37497				
Prep Date: 9/26/2016	Analysis Date: 9/27/2016	SeqNo: 1	166633	Units: mg/Kg			
Analyte	Result PQL SPK va	lue SPK Ref Val %REC	LowLimit	HighLimit %	RPD RPDLimit	Qual	
Gasoline Range Organics (GRO)	30 5.0 25	.00 0 122	74.6	123			
Surr: BFB	990 1	99.2	68.3	144			
Sample ID MB-27690	SampType: MBLK	TestCode: E	PA Method	8015D: Gasoline	Range		
Client ID: PBS	Batch ID: 27690	RunNo: 3	37528				
Prep Date: 9/26/2016	Analysis Date: 9/28/2016	SeqNo: 1	167758	Units: mg/Kg			
Analyte	Beault DOI SDK						
	Result PQL SPR V	lue SPK Ref Val %REC	LowLimit	HighLimit %	RPD RPDLimit	Qual	
Gasoline Range Organics (GRO)	ND 5.0	lue SPK Ref Val %REC	LowLimit	HighLimit %F	RPD RPDLimit	Qual	
Gasoline Range Organics (GRO) Surr: BFB	ND 5.0 830 1	000 82.8	LowLimit 68.3	HighLimit %F	RPD RPDLimit	Qual	
Gasoline Range Organics (GRO) Surr: BFB Sample ID LCS-27690	ND 5.0 830 1 SampType: LCS	100 82.8 TestCode: E	68.3	HighLimit %F 144 8015D: Gasoline	RPD RPDLimit	Qual	
Gasoline Range Organics (GRO) Surr: BFB Sample ID LCS-27690 Client ID: LCSS	Result PQL SPR Val ND 5.0 330 1 SampType: LCS 30 1	100 82.8 TestCode: E RunNo: 3	68.3 PA Method 5	HighLimit %I 144 8015D: Gasoline	RPD RPDLimit	Qual	
Gasoline Range Organics (GRO) Surr: BFB Sample ID LCS-27690 Client ID: LCSS Prep Date: 9/26/2016	Result POL SPRV ND 5.0 330 1 SampType: LCS 30 1 Batch ID: 27690 30 30 Analysis Date: 9/28/2016 30 30	100 82.8 TestCode: E RunNo: 3 SeqNo: 1	68.3 PA Method 7528 167759	HighLimit %F 144 8015D: Gasoline Units: mg/Kg	RPD RPDLimit	Qual	
Gasoline Range Organics (GRO) Surr: BFB Sample ID LCS-27690 Client ID: LCSS Prep Date: 9/26/2016 Analyte	Result PQL SPK vi ND 5.0 830 1 SampType: LCS Batch ID: 27690 Analysis Date: 9/28/2016 9/28/2016 Result PQL SPK vi	lue SPK Ref Val %REC 000 82.8 TestCode: E RunNo: 3 SeqNo: 1 lue SPK Ref Val %REC	68.3 PA Method 3 7528 167759 LowLimit	HighLimit %I 144 8015D: Gasoline Units: mg/Kg HighLimit %I	RPD RPDLimit Range RPD RPDLimit	Qual	
Gasoline Range Organics (GRO) Surr: BFB Sample ID LCS-27690 Client ID: LCSS Prep Date: 9/26/2016 Analyte Gasoline Range Organics (GRO)	Result PQL SPK vi ND 5.0 330 1 SampType: LCS Batch ID: 27690 Analysis Date: 9/28/2016 9/28/2016 Result PQL SPK vi 28 5.0 25	Iue SPK Ref Val %REC 000 82.8 TestCode: E RunNo: 3 SeqNo: 1 Iue SPK Ref Val %REC .00 0 110	LowLimit 68.3 PA Method 7528 167759 LowLimit 74.6	HighLimit %I 144 8015D: Gasoline Units: mg/Kg HighLimit %I 123	RPD RPDLimit Range RPD RPDLimit	Qual	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

1609D98 15-Feb-17

WO#:

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HALL Hall ENVIRONMENTAL ANALYSIS LABORATORY TEL: W	Environmental Analysi 4901 Albuquerqu 505-345-3975 FAX: 5 ebsite: www.hallenviro	s Laboratory Hawkins NE e, NM 87109 05-345-4107 nmental.com	Sam	ple Log-In Cł	neck List
Client Name: Western Refining Southw Work C	order Number: 1609	98		RcptNo:	1
Received by/date: D9 Z2	16				
Logged By: Lindsay Mangin 9/24/2016	5 9:30:00 AM	0	printy TTERAD		
Completed By: Lindsay Mangin 9/25/2016	6 11:30:51 AM	0	finality Hengo		
Reviewed By: Ar 09/26/16					····
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?	Cour	er			
Log In					
4. Was an attempt made to cool the samples?	Yes		No 🗌	NA 🗌	
5. Were all samples received at a temperature of $>0^{\circ}$ C	to 6.0°C Yes		No 🗌		
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 preserve	ed? 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?	Yes		No 🗌	# of preserved bottles checked for pH:	
(Note discrepancies on chain of custody)	Ves		No 🗌	Adjusted?	-12 unless note
14 Is it clear what analyses were requested?	Yes				• ••
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:		laboration and an and an		
By Whom:	Via: CeMa	il 🗌 Phon	e 🗌 Fax	In Person	
Regarding:					
Client Instructions:					
17. Additional remarks:					1
18 Cooler Information					
Cooler No Temp °C Condition Seal Intact	Seal No Seal Da	te Sid	ned By		
1 1.6 Good Yes					

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C	hain.	of-Cu	stody Record	Turn-Around	Time:		1												
Client:	VII	D	istody Record	1						H/	ALL	E	NV	IF	20	NM	IEN	TAL	
	Nelly	NOL	<u>Ninson</u>	Project Name	Project Name:				ANALYSIS LABORATORY										
Moiling	West	ern	Refining						www.hallenvironmental.com										
	Aduress	· 111 (CR 4990	Bist, Landfarm				4901 Hawkins NE - Albuquerque, NM 87109											
	Bloom	Preld.	NM	Project #:				Tel. 505-345-3975 Fax 505-345-4107											
Phone #	<u>t: (b(</u>	25) 6	52-8013	PO 7	F 1261	5741		5				Analy		Req	uesi				
email or	Fax#:)	Kelly, 1	Rodinsone WNK, com	Project Mana	ger:		21)	luo	MRC				SO4	3's			chem		
Stand	hard		□ Level 4 (Full Validation)	Davi	in Mene	Josh Adams	(80	Gas	10		IMS		04,	PCE			H.	0	
Accredit	tation			Sampler: A	Bung	/ Michael Libiker	VB's) He	DR	-	10 S		102,1	082			prine 1	20.	
	٩P		r	On Ice:	Yes	DINC	H +	F +	RO	18.	- 827	10	03,N	s / 8		(YC	Co.	2	Or N
	(Type)			Sample Tem	erature:	<u>le</u>	TBE	1BE	9	po 4		etals	CI,N	cide	(A)	N-i	100	a	N
				Container	Preservative		W_+	¥	015	Vieth	(83)	8 M	(F,(besti	S	Sem	-RA	in i	hhe
Date	Time	Matrix	Sample Request ID	Type and #	Туре	HEAL NO.	EX I	X	H 8	I) H	H's	RA	ions	81 F	60B	20 (H-K	Pla	B
	1	01			67 1	1 CONDID		6	Ë			ŭ	Ar	8	82	82	Ē		- A
1-23-16	1105	Soil	Crude Cell Treatment &	(2)-402	Cool	$-\omega_{1}$	_			З-							Ŕ	X-	+
1-23-16	1115	Soil	API Cell Treatment Non	(2)4.02	Cool	-002				X	-							X	+
																	_		\perp
	N IN																_		
)ate:	Time:	Relinquish	ed by:	Received by:	. /	Date Time	Rei	mark	s:	(1	1	NW.	ckt	V/a	217	Env	com		
-23-16	1301	Della	and the second s	Int	Walt	123/14 1307	1				ľ	He	nem	un	ne	LT	Env	com	
hate:	I GE d	Relinquish	ed by:	Received by:		pate Time								0					
12310	(P)	KMU	athe Waller	APT Y	091	04116 0430	T	>H-	GR	010	RO	80	15	M)				



