

OIL CONS. DIV DIST. 3 FEB 2 4 2016

2015 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 2016





WNR USUD NYSE

February 19th, 2016

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

 Fed Ex Tracking #:
 7756 9086 0786 (NMOCD - Santa Fe Office)

 Certified Mail #:
 7015 1520 0001 8113 6076 (NMOCD - Aztec Office)

Re: 2015 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 2015 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 2015.

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 Manager - Logistics Western Refining Southwest, Inc.

cc: J. Kelly – OCD/EMNRD R. Schmaltz – WNL K. Robinson – WNL A. Hains - WNR

2015 ANNUAL REPORT

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

SAN JUAN COUNTY, NEW MEXICO

FEBRUARY 2016

Prepared for:

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

Prepared by:

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



TABLE OF CONTENTS

EX	ECUTIVE SUMMARYii	
1.0	INTRODUCTION1-	-1
	1.1 SITE DESCRIPTION AND HISTORY 1- 1.2 SCOPE OF WORK 1-	-1 -1
2.0	METHODOLOGY2-	-1
	2.1 SEMIANNUAL TREATMENT ZONE MONITORING 2- 2.2 QUARTERLY VADOSE ZONE MONITORING 2- 2.3 ANNUAL VADOSE ZONE MONITORING 2-	-1 -1
3.0	ANALYTICAL RESULTS	1
	3.1SEMIANNUAL TREATMENT ZONE ANALYTICAL RESULTS	1
4.0	CONCLUSIONS	1
5.0	RECOMMENDATIONS	1

LIST OF FIGURES

FIGURE 1	SITE LOCATION MAP
FIGURE 2	SITE MAP
FIGURE 3	TREATMENT ZONE SAMPLE LOCATION MAP
FIGURE 4	VADOSE ZONE SAMPLE LOCATION MAP

LIST OF TABLES

TABLE 1	2015 SEMIANNUAL TREATMENT ZONE SOIL ANALYTICAL
	RESULTS
TABLE 2	2015 QUARTERLY VADOSE ZONE SOIL ANALYTICAL RESULTS
TABLE 3	2015 ANNUAL VADOSE ZONE SOIL ANALYTICAL RESULTS

LIST OF APPENDICES

APPENDIX A	LABORATORY	ANALYTICAL REPORTS
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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 2015 through December 2015 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 sampling 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 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.

Soil sampling results are presented in the report and vadose zone soil analytical results are compared to the laboratory practical quantitation limit and background sample results. 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. Since treatment zone monitoring results do not exceed Treatment Zone Closure Performance Standards identified in Rule 36. Western will pursue closure of the landfarm in 2016.



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 2015 through December 2015 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

2.1 SEMIANNUAL TREATMENT ZONE MONITORING

Treatment zones in the API and Crude cells were composite sampled semiannually on March 19, 2015 and September 1, 2015, by placing discrete samples collected from approximately 6 inches below the landfarm surface into a 1-gallon plastic bag. The soil within the bag was thoroughly homogenized before filling sterile glass sampling containers provided by the laboratory. The Crude Cell treatment zone samples included four discrete samples: one each from the Pettigrew, Bisti, West Line and East Line source areas. The API Cell treatment zone samples included four discrete samples from the API Cell. Figure 3 depicts treatment zone soil sample locations. Treatment zone samples were analyzed for total petroleum hydrocarbons (TPH) by United States Environmental Protection Agency (USEPA) Method 418.1, gasoline range organics (GRO), diesel range organics (DRO) and motor oil range organics (MRO) by USEPA Method 8015M/D, and chloride by USEPA Method 300.0.

2.2 QUARTERLY VADOSE ZONE MONITORING

Discrete vadose zone samples were collected quarterly on March 19, 2015, June 26, 2015, September 1, 2015, and December 16, 2015, from the two active cells (API and Crude cells). Samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by USEPA Method 8021B, TPH by USEPA Method 418.1, GRO, DRO and MRO by USEPA Method 8015M/D, and chloride by USEPA Method 300.0. The number of vadose zone samples collected within each cell was dependent on the size of the cell. For each sampling event, four soil samples were collected from the Crude Cell: one beneath the East Line source area, one beneath the West Line source area, one beneath the Pettigrew source area, and one beneath the Bisti source area. One sample was collected from beneath the API Cell. Figure 4 depicts quarterly vadose zone soil sample locations. All vadose zone soil samples were collected from 3 feet to 4 feet below the original ground surface and boreholes were filled with hydrated bentonite from total depth to existing ground surface upon completion.

2.3 ANNUAL VADOSE ZONE MONITORING

To address annual sampling requirements in the original Rule 711 permit, vadose zone soil samples (East Line, West Line, Bisti, Pettigrew and API) collected on March 19, 2015, were additionally analyzed for sulfate by USEPA Method 300.0, metals (arsenic, barium, cadmium, calcium, chromium, lead, magnesium, potassium, selenium, silver, and sodium) by USEPA Method 6010B, mercury by USEPA Method 7471, and alkalinity by ASA10-3.

All samples collected were placed on ice and sealed in a cooler for delivery to Hall Environmental Analysis Laboratory, Inc. in 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 procedures were documented including the date and time sampled, sample number, type of sample, sample collector's name and signature, preservative used, and analyses required.



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 2015, 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 VADOSE ZONE ANALYTICAL RESULTS

The laboratory analytical results for BTEX, TPH, and chloride from quarterly vadose zone soil samples compared to the laboratory practical quantitation limit (PQL) and background sample results as required in Rule 36 are presented in Table 2. Exceedances in MRO and TPH (by USEPA Method 418.1) were detected in the East Line Vadose Zone sample collected on March 19, 2015. The West Line Vadose Zone sample collected on March 19, 2015, exceeded the background concentration for TPH (by USEPA Method 418.1). Chloride exceeded background concentrations and PQL in the Pettigrew Vadose Zone sample collected on September 1, 2015. Any quarterly vadose zone results that exceed the higher of the PQL or background sample results for BTEX, TPH, and chloride are in bold in Table 2. 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 19, 2015, was analyzed for arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, calcium, magnesium, potassium, sodium, chloride, sulfate and alkalinity. 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 API cell. All other analytes were within range of the background sample result. The analytical results are presented in Table 3. The complete laboratory analytical reports are presented in Appendix A.



4.0 CONCLUSIONS

Concentrations of TPH and chloride in the treatment zone 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 Rule 36, and results for BTEX, TPH, and chloride were compared to laboratory PQLs and background concentrations. In the first quarter 2015 sampling event, exceedance of TPH (by USEPA Method 418.1) was detected in the West Line source zone of the Crude Cell. In the East Line source zone of the Crude Cell, exceedances of TPH (by USEPA Method 418.1) and MRO were also detected during the first quarter of 2015. Chloride exceeded the background concentration in one sample collected from the Pettigrew source zone of the Crude Cell during the third quarter 2015 sampling event. Laboratory analytical results were consistent with historical monitoring results.

Annual soil sample results from the vadose zone were also compared to background concentrations for arsenic, barium, cadmium, chromium, lead, mercury, selenium, silver, calcium, magnesium, potassium, sodium, chloride, sulfate and alkalinity. Calcium was elevated in the West Line, East Line, and Bisti source areas of the Crude Cell. Sodium was elevated in the API Cell. However, the concentrations of all analytes were consistent with historical monitoring results.

Release response sampling was conducted on May 4, 2015, and presented to the NMOCD in July 2015 with a preliminary Action Plan. Based on comments received from NMOCD in a letter dated September 10, 2015, Western conducted additional background sampling and is revising the Action Plan, which will be submitted under a separate cover. The Action Plan will address exceedances identified in the vadose zone as Western pursues closure of the Site.



5.0 RECOMMENDATIONS

Since Western is no longer accepting petroleum hydrocarbon-impacted soil at the Site and treatment zone monitoring results do not exceed Treatment Zone Closure Performance Standards identified in Rule 36, 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.





FIGURES







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



P:\Western Refining\GIS\MXD\WR1005 BISTI\WR1005_BISTI_FIG03_TREATMENT_ZONE_ANNUAL_2015.mxd



P:\Western Refining\GIS\MXD\WR1005 BISTI\WR1005_BISTI_FIG04_VADOSE_ZONE_ANNUAL_2015.mxd

TABLES



TABLE 1

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

Cell	Sample ID	Sample Date	GRO (mg/kg)	DRO (mg/kg)	MRO (mg/kg)	TPH 418.1 (mg/kg)	Chloride (mg/kg)
Crude Cell	Crude Cell Treatment Zone	19-Mar-15	<4.9	95	240	130	<30
Clude Cell	Crude Cell Treatment Zone	1-Sep-15	<4.8	<10	<50	93	72
A DI Call	API Cell Treatment Zone	<4.9	15	81	63	110	
AFICEI	API Cell Treatment Zone	<4.9	<9.8	<49	<20	190	
19.15.36.	15 Treatment Zone Closure Per Standards	GRO + DRO = 500		NE	2,500	1,000	

Notes:

GRO - Gasoline Range Organics

DRO - Diesel Range Organics

MRO - Motor Oil Range Organics

TPH- Total petroleum hydrocarbons

mg/kg - milligrams per kilograms

NE - Not Established

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



TABLE 2

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

Cell	Source Area	Sample ID	Sample Date	GRO (mg/kg)	DRO (mg/kg)	MRO (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 Vadose Zone	19-Mar-15	<4.7	16	50	26	< 0.047	< 0.047	< 0.047	< 0.094	<30
	West Line	West Line Vadose Zone	26-Jun-15	<4.8	<9.7	<49	NA	< 0.048	< 0.048	< 0.048	< 0.095	NA
		West Line Vadose Zone	1-Sep-15	<4.8	<9.8	<49	<19	< 0.048	< 0.048	< 0.048	< 0.095	<30
		West Line Vadose Zone	16-Dec-15	<4.9	<9.6	<48	NA	< 0.049	< 0.049	< 0.049	<0.098	NA
		East Line Vadose Zone	19-Mar-15	<4.9	45	61	81	< 0.049	< 0.049	< 0.049	< 0.097	<30
	East Line	East Line Vadose Zone	26-Jun-15	<4.8	<9.8	<49	NA	< 0.048	< 0.048	< 0.048	< 0.095	NA
	Last Line	East Line Vadose Zone	1-Sep-15	<4.8	<10	<50	<20	< 0.048	<0.048	< 0.048	< 0.095	<30
Crude Cell		East Line Vadose Zone	16-Dec-15	<4.8	10	<50	NA	< 0.048	< 0.048	< 0.048	< 0.096	NA
crude cen	Bisti	Bisti Vadose Zone	19-Mar-15	<4.9	<10	<50	<20	< 0.049	< 0.049	< 0.049	< 0.098	<30
		Bisti Vadose Zone	26-Jun-15	<4.9	<10	<50	NA	< 0.049	< 0.049	< 0.049	< 0.099	NA
		Bisti Vadose Zone	1-Sep-15	<4.8	<9.8	<49	<20	< 0.048	< 0.048	< 0.048	< 0.095	<30
		Bisti Vadose Zone	16-Dec-15	<4.8	28	<48	NA	< 0.048	< 0.048	< 0.048	< 0.096	NA
		Pettigrew Vadose Zone	19-Mar-15	<5.0	<10	<50	<20	< 0.050	< 0.050	< 0.050	< 0.10	<30
	Pettigrew	Pettigrew Vadose Zone	26-Jun-15	<4.8	<10	<50	NA	< 0.048	< 0.048	< 0.048	< 0.096	NA
	reingrew	Pettigrew Vadose Zone	1-Sep-15	<5.0	<10	<51	<19	< 0.050	< 0.050	< 0.050	< 0.099	3,100
		Pettigrew Vadose Zone	16-Dec-15	<5.0	<9.6	<48	NA	< 0.050	< 0.050	< 0.050	< 0.099	NA
		API Vadose Zone	19-Mar-15	<5.0	<9.9	<50	<20	< 0.050	< 0.050	< 0.050	< 0.10	<30
API Call	ADI	API Vadose Zone	26-Jun-15	<4.9	<9.9	<50	NA	< 0.049	< 0.049	< 0.049	< 0.098	NA
AITCEI	AII	API Vadose Zone	1-Sep-15	<4.8	<10	<51	<19	< 0.048	< 0.048	< 0.048	< 0.096	38
		API Vadose Zone	16-Dec-15	<4.8	<9.6	<48	NA	< 0.048	< 0.048	< 0.048	< 0.097	NA
Background Sample Result			27-Mar-98 and 1-Sep-15	<4.8*	<50	<50*	<20*	<0.05	< 0.05	<0.05	<0.05	<50

Notes:

DRO - Diesel Range Organics

GRO - Gasoline Range Organics

MRO - Motor Oil 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



TABLE 3

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

Cell	Source Area	Sample ID	Sample Date	Chloride (mg/kg)	Sulfate (mg/kg)	Alkalinity (mg/kg)	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Calcium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)	Magnesium (mg/kg)	Potassium (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Sodium (mg/kg)	Mercury (mg/kg)
	West Line	West Line Vadose Zone	19-Mar-15	<30	54	534	<2.5	40	< 0.10	16,000	2.7	2.3	1,700	840	<2.5	< 0.25	180	< 0.032
Conde Coll	East Line	East Line Vadose Zone	19-Mar-15	<30	190	92	<2.5	92	< 0.10	3,000	2.6	2.5	1,200	860	<2.5	< 0.25	97	< 0.034
Crude Cell	Bisti	Bisti Vadose Zone	19-Mar-15	<30	<30	98	<2.4	180	< 0.098	7,000	3.0	2.2	1,700	920	<2.4	< 0.24	78	< 0.032
	Pettigrew	Pettigrew Vadose Zone	19-Mar-15	<30	<30	84	<2.4	48	< 0.097	2,300	1.7	1.7	910	600	<2.4	< 0.24	78	< 0.033
API Cell	API	API Vadose Zone	19-Mar-15	<30	47	259	<2.5	66	< 0.10	1,300	2.3	2.7	1,100	780	<2.5	<0.25	350	< 0.033
Background Sample Result		27-Mar-98	<50	140	NA	2.8	180	<1.3	2,500	<5.0	6.8	1,300	810	<2.5	<1.3	90	< 0.50	

Notes: mg/kg - milligrams per kilograms NA - Not Analyzed < indicates result is less than the stated laboratory method practical quantitation limit



APPENDIX A

LABORATORY ANALYTICAL REPORTS



HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

March 26, 2015

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

RE: Bisti Landfarm Treatment Zone Sampling

OrderNo.: 1503941

Dear Ashley Ager:

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

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

Hall Environmental Analysis Laboratory, Inc. Date Reported: 3/26/2015									
CLIENT: Western Refining Southwest, Inc.ClienProject: Bisti Landfarm Treatment Zone SamplingCollLab ID: 1503941-001Matrix: SOILRe					Client Sample ID: Crude Cell Treatment Zone Collection Date: 3/19/2015 11:40:00 AM Received Date: 3/20/2015 8:30:00 AM				
Analyses		Result	RL	Qual	Units	DF	Date Analyzed	Batch	
EPA MET	EPA METHOD 8015D: DIESEL RANGE ORGANICS Analyst: JME								
Diesel Ra	ange Organics (DRO)	95	10		mg/Kg	1	3/24/2015 5:07:44 PM	18271	
Motor Oil	Range Organics (MRO)	240	50		mg/Kg	1	3/24/2015 5:07:44 PM	18271	
Surr: D	NOP	125	63.5-128		%REC	1	3/24/2015 5:07:44 PM	18271	
EPA MET	HOD 8015D: GASOLINE RANG	E					Analyst	NSB	
Gasoline	Range Organics (GRO)	ND	4.9		mg/Kg	1	3/25/2015 11:37:40 AM	18259	
Surr: B	FB	96.0	80-120		%REC	1	3/25/2015 11:37:40 AM	18259	
EPA MET	HOD 300.0: ANIONS						Analyst	LGT	
Chloride		ND	30		mg/Kg	20	3/24/2015 1:33:07 PM	18295	
EPA MET	HOD 418.1: TPH						Analyst	BCN	
Petroleum	n Hydrocarbons, TR	130	20		mg/Kg	1	3/24/2015	18261	

Analytical Report Lab Order 1503941

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Metho	od Blank
	Е	Value above quantitation range	H	Holding times for preparation or analysis	s exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	Page 1 of 6
	0	RSD is greater than RSDlimit	Р	Sample pH Not In Range	1 age 1 01 0
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Hall E	Lab Order 1503941Hall Environmental Analysis Laboratory, Inc.Date Reported: 3/26/2015									
CLIENT:	Western Refining Southwes	t, Inc.	С	lient Samp	le ID: AP	I Cell Treatment Zone	•			
Project:	Bisti Landfarm Treatment Z	one Sampling			Collection	Date: 3/1	9/2015 12:15:00 PM			
Lab ID:	1503941-002	Matrix:	SOIL		Received	Date: 3/2	0/2015 8:30:00 AM			
Analyses		Result	RL	Qual	Units	DF	Date Analyzed	Batch		
EPA MET	EPA METHOD 8015D: DIESEL RANGE ORGANICS Analyst: JME									
Diesel R	ange Organics (DRO)	15	9.9		mg/Kg	1	3/24/2015 5:29:38 PM	18271		
Motor Oi	Range Organics (MRO)	81	50		mg/Kg	1	3/24/2015 5:29:38 PM	18271		
Surr: [ONOP	127	63.5-128		%REC	1	3/24/2015 5:29:38 PM	18271		
EPA MET	HOD 8015D: GASOLINE RA	NGE					Analyst	NSB		
Gasoline	Range Organics (GRO)	ND	4.9		mg/Kg	1	3/25/2015 12:06:24 PM	18259		
Surr: E	BFB	89.5	80-120		%REC	1	3/25/2015 12:06:24 PM	18259		
EPA MET	HOD 300.0: ANIONS						Analyst	LGT		
Chloride		110	30		mg/Kg	20	3/24/2015 2:10:21 PM	18295		
EPA MET	HOD 418.1: TPH						Analyst	BCN		
Petroleur	m Hydrocarbons, TR	63	20		mg/Kg	1	3/24/2015	18261		

Analytical Report

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	B Analyte detected in the associated Method Blank		
	E Value above quantitation range		Н	Holding times for preparation or analysis exceeded		
	J	Analyte detected below quantitation limits	ND	ND Not Detected at the Reporting Limit		
	0	RSD is greater than RSDlimit	Р	Sample pH Not In Range	1 age 2 01 0	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit		
	S	Spike Recovery outside accepted recovery limits				

Hall Environmental Analysis Laboratory, Inc.

Client:	Western Refining Southwest, Inc.					
Project:	Bisti La	and farm Treatment Zone Samplin	ng			
Sample ID MI	B-18295	SampType: MBLK	TestCode: EPA Method			

Sample ID	MB-18295	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	300.0: Anion	S		
Client ID:	PBS	Batch	ID: 18	295	F	RunNo: 2	5049				
Prep Date:	3/24/2015	Analysis D	ate: 3/	24/2015	5	SeqNo: 7	39028	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND	1.5								
Sample ID	LCS-18295	SampT	ype: LC	S	Tes	tCode: El	PA Method	300.0: Anion	s		
Sample ID Client ID:	LCS-18295 LCSS	SampT Batch	ype: LC	S 295	Tes F	tCode: El RunNo: 2	PA Method 5049	300.0: Anion	S		
Sample ID Client ID: Prep Date:	LCS-18295 LCSS 3/24/2015	SampT Batch Analysis D	ype: LC 1D: 18 ate: 3/	S 295 24/2015	Tes F S	tCode: El RunNo: 2 SeqNo: 7	PA Method 5049 39029	300.0: Anion Units: mg/K	s		
Sample ID Client ID: Prep Date: Analyte	LCS-18295 LCSS 3/24/2015	SampT Batch Analysis D Result	ype: LC 1D: 18 ate: 3/ PQL	S 295 24/2015 SPK value	Tes F S SPK Ref Val	tCode: El RunNo: 2 SeqNo: 7 %REC	PA Method 5049 39029 LowLimit	300.0: Anion Units: mg/K HighLimit	s íg %RPD	RPDLimit	Qual

Qualifiers:

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

WO#: 1503941 26-Mar-15

Page 3 of 6

Hall Environmental Analysis Laboratory, Inc.

Client:	Western	Refining So	outhwe	st, Inc.							
Project:	Bisti La	ndfarm Trea	itment 2	Zone Samp	ling						
Sample ID	MB-18261	SampTy	ype: ME	BLK	Tes	tCode: E	PA Method	418.1: TPH			
Client ID:	PBS	Batch	ID: 18	261	F	RunNo: 2	5036				
Prep Date:	3/20/2015	Analysis Da	ate: 3/	24/2015	S	SeqNo: 7	38310	Units: mg/	Kg		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hyd	rocarbons, TR	ND	20								
Sample ID	LCS-18261	SampTy	ype: LC	S	Tes	tCode: E	PA Method	418.1: TPH			
Client ID:	LCSS	Batch	ID: 18	261	F	RunNo: 2	5036				
Prep Date:	3/20/2015	Analysis Da	ate: 3/	24/2015	S	SeqNo: 7	38311	Units: mg/	Kg		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hyd	rocarbons, TR	110	20	100.0	0	107	86.7	126			
Sample ID	LCSD-18261	SampTy	ype: LC	SD	Tes	tCode: E	PA Method	418.1: TPH			
Client ID:	LCSS02	Batch	ID: 18	261	F	RunNo: 2	5036				
Prep Date:	3/20/2015	Analysis Da	ate: 3/	24/2015	S	eqNo: 7	38312	Units: mg/	Kg		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hyd	rocarbons, TR	110	20	100.0	0	107	86.7	126	0000706	20	

Qualifiers:

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

Page 4 of 6

WO#: 1503941 26-Mar-15

Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Western Bisti Lar	Refining So ndfarm Trea	tment	st, Inc. Zone Samp	ling						
Sample ID	MB-18320	SampTy	pe: MI	BLK	Tes	tCode: E	PA Method	8015D: Dies	el Range C	Organics	
Client ID:	PBS	Batch	ID: 18	320	F	RunNo: 2	25042				
Prep Date:	3/25/2015	Analysis Da	ate: 3/	25/2015	S	SeqNo: 7	38863	Units: %RE	С		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP		10		10.00		104	63.5	128			
Sample ID	MB-18271	SampTy	pe: MI	BLK	Tes	tCode: E	PA Method	8015D: Diese	el Range C	Organics	
Client ID:	PBS	Batch	ID: 18	271	F	RunNo: 2	5013				
Prep Date:	3/23/2015	Analysis Da	ate: 3/	24/2015	S	SeqNo: 7	38864	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 Rang	e Organics (MRO)	ND	50	10.00		100		100			
Surr: DNOP		11		10.00		108	63.5	128			
Sample ID	LCS-18271	SampTy	/pe: LC	s	Tes	tCode: E	PA Method	8015D: Diese	el Range C	Organics	
Client ID:	LCSS	Batch	ID: 18	271	F	RunNo: 2	5013				
Prep Date:	3/23/2015	Analysis Da	ate: 3/	24/2015	S	SeqNo: 7	38865	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range (Organics (DRO)	45	10	50.00	0	89.7	67.8	130			
Surr: DNOP		5.5		5.000		111	63.5	128			
Sample ID	LCS-18320	SampTy	pe: LC	s	Tes	tCode: E	PA Method	8015D: Diese	el Range C	Organics	
Client ID:	LCSS	Batch	ID: 18	320	F	RunNo: 2	5042				
Prep Date:	3/25/2015	Analysis Da	ate: 3/	25/2015	S	SeqNo: 7	39018	Units: %RE	С		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP		5.8		5.000		116	63.5	128			
Sample ID	MB-18291	SampTy	vpe: ME	BLK	Tes	tCode: E	PA Method	8015D: Diese	el Range C	Organics	
Client ID:	PBS	Batch	ID: 18	291	R	RunNo: 2	5042				
Prep Date:	3/24/2015	Analysis Da	ate: 3/	25/2015	S	SeqNo: 7	39019	Units: %RE	С		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP		10		10.00		101	63.5	128			
Sample ID	LCS-18291	SampTy	pe: LC	S	Test	tCode: E	PA Method	8015D: Diese	l Range C	Organics	
Client ID:	LCSS	Batch	ID: 18	291	R	aunNo: 2	5042				
Prep Date:	3/24/2015	Analysis Da	ate: 3/	25/2015	S	SeqNo: 7	39025	Units: %RE	C		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP		5.1		5.000		103	63.5	128			

Qualifiers:

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

WO#: 1503941

26-Mar-15

Page 5 of 6

Hall Environmental Analysis Laboratory, Inc.