February 17, 2017

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

RE: Bisti Landfarm

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

OrderNo.: 1609D99

Dear Devin Hencmann:

Hall Environmental Analysis Laboratory received 5 sample(s) on 9/24/2016 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued October 11, 2016.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <u>www.hallenvironmental.com</u> 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

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Date Reported: 2/17/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Bisti Landfarm

1609D99-001

Project:

Lab ID:

Client Sample ID: Westline Vadose Zone Collection Date: 9/23/2016 10:30:00 AM Received Date: 9/24/2016 9:30:00 AM

Analyses	Result	PQL Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH					Analyst:	MAB
Petroleum Hydrocarbons, TR	ND	20	mg/Kg	1	9/27/2016 12:00:00 PM	27703
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	ND	30	mg/Kg	20	10/4/2016 2:47:40 AM	27860
EPA METHOD 8015M/D: DIESEL RANGE	ORGANICS	6			Analyst:	том
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	9/29/2016 2:54:07 AM	27738
Surr: DNOP	106	70-130	%Rec	1	9/29/2016 2:54:07 AM	27738
EPA METHOD 8015D: GASOLINE RANGI	E				Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.6	mg/Kg	1	9/28/2016 10:27:47 PM	27699
Surr: BFB	86.5	68.3-144	%Rec	1	9/28/2016 10:27:47 PM	27699
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.023	mg/Kg	1	9/27/2016 11:04:43 PM	27699
Toluene	ND	0.046	mg/Kg	1	9/27/2016 11:04:43 PM	27699
Ethylbenzene	ND	0.046	mg/Kg	1	9/27/2016 11:04:43 PM	27699
Xylenes, Total	ND	0.092	mg/Kg	1	9/27/2016 11:04:43 PM	27699
Surr: 4-Bromofluorobenzene	91.5	80-120	%Rec	1	9/27/2016 11:04:43 PM	27699

Matrix: SOIL

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H Holding times for preparation or analysis exceeded		J	Analyte detected below quantitation limits Page 1 of 10
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified
6				

Date Reported: 2/17/2017

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Project: Bisti Landfarm

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Client Sample ID: Eastline Vadose Zone Collection Date: 9/23/2016 10:40:00 AM

Lab ID: 1609D99-002	Matrix:	SOIL	Receiv	ed Date: 9/24/2	2016 9:30:00 AM	
Analyses	Result	PQL (Qual Units	DF Da	ate Analyzed	Batch
EPA METHOD 418.1: TPH					Analyst:	MAB
Petroleum Hydrocarbons, TR	ND	19	mg/Kg	1 9/	/27/2016 12:00:00 PM	27703
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	ND	30	mg/Kg	20 10	0/4/2016 3:00:05 AM	27860
EPA METHOD 8015M/D: DIESEL RANGE		S			Analyst:	том
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1 9/	29/2016 3:17:11 AM	27738
Surr: DNOP	104	70-130	%Rec	1 9/	29/2016 3:17:11 AM	27738
EPA METHOD 8015D: GASOLINE RANG	E				Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1 9/	28/2016 10:51:56 PM	27699
Surr: BFB	90.8	68.3-144	%Rec	1 9/	28/2016 10:51:56 PM	27699
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	mg/Kg	1 9/	28/2016 12:38:26 AM	27699
Toluene	ND	0.049	mg/Kg	1 9/	28/2016 12:38:26 AM	27699
Ethylbenzene	ND	0.049	mg/Kg	1 9/	28/2016 12:38:26 AM	27699
Xylenes, Total	ND	0.098	mg/Kg	1 9/	28/2016 12:38:26 AM	27699
Surr: 4-Bromofluorobenzene	95.4	80-120	%Rec	1 9/	28/2016 12:38:26 AM	27699

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Η	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 2 of 10
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Date Reported: 2/17/2017

Hall Environmental Analysis Laboratory, Inc.

Project:

Lab ID:

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CLIENT: Western Refining Southwest, Inc. Client Sample ID: Bisti Vadose Zone Collection Date: 9/23/2016 10:50:00 AM Bisti Landfarm 1609D99-003 Matrix: SOIL Received Date: 9/24/2016 9:30:00 AM

Analyses	Result	PQL Qua	l Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH					Analyst:	MAB
Petroleum Hydrocarbons, TR	ND	19	mg/Kg	1	9/27/2016 12:00:00 PM	27703
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	ND	30	mg/Kg	20	10/4/2016 3:12:30 AM	27860
EPA METHOD 8015M/D: DIESEL RANGE	ORGANIC	S			Analyst:	том
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	9/29/2016 3:40:05 AM	27738
Surr: DNOP	104	70-130	%Rec	1	9/29/2016 3:40:05 AM	27738
EPA METHOD 8015D: GASOLINE RANGE	Ξ				Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.6	mg/Kg	1	9/28/2016 11:16:03 PM	27699
Surr: BFB	92.3	68.3-144	%Rec	1	9/28/2016 11:16:03 PM	27699
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.023	mg/Kg	1	9/28/2016 1:01:54 AM	27699
Toluene	ND	0.046	mg/Kg	1	9/28/2016 1:01:54 AM	27699
Ethylbenzene	ND	0.046	mg/Kg	1	9/28/2016 1:01:54 AM	27699
Xylenes, Total	ND	0.093	mg/Kg	1	9/28/2016 1:01:54 AM	27699
Surr: 4-Bromofluorobenzene	91.3	80-120	%Rec	1	9/28/2016 1:01:54 AM	27699

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded		Analyte detected below quantitation limits Page 3 of 10
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Date Reported: 2/17/2017

Hall Environmental Analysis Laboratory, Inc.

Project:

Lab ID:

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Bisti Landfarm

1609D99-004

Client Sample ID: Pettigrew Vadose Zone CLIENT: Western Refining Southwest, Inc. Collection Date: 9/23/2016 11:10:00 AM Matrix: SOIL Received Date: 9/24/2016 9:30:00 AM