WO#: 1503941

26-Mar-15

Client:	Western	Refining Sou	thwe	st, Inc.							
Project:	Bisti La	ndfarm Treatn	nent .	Zone Samp	ing						
Sample ID	MB-18259	SampType	e: MI	BLK	Tes	tCode: E	PA Method	8015D: Gaso	oline Rang	e	
Client ID:	PBS	Batch ID): 18	259	F	RunNo: 2	4979				
Prep Date:	3/20/2015	Analysis Date	e: 3	/22/2015	5	SeqNo: 7	36061	Units: mg/h	٢g		
Analyte		Result F	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	ND	5.0								
Surr: BFB		860		1000		85.6	80	120			
Sample ID	LCS-18259	SampType	e: LC	s	Tes	tCode: E	PA Method	8015D: Gaso	oline Rang	e	
Client ID:	LCSS	Batch ID): 18	259	F	RunNo: 2	4979				
Prep Date:	3/20/2015	Analysis Date	: 3/	/22/2015	S	SeqNo: 7	36062	Units: mg/k	(g		
Analyte		Result F	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Rang	e Organics (GRO)	25	5.0	25.00	0	100	64	130			
Surr: BFB		960		1000		95.6	80	120			
Sample ID	MB-18294	SampType	e: MI	BLK	Tes	tCode: E	PA Method	8015D: Gaso	line Rang	e	
Client ID:	PBS	Batch ID	: 18	294	F	RunNo: 2	5056				
Prep Date:	3/24/2015	Analysis Date	: 3/	/25/2015	S	SeqNo: 7	39665	Units: %RE	С		
Analyte		Result F	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB		870		1000		87.2	80	120			
Sample ID	LCS-18294	SampType	e: LC	s	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	e	
Client ID:	LCSS	Batch ID	: 18	294	R	RunNo: 2	5056				
Prep Date:	3/24/2015	Analysis Date	: 3/	25/2015	S	eqNo: 7	39666	Units: %RE	С		
Analyte		Result F	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: BFB		930		1000		93.0	80	120			

Qualifiers:

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

Page 6 of 6

Client Name: Western Refining Southw Work Order Number: 1503941 RcptNo: 1 Received by/date: 03/20/15 03/20/15 03/20/15 Logged By: Lindsay Mangin 3/20/2015 8:30:00 AM Judy Hago Completed By: Lindsay Mangin 3/20/2015 12:42:11 PM Judy Hago Reviewed By: 03/20/15 03/20/15 03/20/15	st
Received by/date: 03/20/15 Logged By: Lindsay Mangin 3/20/2015 8:30:00 AM Judy/Hago Completed By: Lindsay Mangin 3/20/2015 12:42:11 PM Judy/Hago Reviewed By: 03/20/15	
Logged By: Lindsay Mangin 3/20/2015 8:30:00 AM 9 - 9 - 9 - 9 - 9 - 9 - 9 - 9 - 9 - 9 -	
Completed By: Lindsay Mangin 3/20/2015/12:42:11 PM	
Chain of Custody	I
1. Custody seals intact on sample bottles? Yes No No Not Present	
2. Is Chain of Custody complete? Yes 🐼 No 🗌 Not Present 🗌	
3. How was the sample delivered? Courier	
Log In	
4. Was an attempt made to cool the samples? Yes 🖉 No 🗌 NA 🗌	
5. Were all samples received at a temperature of >0° C to 6.0° C Yes 🐼 No 🗌 NA 🗌	
6. Sample(s) in proper container(s)? Yes 🐼 No 🗌	
7. Sufficient sample volume for indicated test(s)? Yes <table-cell> No</table-cell>	
8. Are samples (except VOA and ONG) properly preserved? Yes 🐼 No	
9. Was preservative added to bottles? Yes No <table-cell> NA</table-cell>	
10.VOA vials have zero headspace? Yes 🗌 No 🗌 No VOA Vials 🖻	
11. Were any sample containers received broken? Yes No 🖉 # of preserved	
12.Does paperwork match bottle labels? Yes No Concern to the labels? Yes (Note discrepancies on chain of custody) Yes (<2 or >12 unless of (<2 or >12 unles)	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 a	Il discrepancies	with this order	?	Yes 🗌	No 🗆	NA 🛃
Person Notified:			Date	· [
By Whom:		na na kala 2004 1.6.2003.0300 mili minana mila mila	Via:	eMail	Phone Fax	In Person
Regarding:				1997 - Canada An Ann an Alaska a Shakar	anna oh 1994 A. D. C.	Alexandra and an
Client Instruction	s:					darken ander and
17. Additional remarks:	·					
8. Cooler Information						
Cooler No Temp	C Condition	Seal Intact	Seal No	Seal Date	Signed By	1
1 100	Good	Yes				1

С	hain-	of-Cu	stody Record	Turn-Around	Time:										тр						
lient:	Vest Telly Address:	Robin	Refining Uson CR 4990	Destandard I Rush Project Name: Bizti landfarm Treatment Zone Sampling				ANALYSIS LABORATORY www.hallenvironmental.com 4901 Hawkins NE - Albuquerque, NM 87109													
Blc hone #	tom fie #: SC	212 1	VM, 87413	WR 1005			Tel. 505-345-3975 Fax 505-345-4107 Analysis Request														
amail or A/QC F	Fax#: A Package: dard	celly Ra	Level 4 (Full Validation)	Project Mana Ashky	ger: Ager	1	3's (8021)	H (Gas only)	RO / MRO)			SIMS)		2, 104,004	32 PCB's						
	tation AP (Type)_	□ Othe	r	Sampler: Da On Ice: Sample Ten	riel Neuman Zives perature: 2	/ <u>Mike Wicker</u> UNO 1	BE + TME	BE + TPF	(GRO/D	od 418.1)	od 504.1)	0 or 8270	etals	UNIO3'INO	sides / 808	A)	(YOA)	2			(V or N)
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEALNO 1503941	BTEX + MT	BTEX + MT	TPH 8015E	TPH (Meth	EDB (Meth	PAH's (831	RCRA 8 M	Allous (L',	8081 Pestic	8260B (VO	8270 (Sem	SEE (Air Bubbles
3/14/15	140	Soil	Crude Cell Treatment Zone	2/402	Coul	-001									_			X			
5/19/15	1015	201	API Cell Treatment Zone	21402	Cool	-002							_					<i>X</i> :			
									_				+	+	_	-				+	+
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			Λ_{-i}																		
Date:	Time: 60-6 Time:	Relinquist	led by:	Received by:	sh)aete	Date Time 3/19/15/1600 Date Time	Rei	nark >)ec	s: SSE	2	Co	GC.	/ 1	È	sul	-15		10			
119/15	19/15 1825 Mistre Walters			1	× c	3/20/15 083	Þ	0¢	290	er(01	ter	IV.	(0	3m	1	Amount				

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

Treatment Zone

TPH-GRO, DRO, MRO 8015

TPH 418.1

Chloride

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

April 17, 2015

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

RE: Bisti Landfarm Vadose Zone Sampling

OrderNo.: 1503936

Dear Ashley Ager:

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

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

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <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

Hall Environmental Analys	is Labora	tory, In	с.		Lab Order 1503936 Date Reported: 4/17/201	15
CLIENT: Western Refining Southwest, Project: Bisti Landfarm Vadose Zone Lab ID: 1503936-001	Inc. Sampling Matrix:	SOIL	Client Sample Collection D	ID: We ate: 3/1	estline Vadose Zone 9/2015 10:30:00 AM	
Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE	ORGANICS				Analyst	JME
Diesel Range Organics (DRO)	16	9.8	ma/Ka	1	3/24/2015 2:35:16 PM	18271
Motor Oil Range Organics (MRO)	50	49	mg/Kg	1	3/24/2015 2:35:16 PM	18271
Sur: DNOP	116	63.5-128	%REC	1	3/24/2015 2:35:16 PM	18271
EPA METHOD 8015D: GASOLINE RAN	IGE				Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.7	ma/Ka	1	3/25/2015 12:19:15 AM	18259
Surr: BFB	86.5	80-120	%REC	1	3/25/2015 12:19:15 AM	18259
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.047	ma/Ka	1	3/25/2015 12:19:15 AM	18259
Toluene	ND	0.047	mg/Kg	1	3/25/2015 12:19:15 AM	18259
Ethylbenzene	ND	0.047	mg/Kg	1	3/25/2015 12:19:15 AM	18259
Xylenes, Total	ND	0.094	mg/Kg	1	3/25/2015 12:19:15 AM	18259
Surr: 4-Bromofluorobenzene	100	80-120	%REC	1	3/25/2015 12:19:15 AM	18259
EPA METHOD 300.0: ANIONS					Analyst:	LGT
Chloride	ND	30	mg/Kg	20	4/2/2015 11:58:10 AM	18493
Sulfate	54	30	mg/Kg	20	4/2/2015 11:58:10 AM	18493
EPA METHOD 7471: MERCURY					Analyst:	MED
Mercury	ND	0.032	mg/Kg	1	3/25/2015 12:25:23 PM	18315
EPA METHOD 6010B: SOIL METALS					Analyst:	ELS
Arsenic	ND	2.5	mg/Kg	1	3/25/2015 2:06:32 PM	18292
Barium	40	0.10	mg/Kg	1	3/25/2015 2:06:32 PM	18292
Cadmium	ND	0.10	mg/Kg	1	3/25/2015 2:06:32 PM	18292
Calcium	16000	130	mg/Kg	5	3/25/2015 4:10:00 PM	18292
Chromium	2.7	0.30	mg/Kg	1	3/25/2015 2:06:32 PM	18292
Lead	2.3	0.25	mg/Kg	1	3/25/2015 2:06:32 PM	18292
Magnesium	1700	25	mg/Kg	1	3/25/2015 2:06:32 PM	18292
Potassium	840	50	mg/Kg	1	3/25/2015 2:06:32 PM	18292
Selenium	ND	2.5	mg/Kg	1	3/25/2015 2:06:32 PM	18292
Silver	ND	0.25	mg/Kg	1	3/25/2015 2:06:32 PM	18292
Sodium	180	25	mg/Kg	1	3/25/2015 2:06:32 PM	18292
EPA METHOD 418.1: TPH					Analyst:	BCN
Petroleum Hydrocarbons, TR	26	20	mg/Kg	1	3/24/2015	18261

Analytical Report

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Metho	d Blank
	E	Value above quantitation range	H Holding times for preparation or analysis exce		
	J	Analyte detected below quantitation limits	ND Not Detected at the Reporting Limit		Page 1 of 14
	0	RSD is greater than RSDlimit	P	Sample pH Not In Range	1 age 1 01 14
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Hall En	vironmental Analysi	s Labora	tory, Ir	IC.			Date Reported: 4/17/20	15
CLIENT:	Western Refining Southwest, I	nc.		(Client Samp	le ID: Ea	stline Vadose Zone	
Project:	Bisti Landfarm Vadose Zone S	ampling			Collection	Date: 3/1	9/2015 10:54:00 AM	
Lab ID:	1503936-002	Matrix:	SOIL		Received	Date: 3/2	0/2015 8:30:00 AM	
Analyses		Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METH	HOD 8015D: DIESEL RANGE	ORGANICS					Analyst	JME
Diesel Ra	nge Organics (DRO)	45	10		mg/Kg	1	3/25/2015 5:03:04 PM	18271
Motor Oil	Range Organics (MRO)	61	50		mg/Kg	1	3/25/2015 5:03:04 PM	18271
Surr: D	NOP	127	63.5-128		%REC	1	3/25/2015 5:03:04 PM	18271
EPA METH	OD 8015D: GASOLINE RANG	GE					Analyst	NSB
Gasoline I	Range Organics (GRO)	ND	4.9		mg/Kg	1	3/25/2015 12:47:56 AM	18259
Surr: Bl	FB	85.9	80-120		%REC	1	3/25/2015 12:47:56 AM	18259
	OD 8021B: VOLATILES						Analyst	NSB
Benzene		ND	0.049		mg/Kg	1	3/25/2015 12:47:56 AM	18259
Toluene		ND	0.049		mg/Kg	1	3/25/2015 12:47:56 AM	18259
Ethylbenz	ene	ND	0.049		mg/Kg	1	3/25/2015 12:47:56 AM	18259
Xylenes, 7	Total	ND	0.097		mg/Kg	1	3/25/2015 12:47:56 AM	18259
Surr: 4-	Bromofluorobenzene	99.2	80-120		%REC	1	3/25/2015 12:47:56 AM	18259
EPA METH	OD 300.0: ANIONS						Analyst	LGT
Chloride		ND	30		mg/Kg	20	4/2/2015 12:35:24 PM	18493
Sulfate		190	30		mg/Kg	20	4/2/2015 12:35:24 PM	18493
EPA METH	OD 7471: MERCURY						Analyst	MED
Mercury		ND	0.034		mg/Kg	1	3/25/2015 12:27:11 PM	18315
EPA METH	OD 6010B: SOIL METALS						Analyst	ELS
Arsenic		ND	2.5		mg/Kg	1	3/25/2015 2:10:11 PM	18292
Barium		92	0.10		mg/Kg	1	3/25/2015 2:10:11 PM	18292
Cadmium		ND	0.10		mg/Kg	1	3/25/2015 2:10:11 PM	18292
Calcium		3000	25		mg/Kg	1	3/25/2015 2:10:11 PM	18292
Chromium	1	2.6	0.30		mg/Kg	1	3/25/2015 2:10:11 PM	18292
Lead		2.5	0.25		mg/Kg	1	3/25/2015 2:10:11 PM	18292
Magnesiur	n	1200	25		mg/Kg	1	3/25/2015 2:10:11 PM	18292
Potassium		860	50		mg/Kg	1	3/25/2015 2:10:11 PM	18292
Selenium		ND	2.5		mg/Kg	1	3/25/2015 2:10:11 PM	18292
Silver		ND	0.25		mg/Kg	1	3/25/2015 2:10:11 PM	18292
Sodium		97	25		mg/Kg	1	3/25/2015 2:10:11 PM	18292
EPA METH	IOD 418.1: TPH						Analyst:	BCN
Petroleum	Hydrocarbons, TR	81	20		mg/Kg	1	3/24/2015	18261

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank		
	Е	Value above quantitation range	H	Holding times for preparation or analysis exceeded		
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	Page 2 of 14	
	0	RSD is greater than RSDlimit	P	Sample pH Not In Range	1 age 2 01 14	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit		
	S	Spike Recovery outside accepted recovery limits				

Analytical Report Lab Order 1503936

Hall Er	vironmental Analys	is Labora	tory, In	IC.		Lab Order 1503936 Date Reported: 4/17/20	15
CLIENT: Project: Lab ID:	Western Refining Southwest, Bisti Landfarm Vadose Zone 1503936-003	Inc. Sampling Matrix:	SOIL	Client Sample Collection D Received D	ID: Bis ate: 3/1 ate: 3/2	sti Vadose Zone 9/2015 11:00:00 AM 0/2015 8:30:00 AM	
Analyses		Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA MET	HOD 8015D: DIESEL RANGE	ORGANICS				Analyst	JME
Diesel Ra	ange Organics (DRO)	ND	10	mg/Kg	1	3/24/2015 4:02:18 PM	18271
Motor Oil	Range Organics (MRO)	ND	50	mg/Kg	1	3/24/2015 4:02:18 PM	18271
Surr: D	DNOP	125	63.5-128	%REC	1	3/24/2015 4:02:18 PM	18271
EPA MET	HOD 8015D: GASOLINE RAN	IGE				Analyst	NSB
Gasoline	Range Organics (GRO)	ND	4.9	mg/Kg	1	3/25/2015 1:16:36 AM	18259
Surr: E	BFB	85.3	80-120	%REC	1	3/25/2015 1:16:36 AM	18259
EPA MET	HOD 8021B: VOLATILES					Analyst	NSB
Benzene		ND	0.049	ma/Ka	1	3/25/2015 1:16:36 AM	18259
Toluene		ND	0.049	mg/Kg	1	3/25/2015 1:16:36 AM	18259
Ethylben	zene	ND	0.049	mg/Kg	1	3/25/2015 1:16:36 AM	18259
Xylenes,	Total	ND	0.098	mg/Kg	1	3/25/2015 1:16:36 AM	18259
Surr: 4	-Bromofluorobenzene	98.3	80-120	%REC	1	3/25/2015 1:16:36 AM	18259
EPA MET	HOD 300.0: ANIONS					Analyst	LGT
Chloride		ND	30	mg/Kg	20	4/2/2015 12:47:49 PM	18493
Sulfate		ND	30	mg/Kg	20	4/2/2015 12:47:49 PM	18493
EPA MET	HOD 7471: MERCURY					Analyst	MED
Mercury		ND	0.032	mg/Kg	1	3/25/2015 12:32:41 PM	18315
EPA MET	HOD 6010B: SOIL METALS			5 5		Analyst	ELS
Arsenic		ND	24	ma/Ka	1	3/25/2015 2:13:30 PM	18292
Barium		180	0.098	mg/Kg	1	3/25/2015 2:13:30 PM	18292
Cadmium	l	ND	0.098	ma/Ka	1	3/25/2015 2:13:30 PM	18292
Calcium		7000	49	ma/Ka	2	3/25/2015 2:15:17 PM	18292
Chromiur	n	3.0	0.29	mg/Kg	1	3/25/2015 2:13:30 PM	18292
Lead		2.2	0.24	mg/Kg	1	3/25/2015 2:13:30 PM	18292
Magnesiu	m	1700	24	mg/Kg	1	3/25/2015 2:13:30 PM	18292
Potassiur	m	920	49	mg/Kg	1	3/25/2015 2:13:30 PM	18292
Selenium	1	ND	2.4	mg/Kg	1	3/25/2015 2:13:30 PM	18292
Silver		ND	0.24	mg/Kg	1	3/25/2015 2:13:30 PM	18292
Sodium		78	24	mg/Kg	1	3/25/2015 2:13:30 PM	18292
EPA MET	HOD 418.1: TPH					Analyst:	BCN
Petroleun	n Hydrocarbons, TR	ND	20	mg/Kg	1	3/24/2015	18261

Analytical Report

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Meth	od Blank		
	Е	Value above quantitation range	H	Holding times for preparation or analysis exceeded			
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	Page 3 of 14		
	0	RSD is greater than RSDlimit	Р	Sample pH Not In Range	1 age 5 01 14		
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit			
	S	Spike Recovery outside accepted recovery limits					

Hall Environmental Analysis Laboratory, Inc. Date Reported: 4/17/2015							
CLIENT: Project: Lab ID:	Western Refining Southwest, I Bisti Landfarm Vadose Zone S 1503936-004	nc. ampling Matrix:	SOIL	Client Sampl Collection I Received I	e ID: Pet Date: 3/1 Date: 3/2	tigrew Vadose Zone 9/2015 11:32:00 AM 0/2015 8:30:00 AM	
Analyses		Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS Analyst: JME							JME
Diesel Ra	ange Organics (DRO)	ND	10	mg/Kg	1	3/24/2015 4:24:04 PM	18271
Motor Oil	Range Organics (MRO)	ND	50	mg/Kg	1	3/24/2015 4:24:04 PM	18271
Surr: D	NOP	124	63.5-128	%REC	1	3/24/2015 4:24:04 PM	18271
EPA MET	HOD 8015D: GASOLINE RANG	GE				Analyst	NSB
Gasoline	Range Organics (GRO)	ND	5.0	mg/Kg	1	3/25/2015 1:45:13 AM	18259
Surr: B	FB	85.6	80-120	%REC	1	3/25/2015 1:45:13 AM	18259
EPA MET	HOD 8021B: VOLATILES					Analyst	NSB
Benzene		ND	0.050	mg/Kg	1	3/25/2015 1:45:13 AM	18259
Toluene		ND	0.050	mg/Kg	1	3/25/2015 1:45:13 AM	18259
Ethylbenz	zene	ND	0.050	mg/Kg	1	3/25/2015 1:45:13 AM	18259
Xylenes,	Total	ND	0.10	mg/Kg	1	3/25/2015 1:45:13 AM	18259
Surr: 4	-Bromofluorobenzene	99.3	80-120	%REC	1	3/25/2015 1:45:13 AM	18259
EPA MET	HOD 300.0: ANIONS					Analyst	LGT
Chloride		ND	30	mg/Kg	20	4/2/2015 1:00:14 PM	18493
Sulfate		ND	30	mg/Kg	20	4/2/2015 1:00:14 PM	18493
EPA MET	HOD 7471: MERCURY					Analyst	MED
Mercury		ND	0.033	mg/Kg	1	3/25/2015 12:34:30 PM	18315
EPA MET	HOD 6010B: SOIL METALS					Analyst:	ELS
Arsenic		ND	2.4	mg/Kg	1	3/25/2015 2:16:56 PM	18292
Barium		48	0.097	mg/Kg	1	3/25/2015 2:16:56 PM	18292
Cadmium		ND	0.097	mg/Kg	1	3/25/2015 2:16:56 PM	18292
Calcium		2300	24	mg/Kg	1	3/25/2015 2:16:56 PM	18292
Chromiun	n	1.7	0.29	mg/Kg	1	3/25/2015 2:16:56 PM	18292
Lead		1.7	0.24	mg/Kg	1	3/25/2015 2:16:56 PM	18292
Magnesiu	m	910	24	mg/Kg	1	3/25/2015 2:16:56 PM	18292
Potassiun	n	600	49	mg/Kg	1	3/25/2015 2:16:56 PM	18292
Selenium		ND	2.4	mg/Kg	1	3/25/2015 2:16:56 PM	18292
Silver		ND	0.24	mg/Kg	1	3/25/2015 2:16:56 PM	18292
Sodium		78	24	mg/Kg	1	3/25/2015 2:16:56 PM	18292
EPA METI	HOD 418.1: TPH					Analyst:	BCN
Petroleum	Hydrocarbons, TR	ND	20	mg/Kg	1	3/24/2015	18261

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

Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank		
Value above quantitation range	Η	Holding times for preparation or analysis exceeded		
J Analyte detected below quantitation limits		Not Detected at the Reporting Limit	Page 4 of 14	
RSD is greater than RSDlimit	Ρ	Sample pH Not In Range	1 age + 01 1+	
RPD outside accepted recovery limits	RL	Reporting Detection Limit		
Spike Recovery outside accepted recovery limits				
	Value exceeds Maximum Contaminant Level. Value above quantitation range Analyte detected below quantitation limits RSD is greater than RSDlimit RPD outside accepted recovery limits Spike Recovery outside accepted recovery limits	Value exceeds Maximum Contaminant Level. B Value above quantitation range H Analyte detected below quantitation limits ND RSD is greater than RSDlimit P RPD outside accepted recovery limits RL Spike Recovery outside accepted recovery limits RL	Value exceeds Maximum Contaminant Level.BAnalyte detected in the associated MethodValue above quantitation rangeHHolding times for preparation or analysisAnalyte detected below quantitation limitsNDNot Detected at the Reporting LimitAssociated MethodPSample pH Not In RangeAssociated recovery limitsRLReporting Detection LimitAssociated MethodRLReporting Detection Limit	

Analytical Report Lab Order 1503936 Date Reported: 4/17/2015

Hall Environmental Analysis Laboratory, Inc.Lab Order 1503936Date Reported: 4/17/2015							
CLIENT: Western Refining Southwest, In Project: Bisti Landfarm Vadose Zone Sa Lab ID: 1503936-005	Client Sampl Collection D Received D	Client Sample ID: API Vadose Zone Collection Date: 3/19/2015 11:56:00 AM Received Date: 3/20/2015 8:30:00 AM					
Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch	
EPA METHOD 8015D: DIESEL RANGE O	RGANICS				Analyst	JME	
Diesel Range Organics (DRO)	ND	9.9	mg/Kg	1	3/24/2015 4:46:00 PM	18271	
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	3/24/2015 4:46:00 PM	18271	
Surr: DNOP	117	63.5-128	%REC	1	3/24/2015 4:46:00 PM	18271	
EPA METHOD 8015D: GASOLINE RANG	E				Analyst	NSB	
Gasoline Range Organics (GRO)	ND	5.0	ma/Ka	1	3/25/2015 2:13:51 AM	18259	
Surr: BFB	86.6	80-120	%REC	1	3/25/2015 2:13:51 AM	18259	
EPA METHOD 8021B: VOLATILES					Analyst	NSB	
Benzene	ND	0.050	mg/Kg	1	3/25/2015 2:13:51 AM	18259	
Toluene	ND	0.050	mg/Kg	1	3/25/2015 2:13:51 AM	18259	
Ethylbenzene	ND	0.050	mg/Kg	1	3/25/2015 2:13:51 AM	18259	
Xylenes, Total	ND	0.10	mg/Kg	1	3/25/2015 2:13:51 AM	18259	
Surr: 4-Bromofluorobenzene	102	80-120	%REC	1	3/25/2015 2:13:51 AM	18259	
EPA METHOD 300.0: ANIONS					Analyst	LGT	
Chloride	ND	30	mg/Kg	20	4/2/2015 1:37:28 PM	18493	
Sulfate	47	30	mg/Kg	20	4/2/2015 1:37:28 PM	18493	
EPA METHOD 7471: MERCURY					Analyst:	MED	
Mercury	ND	0.033	mg/Kg	1	3/25/2015 12:36:19 PM	18315	
EPA METHOD 6010B: SOIL METALS					Analyst	ELS	
Arsenic	ND	2.5	mg/Kg	1	3/25/2015 2:25:35 PM	18292	
Barium	66	0.10	mg/Kg	1	3/25/2015 2:25:35 PM	18292	
Cadmium	ND	0.10	mg/Kg	1	3/25/2015 2:25:35 PM	18292	
Calcium	1300	25	mg/Kg	1	3/25/2015 2:25:35 PM	18292	
Chromium	2.3	0.30	mg/Kg	1	3/25/2015 2:25:35 PM	18292	
Lead	2.7	0.25	mg/Kg	1	3/25/2015 2:25:35 PM	18292	
Magnesium	1100	25	mg/Kg	1	3/25/2015 2:25:35 PM	18292	
Potassium	780	50	mg/Kg	1	3/25/2015 2:25:35 PM	18292	
Selenium	ND	2.5	mg/Kg	1	3/25/2015 2:25:35 PM	18292	
Silver	ND	0.25	mg/Kg	1	3/25/2015 2:25:35 PM	18292	
Soaium	350	25	mg/Kg	1	3/25/2015 2:25:35 PM	16292	
EPA METHOD 418.1: TPH					Analyst:	BCN	
Petroleum Hydrocarbons, TR	ND	20	mg/Kg	1	3/24/2015	18261	