Result	PQL Qua	l Units	DF	Date Analyzed	Batch
				Analyst	MAB
ND	19	mg/Kg	1	9/27/2016 12:00:00 PM	27703
				Analyst	MRA
310	30	mg/Kg	20	10/4/2016 11:28:38 AM	27890
ORGANIC	S			Analyst	том
ND	10	mg/Kg	1	9/29/2016 4:03:04 AM	27738
103	70-130	%Rec	1	9/29/2016 4:03:04 AM	27738
Ξ				Analyst	NSB
ND	4.7	mg/Kg	1	9/28/2016 11:40:10 PM	27699
89.2	68.3-144	%Rec	1	9/28/2016 11:40:10 PM	27699
				Analyst:	NSB
ND	0.024	mg/Kg	1	9/28/2016 1:25:19 AM	27699
ND	0.047	mg/Kg	1	9/28/2016 1:25:19 AM	27699
ND	0.047	mg/Kg	1	9/28/2016 1:25:19 AM	27699
ND	0.094	mg/Kg	1	9/28/2016 1:25:19 AM	27699
89.9	80-120	%Rec	1	9/28/2016 1:25:19 AM	27699
	Result ND 310 ORGANIC ND 103 E ND 89.2 ND ND ND ND ND ND 89.9	Result PQL Qua ND 19 310 30 ORGANICS 10 ND 10 103 70-130 ND 4.7 89.2 68.3-144 ND 0.024 ND 0.047 ND 0.047 ND 0.094 89.9 80-120	Result PQL Qual Units ND 19 mg/Kg 310 30 mg/Kg 310 30 mg/Kg ORGANICS mg/Kg ND 10 mg/Kg 103 70-130 %Rec ND 4.7 mg/Kg 89.2 68.3-144 %Rec ND 0.024 mg/Kg ND 0.047 mg/Kg ND 0.094 mg/Kg ND 0.094 mg/Kg 89.9 80-120 %Rec	Result PQL Qual Units DF ND 19 mg/Kg 1 310 30 mg/Kg 20 ORGANICS	Result PQL Qual Units DF Date Analyzed ND 19 mg/Kg 1 9/27/2016 12:00:00 PM ND 19 mg/Kg 1 9/27/2016 12:00:00 PM Analyst: 310 30 mg/Kg 20 10/4/2016 11:28:38 AM ORGANICS Analyst: Analyst: Analyst: ND 10 mg/Kg 1 9/29/2016 4:03:04 AM 103 70-130 %Rec 1 9/29/2016 4:03:04 AM 103 70-130 %Rec 1 9/29/2016 4:03:04 AM E Analyst: Analyst: ND 4.7 mg/Kg 1 9/28/2016 11:40:10 PM 89.2 68.3-144 %Rec 1 9/28/2016 11:40:10 PM MD 0.024 mg/Kg 1 9/28/2016 11:25:19 AM ND 0.047 mg/Kg 1 9/28/2016 1:25:19 AM ND 0.047 mg/Kg 1 9/28/2016 1:25:19 AM ND 0.094 mg/Kg

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Н	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 4 of 10
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Date Reported: 2/17/2017

Hall Environmental Analysis Laboratory, Inc.

 CLIENT:
 Western Refining Southwest, Inc.
 Client Sample ID: API Vadose Zone

 Project:
 Bisti Landfarm
 Collection Date: 9/23/2016 11:00:00 AM

 Lab ID:
 1609D99-005
 Matrix: SOIL
 Received Date: 9/24/2016 9:30:00 AM

Analyses	Result	PQL Qua	l Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH					Analyst:	MAB
Petroleum Hydrocarbons, TR	ND	20	mg/Kg	1	9/27/2016 12:00:00 PM	27703
EPA METHOD 300.0: ANIONS					Analyst:	MRA
Chloride	ND	30	mg/Kg	20	10/4/2016 12:05:52 PM	27890
EPA METHOD 8015M/D: DIESEL RANGE	ORGANIC	S			Analyst:	том
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	9/29/2016 4:25:58 AM	27738
Surr: DNOP	96.8	70-130	%Rec	1	9/29/2016 4:25:58 AM	27738
EPA METHOD 8015D: GASOLINE RANGE	E				Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	9/29/2016 12:04:13 AM	27699
Surr: BFB	88.2	68.3-144	%Rec	1	9/29/2016 12:04:13 AM	27699
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	mg/Kg	1	9/28/2016 1:48:49 AM	27699
Toluene	ND	0.049	mg/Kg	1	9/28/2016 1:48:49 AM	27699
Ethylbenzene	ND	0.049	mg/Kg	1	9/28/2016 1:48:49 AM	27699
Xylenes, Total	ND	0.097	mg/Kg	1	9/28/2016 1:48:49 AM	27699
Surr: 4-Bromofluorobenzene	90.5	80-120	%Rec	1	9/28/2016 1:48:49 AM	27699

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

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Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	H Holding times for preparation or analysis exceeded		J	Analyte detected below quantitation limits Page 5 of 10
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Hall Environmental Analysis La	boratory, I	nc.
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Client: Western Refining Southwest, Inc. **Project:**

Bisti Landfarm

Sample ID MB-27860	SampType: mblk	TestCode: EPA Method	300.0: Anions	
Client ID: PBS	Batch ID: 27860	RunNo: 37656		
Prep Date: 10/3/2016	Analysis Date: 10/3/2016	SeqNo: 1172612	Units: mg/Kg	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Chloride	ND 1.5			
Sample ID LCS-27860	SampType: Ics	TestCode: EPA Method	300.0: Anions	
Client ID: LCSS	Batch ID: 27860	RunNo: 37656		
Prep Date: 10/3/2016	Analysis Date: 10/3/2016	SeqNo: 1172613	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	
Sample ID MB-27890	SampType: mblk	TestCode: EPA Method	300.0: Anions	
Client ID: PBS	Batch ID: 27890	RunNo: 37687		
Prep Date: 10/4/2016	Analysis Date: 10/4/2016	SeqNo: 1173758	Units: mg/Kg	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Chloride	ND 1.5			
Sample ID LCS-27890	SampType: Ics	TestCode: EPA Method	300.0: Anions	
Client ID: LCSS	Batch ID: 27890	RunNo: 37687		
Prep Date: 10/4/2016	Analysis Date: 10/4/2016	SeqNo: 1173759	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.
- Sample Diluted Due to Matrix D
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- RPD outside accepted recovery limits R
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Value above quantitation range Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL **Reporting Detection Limit**
- W Sample container temperature is out of limit as specified

1609D99

17-Feb-17

WO#:

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Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm

Sample ID MB-27703	SampType: MBLK	TestCode: EPA Method	418.1: TPH	
Client ID: PBS	Batch ID: 27703	RunNo: 37499		
Prep Date: 9/26/2016	Analysis Date: 9/27/2016	SeqNo: 1165981	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-27703	SampType: LCS	TestCode: EPA Method	418.1: TPH	
Client ID: LCSS	Batch ID: 27703	RunNo: 37499		
Prep Date: 9/26/2016	Analysis Date: 9/27/2016	SeqNo: 1165982	Units: mg/Kg	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Petroleum Hydrocarbons, TR	100 20 100.0	0 101 80.7	121	
Sample ID LCSD-27703	SampType: LCSD	TestCode: EPA Method	I 418.1: TPH	
Client ID: LCSS02	Batch ID: 27703	RunNo: 37499		
Prep Date: 9/26/2016	Analysis Date: 9/27/2016	SeqNo: 1165983	Units: mg/Kg	
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit	HighLimit %RPD	RPDLimit Qual
Petroleum Hydrocarbons, TR	110 20 100.0	0 105 80.7	121 4.00	20

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Е Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL **Reporting Detection Limit**
- W Sample container temperature is out of limit as specified

1609D99 17-Feb-17

WO#:

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Hall Environmental Analysis Laboratory, Inc.

Client: Western Refining Southwest, Inc. **Project:**

Bisti Landfarm

Sample ID MB-27738	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID: PBS	Batch	ID: 27	738	F	RunNo: 3	7494				
Prep Date: 9/27/2016	Analysis D	ate: 9/	28/2016	S	SeqNo: 1	167146	Units: mg/k	g		
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	8.7		10.00		87.1	70	130			
Sample ID LCS-27738	SampT	ype: LC	S	Tes	tCode: El	PA Method	8015M/D: Die	esel Rang	e Organics	
Client ID: LCSS	Batch	ID: 27	738	F	aunNo: 3	7494				
Prep Date: 9/27/2016	Analysis D	ate: 9/	28/2016	S	eqNo: 1	167147	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	49	10	50.00	0	98.8	62.6	124			
Surr: DNOP	4.6		5.000		91.2	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- Sample Diluted Due to Matrix D
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- Value above quantitation range Е
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- Sample container temperature is out of limit as specified W

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1609D99

WO#:

17-Feb-17

WO#: 1609D99

17-Feb-17

Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Western Bisti Lar	Refining S ndfarm	outhwe	st, Inc.							
Sample ID	MB-27699	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8015D: Gaso	oline Rang	е	
Client ID:	PBS	Batch	1D: 27	699	F	RunNo: 3	7497				
Prep Date:	9/26/2016	Analysis D	ate: 9/	27/2016	5	SeqNo: 1	166632	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	ND	5.0								
Surr: BFB		810		1000		81.5	68.3	144			
Sample ID	LCS-27699	SampT	ype: LC	s	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	е	
Client ID:	LCSS	Batch	ID: 27	699	F	RunNo: 3	7497				
Prep Date:	9/26/2016	Analysis D	ate: 9/	27/2016	S	SeqNo: 1	166633	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	30	5.0	25.00	0	122	74.6	123			
Surr: BFB		990		1000		99.2	68.3	144			
Sample ID	1609D99-001AMS	Samp1	ype: MS	6	Tes	tCode: EF	PA Method	8015D: Gaso	line Rang	e	
Client ID:	Westline Vadose	Zo Batch	n ID: 27	699	F	RunNo: 3	7497				
Prep Date:	9/26/2016	Analysis D	ate: 9/	27/2016	5	SeqNo: 1	166634	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	26	4.7	23.67	0	109	59.3	143			
Surr: BFB		870		947.0		92.3	68.3	144			
Sample ID	1609D99-001AMS	D SampT	ype: MS	SD	Tes	tCode: EF	PA Method	8015D: Gaso	line Rang	e	
Client ID:	Westline Vadose	Zo Batch	1D: 27	699	F	RunNo: 3	7497				
Prep Date:	9/26/2016	Analysis D	ate: 9/	27/2016	S	SeqNo: 1	166635	Units: mg/M	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	29	5.0	24.80	0	117	59.3	143	11.9	20	
Surr: BFB		900		992.1		91.2	68.3	144	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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Hall Environmental Analysis Laboratory, Inc.

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Client:	Vestern Refining	Southwe	st, Inc.							
Project: E	Bisti Landfarm									
Sample ID MB-2769	9 Samp	Туре: МЕ	BLK	Tes	tCode: El	PA Method	8021B: Volat	tiles		
Client ID: PBS	Bate	ch ID: 27	699	F	RunNo: 3	7497				
Prep Date: 9/26/20	16 Analysis	Date: 9/	27/2016	S	SeqNo: 1	166656	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenz	ene 0.96		1.000		96.2	80	120			
Sample ID LCS-276	99 Samp	Type: LC	s	Tes	tCode: El	PA Method	8021B: Volat	tiles		
Client ID: LCSS	Bate	ch ID: 27	699	F	RunNo: 3	7497				
Prep Date: 9/26/20	16 Analysis	Date: 9/	27/2016	S	SeqNo: 1	166657	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.87	0.025	1.000	0	87.1	75.3	123			
Toluene	0.96	0.050	1.000	0	95.7	80	124			
Ethylbenzene	1.0	0.050	1.000	0	101	82.8	121			
Xylenes, Total	3.0	0.10	3.000	0	99.8	83.9	122			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix

Surr: 4-Bromofluorobenzene

- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank В
- J Analyte detected below quantitation limits
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

1609D99 17-Feb-17

WO#:

E Value above quantitation range

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ENVIRONMENTAL ANALYSIS LABORATORY	Hall Environmental Albı TEL: 505-345-3975 Website: www.ha	Analysis 4901 iquerque FAX: 50 illenviros	Laborator Hawkins N 2, NM 8710 05-345-410 nmental.co	⁷⁶ 99 Sam j 77	ole Log-In (Check List
Client Name: Western Refining Southw	Work Order Number:	16090	99		RcptNo	: 1
Received by/date:	174/16					
Logged By: Lindsay Mardin S	/24/2016 9:30:00 AM			Junebu Happo		
Completed By: Lindsay Mangin 8	/25/2016 11:35:56 AM	A	1	timber Holan		
Reviewed By: A 19/2/14/1		•	1	() Suga		
Chain of Custody			••••••			
d Custody seeks intert on sample bottles?		Vee	Π	No 🗌	Not Present	
2 Is Chain of Custody complete?		Yes			Not Present	
3 How was the sample delivered?		Cour	er			
<u>.</u>						
<u>Log in</u>				_	_	
4. Was an attempt made to cool the samples?		Yes		No	NA	
5. Were all samples received at a temperature of	of ≻0° C to 6.0°C	Yes		No 🗌		
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 🕢	1
11 Were any sample containers received broker	1?	Yes		No 🕢		
12.Does paperwork match bottle labels?		Yes		No 🗌	# of preserved bottles checked for pH:	or >12 unless noted
(Note discrepancies on chain of custody)	Custody?	Yes		No 🗌	Adjusted?	
14. Is it clear what analyses were requested?	Juolody I	Yes		No 🗌		
15. Were all holding times able to be met?		Yes		No 🗌	Checked by	· · · · · · · · · · · · · · · · · · ·
Special Handling (if applicable)			_	_	_	
16. Was client notified of all discrepancies with th	is order?	Yes		No	NA 🖢	<u> </u>
Person Notified:	Date:		•••••			
By Whom:	Via:	eMa	uil 🗌 Ph	one 🗌 Fax	In Person	
Regarding:						
		····-	<u>.</u>	· · · · · · · · · · · · · · · · · · ·		
17. Additional remarks: 18. <u>Cooler Information</u> <u>Cooler No</u> Temp ^o C Condition Ser	al Intact Seal No	Seal Da	ite	Signed By		
1 1.6 Good Yes			ļ	nameness and sign pressions in the sets sets you for her the s		

Client:	hain Kelly	of-Cu	istody Record	Turn-Around Time:				HALL ENVIRONMENTAL							Y				
	10/201	2:00	DoD	Project Name:															
Mailing	Address		° P LIAND	Rai I IP			www.naienvironmental.com												
	DI	<u>[]]</u>	<u>-K 9990</u>	Project #:				490)1 Ha	awkins	NE ·		ouque	erque	e, NA	187	09		
	Blook	1 Field	NM	Dail	10/11	5507		Te	1. 50	5-345	3975		-ax	505-	345-	4107			
Phone	#: (<u>50</u>	5 65	2-0013	Y0#	1201	5521						Anal	ysis	Req	uest		187		
email or Fax#: Kelly, Robinson@WNR.com Proj			Project Mana	ger:	5 · · · · A														
QA/QC Package:			Devir	Hencing	ann	802	aso	N		13)		04,S	B		20	12 Peck			
Stan	dard		□ Level 4 (Full Validation)	-Brool	Brooke Herb MW Adams			Ü	ß		SIN		PC,PC	2 P	1		100	0	
Accredi	tation			Sampler: Da	Sampler: Daving Burns / Michael Wicker			표		= =	12		N	808			S C	00	Î
	AP		or	On Ice:	A Yes	No.	H	+	SR0	418	82	s	03,	/ S		(Y)	2	10	ъ
	(Type)			Sample Tem	oerature:		H	8	0	po	00	etal	CI,N	cide	(Y	i-V	1	-	2 S
				Container	Prosonyativa		開	Σ	151	Aeth Aeth	(83	8	(F,	esti	S	Sem	20	rid	ple
Date	Time	Matrix	Sample Request ID	Type and #	Type	HEAL NO.	×	X	180		L's	RA	suo	E E	0B	0	1-1	101	Bub
						TLOYDY	BTI	Ha	E L		P A	R S	Ani	808	826	827	F	0	Air
1-23-16	1030	Soil	Westline Vadose Zome	(2) 4-02	Cool	-001	X			X		·					X	X	
ì	1040	1	Eastline Vadose Zone		1	-007	1			1							1	11	
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	1110		Pethaven, Vadres Zarap			-001					<u>.</u>					<u> </u>			
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9/224	1951	Chr.	How la bala	C (#	A A	abilly more	T	Dil	<u></u> _	n Is	Dim	C.	me	N					
103/14	f necessary	samples sub	mitted to Hall Environmental may be subc	ontracted to other a	credited laboratori	ies. This serves as notice of this	s noesi	hility		COntra	UNC.	O (P clear	V pote	ted on	the an	alvtical	nont	
	T	1					- poool	Sury. 1	ary ou	- oonua		- tra D	e orout	.,		aroun			

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January 25, 2017

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

RE: Bisti Landfarm

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

OrderNo.: 1612574

Dear Devin Hencmann:

Hall Environmental Analysis Laboratory received 5 sample(s) on 12/10/2016 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued December 15, 2016.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <u>www.hallenvironmental.com</u> 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,

andig

Andy Freeman Laboratory Manager 4901 Hawkins NE Albuquerque, NM 87109

Analytical	Report
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Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Project: Bisti Landfarm

1612574-001

Lab ID:

Lab Order 1612574 Date Reported: 1/25/2017

Client Sample ID: Westline Vadose Zone Collection Date: 12/9/2016 11:16:00 AM Received Date: 12/10/2016 10:00:00 AM

Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE	E ORGANIC	S			Analyst	том
Diesel Range Organics (DRO)	ND	9.2	mg/Kg	1	12/13/2016 7:34:08 PM	29134
Surr: DNOP	84.5	70-13 <mark>0</mark>	%Rec	1	12/13/2016 7:34:08 PM	29134
EPA METHOD 8015D: GASOLINE RANG	ε				Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.7	mg/Kg	1	12/13/2016 2:30:35 PM	29139
Surr: BFB	87.3	68.3-144	%Rec	1	12/13/2016 2:30:35 PM	29139
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	mg/Kg	1	12/13/2016 2:30:35 PM	29139
Toluene	ND	0.047	mg/Kg	1	12/13/2016 2:30:35 PM	29139
Ethylbenzene	ND	0.047	mg/Kg	1	12/13/2016 2:30:35 PM	29139
Xylenes, Total	ND	0.094	mg/Kg	1	12/13/2016 2:30:35 PM	29139
Surr: 4-Bromofluorobenzene	97.0	80-120	%Rec	1	12/13/2016 2:30:35 PM	29139

Matrix: SOIL

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range
	Η	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 1 of 8
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

							Analytical Report				
							Lab Order 1612574				
Hall Environmental Analysis Laboratory, Inc.Date Reported: 1/25/2017											
CLIENT: Western Refining Southwest, Inc. Client Sample ID: Eastline Vadose Zone											
Project:	Bisti Landfarm				Collection	Date: 12/	/9/2016 10:20:00 AM				
Lab ID:	1612574-002	Matrix:	SOIL		Received	Date: 12/	/10/2016 10:00:00 AM				
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed	Batch			
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS Analyst: 7											
Diesel Ra	nge Organics (DRO)	ND	9.6		mg/Kg	1	12/13/2016 8:01:05 PM	29134			
Surr: D	NOP	83.1	70-130		%Rec	1	12/13/2016 8:01:05 PM	29134			
EPA METH	HOD 8015D: GASOLINE RANG	θE					Analyst	NSB			
Gasoline	Range Organics (GRO)	ND	4.8		mg/Kg	1	12/13/2016 6:24:59 PM	29139			
Surr: B	FB	88.3	68.3-144		%Rec	1	12/13/2016 6:24:59 PM	29139			
EPA MET	HOD 8021B: VOLATILES						Analyst	NSB			
Benzene		ND	0.024		mg/Kg	1	12/13/2016 6:24:59 PM	29139			
Toluene		ND	0.048		mg/Kg	1	12/13/2016 6:24:59 PM	29139			
Ethylbenz	ene	ND	0.048		mg/Kg	1	12/13/2016 6:24:59 PM	29139			
Xylenes,	Total	ND	0.095		mg/Kg	1	12/13/2016 6:24:59 PM	29139			
Surr: 4-	Bromofluorobenzene	96.6	80-120		%Rec	1	12/13/2016 6:24:59 PM	29139			

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Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank		
	D	Sample Diluted Due to Matrix	Е	Value above quantitation range		
	Η	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 2 of 8		
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range		
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit		
	S	% Recovery outside of range due to dilution or matrix		Sample container temperature is out of limit as specified		

Hall E	nvironmental Anal	ysis Labora	tory, In	с.		Lab Order 1612574 Date Reported: 1/25/201	17
CLIENT:	Western Refining Southwe	st, Inc.		Client Sample	e ID: Bi	sti Vadose Zone	
Project:	Bisti Landfarm			Collection I	Date: 12	/9/2016 10:50:00 AM	
Lab ID:	1612574-003	Matrix:	SOIL	Received I	Date: 12	/10/2016 10:00:00 AM	
Analyses		Result	PQL	Qual Units	DF	Date Analyzed	Batch
EPA MET	THOD 8015M/D: DIESEL RA		S			Analyst	TOM
Diesel R	ange Organics (DRO)	ND	9.8	mg/Kg	1	12/13/2016 8:28:07 PM	29134
Surr: I	DNOP	92.4	70-130	%Rec	1	12/13/2016 8:28:07 PM	29134
EPA MET	THOD 8015D: GASOLINE R	ANGE				Analyst	NSB
Gasoline	e Range Organics (GRO)	ND	4.8	mg/Kg	1	12/13/2016 6:48:30 PM	29139
Surr: I	BFB	87.9	68.3-144	%Rec	1	12/13/2016 6:48:30 PM	29139
EPA MET	THOD 8021B: VOLATILES					Analyst	NSB
Benzene		ND	0.024	mg/Kg	1	12/13/2016 6:48:30 PM	29139
Toluene		ND	0.048	mg/Kg	1	12/13/2016 6:48:30 PM	29139
Ethylben	zene	ND	0.048	mg/Kg	1	12/13/2016 6:48:30 PM	29139
Xylenes,	Total	ND	0.095	mg/Kg	1	12/13/2016 6:48:30 PM	29139

80-120

%Rec

1

12/13/2016 6:48:30 PM 29139

96.9

Analytical Report

1

Surr: 4-Bromofluorobenzene

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	Η	Holding times for preparation or analysis exceeded	J	Analyte detected below quantitation limits Page 3 of 8
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S %		% Recovery outside of range due to dilution or matrix		Sample container temperature is out of limit as specified

Analytical	Report
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Lab Order 1612574

Date Reported: 1/25/2017

Hall Environmental Analysis Laboratory, Inc.

2 K **Project:**

Lab ID:

Analyses

CLIENT: Western Refining Southwest, Inc. Client Sample ID: Pettigrew Vadose Zone Bisti Landfarm Collection Date: 12/9/2016 10:25:00 AM 1612574-004 Matrix: SOIL Received Date: 12/10/2016 10:00:00 AM PQL Qual Units Result **DF** Date Analyzed Batch

	statement of the statem		the second		the second se	and the second se
EPA METHOD 8015M/D: DIESEL RANG	E ORGANIC	CS			Analyst:	том
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	12/13/2016 8:55:04 PM	29134
Surr: DNOP	83.0	70-130	%Rec	1	12/13/2016 8:55:04 PM	29134
EPA METHOD 8015D: GASOLINE RANG	GE				Analyst:	NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	12/13/2016 7:11:56 PM	29139
Surr: BFB	87.3	68.3-144	%Rec	1	12/13/2016 7:11:56 PM	29139
EPA METHOD 8021B: VOLATILES					Analyst:	NSB
Benzene	ND	0.024	mg/Kg	1	12/13/2016 7:11:56 PM	29139
Toluene	ND	0.048	mg/Kg	1	12/13/2016 7:11:56 PM	29139
Ethylbenzene	ND	0.048	mg/Kg	1	12/13/2016 7:11:56 PM	29139
Xylenes, Total	ND	0.095	mg/Kg	1	12/13/2016 7:11:56 PM	29139
Surr: 4-Bromofluorobenzene	95.2	80-120	%Rec	1	12/13/2016 7:11:56 PM	29139

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank
	D	Sample Diluted Due to Matrix	E	Value above quantitation range
	H Holding times for preparation or analysis exceededND Not Detected at the Reporting Limit		J	Analyte detected below quantitation limits Page 4 of 8
			Р	Sample pH Not In Range
R RPD outside accepted		RPD outside accepted recovery limits	RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix	W	Sample container temperature is out of limit as specified

Analytical	Report
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Hall Environmental Analysis Laboratory, Inc.