Analytical Report

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

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank		
	Е	Value above quantitation range	Η	Holding times for preparation or analysis exceeded		
	J	Analyte detected below quantitation limits	ts ND Not Detected at the Reporting Limit		Page 5 of 14	
	O RSD is greater than RSDlimit		Р	Sample pH Not In Range	I ugo 5 of 11	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit		
	S	Spike Recovery outside accepted recovery limits				


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LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

CHEMICAL CHARA Alkalinity, 1:2	CTERISTICS	534 mg/kg	D	ASA10-3	03/31/15 15:56 / rbf	
Analyses	· · · · · · · · · · · · · · · · · · ·	Result Units	Qualifie	er Method	Analysis Date / By	
Lab ID:	B15031855-001			Sampled	By: Not Provided	
Location:			0	ate Receiv	red: 03/24/15	
Client Sample ID:	1503936-001B, Westline Vadose Zone		C	ollection D	ate: 03/19/15 10:30	
Project:	Not Indicated			Report Da	ate: 04/01/15	
Client:	Hall Environmental					

Report Definitions: RL - Analyte reporting limit. QCL - Quality control limit. D - RL increased due to sample matrix. www.energylab.com

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LABORATORY ANALYTICAL REPORT Prepared by Billings, MT Branch Client: Hall Environmental **Project:** Not Indicated Report Date: 04/01/15 **Client Sample ID:** 1503936-002B, Eastline Vadose Zone Collection Date: 03/19/15 10:54 Location: Date Received: 03/24/15 Lab ID: B15031855-002 Sampled By: Not Provided **Result Units Qualifier Method** Analysis Date / By Analyses **CHEMICAL CHARACTERISTICS**

Alkalinity, 1:2

INERGY

92 mg/kg

D

ASA10-3 03/31/15 16:30 / rbf

Report Definitions:

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

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	LABORATORY A Prepared by Bi	NALYTICAL REPORT	
Client:	Hall Environmental		
Project:	Not Indicated		Report Date: 04/01/15
Client Sample ID:	1503936-003B, Bisti Vadose Zone		Collection Date: 03/19/15 11:00
Location:			Date Received: 03/24/15
Lab ID:	B15031855-003		Sampled By: Not Provided
Analyses		Result Units	Qualifier Method Analysis Date / By
CHEMICAL CHARA Alkalinity, 1:2	CTERISTICS	98 mg/kg	D ASA10-3 03/31/15 16:46 / rbf

	Martin and Martin	
LABORATORIES	XZ	MMM'6
LABORAIONED	and the second se	

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LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

CHEMICAL CHARA Alkalinity, 1:2	ACTERISTICS	84 mg/kg	D	ASA10-3	03/31/15 16:55 / rbf
Analyses		Result Units	Qualifie	r Method	Analysis Date / By
Lab ID:	B15031855-004			Sampled	By: Not Provided
Location:			D	ate Receiv	/ed: 03/24/15
Client Sample ID:	1503936-004B, Pettigrew Vadose Zone		Co	ollection D	ate: 03/19/15 11:32
Project:	Not Indicated			Report D	ate: 04/01/15
Client:	Hall Environmental	r			

Report Definitions:

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

	www.energylab.com	Col	lege Station, TX 8	88.690.2218	• Gillette, WY 866.686.7175	• Helena, MT 877.472.0711
	LABORA Prep	TORY AN ared by Bill	ALYTICAL lings, MT Bra	REPORT		
Client:	Hall Environmental					
Project:	Not Indicated				Report Date	: 04/01/15
Client Sample ID:	1503936-005B, API Vadose Zo	10			Collection Date	: 03/19/15 11:56
Location:					Date Received	: 03/24/15
Lab ID:	B15031855-005				Sampled By	: Not Provided
Analyses			Result	Units	Qualifier Method Ar	nalysis Date / By

CHEMICAL CHARACTERISTICS

Alkalinity, 1:2

259 mg/kg

D ASA10-3 03/31/15 17:00 / rbf

1

Report

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



QA/QC Summary Report

Prepared by Billings, MT Branch

Client:	Hall Environmental							Report	Date:	04/01/15	
Project:	Not Indicated							Work	Order:	B1503185	55
Analyte		Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method:	ASA10-3									Bat	ch: 88204
Lab ID:	LCS-88204	Lab	oratory Col	ntrol Sample			Run: ORIO	N555A_150331B		03/31/	15 15:50
Alkalinity,	1:2		104	mg/kg	4.0	74	50	150			
Lab ID:	B15031855-001ADUF	P San	nple Duplic	ate			Run: ORIO	N555A_150331B		03/31/	15 16:22
Alkalinity,	1:2		626	mg/kg	4.0				16	30	

Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Westerr Bisti La	n Refining S ndfarm Vac	Southwe	st, Inc. ne Sampling	g						
Sample ID	MB-18493	Samp	Гуре: МЕ	BLK	Tes	tCode: El	PA Method	300.0: Anion	s		
Client ID:	PBS	Batc	493	RunNo: 25277							
Prep Date:	4/2/2015	Analysis [Date: 4/	2/2015	SeqNo: 747465 Units: mg/Kg						
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND	1.5								
Sulfate		ND	1.5								
Sample ID	LCS-18493	Samp	Type: LC	s	Tes	tCode: El	PA Method	300.0: Anion	s		
Client ID:	LCSS	Batc	h ID: 18	493	R	unNo: 2	5277				
Prep Date:	4/2/2015	Analysis [lysis Date: 4/2/2015 SeqNo: 747466 Units: mg/Kg								
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		14	1.5	15.00	0	92.5	90	110			
Sulfate		29	1.5	30.00	0	97.2	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- E Value above quantitation range
- J Analyte detected below quantitation limits
- RSD is greater than RSDlimit 0
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- В Analyte detected in the associated Method Blank
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - Sample pH Not In Range Ρ
 - RL Reporting Detection Limit

Page 6 of 14

WO#: 17-Apr-15

1503936

Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Western Bisti La	Refining Sc ndfarm Vado	outhwe	st, Inc. ne Sampling	g						
Sample ID	MB-18261	SampTy	/pe: ME	BLK	Tes	tCode: El	PA Method	418.1: TPH			
Client ID:	PBS	Batch	ID: 18	261	F	RunNo: 2	5036				
Prep Date:	3/20/2015	Analysis Da	ate: 3/	24/2015	S	SeqNo: 7	38310	Units: mg/	Kg		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hyd	drocarbons, TR	ND	20								
Sample ID	LCS-18261	Keine SampType: LCS TestCode: EPA Method 418.1: TPH									
Client ID:	LCSS	Batch	ID: 18	261	R	RunNo: 2	5036				
Prep Date:	3/20/2015	Analysis Da	ate: 3/	24/2015	S	eqNo: 7	38311	Units: mg/	Kg		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hyd	drocarbons, TR	110	20	100.0	0	107	86.7	126			
Sample ID	LCSD-18261	SampTy	/pe: LC	SD	Test	tCode: El	PA Method	418.1: TPH			
Client ID:	LCSS02	Batch	ID: 18	261	R	unNo: 2	5036				
Prep Date:	3/20/2015	Analysis Da	ate: 3/	24/2015	S	eqNo: 7	38312	Units: mg/	Kg		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hyd	rocarbons, TR	110	20	100.0	0	107	86.7	126	10000706	20	

Qualifiers:

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

Page 7 of 14

17-Apr-15

1503936

WO#:

Hall Environmental Analysis Laboratory, Inc.

Client:	Western	Refining S	Southwe	est, Inc.							
Project:	Bisti Lar	ndfarm Va	dose Zo	ne Samplin	g						
Sample ID	MB-18271	Samp	Туре: М	BLK	Tes	tCode: E	PA Method	8015D: Dies	el Range (Organics	
Client ID:	PBS	Bato	:h ID: 18	3271	F	RunNo: 2	5013				
Prep Date:	3/23/2015	Analysis I	Date: 3	/24/2015	5	SeqNo: 7	38864	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 Rang	e Organics (MRO)	ND	50								
Surr: DNOP		11		10.00		108	63.5	128			
Sample ID	LCS-18271	Samp	Type: LC	cs	Tes	tCode: E	PA Method	8015D: Dies	el Range (Organics	
Client ID:	LCSS	Batc	h ID: 18	3271	F	RunNo: 2	5013				
Prep Date:	3/23/2015	Analysis I	Date: 3	/24/2015	5	SeqNo: 7	38865	Units: mg/h	۲g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range (Organics (DRO)	45	10	50.00	0	89.7	67.8	130			
Surr: DNOP		5.5		5.000		111	63.5	128			
Sample ID	1503936-001AMS	Samp	Туре: М	S	Tes	tCode: El	PA Method	8015D: Dies	el Range C	Organics	
Client ID:	Westline Vadose	Zo Batc	h ID: 18	271	F	RunNo: 2	5013				
Prep Date:	3/23/2015	Analysis [Date: 3	/24/2015	5	SeqNo: 7	38893	Units: mg/h	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range (Organics (DRO)	47	10	49.90	15.82	62.2	29.2	176			
Surr: DNOP		6.1		4.990		123	63.5	128			
Sample ID	1503936-001AMS	D Samp	Туре: Ма	SD	Tes	tCode: El	PA Method	8015D: Dies	el Range C	Organics	
Client ID:	Westline Vadose	Zo Batc	h ID: 18	271	F	RunNo: 2	5013				
Prep Date:	3/23/2015	Analysis [Date: 3/	/24/2015	5	SeqNo: 7	38894	Units: mg/k	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range (Organics (DRO)	51	9.9	49.46	15.82	71.1	29.2	176	8.46	23	
Surr: DNOP		6.7		4.946		136	63.5	128	0	0	S

Qualifiers:

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

Page 8 of 14

Hall Environmental Analysis Laboratory, Inc.

Client: Western Project: Bisti Lau	Refining South ndfarm Vadose	hwest, Inc. Zone Sampling	9						
Sample ID MB-18259	SampType	MBLK	Test	Code: EF	PA Method	8015D: Gaso	line Rang	e	
Client ID: PBS	Batch ID:	18259	R	unNo: 24	1979				
Prep Date: 3/20/2015	0/2015 Analysis Date: 3/22/2015 SeqNo: 736061 Units: mg/Kg								
Analyte	Result P	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO) Surr: BFB	ND 860	5.0 1000		85.6	80	120			
Sample ID LCS-18259	SampType	LCS	Test	Code: EF	A Method	8015D: Gaso	line Rang	e	
Client ID: LCSS	Batch ID:	18259	R	unNo: 24	1979				
Prep Date: 3/20/2015	Analysis Date:	3/22/2015	S	eqNo: 73	36062	Units: mg/K	g		
Analyte	Result P	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0 25.00	0	100	64	130			
Surr: BFB	960	1000		95.6	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

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

Page 9 of 14

WO#: 1503936

17-Apr-15

Hall Environmental Analysis Laboratory, Inc.

Client: West	ern Refining S	Southwe	st, Inc.							
Project: Bisti	Landfarm Vac	lose Zoi	ne Samplin	g						
Sample ID MB-18259	Samp	Гуре: МВ	BLK	Tes	tCode: E	PA Method	8021B: Vola	tiles		
Client ID: PBS	Batc	h ID: 18	259	F	RunNo: 2	4979				
Prep Date: 3/20/2015	Analysis E	Date: 3/	22/2015	S	SeqNo: 7	36083	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		103	80	120			
Sample ID LCS-18259	SampT	Type: LC	s	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID: LCSS	Batcl	h ID: 18	259	F	RunNo: 2	4979				
Prep Date: 3/20/2015	Analysis E	Date: 3/	22/2015	S	SeqNo: 7	36084	Units: mg/h	٢g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.3	0.050	1.000	0	126	76.6	128			
Toluene	1.2	0.050	1.000	0	119	75	124			
Ethylbenzene	1.2	0.050	1.000	0	119	79.5	126			
Xylenes, Total	3.5	0.10	3.000	0	118	78.8	124			
Surr: 4-Bromofluorobenzene	1.1		1.000		112	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

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

Page 10 of 14

1503936

WO#:

Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Wester Bisti La	n Refining South andfarm Vadose	nwest, Inc. Zone Samplin	g						
Sample ID	MB-18315	SampType	MBLK	Test	tCode: El	PA Method	7471: Mercu	ry		
Client ID:	PBS	BS Batch ID: 18315 RunNo: 25053								
Prep Date:	3/24/2015	/24/2015 Analysis Date: 3/25/2015 SeqNo: 739177 Units: mg/Kg								
Analyte		Result PO	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury		ND 0.0	033							
Sample ID	LCS-18315	SampType:	LCS	Test	tCode: El	PA Method	7471: Mercu	ry		
Client ID:	LCSS	Batch ID:	18315	R	RunNo: 2	5053				
Prep Date:	3/24/2015	Analysis Date:	3/25/2015	S	SeqNo: 7	39178	Units: mg/K	g		
Analyte		Result PO	QL SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury		0.17 0.0	0.1667	0	102	80	120			

Qualifiers:

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

WO#: 1503936

17-Apr-15

Page 11 of 14

Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Wes Bisti	tern Refining Landfarm Va	Southwe idose Zoi	st, Inc. ne Samplin	g						
Sample ID	MB-18292	Samp	Туре: М	BLK	Tes	tCode: E	PA Method	6010B: Soil	Metals		
Client ID:	PBS	Bat	ch ID: 18	292	F	RunNo: 2	5054				
Prep Date:	3/24/2015	Analysis	Date: 3/	25/2015	5	SeqNo: 7	39222	Units: mg/k	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		ND	2.5								
Barium		ND	0.10								
Cadmium		ND	0.10								
Calcium		ND	25								
Chromium		ND	0.30								
Lead		ND	0.25								
Magnesium		ND	25								
Potassium		ND	50								
Selenium		ND	2.5								
Silver		ND	0.25								
Sodium		ND	25								
Sample ID	LCS-18292	Samp	Type: LC	S	Tes	tCode: E	PA Method	6010B: Soil	Metals		
Client ID:	LCSS	Bate	ch ID: 18	292	F	RunNo: 2	5054				
Prep Date:	3/24/2015	Analysis	Date: 3/	25/2015	5	SeqNo: 7	39223	Units: mg/k	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		25	2.5	25.00	0	102	80	120			
Barium		24	0.10	25.00	0	94.7	80	120			
Cadmium		24	0.10	25.00	0	96.1	80	120			
Calcium		2700	25	2500	0	107	80	120			
Chromium		24	0.30	25.00	0	94.9	80	120			
Lead		25	0.25	25.00	0	99.4	80	120			
Magnesium		2600	25	2500	0	105	80	120			
Potassium		2500	50	2500	0	99.7	80	120			
Selenium		25	2.5	25.00	0	101	80	120			
Silver		5.4	0.25	5.000	0	108	80	120			
Sodium		2600	25	2500	0	103	80	120			
Sample ID	ADOCP1-TES	S Samp	Type: LC	S	Tes	tCode: El	PA Method	6010B: Soil	Metals		
Client ID:	LCSS	Bato	ch ID: 18	292	F	RunNo: 2	5054				
Prep Date:	3/24/2015	Analysis	Date: 3/	25/2015	S	SeqNo: 7	39229	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic		26	2.5	25.00	0	103	80	120	0.487	0	
Barium		24	0.10	25.00	0	95.2	80	120	0.519	0	
Cadmium		24	0.10	25.00	0	96.2	80	120	0.663	0	
Calcium		2700	25	2500	0	107	80	120	1.82	0	
Chromium		24	0.30	25.00	0	95.6	80	120	0.903	0	
Lead		25	0.25	25.00	0	100	80	120	0.291	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

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

P

Page 12 of 14

Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Wester Bisti La	n Refining S andfarm Vac	Southwe dose Zo	st, Inc. ne Samplin	g							
Sample ID	ADOCP1-TES	Samp	Type: LC	s	Tes	tCode: E	EPA Method 6010B: Soil Metals					
Client ID:	LCSS	Batc	h ID: 18	292	RunNo: 25054							
Prep Date:	3/24/2015	Analysis [Date: 3	25/2015	SeqNo: 739229			Units: mg/Kg				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Magnesium		2600	25	2500	0	105	80	120	2.17	0		
Potassium		2500	50	2500	0	99.4	80	120	2.03	0		
Selenium		25	2.5	25.00	0	101	80	120	1.56	0		
Silver		5.4	0.25	5.000	0	109	80	120	0.797	0		
Sodium		2600	25	2500	0	103	80	120	2.01	0		
Sample ID	ADOCP2-TES	Samp	SampType: LCS TestCode: EPA Method 6010B: Soil Metals									
Client ID:	LCSS	Batc	Batch ID: 18292 RunNo: 25054									
Prep Date:	3/24/2015	Analysis [Date: 3	25/2015	5	SeqNo: 7	39230	Units: mg/k	٢g			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic		26	2.5	25.00	0	104	80	120				
Barium		24	0.10	25.00	0	94.8	80	120				
Cadmium		24	0.10	25.00	0	95.7	80	120				
Calcium		2700	25	2500	0	107	80	120				
Chromium		24	0.30	25.00	0	95.1	80	120				
Lead		25	0.25	25.00	0	98.8	80	120				
Magnesium		2600	25	2500	0	106	80	120				
Potassium		2500	50	2500	0	100	80	120				
Selenium		25	2.5	25.00	0	98.9	80	120				
Silver		5.4	0.25	5.000	0	108	80	120				
Sodium		2600	25	2500	0	104	80	120				
Sample ID	ADOCP3-TES	SampT	Гуре: LC	S	Tes	tCode: El	PA Method	6010B: Soil	Metals			
Client ID:	LCSS	Batch	h ID: 18	292	F	RunNo: 2	5054					
Prep Date:	3/24/2015	Analysis D	Date: 3/	25/2015	5	SeqNo: 7	39231	Units: mg/k	(g			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Arsenic		26	2.5	25.00	0	105	80	120				
Barium		24	0.10	25.00	0	96.6	80	120				
Cadmium		24	0.10	25.00	0	97.5	80	120				
Calcium		2700	25	2500	0	109	80	120				
Chromium		24	0.30	25.00	0	96.5	80	120				
Lead		25	0.25	25.00	0	100	80	120				
nesium		2700	25	2500	0	107	80	120				
Potassium		2500	50	2500	0	102	80	120				
Selenium		26	2.5	25.00	0	104	80	120				
Silver		5.5	0.25	5.000	0	110	80	120				
Sodium		2600	25	2500	0	105	80	120				

Qualifiers:

* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits

B Analyte detected in the associated Method Blank

H Holding times for preparation or analysis exceeded

ND Not Detected at the Reporting Limit

- P Sample pH Not In Range
- RL Reporting Detection Limit

Page 13 of 14

1503936 17-Apr-15

WO#:

QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Western Refining Southwest, Inc.

Client:

Project: Bisti Landfarm Vadose Zone Sampling

Sample ID ADOCP4-TES	Samp	Type: LC	S	Tes	tCode: El	PA Method	6010B: Soil	Vietals		
Client ID: LCSS	Batc	h ID: 18	292	R	unNo: 2					
Prep Date: 3/24/2015	Analysis [Date: 3/	25/2015	S	eqNo: 7	39232	Units: mg/K	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	26	2.5	25.00	0	105	80	120			
Barium	24	0.10	25.00	0	96.3	80	120			
Cadmium	24	0.10	25.00	0	97.4	80	120			
Calcium	2700	25	2500	0	108	80	120			
Chromium	24	0.30	25.00	0	96.8	80	120			
Lead	25	0.25	25.00	0	101	80	120			
Magnesium	2700	25	2500	0	110	80	120			
Potassium	2600	50	2500	0	104	80	120			
Selenium	25	2.5	25.00	0	100	80	120			
Silver	5.5	0.25	5.000	0	111	80	120			
Sodium	2700	25	2500	0	108	80	120			

Qualifiers:

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

WO#: 1503936

17-Apr-15

Page 14 of 14

Client Name: Western Refining Southw Work Order Number: 1503936 RcptNo: 1 Received by/date:	HALL ENVIRONMENTAL ANALYSIS LABORATORY	Hall Environmental And Albuqu TEL: 505-345-3975 FA Website: www.haller	alysis 4901 erque LX: 50 nviron	Laboratory Hawkins NE M 87109 05-345-4107 nmental.com	Sa	amj	ple Log-In Check List
Received by/date:	Client Name: Western Refining Southw	Work Order Number: 1	5039	36			RcptNo: 1
Logged By: Lindsay Margin 3/20/2015 8:30:00 AM Juffed Completed By: Lindsay Margin 3/20/2015 12:18:11 PM Juffed Reviewed By: Juffed Juffed Juffed Chain of Custody Signal Juffed Juffed 1. Custody seals intact on sample bottles? Yes No Not Present 2. Is Chain of Custody complete? Yes No Not Present 3. How was the sample delivered? Courier Log In 4. Was an attempt made to cool the samples? Yes No NA 5. Were all samples received at a temperature of >0° C to 6.0°C Yes No NA 6. Sample(s) in proper container(s)? Yes No NA 7. Sufficient sample volume for indicated test(s)? Yes No No 8. Are samples (except VOA and ONG) property preserved? Yes No NA 9. Was preservative added to bottles? Yes No No 10. VOA vials have zero headspace? Yes No No #f of preserved 11. Were any samp	Received by/date:	03/20/15	-				
Completed By: Lindsay Mangin 3/20/2015 12:16:11 PM Reviewed By:	Logged By: Lindsay Mangin	3/20/2015 8:30:00 AM		0	ting H	P	
1. Custody seals intact on sample bottles? Yes No Not Present 2. Is Chain of Custody complete? Yes No Not Present 3. How was the sample delivered? Courier Log In	Completed By: Lindsay Mangin 3 Reviewed By:	3/20/2015 12:16:41 PM	<u>C</u>	150	tradie H		
1. Observed yours induct on sample bolices 1.05 million 1.05 million 1.05 million 2. Is Chain of Custody complete? Yes Image: No Image: Not Present Image: Not Image:	1 Clustody seals intact on sample bottles?		Ves	Π	No		Not Present
3. How was the sample delivered? Courier 4. Was an attempt made to cool the samples? Yes 5. Were all samples received at a temperature of >0° C to 6.0°C Yes 6. Sample(s) in proper container(s)? Yes 7. Sufficient sample volume for indicated test(s)? Yes 8. Are samples (except VOA and ONG) properly preserved? Yes 9. Was preservative added to bottles? Yes 10. VOA viais have zero headspace? Yes 11. Were any sample containers received broken? Yes 12. Does paperwork match bottle labels? Yes 12. Are matrices correctly likeling of Clustody? Yes 13. Are matrices correctly likeling of Clustody? Yes	2 Is Chain of Custody complete?	,	Yes		No		Not Present
Log In 4. Was an attempt made to cool the samples? Yes 5. Were all samples received at a temperature of >0° C to 6.0°C Yes 6. Sample(s) in proper container(s)? Yes 7. Sufficient sample volume for indicated test(s)? Yes 8. Are samples (except VOA and ONG) properly preserved? Yes 9. Was preservative added to bottles? Yes 10. VOA viais have zero headspace? Yes 11. Were any sample containers received broken? Yes 12. Does paperwork match bottle labels? Yes (Note discrepancies on chain of custody) Yes 12. Are matrices correctly identified on Chain of Custody? Yes	3. How was the sample delivered?	(Couri	er			
4. Was an attempt made to cool the samples? Yes No NA 5. Were all samples received at a temperature of >0° C to 6.0°C Yes No NA 6. Sample(s) in proper container(s)? Yes No NA 7. Sufficient sample volume for indicated test(s)? Yes No Na 8. Are samples (except VOA and ONG) properly preserved? Yes No NA 9. Was preservative added to bottles? Yes No NA 10. VOA vials have zero headspace? Yes No No Na 11. Were any sample containers received broken? Yes No # of preserved bottles for pH: (<2 or >12 unless noted) 12. Does paperwork match bottle labels? Yes No Image: (<2 or >12 unless noted) 12. Are matrices correctly literitified on Chain of Custody? Yes No Image: (<2 or >12 unless noted)	Log In						*
5. Were all samples received at a temperature of >0° C to 6.0°C Yes No NA 6. Sample(s) in proper container(s)? Yes No NA 7. Sufficient sample volume for indicated test(s)? Yes No No 8. Are samples (except VOA and ONG) properly preserved? Yes No No 9. Was preservative added to bottles? Yes No NA 10. VOA vials have zero headspace? Yes No No No 11. Were any sample containers received broken? Yes No # of preserved bottle scheded for pH: (<2 or >12 unless noted) 12. Does paperwork match bottle labels? Yes No Image: Corrective identified on Chain of Custody? Yes No Adjusted?	4. Was an attempt made to cool the samples?		Yes		No		NA 🗋
 6. Sample(s) in proper container(s)? 7. Sufficient sample volume for indicated test(s)? 8. Are samples (except VOA and ONG) properly preserved? 9. Was preservative added to bottles? 9. Was preservative added to bottles? 10. VOA vials have zero headspace? 11. Were any sample containers received broken? 12. Does paperwork match bottle labels? 12. Does paperwork match bottle labels? 13. Are matrices correctly identified on Chain of Custody? 14. Are matrices correctly identified on Chain of Custody? 	5. Were all samples received at a temperature of	of >0° C to 6.0°C	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 10. VOA vials have zero headspace? Yes No 11. Were any sample containers received broken? Yes No 12. Does paperwork match bottle labels? Yes No (Note discrepancies on chain of custody) Yes No 12. Are matrices correctly identified on Chain of Custody? Yes No	6. Sample(s) in proper container(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 NA 11. Were any sample containers received broken? Yes No # of preserved bottles checked 12. Does paperwork match bottle labels? Yes Yes No # of preserved bottles checked for pH: (Note discrepancies on chain of custody) Yes No Image: Correctly identified on Chain of Custody? Yes No	7. Sufficient sample volume for indicated test(s)	?	Yes		No		
9. Was preservative added to bottles? Yes No NA 10. VOA vials have zero headspace? Yes No No VOA Vials 11. Were any sample containers received broken? Yes No # of preserved bottles checked 12. Does paperwork match bottle labels? Yes Yes No # of preserved bottles checked for pH: (Note discrepancies on chain of custody) Yes No Adjusted?	8. Are samples (except VOA and ONG) properly	preserved?	Yes		No		
10. VOA vials have zero headspace? Yes No No VOA Vials 11. Were any sample containers received broken? Yes No # of preserved bottle labels 12. Does paperwork match bottle labels? Yes No # of preserved bottles checked for pH: (Note discrepancies on chain of custody) Yes No Adjusted?	9. Was preservative added to bottles?		Yes		No		NA 🗆
11. Were any sample containers received broken? Yes No # of preserved bottle schecked 12. Does paperwork match bottle labels? Yes No # of preserved bottles checked for pH: (Note discrepancies on chain of custody) Yes No (<2 or >12 unless noted) 13. Are matrices correctly identified on Chain of Custody? Yes No No	10.VOA vials have zero headspace?		Yes		No		No VOA Viais
12. Does paperwork match bottle labels? Yes Image: No image: Schecked for pH: im	11. Were any sample containers received broker	1?	Yes		No		# of preserved
12 Are matrices correctly identified on Chain of Custody? Ves M No Adjusted?	12. Does paperwork match bottle labels? (Note discrepancies on chain of custody)		Yes		No		for pH: (<2 or >12 unless noted)
	13. Are matrices correctly identified on Chain of C	Custody?	Yes		No		Adjusted?
14. Is it clear what analyses were requested? Yes 🐼 No	14. Is it clear what analyses were requested?		Yes		No		
15. Were all holding times able to be met? Yes M No Checked by: (If no, notify customer for authorization.)	15. Were all holding times able to be met? (If no, notify customer for authorization.)		Yes		No		Checked by:

Special Handling (if applicable)

Was client not	ified of all di	screpancies v	with this order?		Yes 🗌	No 🗆		NA 🜌
Person	Notified:			Date	:			
By Who	m:	ng ang dia kina kina kina dia mang ang ang ang ang ang ang ang ang ang	activity and an antiquest in an a	Via:	eMail	Phone Fax	In Perso	n
Regardi	ng:							
Client In	structions:							
A 1 Mat 1								
Cooler Inforr	narks: nation							
Cooler Inforr	narks: nation Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By	1	

Chain-of-Custody Record	
lient: Western Refining	Standard Rush
BloomField, UM 87413	Bisti LandFarm Vadose Zone Sumpling 4901 Hawkins NE - Albuquerque, NM 87109 Project #: I I D L O D E
hone #: (202) 632-8013	WK1005 Analysis Request
A/QC Package: Standard Level 4 (Full Validation)	Ashley Ager Sampler: Dan Neuman (Mike Wicker B. 8051) Sampler: Dan Neuman (Mike Wicker B. 8051)
NELAP Other EDD (Type)	Sample Lemberature Sample Lemberature Si (SRO) 0 or 821 Cl, NO ₃ , NO
Date Time Matrix Sample Request ID	Coutainer Lise HEAL NO HEAL NO Heath NO Anions (F, O BIEX + MI BIEX + MI Heath NO Anions (F, O BIEX + MI See No See No
19/15 1030 Soil Westline Vadose Zone	2 Javs (42) Cool -001
1. 1054 Eastline Vadose Zone	-002
1100 Bist Vadose Zone	-003
1132 Pettigrew Vadose Zone	-001
V 1156 V API Vadose Zone	V V -005
igles 1605	Allet Water 3/19/15 1606 Remarks: Please copy results to:
19/5 1825 Mistry Watter	AAgera LIENV, com

Vadose Zone

TPH –GRO, DRO, MRO 8015

TPH 418.1

BTEX 8021

Chloride

Sulfate

Alkalinity

Arsenic

Barium

Cadmium

Calcium

Chromium

Lead

Magnesium

Potassium

Selenium

Silver

Sodium

Mercury

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

July 06, 2015 Kelly Robinson Western Refining Southwest, Inc. #50 CR 4990 Bloomfield, NM 87413 TEL: (505) 632-4166 FAX (505) 632-3911

RE: Bisti Landfarm Vadose Zone

OrderNo.: 1506D27

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 5 sample(s) on 6/27/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <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

Hall E	nvironmental Analysis	s Labora	ntory, Inc	•		Lab Order 1506D27 Date Reported: 7/6/201	5
CLIENT: Project: Lab ID:	: Western Refining Southwest, In Bisti Landfarm Vadose Zone 1506D27-001	nc. Matrix:	SOIL	Client Sampl Collection I Received I	e ID: Wo Date: 6/2 Date: 6/2	estline Vadose Zone 26/2015 12:10:00 PM 27/2015 8:45:00 AM	
Analyses		Result	RL Q	ual Units	DF	Date Analyzed	Batch
EPA MET	THOD 8015M/D: DIESEL RANGE	ORGANIC	S			Analyst	: KJH
Diesel R	ange Organics (DRO)	ND	9.7	mg/Kg	1	7/2/2015 2:00:24 AM	20026
Motor Oi	il Range Organics (MRO)	ND	49	mg/Kg	1	7/2/2015 2:00:24 AM	20026
Surr:	DNOP	98.2	57.9-140	%REC	1	7/2/2015 2:00:24 AM	20026
EPA MET	THOD 8015D: GASOLINE RANG	E				Analyst	NSB
Gasoline	e Range Organics (GRO)	ND	4.8	mg/Kg	1	6/30/2015 3:55:47 PM	20005
Surr: I	BFB	89.2	75.4-113	%REC	1	6/30/2015 3:55:47 PM	20005
EPA MET	THOD 8021B: VOLATILES					Analyst	NSB
Benzene	9	ND	0.048	mg/Kg	1	6/30/2015 3:55:47 PM	20005
Toluene		ND	0.048	mg/Kg	1	6/30/2015 3:55:47 PM	20005
Ethylben	zene	ND	0.048	mg/Kg	1	6/30/2015 3:55:47 PM	20005
Xylenes,	Total	ND	0.095	mg/Kg	1	6/30/2015 3:55:47 PM	20005
Surr:	4-Bromofluorobenzene	92.7	80-120	%REC	1	6/30/2015 3:55:47 PM	20005

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

Qualifiers: * Value exceeds Maximum Contaminant Level.

- E Value above quantitation range
- J Analyte detected below quantitation limits
- O RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- B Analyte detected in the associated Method Blank

Page 1 of 8

Analytical Report

- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysi	is Labora	tory, Inc.			Date Reported: 7/6/201	5
CLIENT: Western Refining Southwest, I Project: Bisti Landfarm Vadose Zone Lab ID: 1506D27-002	inc. Matrix:	SOIL	Client Sampl Collection I Received I	e ID: Ea Date: 6/2 Date: 6/2	stline Vadose Zone 26/2015 12:30:00 PM 27/2015 8:45:00 AM	
Analyses	Result	RL Q	al Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANG	E ORGANIC	S			Analyst	KJH
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	7/2/2015 2:21:56 AM	20026
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	7/2/2015 2:21:56 AM	20026
Surr: DNOP	97.4	57.9-140	%REC	1	7/2/2015 2:21:56 AM	20026
EPA METHOD 8015D: GASOLINE RAN	GE				Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	6/30/2015 4:24:36 PM	20005
Surr: BFB	89.6	75.4-113	%REC	1	6/30/2015 4:24:36 PM	20005
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.048	mg/Kg	1	6/30/2015 4:24:36 PM	20005
Toluene	ND	0.048	mg/Kg	1	6/30/2015 4:24:36 PM	20005
Ethylbenzene	ND	0.048	mg/Kg	1	6/30/2015 4:24:36 PM	20005
Xylenes, Total	ND	0.095	mg/Kg	1	6/30/2015 4:24:36 PM	20005
Surr: 4-Bromofluorobenzene	94.7	80-120	%REC	1	6/30/2015 4:24:36 PM	20005

Analytical Report Lab Order 1506D27

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Metho	od Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis	s exceeded
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	Page 2 of 8
	0	RSD is greater than RSDlimit	Р	Sample pH Not In Range	1 age 2 01 0
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Hall Environmental Analysis	s Labora	tory, In	с.		Date Reported: 7/6/201	5
CLIENT: Western Refining Southwest, In Project: Bisti Landfarm Vadose Zone Lab ID: 1506D27-003	nc. Matrix:	SOIL	Client Sample Collection I Received I	e ID: Bis Date: 6/2 Date: 6/2	sti Vadose Zone 26/2015 11:40:00 AM 27/2015 8:45:00 AM	
Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANG	E ORGANIC	S			Analyst	: KJH
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	7/2/2015 2:43:18 AM	20026
Motor Oil Range Organics (MRO)	ND	50	mg/Kg	1	7/2/2015 2:43:18 AM	20026
Surr: DNOP	97.7	57.9-140	%REC	1	7/2/2015 2:43:18 AM	20026
EPA METHOD 8015D: GASOLINE RANG	E				Analyst	NSB
Gasoline Range Organics (GRO)	ND	4.9	mg/Kg	1	6/30/2015 4:53:21 PM	20005
Surr: BFB	87.6	75.4-113	%REC	1	6/30/2015 4:53:21 PM	20005
EPA METHOD 8021B: VOLATILES					Analyst	NSB
Benzene	ND	0.049	mg/Kg	1	6/30/2015 4:53:21 PM	20005
Toluene	ND	0.049	mg/Kg	1	6/30/2015 4:53:21 PM	20005
Ethylbenzene	ND	0.049	mg/Kg	1	6/30/2015 4:53:21 PM	20005
Xylenes, Total	ND	0.099	mg/Kg	1	6/30/2015 4:53:21 PM	20005
Surr: 4-Bromofluorobenzene	90.8	80-120	%REC	1	6/30/2015 4:53:21 PM	20005

Analytical Report Lab Order 1506D27

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Metho	d Blank
	E	Value above quantitation range	H	Holding times for preparation or analysis	exceeded
	J Analyte detected below quantitation limits		ND	Not Detected at the Reporting Limit	Page 3 of 8
	0	RSD is greater than RSDlimit	Р	Sample pH Not In Range	1 age 5 01 8
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit	
	S	Spike Recovery outside accepted recovery limits			

Hall E	nvironmental Analysis	s Labora	tory, In	ıc.			Date Reported: 7/6/201	5		
CLIENT: Project: Lab ID:	Western Refining Southwest, Ir Bisti Landfarm Vadose Zone 1506D27-004	nc. Matrix:	SOIL	C	Client Sample ID: Pettigrew Vagose Zone Collection Date: 6/26/2015 11:35:00 AM Received Date: 6/27/2015 8:45:00 AM					
Analyses		Result	RL	Qual	Units	DF	Date Analyzed	Batch		
EPA MET	THOD 8015M/D: DIESEL RANG	E ORGANIC	S				Analyst	: KJH		
Diesel R	ange Organics (DRO)	ND	10		mg/Kg	1	7/2/2015 3:04:50 AM	20026		
Motor Oi	il Range Organics (MRO)	ND	50		mg/Kg	1	7/2/2015 3:04:50 AM	20026		
Surr: [DNOP	90.9	57.9-140		%REC	1	7/2/2015 3:04:50 AM	20026		
EPA MET	THOD 8015D: GASOLINE RANG	E					Analyst	NSB		
Gasoline	Range Organics (GRO)	ND	4.8		mg/Kg	1	7/2/2015 12:13:24 AM	20005		
Surr: E	BFB	86.5	75.4-113		%REC	1	7/2/2015 12:13:24 AM	20005		
EPA MET	THOD 8021B: VOLATILES						Analyst	NSB		
Benzene	3	ND	0.048		mg/Kg	1	7/2/2015 12:13:24 AM	20005		
Toluene		ND	0.048		mg/Kg	1	7/2/2015 12:13:24 AM	20005		
Ethylben	izene	ND	0.048		mg/Kg	1	7/2/2015 12:13:24 AM	20005		
Xylenes,	Total	ND	0.096		mg/Kg	1	7/2/2015 12:13:24 AM	20005		
Surr: 4	4-Bromofluorobenzene	88.7	80-120		%REC	1	7/2/2015 12:13:24 AM	20005		

Analytical Report Lab Order 1506D27

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Metho	d Blank	
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded		
	J	Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	Page 4 of 8	
	0	RSD is greater than RSDlimit	Р	Sample pH Not In Range	1 age + 01 0	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit		
	S	Spike Recovery outside accepted recovery limits				

Analytical Report
Lab Order 1506D27

Hall Environmental Analysis Laboratory, Inc.

Date Reported: 7/6/2015

CLIENT:	Western Refining Southwest, In	c.		C	lient San	nple ID: Al	PI Vadose Zone	
Project:	Bisti Landfarm Vadose Zone				Collectio	n Date: 6/2	26/2015 11:25:00 AM	
Lab ID:	1506D27-005	Matrix:	SOIL		Receive	d Date: 6/2	27/2015 8:45:00 AM	
Analyses		Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA MET	HOD 8015M/D: DIESEL RANGE	ORGANIC	S				Analys	t: KJH
Diesel Ra	ange Organics (DRO)	ND	9.9		mg/Kg	1	7/2/2015 3:26:12 AM	20026
Motor Oil	Range Organics (MRO)	ND	50		mg/Kg	1	7/2/2015 3:26:12 AM	20026
Surr: D	DNOP	90.6	57.9-140		%REC	1	7/2/2015 3:26:12 AM	20026
EPA MET	HOD 8015D: GASOLINE RANG	E					Analys	t: NSB
Gasoline	Range Organics (GRO)	ND	4.9		mg/Kg	1	7/2/2015 12:42:08 AM	20005
Surr: B	BFB	87.8	75.4-113		%REC	1	7/2/2015 12:42:08 AM	20005
EPA MET	HOD 8021B: VOLATILES						Analys	t: NSB
Benzene		ND	0.049		mg/Kg	1	7/2/2015 12:42:08 AM	20005
Toluene		ND	0.049		mg/Kg	1	7/2/2015 12:42:08 AM	20005
Ethylbenz	zene	ND	0.049		mg/Kg	1	7/2/2015 12:42:08 AM	20005
Xylenes,	Total	ND	0.098		mg/Kg	1	7/2/2015 12:42:08 AM	20005
Surr: 4	-Bromofluorobenzene	91.5	<mark>80-120</mark>		%REC	1	7/2/2015 12:42:08 AM	20005

Qualifiers:	*	Value exceeds Maximum Contaminant Level.	В	Analyte detected in the associated Method Blank		
	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded		
J Analyte detected below quantitation limitO RSD is greater than RSDlimit		Analyte detected below quantitation limits	ND	Not Detected at the Reporting Limit	Page 5 of 8	
		RSD is greater than RSDlimit	Р	Sample pH Not In Range	1 age 5 01 8	
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit		
	S	Spike Recovery outside accepted recovery limits				

Hall Environmental Analysis Laboratory, Inc.

WO#:	1506D27

06-Jul-15

Client:WesternProject:Bisti Lar	Refining Southwest, Inc. ndfarm Vadose Zone	
Sample ID MB-19990	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: PBS	Batch ID: 19990	RunNo: 27182
Prep Date: 6/29/2015	Analysis Date: 7/1/2015	SeqNo: 815505 Units: %REC
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Surr: DNOP	8.7 10.00	87.1 57.9 140
Sample ID MB-20026	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: PBS	Batch ID: 20026	RunNo: 27182
Prep Date: 6/30/2015	Analysis Date: 7/1/2015	SeqNo: 816316 Units: mg/Kg
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Diesel Range Organics (DRO) Motor Oil Range Organics (MRO) Surr: DNOP	ND 10 ND 50 8.8 10.00	88.3 57.9 140
Sample ID LCS-20026	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: LCSS	Batch ID: 20026	RunNo: 27182
Prep Date: 6/30/2015	Analysis Date: 7/1/2015	SeqNo: 816317 Units: mg/Kg
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Diesel Range Organics (DRO)	41 10 50.00	0 82.6 57.4 139
Surr: DNOP	4.9 5.000	97.5 57.9 140
Sample ID MB-20028	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: PBS	Batch ID: 20028	RunNo: 27182
Prep Date: 6/30/2015	Analysis Date: 7/2/2015	SeqNo: 816327 Units: %REC
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Surr: DNOP	10 10.00	101 57.9 140
Sample ID LCS-20028	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: LCSS	Batch ID: 20028	RunNo: 27182
Prep Date: 6/30/2015	Analysis Date: 7/2/2015	SeqNo: 816328 Units: %REC
Analyte	Result PQL SPK value	SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Surr: DNOP	6.1 5.000	121 57.9 140

Qualifiers:

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

Page 6 of 8

QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Western Project: Bisti La	n Refining S undfarm Vad	outhwe lose Zor	st, Inc. ne							
Sample ID MB-20005	SampType: MBLK TestCode: EPA Method 8015D: Gasoline Rar					line Rang	e			
Client ID: PBS	Batch	n ID: 20	005	F	RunNo: 2	7195				
Prep Date: 6/29/2015	Analysis D	ate: 6/	30/2015	S	SeqNo: 8	14609	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	870		1000		87.1	75.4	113			
Sample ID LCS-20005	SampT	ype: LC	s	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	e	
Client ID: LCSS	Batch	n ID: 20	005	F	RunNo: 2	7195				
Prep Date: 6/29/2015	Analysis D	ate: 6/	30/2015	5	SeqNo: 8	14610	Units: mg/k	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	100	64	130			
Surr: BFB	920		1000		91.5	75.4	113			

Qualifiers:

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

WO#: 1506D27

06-Jul-15

Page 7 of 8

QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Western Project: Bisti La	n Refining S Indfarm Vad	outhwe lose Zoi	st, Inc. ne							
Sample ID MB-20005	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID: PBS	Batch	D: 20	005	F	RunNo: 2	7195				
Prep Date: 6/29/2015	Analysis D	ate: 6/	30/2015	S	SeqNo: 8	14628	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.91		1.000		91.0	80	120			
Sample ID LCS-20005	SampT	ype: LC	S	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID: LCSS	Batch	1D: 20	005	R	RunNo: 2	7195				
Prep Date: 6/29/2015	Analysis D	ate: 6/	30/2015	S	SeqNo: 8	14629	Units: mg/k	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.99	0.050	1.000	0	99.3	76.6	128			
Toluene	0.98	0.050	1.000	0	98.1	75	124			
Ethylbenzene	1.0	0.050	1.000	0	102	79.5	126			
Xylenes, Total	3.0	0.10	3.000	0	101	78.8	124			
Surr: 4-Bromofluorobenzene	0.95		1.000		95.2	80	120			

Qualifiers:

* Value exceeds Maximum Contaminant Level.

E Value above quantitation range

- Analyte detected below quantitation limits J
- 0 RSD is greater than RSDlimit
- R RPD outside accepted recovery limits
- S Spike Recovery outside accepted recovery limits
- Analyte detected in the associated Method Blank В
- Н Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
 - P Sample pH Not In Range
 - RL Reporting Detection Limit

1506D27 06-Jul-15

WO#:

Page 8 of 8

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Western Refining Southw	Work Order Number:	1506D27		RcptNo:	1
Received by/date:	04/27/15				
Logged By: Lindsay Mangin	6/27/2015 8:45:00 AM		Andyther		
Completed By: Lindsay Mangin	6/27/201;5 9:00:50 AM		Andy Hopp		
Reviewed By:	00/29/15		000		
Chain of Custody		>			
1 Custody seals intact on sample bottles?		Yes	No 🗆	Not Present	
2. Is Chain of Custody complete?		Yes 🛃	No 🗌	Not Present	
3. How was the sample delivered?		Courier			
Log In					
4. Was an attempt made to cool the samples	\$?	Yes 🛃	No 🗌	NA	
5. Were all samples received at a temperature	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 test	:(s)?	Yes 🛃	No 🗌		
8. Are samples (except VOA and ONG) prope	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 bottles checked	
12. Does paperwork match bottle labels?		Yes 🛃	No 🗆	for pH:	>12 unless noted)
(Note discrepancies on chain of custody)	of Custody?	Vec 🖌	No 🗖	Adjusted?	72 uness noted)
14 Is it clear what analyses were requested?	of Gastody?	Yes			
15. Were all holding times able to be met?		Yes 🛃	No 🗌	Checked by:	
(If no, notify customer for authorization.)			1		
Special Handling (if applicable)					
16. Was client notified of all discrepancies with	this order?	Yes 🗌	No 🗌	NA 🛃	,
Person Notified:	Date:				
By Whom:	Via:	eMail	Phone 🗌 Fax	In Person	
Regarding:					
Client Instructions:					
17. Additional remarks:					
18. Cooler Information					
Cooler No Temp °C Condition	Seal Intact Seal No	Seal Date	Signed By		
1 5.5 Good Y	es				

Chain-of-Custody Record	Turn-Around Time:	
Client: Western Refining	Standard	ANALYSIS LABORATORY
Kelly Robinson	Project Name:	www.hallenvironmental.com
Mailing Address 111 CR 4990 Bloomf	Disti Langtan in valuese loids	4901 Hawkins NE - Albuquerque, NM 87109
Bloomfield, NM	Project #:	Tel. 505-345-3975 Fax 505-345-4107
2hone #: 605 ~ 632 - 8013	12010-13 1	Analysis Request
mail or Fax#: Kelly, robinson Com.com	Project Manager:	001/1000000000000000000000000000000000
X Standard □ Level 4 (Full Validation)	Drooke Herb	900/1 (80) (90/1 (80) (90/1 (80) (90/1 (80) (90/1 (80) (90/1 (80) (90/1 (1))))))))))))))))
Accreditation	Sampler: ALLX CNOOKS	MB2: () 1) 1) 1) 1 1 1 1 1 1
□ NELAP □ Other	On ice	or N (or N (
□ EDD (Type)	Sample Temperature: 1 5 5	SS (7) IIIBB
Date Time Matrix Sample Request ID	Container Preservative	3015 + Wett + + + + + + + + + + + + + + + + + +
Bate Time Matrix Campie Request ib	Type and # Type	AH: DB AH: CCR
Jun 18 1710 Stal Interning Vadors Zaga	400/2 (001 -00/	
1 1230 1 Eastin and a 200	-07	
1140 Rich Undese Jone	$-\alpha z$	
1135 Pettionen Madres 200	-mi	
V 1125 V APT Vadose Zana	V V -05	
Date: Time: Relinquished by:	Received by: Date Time	Please USE Method 8015 M.
Date: Time: Refinguished by	Received by: Date Time	
Wis 1747 Mait Molley	No Rota La	Please CG results to bher be in the
If necessary, sample's submitted to Hall Environmental may be su	prontracted to other accredited laboratories. This serves as notice of t	his possibility. Any sub-contracted data will be clearly potated on the analytical report

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

September 10, 2015

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

RE: Bisti Landfarm

OrderNo.: 1509094

Dear Brook Herb:

Hall Environmental Analysis Laboratory received 2 sample(s) on 9/2/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <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			
						Lab Order 1509094			
Hall Er	Hall Environmental Analysis Laboratory, Inc. Date Reported: 9/10/2015								
CLIENT: Western Refining Southwest, Inc. Client Sample ID: Crude Cell Treatment Zon							one		
Project:	Bisti Landfarm			Collection D	ate: 9/1	/2015 9:50:00 AM			
Lab ID:	1509094-001	Matrix: S	Matrix: SOIL Received Date: 9/2/2015 8:00:			/2015 8:00:00 AM			
Analyses		Result	RL Q	ual Units	DF	Date Analyzed	Batch		
EPA MET	HOD 418.1: TPH					Analys	том		
Petroleur	m Hydrocarbons, TR	93	19	mg/Kg	1	9/8/2015	21151		
EPA MET	HOD 300.0: ANIONS					Analyst	LGT		
Chloride		72	30	mg/Kg	20	9/4/2015 3:04:20 PM	21158		
EPA MET	HOD 8015M/D: DIESEL RAI	IGE ORGANICS				Analyst	JME		
Diesel Ra	ange Organics (DRO)	ND	10	mg/Kg	1	9/4/2015 6:39:33 PM	21121		
Motor Oil	Range Organics (MRO)	ND	50	mg/Kg	1	9/4/2015 6:39:33 PM	21121		
Surr: D	NOP	104	57.9-140	%REC	1	9/4/2015 6:39:33 PM	21121		
EPA MET	HOD 8015D: GASOLINE RA	NGE				Analyst	RAA		
Gasoline	Range Organics (GRO)	ND	4.8	mg/Kg	1	9/3/2015 4:15:53 PM	21112		
Surr: E	BFB	90.2	75.4-113	%REC	1	9/3/2015 4:15:53 PM	21112		

	_					
Qualifiers:	*	Value exceeds Maximum Contaminant Level.	eds Maximum Contaminant Level. B Analyte detected in the associated			
	D	Sample Diluted Due to Matrix	E	Value above quantitation range		
	H Holding times for preparation or analysis exceed		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				

Hall E	nvironmental Analy	sis Laborat	•	Lab Order 1509094 Date Reported: 9/10/2015								
CLIENT:	Western Refining Southwes	t, Inc.		Client Sampl	Client Sample ID: API Cell Treatment Zone							
Project:	Bisti Landfarm			Collection]	Date: 9/1	/2015 11:15:00 AM						
Lab ID:	1509094-002	Matrix: S	OIL	Received 1	Received Date: 9/2/2015 8:00:00 AM							
Analyses		Result	RL Q	ual Units	DF	Date Analyzed	Batch					
EPA MET	HOD 418.1: TPH					Analys	t: TOM					
Petroleum Hydrocarbons, TR		ND	20	mg/Kg	1	9/8/2015	21151					
EPA MET	HOD 300.0: ANIONS					Analys	t: LGT					
Chloride		190	30	mg/Kg	20	9/4/2015 3:16:44 PM	21158					
EPA MET	HOD 8015M/D: DIESEL RAI	NGE ORGANICS				Analys	t: JME					
Diesel Ra	ange Organics (DRO)	ND	9.8	mg/Kg	1	9/4/2015 7:00:58 PM	21121					
Motor Oi	Range Organics (MRO)	ND	49	mg/Kg	1	9/4/2015 7:00:58 PM	21121					
Surr: DNOP		107	57.9-140	%REC	1	9/4/2015 7:00:58 PM	21121					
EPA MET	HOD 8015D: GASOLINE RA	NGE				Analys	t: RAA					
Gasoline	Range Organics (GRO)	ND	4.9	mg/Kg	1	9/3/2015 4:41:13 PM	21112					
Surr: BFB		92.0	75.4-113	%REC	1	9/3/2015 4:41:13 PM	21112					

Analytical Report

Qualifiare	*	Value exceeds Maximum Contaminant Level	D	Analyte detected in the appealeted Method	Dlank		
Quanners.		value exceeds iviaximum Containmant Level.	D	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 2 of 6		
	ND	Not Detected at the Reporting Limit	Р	Sample pH Not In Range	1 age 2 01 0		
	R	RPD outside accepted recovery limits	RL	Reporting Detection Limit			
	S	% Recovery outside of range due to dilution or matrix					

QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Wes Bist	tern Refining So i Landfarm	uthwe	st, Inc.							
Sample ID	MB-21158	158 SampType: MBLK			Tes						
Client ID:	PBS	Batch	Batch ID: 21158			RunNo: 2	28681				
Prep Date:	9/4/2015	Analysis Da	te: 9/	4/2015	S	SeqNo: 8	868771	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND	1.5								
Sample ID	LCS-21158	SampTy	SampType: LCS TestCode: EPA Method 300.0: Anions								
Client ID:	LCSS	Batch	ID: 21	158	F	RunNo: 2	28681				
Prep Date:	9/4/2015	Analysis Da	te: 9/	4/2015	5	SeqNo: 8	68772	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		14	1.5	15.00	0	93.8	90	110			

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

WO#: 1509094

Page 3 of 6

10-Sep-15

Hall Environmental Analysis Laboratory, Inc.

Client:	Western	Refining S	outhwe	st, Inc.							
Project:	Bisti Lar	ndfarm									
Sample ID	MB-21151	SampType: MBLK			TestCode: EPA Method 418.1: TPH						
Client ID:	PBS	Batch ID: 21151			F	RunNo: 28697					
Prep Date:	9/4/2015	Analysis D	ate: 9/	8/2015	5	SeqNo: 8	69534	Units: mg/k	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hyd	rocarbons, TR	ND	20								
Sample ID	LCS-21151 SampType: LCS			TestCode: EPA Method 418.1: TPH							
Client ID:	LCSS	Batch	1 ID: 21	151	RunNo: 28697						
Prep Date:	9/4/2015	Analysis D	ate: 9/	8/2015	SeqNo: 869535			Units: mg/Kg			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hyd	Irocarbons, TR	110	20	100.0	0	110	83.6	116			
Sample ID	LCSD-21151	SampT	ype: LC	SD	Tes	tCode: E	PA Method	418.1: TPH			
Client ID:	LCSS02	Batch	1 ID: 21	151	RunNo: 28697						
Prep Date:	9/4/2015	Analysis D	ate: 9/	8/2015	S	SeqNo: 869536		Units: mg/M	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hyd	Irocarbons, TR	110	20	100.0	0	113	83.6	116	2.49	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

WO#: 1509094

10-Sep-15



QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client:WesternProject:Bisti La	n Refining Southwest andfarm	t, Inc.							
Sample ID MB-21121 SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: PBS	Batch ID: 21121		R	RunNo: 28657					
Prep Date: 9/3/2015	015 Analysis Date: 9/4/2015		SeqNo: 868052			Units: mg/Kg			
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND 10								
Motor Oil Range Organics (MRO)	ND 50								
Surr: DNOP	11	10.00		105	57.9	140			
Sample ID LCS-21121	Test	Code: EF	PA Method	8015M/D: Die	esel Range	e Organics			
Client ID: LCSS	Batch ID: 2112	21	RunNo: 28657						
Prep Date: 9/3/2015	Analysis Date: 9/4/	/2015	S	eqNo: 86	68053	Units: mg/K	g		
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42 10	50.00	0	84.9	57.4	139			
Surr: DNOP	5.0	5.000		99.7	57.9	140			

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

WO#: 1509094

10-Sep-15

Page 5 of 6

QC SUMMARY REPORT Hall Environmental Analysis Laboratory, Inc.

Client: Western Project: Bisti La	n Refining So ndfarm	outhwe	st, Inc.								
Sample ID LCS-21112	.CS-21112 SampType: LCS			TestCode: EPA Method 8015D: Gasoline Range							٦
Client ID: LCSS	Batch ID: 21112		F	RunNo: 28662							
Prep Date: 9/2/2015	Analysis Date: 9/3/2015		SeqNo: 868074			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	27	5.0	25.00	0	107	79.6	122				
Surr: BFB	1000		1000		99.7	75.4	113				
Sample ID MB-21112	SampType: MBLK TestCode: EPA Method					8015D: Gaso	line Rang	e		٦	
Client ID: PBS	Batch	ID: 21	112	RunNo: 28662							
Prep Date: 9/2/2015	Analysis Date: 9/3/2015		SeqNo: 868075		Units: mg/h	(g					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Gasoline Range Organics (GRO)	ND	5.0									
Surr: BFB	890		1000		88.7	75.4	113				

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

WO#: 1509094

10-Sep-15

Page 6 of 6
HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Western Refining Southw	Work Order Number:	1509094		RcptNo:	1
Received by/date:	09/02/15 2/2/2015 8:00:00 AM	•	July Map		
Completed By: Lindsay Mangin	2/2/2015 10:17 26 AM		Author		
Reviewed By:	59/02/15				
Chain of Custody	1				
1. Custody seals intact or sample bottles?		Yes	No 🗌	Not Present 🛃	
2. Is Chain of Custody complete?		Yes 🖈	No 🗆	Not Present	
3. How was the sample delivered?		Courier			
Log In					
4. Was an attempt made to cool the samples?		Yes 🛃	No 🗌		
5. Were all appreciate reaching of a ferror state	5 Nº C + 6 0º C	Var A			
 vvere all samples received at a temperature of 	JT >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 🛃	
11. Were any sample containers received broker	n?	Yes	No 🛃		
		_		# of preserved bottles checked	
12. Does paperwork match bottle labels?		Yes 🖈	No 🗆	for pH: (<2	or >12 unless noted)
13 Are matrices correctly identified on Chain of C	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:	
(in no, noticy customer for autionization.)					
Special Handling (if applicable)					
16. Was client notified of all discrepancies with th	is order?	Yes	No 🗌	NA 🛃	
Person Notified:	Date:				
By Whom:	Via: [eMail 🗌	Phone 🗌 Fax	In Person	
Regarding:					
Client Instructions:					
17. Additional remarks:					
18. <u>Cooler Information</u>					
Cooler No Temp °C Condition Sea	al Intact Seal No S	Seal Date	Signed By		
L, 11.4 Good [185					

Page 1 of 1

С	hain-	of-Cu	ustody Record	Turn-Around	Time:					ы			DEL	TE	20					
Client:	Kelly	Rob	inson	Standard	🗆 Rush					A	AL NA		SIS	5 L	AE	30	RA	то	R	r
1.	ectera	n Rof	Ripina	Project Name	:					v	ww.h	allen	viron	ment	tal.co	om				
Mailing	Address	111 (R 4990	Bisti	Landfar	24		490	01 Ha	awkin	s NE	- A	buqu	erqu	e, N	M 87	109			
	Bla	mRel	d. NM	Project #:	0010(1		1	Те	1. 50	5-345	-397	5	Fax	505-	345-	4107	7			
Phone	#: (50	5) 63	2-8013	WRI	005			- 4: -				Ana	lysis	Req	uest	t				
email o	r Fax#:	elly. R	obinson@WNR, com	Project Mana	ger:		1)	nly)	RO)				04)				3			
QA/QC	Package: dard	,	Level 4 (Full Validation)	Brook	e Herb		s (802	(Gas o	RO/M		10 MIC		PO4,S	2 PCB			et en			
Accred	itation AP	□ Othe	er	Sampler: A	ex. Clooks	Michael Wicker	+ TMB	+ TPH	SO / DI	18.1)	04.1)	07/0	D ₃ ,NO ₂	s / 808		(A)	think 1	0.004		or N)
	(Type)			Sample Tem	perature: 1,4		HE	H	G	od 4	od 5	etals	UN N	cide	A	N-i	COW	5		S
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEALING	BTEX + MI	BTEX + M1	TPH 8015E	TPH (Meth	EDB (Meth	PAMS (03	Anions (F,(8081 Pesti	8260B (VO	8270 (Sem	GRO/DRO	Chlorides		Air Bubble
9-1-15	0950	Seil	Chude Cell Treatment Zone	2 Jans	(00)	-001				X							X	X		
9-1-15	1115	Soil	ADI Cell Treatment Zone	2 Jans	Cool	-00Z				X							Х	X		T
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Date:	Time	Relinquie	heddov	Received by:		Date Time	Rei	mark	S'		01		0	-		1				
1-1-15	1227		W. A.	April.	libel	- 9/1/5 1227			C	C	BH	lert	CUL	-IE	NV.	COV	5			
Date:	Time:	Relinquis	hed by:	Received by:	A	Date Time	1				MI	July	e la	LT	EN	Vici	om			
9/1/	1805	1.40	inter black	Y E H	the a	monte Adm	D	11	171	100		1	0							

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

September 11, 2015

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

RE: Bisti Landfarm

OrderNo.: 1509095

Dear Brooke Herb:

Hall Environmental Analysis Laboratory received 5 sample(s) on 9/2/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <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
Lab Order 1509095
Date Reported: 9/11/2015

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Project: Bisti Landfarm

1509095-001

Lab ID:

Client Sample ID: Westline Vadose Zone Collection Date: 9/1/2015 10:00:00 AM Received Date: 9/2/2015 8:00:00 AM

Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH					Analys	t: TOM
Petroleum Hydrocarbons, TR	ND	19	mg/Kg	1	9/8/2015	21151
EPA METHOD 300.0: ANIONS					Analys	t: LGT
Chloride	ND	30	mg/Kg	20	9/4/2015 3:29:08 PM	21158
EPA METHOD 8015M/D: DIESEL RANG	E ORGANICS	5			Analys	t: JME
Diesel Range Organics (DRO)	ND	9.8	mg/Kg	1	9/4/2015 7:22:29 PM	21121
Motor Oil Range Organics (MRO)	ND	49	mg/Kg	1	9/4/2015 7:22:29 PM	21121
Surr: DNOP	98.4	57.9-140	%REC	1	9/4/2015 7:22:29 PM	21121
EPA METHOD 8015D: GASOLINE RANG	GE				Analys	t: RAA
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	9/3/2015 5:06:26 PM	21112
Surr: BFB	90.0	75.4-113	%REC	1	9/3/2015 5:06:26 PM	21112
EPA METHOD 8021B: VOLATILES					Analys	t: RAA
Benzene	ND	0.048	mg/Kg	1	9/3/2015 5:06:26 PM	21112
Toluene	ND	0.048	mg/Kg	1	9/3/2015 5:06:26 PM	21112
Ethylbenzene	ND	0.048	mg/Kg	1	9/3/2015 5:06:26 PM	21112
Xylenes, Total	ND	0.095	mg/Kg	1	9/3/2015 5:06:26 PM	21112
Surr: 4-Bromofluorobenzene	103	80-120	%REC	1	9/3/2015 5:06:26 PM	21112

Matrix: SOIL

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

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 1 of 10
	ND Not Detected at the Reporting LimitR RPD outside accepted recovery limits		Р	Sample pH Not In Range
			RL	Reporting Detection Limit
	S	% Recovery outside of range due to dilution or matrix		

			Analytical Report								
				Lab Order 1509095							
Laborato	ry, In	c.	Date Reported: 9/11/2015								
		C	lient San	nple ID: Eastline Vadose Zone	_						
			Collectio	on Date: 9/1/2015 10:15:00 AM							
Matrix: SO	IL		Receive	ed Date: 9/2/2015 8:00:00 AM							
Result	RL	Qual	Units	DF Date Analyzed Bate	h						
				Analyst: TON	Λ						

mg/Kg

mg/Kg

mg/Kg

mg/Kg

%REC

mg/Kg

%REC

mg/Kg

mg/Kg

mg/Kg

mg/Kg

%REC

9/8/2015

9/4/2015 4:06:22 PM

9/4/2015 7:43:56 PM

9/4/2015 7:43:56 PM

9/4/2015 7:43:56 PM

9/3/2015 5:31:41 PM

1

20

1

1

1

1

1

1

1

1

1

1

21151

21158

21121

21121

21121

21112

21112

21112

21112

21112

21112

21112

Analyst: LGT

Analyst: JME

Analyst: RAA

Analyst: RAA

Hall Environmental Analysis Laboratory, Inc.

ND

ND

ND

ND

105

ND

89.4

ND

ND

ND

ND

103

20

30

10

50

4.8

57.9-140

75.4-113

0.048

0.048

0.048

0.095

80-120

CLIENT: Western Refining Southwest, Inc.

EPA METHOD 8015M/D: DIESEL RANGE ORGANICS

Bisti Landfarm

1509095-002

EPA METHOD 418.1: TPH Petroleum Hydrocarbons, TR

EPA METHOD 300.0: ANIONS

Diesel Range Organics (DRO)

Motor Oil Range Organics (MRO)

Gasoline Range Organics (GRO)

EPA METHOD 8021B: VOLATILES

Surr: 4-Bromofluorobenzene

EPA METHOD 8015D: GASOLINE RANGE

Project:

Lab ID:

Analyses

Chloride

Surr: DNOP

Surr: BFB

Benzene

Toluene

Ethylbenzene

Xylenes, Total

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

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 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		

Hall En	vironmental Analysis	Labora	tory, Inc.			Lab Order 1509095 Date Reported: 9/11/20	15
CLIENT: Project:	Western Refining Southwest, Ind Bisti Landfarm	с.		Client Samp Collection	le ID: Bis Date: 9/1	ti Vadose Zone /2015 10:05:00 AM	
Lab ID:	1509095-003	Matrix:	SOIL	Received	Date: 9/2	/2015 8:00:00 AM	
Analyses		Result	RL Qua	l Units	DF	Date Analyzed	Batch
EPA MET	HOD 418.1: TPH					Analys	t: TOM
Petroleun	n Hydrocarbons, TR	ND	20	mg/Kg	1	9/8/2015	21151
EPA MET	HOD 300.0: ANIONS					Analys	t: LGT
Chloride		ND	30	mg/Kg	20	9/4/2015 4:18:47 PM	21158
EPA MET	HOD 8015M/D: DIESEL RANGE	ORGANICS	5			Analys	t: JME
Diesel Ra	inge Organics (DRO)	ND	9.8	mg/Kg	1	9/4/2015 8:05:25 PM	21121
Motor Oil	Range Organics (MRO)	ND	49	mg/Kg	1	9/4/2015 8:05:25 PM	21121
Surr: D	NOP	104	57.9-140	%REC	1	9/4/2015 8:05:25 PM	21121
EPA MET	HOD 8015D: GASOLINE RANG	E				Analys	RAA
Gasoline	Range Organics (GRO)	ND	4.8	mg/Kg	1	9/3/2015 5:56:57 PM	21112
Surr: B	FB	89.9	75.4-113	%REC	1	9/3/2015 5:56:57 PM	21112
EPA MET	HOD 8021B: VOLATILES					Analyst	RAA
Benzene		ND	0.048	mg/Kg	1	9/3/2015 5:56:57 PM	21112
Toluene		ND	0.048	mg/Kg	1	9/3/2015 5:56:57 PM	21112
Ethylbenz	zene	ND	0.048	mg/Kg	1	9/3/2015 5:56:57 PM	21112
Xylenes,	Total	ND	0.095	mg/Kg	1	9/3/2015 5:56:57 PM	21112
Surr: 4	Bromofluorobenzene	103	80-120	%REC	1	9/3/2015 5:56:57 PM	21112

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

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		Holding times for preparation or analysis exceeded	J	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		

Analytical Report

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Hall Environmental Analy	sis Labora	tory, Inc.			Lab Order 1509095 Date Reported: 9/11/20	015
CLIENT: Western Refining Southwest Project: Bisti Landfarm Lab ID: 1509095-004	, Inc. Matrix:	SOIL	Client Sampl Collection J Received J	e ID: Pet Date: 9/1/ Date: 9/2/	tigrew Vadose Zone /2015 11:25:00 AM /2015 8:00:00 AM	
Analyses	Result	RL Qu	al Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH					Analys	t: TOM
Petroleum Hydrocarbons, TR	ND	19	mg/Kg	1	9/8/2015	21151
EPA METHOD 300.0: ANIONS					Analys	t: LGT
Chloride	3100	150	mg/Kg	100	9/8/2015 8:31:18 PM	21158
EPA METHOD 8015M/D: DIESEL RAN	IGE ORGANIC	S			Analys	t: JME
Diesel Range Organics (DRO)	ND	10	mg/Kg	1	9/4/2015 8:26:49 PM	21121
Motor Oil Range Organics (MRO)	ND	51	mg/Kg	1	9/4/2015 8:26:49 PM	21121
Surr: DNOP	104	57.9-140	%REC	1	9/4/2015 8:26:49 PM	21121
EPA METHOD 8015D: GASOLINE RA	NGE				Analys	t: RAA
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	9/3/2015 8:03:36 PM	21112
Surr: BFB	87.4	75.4-113	%REC	1	9/3/2015 8:03:36 PM	21112
EPA METHOD 8021B: VOLATILES					Analys	t: RAA
Benzene	ND	0.050	mg/Kg	1	9/3/2015 8:03:36 PM	21112
Toluene	ND	0.050	mg/Kg	1	9/3/2015 8:03:36 PM	21112
Ethylbenzene	ND	0.050	mg/Kg	1	9/3/2015 8:03:36 PM	21112
Xylenes, Total	ND	0.099	mg/Kg	1	9/3/2015 8:03:36 PM	21112
Surr: 4-Bromofluorobenzene	100	80-120	%REC	1	9/3/2015 8:03:36 PM	21112

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

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		

Surr: 4-Bromofluorobenzene

Analytical Report

1 9/3/2015 8:03:36 PM

Hall Er	nvironmental Analysis	Labora	tory, In	ıc.			Lab Order 1509095 Date Reported: 9/11/2	015
CLIENT: Project: Lab ID:	Western Refining Southwest, Inc Bisti Landfarm 1509095-005	Matrix:	SOIL	C	lient Sam Collection Received	ple ID: Al 1 Date: 9/1 1 Date: 9/2	PI Vadose Zone 1/2015 11:20:00 AM 2/2015 8:00:00 AM	
Analyses		Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA MET	HOD 418.1: TPH						Analys	st: TOM
Petroleur	m Hydrocarbons, TR	ND	19		mg/Kg	1	9/8/2015	21151
EPA MET	HOD 300.0: ANIONS						Analys	st: LGT
Chloride		38	30		mg/Kg	20	9/4/2015 4:43:36 PM	21158
EPA MET	HOD 8015M/D: DIESEL RANGE	ORGANIC	S				Analys	st: JME
Diesel Ra	ange Organics (DRO)	ND	10		mg/Kg	1	9/4/2015 8:48:33 PM	21121
Motor Oil	Range Organics (MRO)	ND	51		mg/Kg	1	9/4/2015 8:48:33 PM	21121
Surr: D	DNOP	126	57.9-140		%REC	1	9/4/2015 8:48:33 PM	21121
EPA MET	HOD 8015D: GASOLINE RANGE						Analys	st: RAA
Gasoline	Range Organics (GRO)	ND	4.8		mg/Kg	1	9/3/2015 8:28:56 PM	21112
Surr: E	3FB	88.0	75.4-113		%REC	1	9/3/2015 8:28:56 PM	21112
EPA MET	HOD 8021B: VOLATILES						Analys	st: RAA
Benzene		ND	0.048		mg/Kg	1	9/3/2015 8:28:56 PM	21112
Toluene		ND	0.048		mg/Kg	1	9/3/2015 8:28:56 PM	21112
Ethylbenz	zene	ND	0.048		mg/Kg	1	9/3/2015 8:28:56 PM	21112
Xylenes,	Total	ND	0.096		mg/Kg	1	9/3/2015 8:28:56 PM	21112
Surr: 4	l-Bromofluorobenzene	102	80-120		%REC	1	9/3/2015 8:28:56 PM	21112

Analytical Report

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

Qualifiers	*	Value exceeds Maximum Contaminant Level	B	Analyte detected in the associated Method Blank
Qualifiers.	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 5 of 10
	ND	Not Detected at the Reporting Limit	P	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

Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Weste Bisti I	ern Refining So Landfarm	outhwe	st, Inc.							
Sample ID	MB-21158	SampTy	pe: ME	BLK	Tes	tCode: El	PA Method	300.0: Anion	S		
Client ID:	PBS	Batch	ID: 21	158	R	unNo: 2	8681				
Prep Date:	9/4/2015	Analysis Da	ate: 9/	4/2015	S	eqNo: 8	68771	Units: mg/k	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		ND	1.5								
Sample ID	LCS-21158	SampTy	pe: LC	s	Test	tCode: El	PA Method	300.0: Anion	s		
Client ID:	LCSS	Batch	ID: 21	158	R	unNo: 2	8681				
Prep Date:	9/4/2015	Analysis Da	ate: 9/	4/2015	S	eqNo: 8	68772	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride		14	1.5	15.00	0	93.8	90	110			

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

WO#: 1509095

11-Sep-15

Page 6 of 10

Hall Environmental Analysis Laboratory, Inc.