Lab Order 1612574 Date Reported: 1/25/2017

CLIENT: Project:	Western Refining Southwest, Ind Bisti Landfarm	с.		Client Sampl Collection	e ID: AF Date: 12/	PI Vadose Zone /9/2016 10:40:00 AM	
Lab ID:	1612574-005	Matrix:	SOIL	Received 1	Date: 12/	/10/2016 10:00:00 AM	
Analyses		Result	PQL	Qual Units	DF	Date Analyzed	Batch
EPA MET	HOD 8015M/D: DIESEL RANGE	ORGANIC	s			Analyst:	том
Diesel Ra	ange Organics (DRO)	ND	9.4	mg/Kg	1	12/13/2016 9:22:05 PM	29134
Surr: D	DNOP	82.8	70-130	%Rec	1	12/13/2016 9:22:05 PM	29134
EPA MET	HOD 8015D: GASOLINE RANG	E				Analyst:	NSB
Gasoline	Range Organics (GRO)	ND	4.7	mg/Kg	1	12/13/2016 7:35:29 PM	29139
Surr: E	3FB	85.8	68.3-144	%Rec	1	12/13/2016 7:35:29 PM	29139
EPA MET	HOD 8021B: VOLATILES					Analyst:	NSB
Benzene		ND	0.023	mg/Kg	1	12/13/2016 7:35:29 PM	29139

Benzene	ND	0.023	mg/Kg	1	12/13/2016 7:35:29 PM	29139
Toluene	ND	0.047	mg/Kg	1	12/13/2016 7:35:29 PM	29139
Ethylbenzene	ND	0.047	mg/Kg	1	12/13/2016 7:35:29 PM	29139
Xylenes, Total	ND	0.093	mg/Kg	1	12/13/2016 7:35:29 PM	29139
Surr: 4-Bromofluorobenzene	92.2	80-120	%Rec	1	12/13/2016 7:35:29 PM	29139

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte dete
	D	Sample Diluted Due to Matrix	Е	Value above
	Н	Holding times for preparation or analysis exceeded	J	Analyte dete
	ND	Not Detected at the Reporting Limit	Р	Sample pH 1
	R	RPD outside accepted recovery limits	RL	Reporting D
	S	% Recovery outside of range due to dilution or matrix	W	Sample cont

- % Recovery outside of range due to dilution or matrix
- ected in the associated Method Blank
- quantitation range
- ected below quantitation limits Page 5 of 8
- Not In Range
- Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory, Inc.

Client:	Western	ern Refining Southwest, Inc.				
Project:	Bisti La	ndfarm				
Sample ID 10	S-20134	SamnTyne: LCS				

Sample ID LCS-29134	SampTy	ype: LC	S	Tes	tCode: El	PA Method	8015M/D: Di	esel Range	e Organics	
Client ID: LCSS	Batch	ID: 29	134	F	RunNo: 3	9356				
Prep Date: 12/12/2016	Analysis Da	ate: 12	2/13/2016	S	SeqNo: 1	231856	Units: mg/M	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	10	50.00	0	89.0	63.8	116			
Surr: DNOP	4.2		5.000		84.4	70	130			
						A REAL PROPERTY OF A REAL PROPER	the state of the second se		the state of the s	
Sample ID MB-29134	SampTy	ype: ME	BLK	Tes	tCode: El	PA Method	8015M/D: Di	esel Range	e Organics	
Sample ID MB-29134 Client ID: PBS	SampTy Batch	ype: ME	3LK 134	Tes F	tCode: El RunNo: 3	PA Method 9356	8015M/D: Di	esel Range	e Organics	
Sample ID MB-29134 Client ID: PBS Prep Date: 12/12/2016	SampTy Batch Analysis Da	ype: ME ID: 29 [,] ate: 12	3LK 134 2/13/2016	Tes F S	tCode: El RunNo: 3 SeqNo: 1	PA Method 9356 231857	8015M/D: Di Units: mg/M	esel Rango	e Organics	
Sample ID MB-29134 Client ID: PBS Prep Date: 12/12/2016 Analyte	SampTy Batch Analysis Da Result	ype: ME ID: 29 ate: 12 PQL	BLK 134 2/13/2016 SPK value	Tes F S SPK Ref Val	tCode: El RunNo: 3 SeqNo: 1 %REC	PA Method 9356 231857 LowLimit	8015M/D: Die Units: mg/K HighLimit	esel Rango (g %RPD	e Organics	Qual
Sample ID MB-29134 Client ID: PBS Prep Date: 12/12/2016 Analyte Diesel Range Organics (DRO)	SampTy Batch Analysis Da Result ND	ype: ME ID: 29 ate: 12 PQL 10	BLK 134 2/13/2016 SPK value	Tes F S SPK Ref Val	tCode: El RunNo: 3 SeqNo: 1 %REC	PA Method 9356 231857 LowLimit	8015M/D: Die Units: mg/K HighLimit	sel Rango Sg %RPD	e Organics	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

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1612574 25-Jan-17

WO#:

Hall Environmental Analysis Laboratory, Inc.

Project: Western Bisti La	Refining S ndfarm	outhwe	st, Inc.		-					
Sample ID MB-29139	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	е	
Client ID: PBS	Batch	n ID: 29	139	F	RunNo: 3	9349				
Prep Date: 12/12/2016	Analysis D	ate: 12	2/13/2016	S	SeqNo: 1	231993	Units: mg/k	٢g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	880		1000		87.8	68.3	144			
Sample ID LCS-29139	SampT	ype: LC	S	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	e	
Client ID: LCSS	Batch	n ID: 29	139	F	RunNo: 3	9349				
Prep Date: 12/12/2016	Analysis D	ate: 12	2/13/2016	S	SeqNo: 1	231994	Units: mg/M	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	5.0	25.00	0	116	74.6	123			
Surr: BFB	1200		1000		117	68.3	144			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- В Analyte detected in the associated Method Blank
- E
- Analyte detected below quantitation limits J
- Р Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

25-Jan-17

1612574

WO#:

Value above quantitation range

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1

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Hall Environmental Analysis Laboratory, Inc.

Client:	Western Refining Southwest, Inc.
Project:	Bisti Landfarm

Sample ID MB-29139 SampType: MBLK TestCode: EPA Method 8021B: Volatiles																
Client ID: PBS	Batc	h ID: 29	139	F	RunNo: 3	9349										
Prep Date: 12/12/2016	Analysis D	Date: 12	2/13/2016	S	SeqNo: 1	232019	Units: mg/K	(g								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual						
Benzene	ND	0.025														
Toluene	ND	0.050														
Ethylbenzene	ND	0.050														
Xylenes, Total	ND	0.10														
Surr: 4-Bromofluorobenzene 0.97 1.000 97.4 80 120																
Sample ID LCS-29139	Samp	Гуре: LC	S	Tes	tCode: E	PA Method	8021B: Volat	tiles								
Client ID: LCSS	Batc	h ID: 29	139	F	RunNo: 3	9349										
Prep Date: 12/12/2016	Analysis E	Date: 12	2/13/2016	S	SeqNo: 1	232020	Units: mg/K	(g								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual						
Benzene	1.0	0.025	1.000	0	103	75.2	115									
Toluene	0.95	0.050	1.000	0	95.3	80.7	112									
Ethylbenzene	0.93	0.050	1.000	0	93.4	78.9	117									
Xylenes, Total	2.8	0.10	3.000	0	93.9	79.2	115									
Surr: A Bromofluorobenzene	0 99		1 000		00 3	80	120									