Client:	Western	Refining S	outhwe	st, Inc.							
Project:	Bisti Lan	dfarm									
Sample ID	MB-21151	SampT	ype: ME	BLK	Tes	tCode: E	EPA Method	418.1: TPH			
Client ID:	PBS	Batch	1 ID: 21	151	F	unNo:	28697				
Prep Date:	9/4/2015	Analysis D	ate: 9/	8/2015	S	eqNo:	869534	Units: mg/F	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hyd	rocarbons, TR	ND	20								
Sample ID	LCS-21151	SampT	ype: LC	s	Tes	tCode: E	EPA Method	418.1: TPH			
Client ID:	LCSS	Batch	1 ID: 21	151	F	unNo:	28697				
Prep Date:	9/4/2015	Analysis D	ate: 9/	8/2015	S	eqNo:	869535	Units: mg/h	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hyd	rocarbons, TR	110	20	100.0	0	110	83.6	116			
Sample ID	LCSD-21151	SampT	ype: LC	SD	Tes	Code: E	PA Method	418.1: TPH			
Client ID:	LCSS02	Batch	1 ID: 21	151	R	unNo:	28697				
Prep Date:	9/4/2015	Analysis D	ate: 9/	8/2015	S	eqNo: 8	869536	Units: mg/M	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hyd	rocarbons, TR	110	20	100.0	0	113	83.6	116	2.49	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

WO#: 1509095

11-Sep-15

Page 7 of 10

Client: Western Project: Bisti Lar	Refining S ndfarm	outhwe	st, Inc.							
Sample ID MB-21121	SampT	ype: MI	BLK	Tes	tCode: E	PA Method	8015M/D: Di	esel Range	e Organics	
Client ID: PBS	Batch	1 ID: 21	121	F	RunNo: 2	8657				
Prep Date: 9/3/2015	Analysis D	ate: 9/	4/2015	S	SeqNo: 8	68052	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	11		10.00		105	57.9	140			
Sample ID LCS-21121	SampT	ype: LC	s	Tes	tCode: El	PA Method	8015M/D: Di	esel Range	e Organics	
Client ID: LCSS	Batch	ID: 21	121	F	aunNo: 2	8657				
Prep Date: 9/3/2015	Analysis D	ate: 9/	4/2015	S	SeqNo: 8	68053	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	10	50.00	0	84.9	57.4	139	_		
Surr: DNOP	5.0		5.000		99.7	57.9	140			

Qualifiers:

Value exceeds Maximum Contaminant Level. *

D Sample Diluted Due to Matrix

- Holding times for preparation or analysis exceeded Н
- 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
- Ρ Sample pH Not In Range
 - RL Reporting Detection Limit

Page 8 of 10

11-Sep-15

Client: Western Project: Bisti La	n Refining Southw ndfarm	est, Inc.							
Sample ID LCS-21112	SampType: L	.cs	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	e	
Client ID: LCSS	Batch ID: 2	1112	R	RunNo: 2	8662				
Prep Date: 9/2/2015	Analysis Date:	9/3/2015	S	eqNo: 8	68074	Units: mg/K	g		
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27 5.	25.00	0	107	79.6	122			
Surr: BFB	1000	1000		99.7	75.4	113			
Sample ID MB-21112	SampType: N	IBLK	Tes	tCode: EF	PA Method	8015D: Gaso	line Rang	e	
Client ID: PBS	Batch ID: 2	1112	R	unNo: 2	8662				
Prep Date: 9/2/2015	Analysis Date:	9/3/2015	S	eqNo: 8	68075	Units: mg/K	g		
Analyte	Result PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND 5.0)							
Surr: BFB	890	1000		88.7	75.4	113			

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

Page 9 of 10

WO#: 1509095

11-Sep-15

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1.000

Client: Project:	Western F Bisti Lanc	Refining Selfarm	outhwe	st, Inc.							
Sample ID L	CS-21112	SampT	ype: LC	S	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID: L	CSS	Batch	ID: 21	112	F	RunNo: 2	8662				
Prep Date:	9/2/2015	Analysis D	ate: 9/	3/2015	S	SeqNo: 8	68094	Units: mg/k	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene		0.91	0.050	1.000	0	90.7	80	120			
Toluene		0.89	0.050	1.000	0	89.5	80	120			
Ethylbenzene		0.90	0.050	1.000	0	90.2	80	120			
Xylenes, Total		2.7	0.10	3.000	0	90.4	80	120			
Surr: 4-Bromofi	uorobenzene	1.1		1.000		112	80	120			
Sample ID M	B-21112	SampT	уре: МЕ	BLK	Tes	tCode: El	PA Method	8021B: Vola	tiles		
Client ID: P	BS	Batch	1D: 21	112	F	RunNo: 2	8662				
Prep Date:	9/2/2015	Analysis D	ate: 9/	3/2015	S	SeqNo: 8	68095	Units: mg/k	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene		ND	0.050								
Toluene		ND	0.050								
Ethylbenzene		ND	0.050								
Xylenes, Total		ND	0.10								

105

80

120

Qualifiers:

Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

Surr: 4-Bromofluorobenzene

- 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
- - ion runge
 - Page 10 of 10

1509095

WO#:

11-Sep-15

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

		WEDAITE. WWW.HOR	ien ni onna	chius.com		
Client Name: Western Re	fining Southw Wor	k Order Number:	1509095	5	RcptNo:	1
Received by/date:	6 09	102/15		And Marco		
Logged By. Lindsay wa		15 6.00.00 Alw				:
Completed By: Lindsay Ma	ingin 9/2/20	15 10:22:10 AM		June Hango		
Reviewed By:	γ (19/02/1	15			
Chain of Custody	0	1.				
1. Custody seals intact on sa	mple bottles?		Yes [] No []	Not Present	
2. Is Chain of Custody comp	lete?		Yes 🖉	No 🗌	Not Present	
3. How was the sample deliv	ered?		Courier			
<u>Log In</u>						
4. Was an attempt made to	cool the samples?		Yes	No 🗌	NA	
5. Were all samples received	1 at a temperature of >0°	° C to 6.0°C	Yes 🛃	No 🗌	NA 🗀	
6. Sample(s) in proper conta	iner(s)?		Yes	No 🗌		
7. Sufficient sample volume	for indicated test(s)?		Yes	No 🗌		
8. Are samples (except VOA	and ONG) properly prese	erved?	Yes	No 🗌		
9. Was preservative added to	o bottles?		Yes 🗌] No 🛃	NA 🗌	
10 VOA vials have zero head	space?		Yes		No VOA Vials	
11 Were any sample contain	ers received broken?		Yes	No 🐼	1	
11					# of preserved bottles checked	
12. Does paperwork match bo	ttle labels?		Yes	No 🗌	for pH:	and the sector d
(Note discrepancies on ch	ain of custody)				Adjusted?	or >12 unless noted)
13. Are matrices correctly iden	itified on Chain of Custoo	iy?	Yes			
14. Is it clear what analyses w	e to be met?		Vec 4		Checked by:	
(If no, notify customer for	authorization.)		162			
Special Handling (if app	licable)					
16. Was client notified of all di	screpancies with this ord	er?	Yes	No 🗌	NA 🖝	
Person Notified		Date:				
By Whom:		Via:	eMail	Phone Fax	In Person	
Regarding:		via. L				
Client Instructions:		In constant of the second s		en an	and a second	
17. Additional remarks:						1
Cooler No Temp %	Condition Seal Inter	ct Seal No 1	Seal Date	Signed By		
1 1.4	Good Yes		Sul Date	- Cignou by		

С	hain	of-Cu	stody Record	Turn-Around	Time:														
Client:	Kelly	Robins	01	Standard Rush								Y	SIS	J R	AE	SOF	ZAT	OR'	Y
V	Noter	n Re	Anina	Project Name	:		www.hallenvironmental.com												
Mailing	Address	111 C	R 4990	Bisti	Landf	airus		490	1 Ha	wkin	s NE	- Alb	uque	erque	e, NM	M 871	09		
	Bloo	mfield	l. NM	Project #:				Те	. 50	5-345	-3975	F	ax !	505-)5-345-4107				
Phone #	#: (50	5) 6	32-8013	WR	1005					1	ļ	Analy	/sis	Req	uest				
email o	r Fax#:	Kelly.	Rohinson @WNR.com	Project Mana	ger:		÷	nly)	RO)				O4)				R		
QA/QC I	Package: · dard	1	□ Level 4 (Full Validation)	Brog	Ke Her	ł	\$ (802	Gas o	W/O		(SMS)		PO ₄ ,S	PCB's			khin 80	6	
	tation AP	□ Othe	r	Sampler: He	× Cirooks /	Michael Wicker	ENER	TPH (O/DF	8.1)	4.1) 3270 S		3,NO ₂ ,	/ 8082		()	ined for	300	L N)
	(Type)			Sample Tem	perature: 1,4			÷	(GR	d 41	or 8	als	N,	des	0	VOP	Court		o کا
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	heal ng 1504045	BTEX + WH	BTEX + MTE	TPH 8015B	TPH (Metho	EUB (Metho PAH's (8310	RCRA 8 Me	Anions (F,CI	8081 Pestici	8260B (VOA	8270 (Semi-	640/080	Chloride	Air Bubbles
-1-15	1000	Seil	Westline Vadose Zone	2 Jours	600	-001	X			X							X	\times	
-1-15	1015	Sail	Eastline Vallose Zone	2 Jars	Cool	-007-	X		ľ	X								\mathbf{X}	
-1-15	1005	Soil	Bisti Vadose Zoine	2 Jours	Con	-003	X			X							X	X	
1-1-15	1125	Soil	Pettigreen Vadose Zone	2 Jours	Cool	-004	X		ľ	X							X	\times	
1-1-15	1120	Sail	API Vadose Zone	2 5005	Coul	-005	Х			X								\bowtie	
	:							_											
Date: -1-15	Time:	Relinquish	ed by:	Received by:	Halt	Date Time 9/1/15 1227	Ren	narks	3:			C		E	3Hev AAo	b@	LTE	nvic	.ovn
Date:	Time:	Relinquish	ed by:	Received by:	to	9 02 15 0800	DO	#	26	010	157	1		A	IWi	ckev	elti	ENYI	COM

10 A

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

October 05, 2015

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

RE: Bisti Landfarm

OrderNo.: 1509090

Dear Brook Herb:

Hall Environmental Analysis Laboratory received 1 sample(s) on 9/2/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to <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

Hall Environmental Analysis	Labora	tory, In	ıc.			Lab Order 1509090 Date Reported: 10/5/201	5
CLIENT: Western Refining Southwest, IndProject: Bisti LandfarmLab ID: 1509090-001	e. Matrix:	SOIL	C	lient Samp Collection Received	le ID: Bac Date: 9/1 Date: 9/2	ekground /2015 10:50:00 AM /2015 8:00:00 AM	
Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst:	TOM
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	9/8/2015	21151
EPA METHOD 300.0: ANIONS						Analyst:	LGT
Fluoride	0.84	0.30		mg/Kg	1	9/8/2015 3:21:01 PM	21182
Nitrogen, Nitrate (As N)	ND	0.30		mg/Kg	1	9/8/2015 3:21:01 PM	21182
EPA METHOD 6010B: SOIL METALS						Analyst:	JLF
	3.2	0.30		ma/Ka	1	9/10/2015 10:39:20 AM	21211
Iron	7200	120		mg/Kg	50	9/10/2015 11:33:58 AM	21211
Manganese	150	0.099		mg/Kg	1	9/10/2015 10:39:20 AM	21211
Uranium	ND	4.9		mg/Kg	1	9/10/2015 10:39:20 AM	21211
Zinc	14	2.5		mg/Kg	1	9/10/2015 10:39:20 AM	21211
EPA METHOD 8082: PCB'S						Analyst:	SCC
Aroclor 1016	ND	0.020		mg/Kg	1	9/8/2015 2:12:46 PM	21124
Aroclor 1221	ND	0.020		mg/Kg	1	9/8/2015 2:12:46 PM	21124
Aroclor 1232	ND	0.020		mg/Kg	1	9/8/2015 2:12:46 PM	21124
Aroclor 1242	ND	0.020		mg/Kg	1	9/8/2015 2:12:46 PM	21124
Aroclor 1248	ND	0.020		mg/Kg	1	9/8/2015 2:12:46 PM	21124
Aroclor 1254	ND	0.020		mg/Kg	1	9/8/2015 2:12:46 PM	21124
Aroclor 1260	ND	0.020		mg/Kg	1	9/8/2015 2:12:46 PM	21124
Surr: Decachlorobiphenyl	87.6	25.2-134		%REC	1	9/8/2015 2:12:46 PM	21124
Sun: Tetrachiolo-m-xylene	72.0	17.4-140		%REC	1	9/6/2015 2.12.40 FW	21124
EPA METHOD 8015M/D: DIESEL RANGE	ORGANIC	S				Analyst:	JME
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	9/4/2015 6:18:05 PM	21121
Motor Oil Range Organics (MRO)	ND	50	0	mg/Kg	1	9/4/2015 6:18:05 PM	21121
Suff: DNOP	153	57.9-140	5	%REC	1	9/4/2015 0.16.05 PW	21121
EPA METHOD 8015D: GASOLINE RANGE						Analyst:	RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	9/3/2015 3:50:33 PM	21112
Surr: BFB	89.7	75.4-113		%REC	1	9/3/2015 3:50:33 PM	21112
EPA METHOD 8310: PAHS						Analyst:	SCC
Naphthalene	ND	0.25		mg/Kg	1	9/8/2015 2:13:15 PM	21125
1-Methylnaphthalene	ND	0.25		mg/Kg	1	9/8/2015 2:13:15 PM	21125
2-Methylnaphthalene	ND	0.25		mg/Kg	1	9/8/2015 2:13:15 PM	21125
вепго(а)ругепе	ND	0.0099		mg/Kg	1	9/0/2015 2:13:15 PM	21125
EPA METHOD 8260B: VOLATILES						Analyst:	AG
Benzene	ND	0.048		mg/Kg	1	9/3/2015 4:53:30 PM	21112
Toluene	ND	0.048		mg/Kg	1	9/3/2015 4:53:30 PM	21112
Etnylbenzene	ND	0.048		mg/Kg	1	9/3/2015 4:53:30 PM	21112

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

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

% Recovery outside of range due to dilution or matrix S

В Analyte detected in the associated Method Blank

E Value above quantitation range

Analyte detected below quantitation limits Page 1 of 13 J

P Sample pH Not In Range

RL Reporting Detection Limit

Analytical Report

					Lab Order 1509090						
Hall Environmental Analysis Laboratory, Inc. Date Reported: 10/5/2015											
CLIENT: Western Refining Southwest, Inc. Client Sample ID: Background											
Project: Bisti Landfarm			Collection	Dete: $0/1$	/2015 10.50.00 AM						
			Conection	Date. 9/1	2015 10.50.00 AM						
Lab ID: 1509090-001	Matrix: S	SOIL	Received	Date: 9/2	2/2015 8:00:00 AM						
Analyses	Result	RL Qua	l Units	DF	Date Analyzed	Batch					
EPA METHOD 8260B: VOLATILES					Analys	t: AG					
Methyl tert-butyl ether (MTBE)	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
1,2,4-Trimethylbenzene	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
1,3,5-Trimethylbenzene	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
1,2-Dichloroethane (EDC)	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
1,2-Dibromoethane (EDB)	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
Naphthalene	ND	0.095	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
1-Methylnaphthalene	ND	0.19	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
2-Methylnaphthalene	ND	0.19	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
Acetone	ND	0.72	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
Bromobenzene	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
Bromodichloromethane	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
Bromoform	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
Bromomethane	ND	0.14	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
2-Butanone	ND	0.48	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
Carbon disulfide	ND	0.48	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
Carbon tetrachloride	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
Chlorobenzene	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
Chloroethane	ND	0.095	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
Chloroform	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
Chloromethane	ND	0.14	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
2-Chlorotoluene	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
4-Chlorotoluene	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
cis-1,2-DCE	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
cis-1,3-Dichloropropene	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
1,2-Dibromo-3-chloropropane	ND	0.095	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
Dibromochloromethane	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
Dibromomethane	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
1,2-Dichlorobenzene	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
1,3-Dichlorobenzene	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
1,4-Dichlorobenzene	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
Dichlorodifluoromethane	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
1,1-Dichloroethane	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
1,1-Dichloroethene	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
1,2-Dichloropropane	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
1,3-Dichloropropane	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
2,2-Dichloropropane	ND	0.095	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
1,1-Dichloropropene	ND	0.095	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
Hexachlorobutadiene	ND	0.095	mg/Kg	1	9/3/2015 4:53:30 PM	21112					
2-Hexanone	ND	0.48	mg/Kg	1	9/3/2015 4:53:30 PM	21112					

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

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 Page 2 of 13

Analytical Report

- P Sample pH Not In Range
- RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc. Date Reported: 10/5/20									
CLIENT: Western Refining Southwest Project: Bisti Landfarm	, Inc.		Client Sample Collection D	ID: Ba ate: 9/1	ckground /2015 10:50:00 AM				
Lab ID: 1309090-001	Watrix: 3	SOIL	Received D	ate: 9/2	/2015 8:00:00 Alvi				
Analyses	Result	RL	Qual Units	DF	Date Analyzed	Batch			
EPA METHOD 8260B: VOLATILES					Analys	t: AG			
Isopropylbenzene	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
4-Isopropyltoluene	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
4-Methyl-2-pentanone	ND	0.48	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
Methylene chloride	ND	0.14	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
n-Butylbenzene	ND	0.14	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
n-Propylbenzene	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
sec-Butylbenzene	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
Styrene	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
tert-Butylbenzene	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
1,1,1,2-Tetrachloroethane	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
1,1,2,2-Tetrachloroethane	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
Tetrachloroethene (PCE)	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
trans-1,2-DCE	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
trans-1,3-Dichloropropene	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
1,2,3-Trichlorobenzene	ND	0.095	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
1,2,4-Trichlorobenzene	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
1,1,1-Trichloroethane	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
1,1,2-Trichloroethane	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
Trichloroethene (TCE)	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
Trichlorofluoromethane	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
1,2,3-Trichloropropane	ND	0.095	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
Vinyl chloride	ND	0.048	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
Xylenes, Total	ND	0.095	mg/Kg	1	9/3/2015 4:53:30 PM	21112			
Surr: Dibromofluoromethane	98.5	70-130	%REC	1	9/3/2015 4:53:30 PM	21112			
Surr: 1,2-Dichloroethane-d4	96.8	70-130	%REC	1	9/3/2015 4:53:30 PM	21112			
Surr: Toluene-d8	89.0	70-130	%REC	1	9/3/2015 4:53:30 PM	21112			
Surr: 4-Bromofluorobenzene	95.3	70-130	%REC	1	9/3/2015 4:53:30 PM	21112			
SM4500-H+B: PH					Analyst	JRR			
pH	7.89	1.68	pH Units	1	9/3/2015 11:45:00 AM	R28642			

Analytical Report Lab Order 1509090

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

0.110				
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 3 of 13
	ND	Not Detected at the Reporting Limit	P	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 RESULTS - 01

Wet Chemistry by Method 9012B

	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
Cyanide	ND		0.250	1	09/09/2015 12:47	WG814063
Wet Chemistry by M	lethod 9066					
	Result	Qualifier	RDL	Dilution	Analysis	Batch
Analyte	mg/kg		mg/kg		date / time	
Total Phenol by 4AAP	ND		0.670	1	09/14/2015 14:05	WG814790

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WG814063

Wet Chemistry by Method 9012B

ONE LAB. NATIONWIDE.

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ЪС

³Ss ⁴Cn ⁵Sr ⁶Qc ⁷Gl ⁸Al

Method Blank (MB)

(MB) 09/09/15 12:26	1		
	MB Result	MB Qualifier	MB RDL
Analyte	mg/kg		mg/kg
Cyanide	ND		0.250

L787320-02 Original Sample (OS) • Duplicate (DUP)

(OS) 09/09/15 12:35 • (DUP) 09/09/15 12:36										
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits				
Analyte	mg/kg	mg/kg		%		%				
Cyanide	ND	ND	1	0.00		20				

L787320-01 Original Sample (OS) - Duplicate (DUP)

(OS) 09/09/15 12:53 - (DUP) 09/09/15 12:54									
	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits			
Analyte	mg/kg	mg/kg		%		%			
Cyanide	ND	ND	1	200	P1	20			

Laboratory Control Sample (LCS) - Laboratory Control Sample Duplicate (LCSD)

(LCS) 09/09/15 12:28 · (LCSD) 09/0	09/15 12:29									
	Spike Amount	LCS Result	LCSD Result	LCS Rec.	LCSD Rec.	Rec. Limits	LCS Qualifier	LCSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	%	%	%			%	%
Cyanide	53.9	47.0	51.0	87.2	94.6	50.0-150			8.16	20

QUALITY CONTROL SUMMARY

L787017-01

DATE/TIME:

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PAGE:

WG814/90 QUALITY CONTROL SUMMARY UNE LAB. NA I'ONWIDE. Wet Chemistry by Method 9066 L787017-01 Method Blank (MB) (MB) 09 14/15 14:00 MB RDL MB Result **MB** Qualifier Analyte mg/kg mg/kg Total Phenol by 4AAP ND 0.670 L786552-01 Original Sample (OS) - Duplicate (DUP) (OS) 09/14/15 14:04 . (DUP) 09/14/15 14:04 Original Result DUP Result Dilution DUP RPD **DUP Qualifier** DUP RPD Limits Analyte mg/kg % % mg/kg Total Phenol by 4AAP ND ND 0.00 20 1 Laboratory Control Sample (LCS) - Laboratory Control Sample Duplicate (LCSD) (LCS) 09/14/15 14:01 - (LCSD) 09/14/15 14:02 Spike Amount LCS Result LCSD Result LCSD Rec. LCSD Qualifier RPD **RPD** Limits LCS Rec. Rec. Limits LCS Qualifier % Analyte mg/kg mg/kg mg/kg % % % % 1.25 Total Phenol by 4AAP 8.33 8.77 8.88 105 107 90.0-110 20

3

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²Tc ³Ss ⁴Cn ⁵Sr

⁶Qc ⁷Gl ⁸Al ⁹Sc

PAGE:

L787017-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(CS) 09/14/15 14:05 - (MS) 09/14/15 14:06 - (MSD) 09/14/15 14:07												
	Spike Amour	nt Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	mg/kg	%	%		96			%	%
Total Phenol by 4AAP	16.7	0.120	15.8	15.8	94.6	94.6	1	90.0-110			0.000	20

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Pace Analytical Services, Inc. 1638 Roseytown Road - Suites 2,3,4 Greensburg, PA 15801 (724)850-5600

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ANALYTICAL RESULTS - RADIOCHEMISTRY

 Project:
 1509090

 Pace Project No.:
 30158412

ple:	1509090-001C Background	Lab ID: 301584	12001 Collecte	ed: 09/01/15 10:50	Received:	09/03/15 09:30	Matrix: Solid	
PWS:		Site ID:	Sample	Type:				
Results	reported on a "dry-weight" b	oasis						
	Parameters	Method	Act ± Unc (I	MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-2	226 EI	PA 901.1	0.737 ± 0.242 C:NA T:NA	(0.171)	pCl/g	10/02/15 11:57	13982-63-3	
Radium-2	228 EI	PA 901.1	0.806 ± 0.338 C:NA T:NA	(0.462)	pCi/g	10/02/15 11:57	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project:	1509090						
Pace Project No .:	30158412						
QC Batch:	RADC/26047		Analysis Method:	EPA 901.1			
QC Batch Method:	EPA 901.1		Analysis Description:	901.1 Gamr	ma Spec Ingrowth		
Associated Lab Sar	mples: 30158412	001					
METHOD BLANK:	952582		Matrix: Solid				
Associated Lab Sar	mples: 30158412	001					
Parar	neter	Act ±	Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers	
Radium-226		0.144 ± 0.175	(0.276) C:NA T:NA	pCi/g	09/16/15 21:55		
Radium-228		0.169 ± 0.213	(0.330) C:NA T:NA	pCi/g	09/16/15 21:55		

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

REPORT OF LABORATORY ANALYSIS

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Hall Environmental Analysis Laboratory, Inc.

Client:	Western I	Refining Se	outhwe	st, Inc.							
Project:	Bisti Land	dfarm									
Sample ID	MB-21182	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	300.0: Anior	IS		
Client ID:	PBS	Batch	1 ID: 21	182	F	RunNo: 2	8712				
Prep Date:	9/8/2015	Analysis D	ate: 9/	8/2015	5	SeqNo: 8	70259	Units: mg/h	٢g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride		ND	0.30								
Nitrogen, Nitrat	te (As N)	ND	0.30								
Sample ID	LCS-21182	SampT	ype: LC	s	Tes	tCode: El	PA Method	300.0: Anion	IS		
Client ID:	LCSS	Batch	1 ID: 21	182	F	RunNo: 2	8712				
Prep Date:	9/8/2015	Analysis D	ate: 9/	8/2015	S	SeqNo: 8	70260	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	99.4	90	110			
Nitrogen, Nitrat	te (As N)	7.5	0.30	7.500	0	99.5	90	110			
Sample ID	1509090-001AMS	SampT	ype: MS	5	Tes	tCode: El	PA Method	300.0: Anion	IS		
Client ID:	Background	Batch	1 ID: 21	182	F	RunNo: 2	8712				
Prep Date:	9/8/2015	Analysis D	ate: 9/	8/2015	S	SeqNo: 8	70270	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride		1.4	0.30	1.500	0.8431	34.8	13.6	100			
Nitrogen, Nitrat	te (As N)	7.6	0.30	7.500	0	1 <mark>01</mark>	87.6	109			
Sample ID	1509090-001AMSE	SampT	ype: MS	SD	Tes	tCode: El	PA Method	300.0: Anion	S		
Client ID:	Background	Batch	1D: 21	182	R	RunNo: 2	8712				
Prep Date:	9/8/2015	Analysis D	ate: 9/	8/2015	S	eqNo: 8	70271	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride		1.4	0.30	1.500	0.8431	34.1	13.6	100	0.759	20	
Nitrogen, Nitrat	te (As N)	7.6	0.30	7.500	0	102	87.6	109	0.992	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

WO#: **1509090**

05-Oct-15

Page 4 of 13

Hall Environmental Analysis Laboratory, Inc.

Client:	Western	Refining S	outhwe	st, Inc.							
Project:	Bisti La	ndfarm									
Sample ID	MB-21151	SampT	ype: ME	BLK	Tes	tCode: E	PA Method	418.1: TPH			
Client ID:	PBS	Batch	1 ID: 21	151	F	RunNo: 2	28697				
Prep Date:	9/4/2015	Analysis D)ate: 9/	8/2015	S	SeqNo: 8	869534	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hyd	rocarbons, TR	ND	20								
Sample ID	LCS-21151	SampType: LCS TestCode: EPA Method 418.1: TPH									
Client ID:	LCSS	Batch	1 ID: 21	151	F	RunNo: 28697					
Prep Date:	9/4/2015	Analysis D	ate: 9/	8/2015	S	SeqNo: 8	369535	Units: mg/k	(g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hyd	rocarbons, TR	110	20	100.0	0	110	83.6	116			
Sample ID	LCSD-21151	SampT	ype: LC	SD	Tes	tCode: E	PA Method	418.1: TPH			
Client ID:	LCSS02	Batch	1 ID: 21	151	R	RunNo: 2	28697				
Prep Date:	9/4/2015	Analysis D	ate: 9/	8/2015	S	eqNo: 8	369536	Units: mg/k	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hyd	rocarbons, TR	110	20	100.0	0	113	83.6	116	2.49	20	

Qualifiers:

* Value exceeds Maximum Contaminant Level.

D Sample Diluted Due to Matrix

- H Holding times for preparation or analysis exceeded
- $ND \quad Not \ Detected \ at \ the \ Reporting \ Limit$
- 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

WO#: 1509090

05-Oct-15



Client: Western Project: Bisti La	Refining So ndfarm	uthwe	st, Inc.							
Sample ID MB-21121	SampTy	pe: MI	3LK	Tes	tCode: El	PA Method	8015M/D: Di	esel Rang	e Organics	
Client ID: PBS	Batch	D: 21	121	F	RunNo: 2	8657				
Prep Date: 9/3/2015	Analysis Da	te: 9/	4/2015	S	SeqNo: 8	68052	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	11		10.00		105	57.9	140			
Sample ID LCS-21121	SampTy	pe: LC	s	Tes	tCode: El	PA Method	8015M/D: Di	esel Range	e Organics	
Client ID: LCSS	Batch	D: 21	121	R	RunNo: 2	8657				
Prep Date: 9/3/2015	Analysis Da	te: 9/	4/2015	S	SeqNo: 8	68053	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	42	10	50.00	0	84.9	57.4	139			
Surr: DNOP	5.0		5.000		99.7	57.9	140			

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

Page 6 of 13

WO#: 1509090

05-Oct-15

Hall Environmental Analysis Laboratory, Inc.

Client:WesternProject:Bisti La	n Refining Sou Indfarm	ithwe	st, Inc.							
Sample ID LCS-21112	SampTyp	e: LC	s	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	е	
Client ID: LCSS	Batch II	D: 21	112	R	RunNo: 2	8662				
Prep Date: 9/2/2015	Analysis Date	e: 9	/3/2015	S	SeqNo: 8	68074	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	107	79.6	122			
Surr: BFB	1000		1000		99.7	75.4	113			
Sample ID MB-21112	SampTyp	e: MI	BLK	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	e	
Client ID: PBS	Batch II	D: 21	112	R	RunNo: 2	8662				
Prep Date: 9/2/2015	Analysis Date	e: 9/	3/2015	S	SeqNo: 8	68075	Units: mg/k	g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	890		1000		88.7	75.4	113			

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

quantitation range

Page 7 of 13

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm

Sample ID MB-21124	SampType: MBLK TestCode: EPA Method 8082: PCB's												
Client ID: PBS	Batch	ID: 21	124	F	RunNo: 2	8678							
Prep Date: 9/3/2015	Analysis Da	ite: 9/	8/2015	5	SeqNo: 8	68658	Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
Aroclor 1016	ND	0.020											
Aroclor 1221	ND	0.020											
Aroclor 1232	ND	0.020											
Aroclor 1242	ND	0.020											
Aroclor 1248	ND	0.020											
Aroclor 1254	ND	0.020											
Aroclor 1260	ND	0.020											
Surr: Decachlorobiphenvl	0.040		0.06250		63.6	25.2	134						
Surr: Tetrachloro-m-xylene	0.031		0.06250		50.0	17.4	148						
		_											
Sample ID LCS-21124	SampTy	pe: LC	S	Tes	tCode: El	PA Method	8082: PCB's						
Client ID: LCSS	Batch	ID: 21	124	F	RunNo: 2	8678							
Prep Date: 9/3/2015	Analysis Da	te: 9/	8/2015	S	SeqNo: 8	68659	Units: mg/K	g					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual			
Aroclor 1016	0.070	0.020	0.1250	0	55.7	17.3	119						
Aroclor 1260	0.10	0.020	0.1250	0	80.5	10.7	139						
Surr: Decachlorobiphenyl	0.052		0.06250		82.8	25.2	134						
Surr: Tetrachloro-m-xylene	0.039		0.06250		62.0	17.4	148						

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

Page 8 of 13

05-Oct-15

1509090

WO#:

Client:	Western	Refining	Southwest.	Inc
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Project: Bisti Landfarm

Sample ID Ics-21112	SampType: LCS TestCode: EPA M						8260B: Vola	tiles		
Client ID: LCSS	Batcl	h ID: 21	112	F	RunNo: 2	8652				
Prep Date: 9/2/2015	Analysis D	Date: 9/	3/2015	5	SeqNo: 8	67326	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.050	1.000	0	96.4	70	130			
Toluene	0.88	0.050	1.000	0	88.4	70	130			
Chlorobenzene	0.98	0.050	1.000	0	98.1	70	130			
1,1-Dichloroethene	1.1	0.050	1.000	0	109	70	130			
Trichloroethene (TCE)	0.88	0.050	1.000	0	88.2	70	130			
Surr: Dibromofluoromethane	0.48		0.5000		96.9	70	130			
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		94.3	70	130			
Surr: Toluene-d8	0.45		0.5000		89.3	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		98.4	70	130			
Sample ID mb-21112	SampType: MBLK TestCode: EPA Method 8260B: Volatiles									
Client ID: PBS	Batch	h ID: 21	112	F	RunNo: 2	8652				
Prep Date: 9/2/2015	Analysis D	Date: 9/	3/2015	S	SeqNo: 8	67327	Units: mg/k	(g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								

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

WO#: 1509090

05-Oct-15

Page 9 of 13

Hall Environmental Analysis Laboratory, Inc.

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

Bisti Landfarm

Project:

Sample ID mb-21112	SampT	ype: MI	BLK	Tes	tCode: El	PA Method	8260B: Volati	les		
Client ID: PBS	Batch	ID: 21	112	F	RunNo: 2	8652				
Prep Date: 9/2/2015	Analysis D	ate: 9	3/2015	S	SeqNo: 8	67327	Units: mg/K	9		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyitoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
ylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								

Qualifiers:

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

1509090 05-Oct-15

WO#:

Page 10 of 13

Client: Western Refining Southwest, Inc.

Project:	Bisti Landfarm	
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Sample ID mb-21112	SampType: MBLK TestCode: EPA Method 8260B:							tiles			
Client ID: PBS	Batch	Batch ID: 21112 RunNo: 28652									
Prep Date: 9/2/2015	Analysis Date: 9/3/2015 SeqNo: 867327 Units:							(g			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Vinyl chloride	ND	0.050									
Xylenes, Total	ND	0.10									
Surr: Dibromofluoromethane	0.50		0.5000		99.2	70	130				
Surr: 1,2-Dichloroethane-d4	0.48		0.5000		96.6	70	130				
Surr: Toluene-d8	0.43		0.5000		86.6	70	130				
Surr: 4-Bromofluorobenzene	0.49		0.5000		97.3	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

Page 11 of 13

WO#: 1509090

05-Oct-15

Hall Environmental Analysis Laboratory, Inc.

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

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Sample ID MB-21125	SampType: MBLK TestCode: EPA Method 8310: PAHs									
Client ID: PBS	Bat	ch ID: 21	125	F	RunNo: 2	8675				
Prep Date: 9/3/2015	Analysis	Date: 9/	8/2015	5	SeqNo: 8	68603	Units: mg/k	۲g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.25								
1-Methylnaphthalene	ND	0.25								
2-Methylnaphthalene	ND	0.25								
Benzo(a)pyrene	ND	0.010								
Surr: Benzo(e)pyrene	0.22		0.5000		44.2	24.5	139			
Sample ID LCS-21125	Samp	Type: LC	s	Tes	tCode: E	PA Method	8310: PAHs			
Client ID: LCSS	Batch ID: 21125 RunNo: 28675									
Prep Date: 9/3/2015	Analysis	Date: 9/	8/2015	5	SeqNo: 8	68605	Units: mg/k	٢g		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	1.7	0.25	2.000	0	85.2	33.7	117			
1-Methylnaphthalene	1.7	0.25	2.000	0	85.9	32	119			
2-Methylnaphthalene	1.7	0.25	2.000	0	84.7	31.8	118			
Benzo(a)pyrene	0.010	0.010	0.01250	0	80.0	40	115			
Surr: Benzo(e)pyrene	0.28		0.5000		55.0	24.5	139			
(,,)	Sample ID 1509090-001AMS SampType: MS TestCode: EDA Method 8310: DAHe									
Sample ID 1509090-001AMS	Samp	Type: MS	3	Tes	tCode: E	PA Method	8310: PAHs			
Sample ID 1509090-001AMS Client ID: Background	Samp	Type: MS	S 125	Tes	tCode: E RunNo: 2	PA Method 8675	8310: PAHs			
Sample ID 1509090-001AMS Client ID: Background Prep Date: 9/3/2015	Samp Bato Analysis	Type: MS ch ID: 21 Date: 9 /	5 125 8/2015	Tes F S	tCode: E RunNo: 2 SeqNo: 8	PA Method 8675 70360	8310: PAHs Units: mg/F	٢g		
Sample ID 1509090-001AMS Client ID: Background Prep Date: 9/3/2015 Analyte	Samp Bato Analysis Result	Type: MS ch ID: 21 Date: 9 / PQL	3 125 8/2015 SPK value	Tes F S SPK Ref Val	tCode: E RunNo: 2 SeqNo: 8 %REC	PA Method 8675 70360 LowLimit	8310: PAHs Units: mg/H HighLimit	(g %RPD	RPDLimit	Qual
Sample ID 1509090-001AMS Client ID: Background Prep Date: 9/3/2015 Analyte Naphthalene	Samp Bate Analysis Result 1.4	Type: MS ch ID: 21 Date: 9 / PQL 0.25	5 125 8/2015 SPK value 1.974	Tes F S SPK Ref Val 0	tCode: E RunNo: 2 SeqNo: 8 %REC 68.9	PA Method 8675 70360 LowLimit 14.7	8310: PAHs Units: mg/P HighLimit 128	(g %RPD	RPDLimit	Qual
Sample ID 1509090-001AMS Client ID: Background Prep Date: 9/3/2015 Analyte Naphthalene 1-Methylnaphthalene	Samp Bate Analysis Result 1.4 1.4	Type: MS ch ID: 21 Date: 9/ PQL 0.25 0.25	5 125 8/2015 SPK value 1.974 1.974	Tes F S SPK Ref Val 0 0	tCode: E RunNo: 2 SeqNo: 8 %REC 68.9 71.5	PA Method 8675 70360 LowLimit 14.7 31.1	8310: PAHs Units: mg/F HighLimit 128 125	(g %RPD	RPDLimit	Qual
Sample ID 1509090-001AMS Client ID: Background Prep Date: 9/3/2015 Analyte Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene	Samp Bate Analysis Result 1.4 1.4 1.4	Type: MS ch ID: 21 Date: 9/ PQL 0.25 0.25 0.25	5 125 8/2015 SPK value 1.974 1.974 1.974	Tes F SPK Ref Val 0 0 0	tCode: E RunNo: 2 SeqNo: 8 %REC 68.9 71.5 69.3	PA Method 8675 70360 LowLimit 14.7 31.1 24.7	8310: PAHs Units: mg/F HighLimit 128 125 119	(g %RPD	RPDLimit	Qual
Sample ID 1509090-001AMS Client ID: Background Prep Date: 9/3/2015 Analyte Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Benzo(a)pyrene	Samp Bate Analysis Result 1.4 1.4 1.4 ND	Type: MS ch ID: 21 Date: 9/ PQL 0.25 0.25 0.25 0.0099	5 8/2015 8/2015 8/K value 1.974 1.974 1.974 0.01234	Tes F SPK Ref Val 0 0 0 0 0	tCode: E RunNo: 2 SeqNo: 8 %REC 68.9 71.5 69.3 66.0	PA Method 8675 70360 LowLimit 14.7 31.1 24.7 27.7	8310: PAHs Units: mg/k HighLimit 128 125 119 134	(g %RPD	RPDLimit	Qual
Sample ID 1509090-001AMS Client ID: Background Prep Date: 9/3/2015 Analyte Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Benzo(a)pyrene Surr: Benzo(e)pyrene	Samp Bate Analysis Result 1.4 1.4 1.4 ND 0.21	Type: MS ch ID: 21 Date: 9/ PQL 0.25 0.25 0.25 0.0099	5 8/2015 SPK value 1.974 1.974 1.974 0.01234 0.4936	Tes F SPK Ref Val 0 0 0 0 0	tCode: E RunNo: 2 SeqNo: 8 %REC 68.9 71.5 69.3 66.0 42.8	PA Method 8675 70360 LowLimit 14.7 31.1 24.7 27.7 24.5	8310: PAHs Units: mg/F HighLimit 128 125 119 134 139	(g %RPD	RPDLimit	Qual
Sample ID 1509090-001AMS Client ID: Background Prep Date: 9/3/2015 Analyte Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Benzo(a)pyrene Surr: Benzo(e)pyrene Sample ID 1509090-001AMS	Samp Bate Analysis Result 1.4 1.4 1.4 ND 0.21 D Samp	Type: MS ch ID: 21 Date: 9/ PQL 0.25 0.25 0.25 0.0099 Type: MS	5 8/2015 8/2015 SPK value 1.974 1.974 1.974 0.01234 0.4936 SD	Tes F SPK Ref Val 0 0 0 0 Tes	tCode: E RunNo: 2 SeqNo: 8 %REC 68.9 71.5 69.3 66.0 42.8 tCode: E	PA Method 8675 70360 LowLimit 14.7 31.1 24.7 27.7 24.5 PA Method	8310: PAHs Units: mg/P HighLimit 128 125 119 134 139 8310: PAHs	(g %RPD	RPDLimit	Qual
Sample ID 1509090-001AMS Client ID: Background Prep Date: 9/3/2015 Analyte Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Benzo(a)pyrene Surr: Benzo(e)pyrene Sample ID 1509090-001AMSI Client ID: Background	Samp Bate Analysis Result 1.4 1.4 1.4 1.4 ND 0.21 D Samp Bate	Type: MS ch ID: 21 Date: 9/ PQL 0.25 0.25 0.25 0.0099 Type: MS ch ID: 21	5 125 8/2015 SPK value 1.974 1.974 1.974 0.01234 0.4936 SD 125	Tes F SPK Ref Val 0 0 0 0 Tes F	tCode: E RunNo: 2 SeqNo: 8 %REC 68.9 71.5 69.3 66.0 42.8 tCode: E RunNo: 2	PA Method 8675 70360 LowLimit 14.7 31.1 24.7 27.7 24.5 PA Method 8675	8310: PAHs Units: mg/P HighLimit 128 125 119 134 139 8310: PAHs	(g %RPD	RPDLimit	Qual
Sample ID 1509090-001AMS Client ID: Background Prep Date: 9/3/2015 Analyte Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Benzo(a)pyrene Surr: Benzo(e)pyrene Sample ID 1509090-001AMS Client ID: Background Prep Date: 9/3/2015	Samp Bate Analysis Result 1.4 1.4 1.4 1.4 0.21 D Samp Bate Analysis	Type: MS ch ID: 21 Date: 9/ PQL 0.25 0.25 0.25 0.0099 Type: MS ch ID: 21/ Date: 9/	S 8/2015 8/2015 SPK value 1.974 1.974 1.974 0.01234 0.4936 SD 125 8/2015	Tes F SPK Ref Val 0 0 0 0 Tes F S	tCode: E RunNo: 2 SeqNo: 8 %REC 68.9 71.5 69.3 66.0 42.8 tCode: E RunNo: 2 SeqNo: 8	PA Method 8675 70360 LowLimit 14.7 31.1 24.7 27.7 24.5 PA Method 8675 70361	8310: PAHs Units: mg/k HighLimit 128 125 119 134 139 8310: PAHs Units: mg/k	(g %RPD	RPDLimit	Qual
Sample ID 1509090-001AMS Client ID: Background Prep Date: 9/3/2015 Analyte Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Benzo(a)pyrene Surr: Benzo(e)pyrene Sample ID 1509090-001AMS Client ID: Background Prep Date: 9/3/2015 Analyte	Samp Bate Analysis Result 1.4 1.4 1.4 1.4 ND 0.21 D Samp Bate Analysis Result	Type: MS ch ID: 21 Date: 9/ PQL 0.25 0.25 0.25 0.25 0.0099 Type: MS ch ID: 21 Date: 9/ PQL	5 125 8/2015 SPK value 1.974 1.974 1.974 0.01234 0.4936 5D 125 8/2015 SPK value	Tes SPK Ref Val 0 0 0 0 0 Tes SPK Ref Val	tCode: E RunNo: 2 SeqNo: 8 %REC 68.9 71.5 69.3 66.0 42.8 tCode: E RunNo: 2 SeqNo: 8 %REC	PA Method 8675 70360 LowLimit 14.7 31.1 24.7 27.7 24.5 PA Method 8675 70361 LowLimit	8310: PAHs Units: mg/P HighLimit 128 125 119 134 139 8310: PAHs Units: mg/P HighLimit	(g %RPD (g %RPD	RPDLimit	Qual
Sample ID 1509090-001AMS Client ID: Background Prep Date: 9/3/2015 Analyte Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Benzo(a)pyrene Surr: Benzo(e)pyrene Sample ID 1509090-001AMS Client ID: Background Prep Date: 9/3/2015 Analyte Naphthalene	Samp Bate Analysis Result 1.4 1.4 1.4 1.4 ND 0.21 D Samp Bate Analysis Result 1.5	Type: MS ch ID: 21 Date: 9/ PQL 0.25 0.25 0.25 0.0099 Type: MS ch ID: 21 Date: 9/ PQL 0.25	5 125 8/2015 SPK value 1.974 1.974 1.974 0.01234 0.4936 5D 125 8/2015 SPK value 1.982	Tes F SPK Ref Val 0 0 0 0 0 Tes F SPK Ref Val 0	tCode: E RunNo: 2 SeqNo: 8 %REC 68.9 71.5 69.3 66.0 42.8 tCode: E RunNo: 2 SeqNo: 8 %REC 78.2	PA Method 8675 70360 LowLimit 14.7 31.1 24.7 27.7 24.5 PA Method 8675 70361 LowLimit 14.7	8310: PAHs Units: mg/P HighLimit 128 125 119 134 139 8310: PAHs Units: mg/P HighLimit 128	(g %RPD (g %RPD 12.9	RPDLimit RPDLimit 29.3	Qual
Sample ID 1509090-001AMS Client ID: Background Prep Date: 9/3/2015 Analyte Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Benzo(a)pyrene Surr: Benzo(e)pyrene Sample ID 1509090-001AMS Client ID: Background Prep Date: 9/3/2015 Analyte Naphthalene 1-Methylnaphthalene	Samp Bate Analysis Result 1.4 1.4 1.4 1.4 ND 0.21 D Samp Bate Analysis Result 1.5 1.6	Type: MS ch ID: 21 Date: 9/ PQL 0.25 0.25 0.25 0.0099 Type: MS ch ID: 21 Date: 9/ Date: 9/ Date: 9/ Date: 9/ 0.25 0.25	5 125 8/2015 SPK value 1.974 1.974 1.974 0.01234 0.4936 50 125 8/2015 SPK value 1.982 1.982	Tes F SPK Ref Val 0 0 0 0 0 Tes F SPK Ref Val 0 0	tCode: E RunNo: 2 SeqNo: 8 %REC 68.9 71.5 69.3 66.0 42.8 tCode: E RunNo: 2 SeqNo: 8 %REC 78.2 80.9	PA Method 8675 70360 LowLimit 14.7 31.1 24.7 27.7 24.5 PA Method 8675 70361 LowLimit 14.7 31.1	8310: PAHs Units: mg/P HighLimit 128 125 119 134 139 8310: PAHs Units: mg/P HighLimit 128 125	(g %RPD (g %RPD 12.9 12.6	RPDLimit RPDLimit 29.3 20	Qual
Sample ID 1509090-001AMS Client ID: Background Prep Date: 9/3/2015 Analyte Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene 2-Methylnaphthalene Benzo(a)pyrene Surr: Benzo(e)pyrene Surr: Benzo(e)pyrene Sample ID 1509090-001AMSI Client ID: Background Prep Date: 9/3/2015 Analyte Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene	Samp Bate Analysis Result 1.4 1.4 1.4 1.4 ND 0.21 D Samp Bate Analysis Result 1.5 1.6 1.5	Type: MS ch ID: 21 Date: 9/ PQL 0.25 0.25 0.25 0.0099 Type: MS ch ID: 21 Date: 9/2 Date: 9/2 0.25 0.25 0.25	5 125 8/2015 SPK value 1.974 1.974 1.974 0.01234 0.4936 50 125 8/2015 SPK value 1.982 1.982 1.982 1.982	Tes SPK Ref Val 0 0 0 0 0 0 0 Tes SPK Ref Val 0 0 0 0	tCode: E RunNo: 2 SeqNo: 8 %REC 68.9 71.5 69.3 66.0 42.8 tCode: E RunNo: 2 SeqNo: 8 %REC 78.2 80.9 77.7	PA Method 8675 70360 LowLimit 14.7 31.1 24.7 27.7 24.5 PA Method 8675 70361 LowLimit 14.7 31.1 24.7	8310: PAHs Units: mg/P HighLimit 128 125 119 134 139 8310: PAHs Units: mg/P HighLimit 128 125 119	(g %RPD (g %RPD 12.9 12.6 11.8	RPDLimit RPDLimit 29.3 20 20	Qual
Sample ID 1509090-001AMS Client ID: Background Prep Date: 9/3/2015 Analyte Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Benzo(a)pyrene Surr: Benzo(e)pyrene Sample ID 1509090-001AMSI Client ID: Background Prep Date: 9/3/2015 Analyte Naphthalene 1-Methylnaphthalene 2-Methylnaphthalene Benzo(a)pyrene	Samp Bate Analysis Result 1.4 1.4 1.4 1.4 ND 0.21 D Samp Bate Analysis Result 1.5 1.6 1.5 ND	Type: MS ch ID: 21 Date: 9/ PQL 0.25 0.25 0.25 0.0099 Type: MS ch ID: 21 Date: 9/ Date: 9/ PQL 0.25 0.25 0.25 0.25 0.25 0.25	5 125 8/2015 SPK value 1.974 1.974 1.974 0.01234 0.4936 5D 125 8/2015 SPK value 1.982 1.982 1.982 0.01239	Tes SPK Ref Val 0 0 0 0 0 0 0 5 FK Ref Val 0 0 0 0 0 0 0 0 0	tCode: E RunNo: 2 SeqNo: 8 %REC 68.9 71.5 69.3 66.0 42.8 tCode: E RunNo: 2 SeqNo: 8 %REC 78.2 80.9 77.7 76.0	PA Method 8675 70360 LowLimit 14.7 31.1 24.7 27.7 24.5 PA Method 8675 70361 LowLimit 14.7 31.1 24.7 27.7	8310: PAHs Units: mg/P HighLimit 128 125 119 134 139 8310: PAHs Units: mg/P HighLimit 128 125 119 134	(g %RPD (g %RPD 12.9 12.6 11.8 0	RPDLimit RPDLimit 29.3 20 20 28.3	Qual

Qualifiers:

- Value exceeds Maximum Contaminant Level. *
- Sample Diluted Due to Matrix D
- Holding times for preparation or analysis exceeded Η
- 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
- E Value above quantitation range
- J Analyte detected below quantitation limits
- Page 12 of 13

WO#:

1509090

05-Oct-15

P Sample pH Not In Range RL Reporting Detection Limit

Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Wester Bisti L	m Refining S andfarm	outhwe	st, Inc.									
Sample ID	MB-21211	SampT	ype: ME	BLK	Tes	tCode: El	PA Method	6010B: Soil	Metals				
Client ID:	PBS	Batch	ID: 21	211	F	RunNo: 2	8745						
Prep Date:	9/9/2015	Analysis D	ate: 9/	10/2015	S	SeqNo: 871500			Units: mg/Kg				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Copper		ND	0.30										
Iron		ND	2.5										
Manganese		ND	0.10										
Uranium		ND	5.0										
Zinc		ND	2.5										
Sample ID	LCS-21211	SampT	ype: LC	S	Tes	tCode: El	PA Method	6010B: Soil	Metals				
Client ID:	LCSS	Batch	ID: 21	211	R	RunNo: 2	8745						
Prep Date:	9/9/2015	Analysis D	ate: 9/	10/2015	S	eqNo: 8	71501	Units: mg/M	g				
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Copper		27	0.30	25.00	0	106	80	120					
Iron		26	2.5	25.00	0	104	80	120					
Manganese		25	0.10	25.00	0	98.3	80	120					
Uranium		26	5.0	25.00	0	102	80	120					
Zinc		24	2.5	25.00	0	95.5	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