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

1612574 25-Jan-17

WO#:

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HALL Hall Environ ENVIRONMENTAL ANALYSIS LABORATORY TEL: 505-3- Website:	nmental Analysis Laborat 4901 Hawkins Albuquerque, NM 87 45-3975 FAX: 505-345-4 www.hallenvironmental.c	NE 109 Sam 107 com	ple Log-In Check List
Client Name: Western Refining Southw Work Order N	lumber: 1612574		RcptNo: 1
Received by/date: Ar 12/10/16			
Logged By: Anne Thorne 12/10/2016 10:0	00:00 AM	are Am	~
Completed By: Anne Thorne 12/12/2016 91	9:05 AM	anne Hum	~
Reviewed By:			
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		
l an la			
	177		
4. Was an attempt made to cool the samples?	Yes 🗹	No	NA L
5. Were all samples received at a temperature of $>0^{\circ}$ C to 6.0°	C Yes 🗹	No 🗌	
6. Sample(s) in proper container(s)?	Yes 🗹	No 🗌	
7 Sufficient sample volume for indicated test(s)?	Ves V	No 🗍	
8 Are samples (except VOA and ONG) properly preserved?	Yes V	No 🗔	
9. Was preservative added to bottles?	Yes	No 🗹	NA
10.VOA vials have zero headspace?	Yes	No 🗌	No VOA Vials 🗹
11. Were any sample containers received broken?	Yes	No 🗹	# of preserved
10 -			bottles checked
12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)	Yes ⊻	NO 🛄	(<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?	Yes 🗹	No 🗋	Checked by:
(If no, notify customer for authorization.)			
Special Handling (if applicable)			
16. Was client notified of all discrepancies with this order?	Yes	No 🗌	NA 🗹
Person Notified:	Date	·	
By Whom:	Via: eMail [] P	hone 🗌 Fax	In Person
Regarding:			n na standard n Na standard na s
Client Instructions:			
17. Additional remarks:			
18. Cooler Information			

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.4	Good	Yes			

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Page 1 of 1

.. .

J

С	hain	of-Cu	stody Record	Turn-Around Time:							ы			F	NV	TE	20		ИЕ	NT	01	
ent:	Kelly	Robi	nson	Standard	🗆 Rush				1		A	N		YS	SIS	S L	AE	30	RA	TO	R	¢
	West	em Ro	fining	Project Name	;							www	.hall	envi	ironr	nent	al.co	om				
ailing	Address	· 111 (cr 4990	B15	TI LAN.	DFARM		4901 Hawkins NE - Albuquerque, NM 87109														
	Bloor	nfield.	NM	Project #:	1010-			Tel. 505-345-3975 Fax 505-345-4107														
one #	#: (50	5)63	2-8013	PO#	126155	17		Analysis Request														
nail or	Fax#: ¥	elly. Rol	oinson ewike. com	Project Mana	ger:			1)	nly)	RO)					O4)							
VQC F	Package: dard		Level 4 (Full Validation)	Devin	Hencm	ann		's (802	(Gas o	RO / M			SIMS)		2, PO4, S	2 PCB's			DIEW			
credi	tation		-	Sampler: J.	Adams /E	Skyles		TMB	TPH	0/0	(1)	=	270		NO	808			8			î
FDD	(Type)		······································	On Ice: Sample Tem	Pres			+ Ш	+ Ш	GRO	418	1504	or 8	als	NO	les /		/OA)	20			Yor
37ta 7	Time	Matrix	Sample Request ID	Sample Temperature: 24 Container Preservative Type and # Type IUIZS74					BTEX + MTB	TPH 8015B (TPH (Method	EDB (Method	PAH's (8310	RCRA 8 Meta	Anions (F,CI,	8081 Pesticic	8260B (VOA)	8270 (Semi-\	TPH- GRO/			Air Bubbles (
16	1116	Soil	Westline Vadose Zone	2-407.	Lor		-201	X											X			
8/16	1220	Sal	Eastline Vadose Zone	2-472.	Corl		-002	X											X			
10/16	050	Sal	Bigh Vadose Zone	2-402.	Lorf		703	X											X			
\$16	1025	Sil	Pettiarrew Vadose Jone	2-47.	Lorl		704	X											X			
SIL	1040	Sil	APT Vadose Zone	2-42.	cont		705	Х											χ			\square
												_	-								+	
			L <u>.</u>																			
ate: Time: Relinguished by:			Received by: Date Time			27 Die Calletting dela is 12/14/16 14 12/14/16																
ate: Time: Relinquished by:			Received by: Date Time Doll 1000				Please Note: TPH -GRD /DRD OPR 8015M						- a 1 - 1	pe	0151	5/14						

NAME AND ADDRESS ADDRES

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.

2016 QUARTERLY VADOSE ZONE SOIL ANALYTICAL RESULTS BISTI LANDFARM SAN JUAN COUNTY, NEW MEXICO WESTERN REFINING SOUTHWEST, INC.

Cell	Source Area	Sample ID	Sample Date	TPH-GRO (mg/Kg)	TPH-DRO (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)
		Westline Vadose Zone	22-Mar-16	<4.7	<10	< 0.024	< 0.047	< 0.047	< 0.095
	West Line	West Line Vadose Zone	16-Jun-16	<4.9	<10	< 0.025	< 0.049	< 0.049	< 0.099
	west Line	Westline Vadose Zone	23-Sep-16	<4.6	<10	< 0.023	< 0.046	< 0.046	< 0.092
		Westline Vadose Zone	9-Dec-16	<4.7	<9.2	< 0.024	< 0.047	< 0.047	< 0.094
		Eastline Vadose Zone	22-Mar-16	<4.9	15	< 0.025	< 0.049	< 0.049	< 0.099
	Fast Line	East Line Vadose Zone	16-Jun-16	<4.8	<9.9	< 0.024	< 0.048	< 0.048	< 0.095
	Last Line	Eastline Vadose Zone	23-Sep-16	<4.9	<9.8	< 0.024	<0.049	< 0.049	< 0.098
Crudo Coll		Eastline Vadose Zone	9-Dec-16	<4.8	<9.6	< 0.024	< 0.048	< 0.048	< 0.095
Crude Cell		Bisti Vadose Zone	22-Mar-16	<5.0	<9.5	< 0.025	< 0.050	< 0.050	< 0.099
	Bisti	Bisti Vadose Zone	16-Jun-16	<4.8	<9.7	< 0.024	< 0.048	< 0.048	< 0.096
		Bisti Vadose Zone	23-Sep-16	<4.6	<9.9	< 0.023	< 0.046	< 0.046	< 0.093
		Bisti Vadose Zone	9-Dec-16	<4.8	<9.8	< 0.024	< 0.048	< 0.048	< 0.095
		Pettigrew Vadose Zone	22-Mar-16	<4.8	<10	< 0.024	< 0.048	< 0.048	< 0.097
	Pottigrow	Pettigrew Vadose Zone	16-Jun-16	<4.7	<9.9	< 0.024	< 0.047	< 0.047	< 0.095
	1 ettigi ew	Pettigrew Vadose Zone	23-Sep-16	<4.7	<10	< 0.024	< 0.047	< 0.047	< 0.094
		Pettigrew Vadose Zone	9-Dec-16	<4.8	<10	< 0.024	< 0.048	< 0.048	< 0.095
		API Vadose Zone	22-Mar-16	<4.8	<9.7	< 0.024	< 0.048	< 0.048	< 0.096
	ADI	API Vadose Zone	16-Jun-16	<4.7	<9.9	< 0.024	< 0.047	< 0.047	< 0.094
Arren	ALI	API Vadose Zone	23-Sep-16	<4.9	<10	< 0.024	< 0.049	< 0.049	< 0.097
		API Vadose Zone	9-Dec-16	<4.7	<9.4	< 0.023	< 0.047	< 0.047	< 0.093
	Background Sample Result			<4.8*	<50	< 0.05	< 0.05	<0.05	<0.05

Notes:

DRO - diesel range organics

GRO - gasoline range organics

mg/Kg - milligrams per kilograms

TPH- total petroleum hydrocarbons

< indicates result is less than the stated laboratory method practical quantitation limit

* - Indicates data from the September 1, 2015 background sample. All other background analytes are from the March 27, 1998 sample. **BOLD** indicates results exceed the higher of the background sample result or practical quantitation limit



BISTI LANDFARM SAN JUAN COUNTY, NEW MEXICO WESTERN REFINING SOUTHWEST, INC.

Cell	Source Area	Sample ID	Sample Date	TPH-GRO (mg/Kg)	TPH-DRO (mg/Kg)	TPH 418.1 (mg/Kg)	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Total Xylenes (mg/Kg)	Chloride (mg/Kg)
	West Line	Westline Vadose Zone	22-Mar-16	<4.7	<10	<20	< 0.024	< 0.047	< 0.047	< 0.095	22
	west Line	Westline Vadose Zone	23-Sep-16	<4.6	<10	<20	< 0.023	< 0.046	< 0.046	< 0.092	<30
	FastLing	Eastline Vadose Zone	22-Mar-16	<4.9	15	36	< 0.025	< 0.049	< 0.049	< 0.099	1.6
Crudo Coll	East Line	Eastline Vadose Zone	23-Sep-16	<4.9	<9.8	<19	< 0.024	< 0.049	< 0.049	< 0.098	<30
Ci ude Celi	Bisti	Bisti Vadose Zone	22-Mar-16	<5.0	<9.5	<20	< 0.025	< 0.050	< 0.050	< 0.099	80
	Disti	Bisti Vadose Zone	23-Sep-16	<4.6	<9.9	<19	< 0.023	< 0.046	< 0.046	< 0.093	<30
	Dottigrow	Pettigrew Vadose Zone	22-Mar-16	<4.8	<10	<20	< 0.024	< 0.048	< 0.048	< 0.097	3,500
	retugrew	Pettigrew Vadose Zone	23-Sep-16	<4.7	<10	<19	< 0.024	< 0.047	< 0.047	< 0.094	310
	ADI	API Vadose Zone	22-Mar-16	<4.8	<9.7	<20	< 0.024	< 0.048	< 0.048	< 0.096	4,800
ArrCell	API Cell API API Vados		23-Sep-16	<4.9	<10	<20	< 0.024	< 0.049	< 0.049	< 0.097	<30
	Background Sample Result			<4.8*	<50	<20*	< 0.05	< 0.05	< 0.05	< 0.05	<50

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Notes:

DRO - diesel range organics

GRO - gasoline range organics

mg/Kg - milligrams per kilograms

NA - not analyzed

TPH- total petroleum hydrocarbons

< indicates result is less than the stated laboratory method practical quantitation limit

* - Indicates data from the September 1, 2015 background sample. All other background analytes are from the March 27, 1998 sample.

BOLD indicates results exceed the higher of the background sample result or practical quantitation limit

, count i, num munico WESTERN REFINING SOUTHWEST, INC.

Cell	Source Area	Sample ID	Sample Date	Alkalinity (mg/Kg)	Bicarbonate (mg/Kg)	Carbonate (mg/Kg)	Sulfate (mg/Kg)	Chloride (mg/Kg)	Calcium (mg/Kg)	Manganese (mg/Kg)	Potassium (mg/Kg)	Sodium (mg/Kg)	Arsenic (mg/Kg)	Barium (mg/Kg)	Cadmium (mg/Kg)	Chromium (mg/Kg)	Lead (mg/Kg)	Selenium (mg/Kg)	Silver (mg/Kg)	Mercury (mg/Kg)
	West Line	West Line Vadose Zone	22-Mar-16	116	142	<4	14	22	4,800	110	510	45	<2.5	79	< 0.10	1.6	2.1	<2.5	< 0.25	< 0.033
Crude Cell	East Line	East Line Vadose Zone	22-Mar-16	247	302	<4	94	1.6	4,500	100	680	50	<2.5	98	< 0.10	1.8	2.2	<2.5	< 0.25	< 0.032
Crude Cen	Bisti	Bisti Vadose Zone	22-Mar-16	164	200	<4	60	80	3,800	120	750	210	<2.5	120	< 0.10	2.1	2.3	<2.5	< 0.25	< 0.032
	Pettigrew	Pettigrew Vadose Zone	22-Mar-16	105	128	<4	340	3,500	2,100	84	550	2,800	<2.5	71	< 0.098	1.5	1.9	<2.5	< 0.25	< 0.033
API Cell	API	API Vadose Zone	22-Mar-16	120	147	<4	800	4,800	2,300	110	670	3,600	<2.5	60	< 0.10	2.1	2.4	<2.5	< 0.25	< 0.033
Background Sample Result		27-Mar-98 and 1- Sep-15	NA	110	26	140	<50	2,500	150	810	90	2.8	180	<1.3	<5.0	6.8	<2.5	<1.3	< 0.50	

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Notes: BOLD - samples that exceeded backgroud concentrations mg/Kg - milligrams per kilograms NA - not analyzed < indicates result is less than the stated laboratory method practical quantitation limit

BISTI LANDFARM SAN JUAN COUNTY, NEW MEXICO WESTERN REFINING SOUTHWEST, INC.

Cell	Source Area	Sample ID	Sample Date	Alkalinity (mg/Kg)	Bicarbonate (mg/Kg)	Carbonate (mg/Kg)	Sulfate (mg/Kg)	Chloride (mg/Kg)	Calcium (mg/Kg)	Manganese (mg/Kg)	Potassium (mg/Kg)	Sodium (mg/Kg)	Arsenic (mg/Kg)	Barium (mg/Kg)	Cadmium (mg/Kg)	Chromium (mg/Kg)	Lead (mg/Kg)	Selenium (mg/Kg)	Silver (mg/Kg)	Mercury (mg/Kg)
	West Line	West Line Vadose Zone	22-Mar-16	116	142	<4	14	22	4,800	110	510	45	<2.5	79	< 0.10	1.6	2.1	<2.5	< 0.25	< 0.033
Cruda Call	East Line	East Line Vadose Zone	22-Mar-16	247	302	<4	94	1.6	4,500	100	680	50	<2.5	98	< 0.10	1.8	2.2	<2.5	< 0.25	< 0.032
Crude Cen	Bisti	Bisti Vadose Zone	22-Mar-16	164	200	<4	60	80	3,800	120	750	210	<2.5	120	< 0.10	2.1	2.3	<2.5	< 0.25	< 0.032
	Pettigrew	Pettigrew Vadose Zone	22-Mar-16	105	128	<4	340	3,500	2,100	84	550	2,800	<2.5	71	< 0.098	1.5	1.9	<2.5	< 0.25	< 0.033
API Cell	API	API Vadose Zone	22-Mar-16	120	147	<4	800	4,800	2,300	110	670	3,600	<2.5	60	< 0.10	2.1	2.4	<2.5	< 0.25	< 0.033
	Background S	ample Result	27-Mar-98 and 1- Sep-15	NA	110	26	140	<50	2,500	150	810	90	2.8	180	<1.3	<5.0	6.8	<2.5	<1.3	< 0.50

Notes:

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BOLD - samples that exceeded backgroud concentrations mg/Kg - milligrams per kilograms NA - not analyzed < indicates result is less than the stated laboratory method practical quantitation limit