Page 13 of 13

WO#: 1509090

05-Oct-15

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

Sample Log-In Check List

						the second s
Client Name: Weste	rn Refining Southw	Work Order Numbe	er: 1509090		RcptNo:	1
Received by/date:		09/02/15 9/2/2015 8:00:00 AM		(strenks/Harpo		
Completed By: Linds	ay Mangin	9/2/2015 9:44:23 AM		Anderthear		
Peniewed Put ha	say mangin	a014-71	~	0-3		:
Chain of Custody	0	09/02/1	5			1
1. Custody seals intac	t on sample bottles?		Yes	No 🗆	Not Present	
2. Is Chain of Custody	complete?		Yes 🖈	No 🗌	Not Present	
3. How was the sample	e delivered?		Courier			
Log In						
4. Was an attempt ma	ide to cool the sample	es?	Yes 🖈	No 🗌	NA 🗋	
5. Were all samples re	ceived at a temperate	ure of >0° C to 6.0°C	Yes 🛃	No 🗌		
6. Sample(s) in prope	r container(s)?		Yes 🛃	No 🗌		
7. Sufficient sample vo	olume for indicated tes	st(s)?	Yes 🛃	No 🗌		
8. Are samples (excep	t VOA and ONG) prop	perly preserved?	Yes	No 🗌		
9. Was preservative a	dded to bottles?		Yes	No 🖈	NA 🗌	
10.VOA vials have zero	headspace?		Yes 🗌	No 🗌	No VOA Vials 🛃	
11. Were any sample c	ontainers received br	oken?	Yes	No 🛃		
					# of preserved bottles checked	
12. Does paperwork ma	tch bottle labels?		Yes 🛃	No 🗌	for pH:	
(Note discrepancies	on chain of custody)			N- []	Adjusted?	or >12 unless noted)
13. Are matrices correc	tly identified on Chain	of Custody?	Yes 💌			
15 Were all holding tim	rses were requested?		Ver		Checked by:	
(If no, notify custom	er for authorization.)				1	
Special Handling (if applicable)					
16, Was client notified of	of all discrepancies wi	th this order?	Yes	No 🗌	NA 🛃	
Person Notifie	id:	Date:		HOLY CONTRACTOR OF CONTRACTOR		
By Whom:		Via:	eMail	Phone Fax	In Person	
Regarding:	Í		in a state of the second s	a effektion a betael miljanten nom teda biski ki		
Client Instruct	ions:	an a		n na		
17. Additional remarks:						
18. Cooler Information	1					
Cooler No Ter	np °C Condition	Seal Intact Seal No	Seal Date	Signed By		
1 1.4	Good	es				

Chain-of-Custody Record			Turn-Around Time:																		
Client:	Kelly	Robin	nson	Standard	🗆 Rush					A		AL	YS	SIS	5 L	AE	30	R/			- Y
	Weste	m Ref	ININA	Project Name):					,	www	.hal	lenv	ironr	ment	al.co	m				
Mailing	Address	111 C	R 4990	Bisti 1	-and Ram	1		49	01 H	awki	ns N	E -	Alb	uque	erqu	e, NI	M 87	109			
	Bloom	nfield	. NM	Project #:			1	Te	el. 50	5-34	5-39	75	F	ax	505-	345-	4107	7			
Phone #	#: (50	5) 632	2-8013	WR	1005							А	naly	rsis	Req	uest					
email or	r Fax#: K	elly. Ro	binson @WNR.com	Project Manager:				nly)	RO)					04)							
QA/QC F	Package:	'						as o	W.			ŝ		04,S	CB's						
Stan	dard		Level 4 (Full Validation)	Brooke Herb				Ő	ß			SIM		PC,	2 P(
Accredi	tation AP	□ Othe	r	Sampler: A)	ex. Crooks	/Michael Wicker		H TPH	D/D	8.1)	4.1)	8270		3,NO	/ 808		4		th		r N)
	(Type)			Sample Tem		A relation where a	BE	BH	(GR	d 41	d 50	o	tals	NO,	ides	2	0		Š		ς Σ
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL NO	BTEX + MT	BTEX + MTI	TPH 8015B	TPH (Metho	EDB (Metho	PAH's (8310	RCRA 8 Me	Anions (F,C	8081 Pestic	8260B (VO/	8270 (Semi-		Altachi		Air Bubbles
-1-15	1650	Soil	Background	2 902 Jar	Cool	-001													X		
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																					+
Date:	Time:	Relinquish	ed by:	Received by:	. 1	Date Time	Re	mark	s:	II					CC!	B	Her	56	LT	EVN.	com
1-1-15	15 122 Junior Christian				Walt	9/1/15 1227										Ă	Age	y-@	LTE	WV.	Com
Date:	Time:	Relinquish	ed(by:	Received by Date Time												M	Wich	cer le	11	Env	I. COW
9/1/5 1805 (Mustin Wall				M H	X 09	1/02/15 0800	PC	汫	12	610	193	57									

THE STATE THE STATE THE STATE

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.
TABLE 2 Proposed Background Analytes and Methods Bisti Landfarm Western Refining Southwest, Inc.

PROPOSED ANALYTE	PROPOSED METHOD
Carbon tetrachloride	EPA Method 8260B
1,2-Dichloroethane (EDC)	EPA Method 8260B
1,1-dichloroethylene (1,1-DCE)	EPA Method 8260B
1,1,2,2-Tetrachloroethylene (PCE)	EPA Method 8260B
1,1,2-Trichloroethylene (TCE)	EPA Method 8260B
Methylene chloride	EPA Method 8260B
Chloroform	EPA Method 8260B
1,1-Dichloroethane	EPA Method 8260B
Ethylene Dibromide (EDB)	EPA Method 8260B
1,1,1-Trichloroethane	EPA Method 8260B
1,1,2-Trichloroethane	EPA Method 8260B
1,1,2,2-Tetrachloroethane	EPA Method 8260B
Vinyl chloride	EPA Method 8260B
Aroclor 1016	EPA Method 8082
Aroclor 1221	EPA Method 8082
Aroclor 1232	EPA Method 8082
Aroclor 1242	EPA Method 8082
Aroclor 1248	EPA Method 8082
Aroclor 1254	EPA Method 8082
Aroclor 1260	EPA Method 8082
Radium 226	EPA Method 901.1
Radium 228	EPA Method 901.1
Phenol	EPA Method 9065
Naphthalene	EPA Method 8310
1-Methylnaphthalene	EPA Method 8310
2-Methylnaphthalene	EPA Method 8310
Benzo(a)pyrene	EPA Method 8310
$GRO (C_6 - C_{10})$	EPA Method 8015M
MRO (C ₂₈ - C ₃₆)	EPA Method 8015M
Total Petroleum Hydrocarbons	EPA Method 418.1
Copper	EPA Method 6010 B
Iron	EPA Method 6010 B
Manganese	EPA Method 6010 B
Uranium	EPA Method 6010 B
Zine	EPA Method 6010 B
pH	SM4500 - H+B
Fluoride	EPA Method 300.0
Nitrogen, Nitrate (As N)	EPA Method 300.0
Cyanide	EPA Method 335.4

Notes:

DRO - diesel range organics

EPA - United State Environmental Protection Agency

GRO - gasoline range organics

MRO - motor oil range organics

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

February 17, 2016

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

RE: Bisti Landfarm

OrderNo.: 1512815

Dear Kelly Robinson:

Hall Environmental Analysis Laboratory received 5 sample(s) on 12/17/2015 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued December 30, 2015.

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

Hall Er	Interpretation Interpretation Date Reported: 2/17/2016											
CLIENT: Project: Lab ID:	Western Refining Southwest, In Bisti Landfarm 1512815-001	c. Matrix:	SOIL	C	lient Sam Collection Received	ple ID: We n Date: 12/ d Date: 12/	estline Vadose Zone /16/2015 11:35:00 AM /17/2015 7:45:00 AM	1				
Analyses		Result	PQL	Qual	Units	DF	Date Analyzed	Batch				
EPA MET	HOD 8015M/D: DIESEL RANGE	ORGANIC	s				Analyst	JME				
Diesel Ra	ange Organics (DRO)	ND	9.6		mg/Kg	1	12/22/2015 1:32:37 PM	22852				
Motor Oil	Range Organics (MRO)	ND	48		mg/Kg	1	12/22/2015 1:32:37 PM	22852				
Surr: D	DNOP	116	70-130		%Rec	1	12/22/2015 1:32:37 PM	22852				
EPA MET	HOD 8015D: GASOLINE RANG	E					Analyst	NSB				
Gasoline	Range Organics (GRO)	ND	4.9		mg/Kg	1	12/21/2015 2:15:50 PM	22857				
Surr: E	3FB	80.9	66.2-112		%Rec	1	12/21/2015 2:15:50 PM	22857				
EPA MET	HOD 8021B: VOLATILES						Analyst	NSB				
Benzene		ND	0.049		mg/Kg	1	12/21/2015 2:15:50 PM	22857				
Toluene		ND	0.049		mg/Kg	1	12/21/2015 2:15:50 PM	22857				
Ethylben	zene	ND	0.049		mg/Kg	1	12/21/2015 2:15:50 PM	22857				
Xylenes,	Total	ND	0.098		mg/Kg	1	12/21/2015 2:15:50 PM	22857				
Surr: 4	-Bromofluorobenzene	109	80-120		%Rec	1	12/21/2015 2:15:50 PM	22857				

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 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 1512815

Han En	Date Reported: 2/17/2016											
CLIENT: Project: Lab ID:	Western Refining Southwest, In Bisti Landfarm 1512815-002	c. Matrix:	SOIL	stline Vadose Zone /16/2015 11:15:00 AM /17/2015 7:45:00 AM								
Analyses		Result	PQL	Qual U	J nits	DF	Date Analyzed	Batch				
	HOD 8015M/D: DIESEL RANGE	ORGANIC	S				Analyst	JME				
Diesel Ra	nge Organics (DRO)	10	10		mg/Kg	1	12/22/2015 1:54:33 PM	22852				
Motor Oil	Range Organics (MRO)	ND	50		mg/Kg	1	12/22/2015 1:54:33 PM	22852				
Surr: D	NOP	100	70-130		%Rec	1	12/22/2015 1:54:33 PM	22852				
EPA METH	HOD 8015D: GASOLINE RANG	E					Analyst	NSB				
Gasoline I	Range Organics (GRO)	ND	4.8		mg/Kg	1	12/21/2015 2:40:36 PM	22857				
Surr: Bl	FB	80.8	66.2-112		%Rec	1	12/21/2015 2:40:36 PM	22857				
EPA METH	HOD 8021B: VOLATILES						Analyst	NSB				
Benzene		ND	0.048		mg/Kg	1	12/21/2015 2:40:36 PM	22857				
Toluene		ND	0.048		mg/Kg	1	12/21/2015 2:40:36 PM	22857				
Ethylbenz	ene	ND	0.048		mg/Kg	1	12/21/2015 2:40:36 PM	22857				
Xylenes, 7	Total	ND	0.096	0	mg/Kg	1	12/21/2015 2:40:36 PM	22857				
Surr: 4-	Bromofluorobenzene	107	80-120		%Rec	1	12/21/2015 2:40:36 PM	22857				

* 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
- Analyte detected in the associated Method Blank В
- E Value above quantitation range
- Analyte detected below quantitation limits Page 2 of 8 J
- Ρ Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Hall Environmental Analysis Laboratory Inc

Analytical Report Lab Order 1512815

Analytical Report Lab Order 1512815

Date Reported: 2/17/2016

Hall Environmental Analysis Laboratory, Inc.

CLIENT:	Western Refining Southwest	, Inc.		Client Sample	e ID: Bi	sti Vadose Zone				
Project:	Bisti Landfarm		Collection Date: 12/16/2015 12:00:00 PM							
Lab ID:	1512815-003	Matrix:	SOIL	Received I	Received Date: 12/17/2015 7:45:00 AM					
Analyses		Result	PQL	Qual Units	DF	Date Analyzed	Batch			
EPA MET	HOD 8015M/D: DIESEL RAM	GE ORGANICS	5			Analyst	JME			
Diesel R	ange Organics (DRO)	28	9.5	mg/Kg	1	12/22/2015 2:16:13 PM	22852			
Motor Oi	I Range Organics (MRO)	ND	48	mg/Kg	1	12/22/2015 2:16:13 PN	22852			
Surr: I	DNOP	106	70-130	%Rec	1	12/22/2015 2:16:13 PM	22852			
EPA MET	HOD 8015D: GASOLINE RA	NGE				Analyst	NSB			
Gasoline	Range Organics (GRO)	ND	4.8	mg/Kg	1	12/21/2015 3:05:18 PM	22857			
Surr: E	BFB	81.2	66.2-112	%Rec	1	12/21/2015 3:05:18 PM	22857			
EPA MET	HOD 8021B: VOLATILES					Analyst	NSB			
Benzene		ND	0.048	mg/Kg	1	12/21/2015 3:05:18 PM	22857			
Toluene		ND	0.048	mg/Kg	1	12/21/2015 3:05:18 PM	22857			
Ethylben	zene	ND	0.048	mg/Kg	1	12/21/2015 3:05:18 PM	22857			
Xylenes,	Total	ND	0.096	mg/Kg	1	12/21/2015 3:05:18 PM	22857			
Surr: 4	4-Bromofluorobenzene	107	80-120	%Rec	1	12/21/2015 3:05:18 PM	22857			

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

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 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	W	Sample container temperature is out of limit as specified

Hall Environmental Analy	Hall Environmental Analysis Laboratory, Inc. Date Reported: 2/17/2016										
CLIENT: Western Refining Southwest Project: Bisti Landfarm Lab ID: 1512815-004	st, Inc. Matrix:	SOIL	Client Sampl Collection	e ID: Pe Date: 12, Date: 12,	e ID: Pettigrew Vadose Zone Date: 12/16/2015 12:25:00 PM Date: 12/17/2015 7:45:00 AM						
Analyses	Result	PQL Q	al Units	DF	Date Analyzed	Batch					
EPA METHOD 8015M/D: DIESEL RA	NGE ORGANIC	S			Analys	t: JME					
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	12/22/2015 2:37:56 PM	22852					
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	12/22/2015 2:37:56 PM	22852					
Surr: DNOP	104	70-130	%Rec	1	12/22/2015 2:37:56 PM	22852					
EPA METHOD 8015D: GASOLINE R	ANGE				Analys	t: NSB					
Gasoline Range Organics (GRO)	ND	5.0	mg/Kg	1	12/21/2015 3:29:54 PM	22857					
Surr: BFB	85.8	66.2-112	%Rec	1	12/21/2015 3:29:54 PM	22857					
EPA METHOD 8021B: VOLATILES					Analys	t: NSB					
Benzene	ND	0.050	mg/Kg	1	12/21/2015 3:29:54 PM	22857					
Toluene	ND	0.050	mg/Kg	1	12/21/2015 3:29:54 PM	22857					
Ethylbenzene	ND	0.050	mg/Kg	1	12/21/2015 3:29:54 PM	22857					
Xylenes, Total	ND	0.099	mg/Kg	1	12/21/2015 3:29:54 PN	22857					
Surr: 4-Bromofluorobenzene	117	80-120	%Rec	1	12/21/2015 3:29:54 PM	22857					

Qualifiers:

- * Value exceeds Maximum Contaminant Level.D Sample Diluted Due to Matrix
- D Sample Diluted Due to Maurix
- 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 Page 4 of 8
- P Sample pH Not In Range
- RL Reporting Detection Limit
- W Sample container temperature is out of limit as specified

Analytical Report Lab Order 1512815 Date Reported: 2/17/2010

Hall Environmental Analy	sis Labora	tory, Inc.			Date Reported: 2/17/20	16			
CLIENT: Western Refining Southwes Project: Bisti Landfarm Lab ID: 1512815-005	t, Inc. Matrix:	Client Sample ID: API Vadose Zone Collection Date: 12/16/2015 12:15:00 PM Matrix: SOIL Received Date: 12/17/2015 7:45:00 AM							
Analyses	Result	PQL Qu	al Units	DF	Date Analyzed	Batch			
EPA METHOD 8015M/D: DIESEL RA	NGE ORGANIC	S			Analyst	JME			
Diesel Range Organics (DRO)	ND	9.6	mg/Kg	1	12/22/2015 2:59:35 PM	22852			
Motor Oil Range Organics (MRO)	ND	48	mg/Kg	1	12/22/2015 2:59:35 PM	22852			
Surr: DNOP	100	70-130	%Rec	1	12/22/2015 2:59:35 PM	22852			
EPA METHOD 8015D: GASOLINE RA	NGE				Analyst	NSB			
Gasoline Range Organics (GRO)	ND	4.8	mg/Kg	1	12/21/2015 3:54:33 PM	22857			
Surr: BFB	81.6	66.2-112	%Rec	1	12/21/2015 3:54:33 PM	22857			
EPA METHOD 8021B: VOLATILES					Analyst	NSB			
Benzene	ND	0.048	mg/Kg	1	12/21/2015 3:54:33 PM	22857			
Toluene	ND	0.048	mg/Kg	1	12/21/2015 3:54:33 PM	22857			
Ethylbenzene	ND	0.048	mg/Kg	1	12/21/2015 3:54:33 PM	22857			
Xylenes, Total	ND	0.097	mg/Kg	1	12/21/2015 3:54:33 PM	22857			
Surr: 4-Bromofluorobenzene	110	80-120	%Rec	1	12/21/2015 3:54:33 PM	22857			

* 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
- Analyte detected in the associated Method Blank В
- E Value above quantitation range
- Analyte detected below quantitation limits Page 5 of 8 J
- Ρ Sample pH Not In Range
- RL **Reporting Detection Limit**
- W Sample container temperature is out of limit as specified

Analytical Report Lab Order 1512815

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

Client:WesternProject:Bisti Lan	Refining So ndfarm	uthwe	st, Inc.								
Sample ID MB-22852	MB-22852 SampType: MBLK				TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: PBS	Batch ID: 22852			F	RunNo: 3	1000					
Prep Date: 12/17/2015	Analysis Da	te: 12	2/22/2015	S	SeqNo: 9	48209	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	9.6		10.00		95.7	70	130				
Sample ID LCS-22852	SampTy	pe: LC	s	Tes	tCode: El	PA Method	8015M/D: Di	esel Range	e Organics		
Client ID: LCSS	Batch	D: 22	852	F	RunNo: 3	1000					
Prep Date: 12/17/2015	Analysis Da	te: 12	2/22/2015	S	SeqNo: 9	48239	Units: mg/k	(g			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual	
Diesel Range Organics (DRO)	57	10	50.00	0	114	65.8	136				
Surr: DNOP	5.0		5.000		99.1	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
- RPD outside accepted recovery limits R
- S % Recovery outside of range due to dilution or matrix
- Analyte detected in the associated Method Blank В
- 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

Page 6 of 8

17-Feb-16

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

Client: Western Project: Bisti La	n Refining So andfarm	outhwe	st, Inc.									
Sample ID MB-22857	MB-22857 SampType: MBLK					TestCode: EPA Method 8015D: Gasoline Range						
Client ID: PBS	Batch ID: 22857 RunNo: 30					0983						
Prep Date: 12/17/2015	Analysis D	ate: 12	2/21/2015	S	SeqNo: 9	47868	Units: mg/k	(g				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Gasoline Range Organics (GRO)	ND	5.0										
Surr: BFB	870		1000		87.2	66.2	112					
Sample ID LCS-22857	SampT	ype: LC	s	Tes	tCode: El	PA Method	8015D: Gaso	line Rang	e			
Client ID: LCSS	Batch	ID: 22	857	F	RunNo: 3	0983						
Prep Date: 12/17/2015	Analysis Da	ate: 12	2/21/2015	5	SeqNo: 9	47869	Units: mg/k	(g				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual		
Gasoline Range Organics (GRO)	26	5.0	25.00	0	105	79.6	122					
Surr: BFB	950		1000		94.9	66.2	112					

Qualifiers:

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

Page 7 of 8

WO#: 17-Feb-16

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

Client: Project:	Western Bisti La	n Refining S andfarm	outhwe	st, Inc.							
Sample ID	MB-22857	SampT	ype: ME	BLK	Tes	tCode: El	tiles				
Client ID:	PBS	Batch	n ID: 22	857	R	RunNo: 3	0983				
Prep Date:	12/17/2015	Analysis D	ate: 12	2/21/2015	S	SeqNo: 9	47896	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene		ND	0.050								
Toluene		ND	0.050								
Ethylbenzene		ND	0.050								
Xylenes, Total		ND	0.10								
Surr: 4-Brom	ofluorobenzene	1.2		1.000		121	80	120			S
Sample ID	LCS-22857	SampT	ype: LC	S	Test	tCode: El	PA Method	8021B: Volat	tiles		
Client ID:	LCSS	Batch	D: 22	857	R	RunNo: 3	0983				
Prep Date:	12/17/2015	Analysis D	ate: 12	2/21/2015	S	SeqNo: 94	47897	Units: mg/K	g		
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene		0.98	0.050	1.000	0	97.6	80	120			
Toluene		0.98	0.050	1.000	0	98.0	80	120			
Ethylbenzene		0.99	0.050	1.000	0	98.8	80	120			
Xylenes, Total		3.0	0.10	3.000	0	100	80	120			
Surr: 4-Brom	ofluorobenzene	1.2		1.000		118	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

WO#: 1512815 17-Feb-16

Page 8 of 8

HALL ENVIRONMENTAL ANALYSIS LABORATORY	Hall Environmental Albu TEL: 505-345-3975 Website: www.ha.	Analysis Labo 4901 Hawki querque, NM FAX: 505-345 Ilenvironmenta	ratory ins NE 87109 Sam 5-4107 al.com	ple Log-In Ci	heck List
Client Name: Western Refining Southw	Work Order Number:	1512815		RcptNo:	1
Received by/date:	12/11/15	 .	· · · · · · · · · · · · · · · · · · ·	·····	
Logged By: Joe Archuleta	12/17/2015 7:45:00 AM	r.	JEas		
Completed By: Joe Archuleta	12/17/2015 10:33:55 A	M	JEast		
Reviewed By:	12/17/15				
Chain of Custody					
1 Custody seals intact on sample bottles?		Yes	No 🗌	Not Present	
2. Is Chain of Custody complete?		Yes 🛃	No 🗔	Not Present	
3. How was the sample delivered?		Courier			
l og in					
Log m					
Was an attempt made to cool the samples	3?	Yes 🛃	No 🗀		
5. Were all samples received at a temperatur	re of >0° C to 6.0°C	Yes 🛃	No 🗆	NA 🗆	
6. Sample(s) in proper container(s)?		Yes 🛃	No 🗌		
7. Sufficient sample volume for indicated test	(s)?	Yes 🛃	No 🗌		
8. Are samples (except VOA and ONG) propo	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 bottles checked	
12. Does paperwork match bottle labels?		Yes 🛃	No 🗋	for pH:	>12 unless noted
(Note discrepancies on chain of custody)	of Custody2	Vec 🎽	No 🗌	Adjusted?	
13. Are mances conectly identified on chain of	of Gustouy?	Yes			
15. Were all holding times able to be met?		Yes 🛃	No 🗔	Checked by:	
(If no, notify customer for authorization.)					
Special Handling (if applicable)					

16.1	Was client noti	fied of all di	screpancies v	vith this order?		Yes	No 🛄	NA	
	Person N	lotified:		NATION STREAM STREAM	Date	p.C.tearminetourse			
	By Whon	n:		ACADOLARITANIZA ETYIKADIQANIKIDINANIA	Via:	eMail	Phone Fax	In Person	
	Regardin	ig:		normalina izver end aroditisti tilli			nar an an Shankanan a san ar cara tanan ar cara an an an	anna tapaga manganganana ata man	INCOMPANY.
	Client Ins	structions:	IEEBJJJOGA NANICONO	NAME AND A DESCRIPTION OF	and a subsection of the second of	a production of the data products of the other data and the data of the data o		ana sanan mananan da karangan	APRILIAN,
17.	Additional rem	arks:							
18.	Cooler Inform	nation							
	Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By		
	1	1.0	Good	Yes					

Ċ	hain-	of-Cu	stody Record	Turn-Around	Time:													(TAI		
Client: Kelly Robinson				Standard D Rush																
Western Repining				Project Name:			www.hallenvironmental.com													
Mailing Address: 111 CR 4990				Bisti Landfarm			4901 Hawkins NE - Albuquerque, NM 87109													
Bloomfield, NM				Project #:				Tel. 505-345-3975 Fax 505-345-4107												
Phone #: (505) 632-8013			WR1005				Analysis Request													
email or Fax#: Kelly, Robinson @WNR. com				Project Manager:			Ē	(fluc	RO				SO4)	Ś						
QA/QC Package:				Rules Hab				Sas (NIC		(SN		04,0	SCB				012		
Standard Level 4 (Full Validation)				Drocke Men			IB's	E H	DRG				0 ₂ ,P	821			1	18		
NELAP Other					<u>, Wilker</u> Wiles	C No	- ≓ +	[]	20	18.1	827		03,N	\$ / 80		(Y)	56	202	or N	
EDD (Type)				SampleTem		0	H	H	<u>G</u>	4 po	s Do O	etals	CI,NG	cides	A)	0/-!	10		Z	
Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL NO. 1912 815	BTEX + MT	BTEX + MT	TPH 8015E	TPH (Meth	ELUB (Meth PAH's (831	RCRA 8 M	Anions (F,C	8081 Pesti	8260B (VO	8270 (Sem	ントナロ	1111(69	Air Bubble	
2-16-15	11:35	Soil	Westline Vadose Zone	Javs/2	Cool	-001											\geq	\mathbf{X}		
1	11:15	Í	Eastline Vadose Zone	i		-002												$\langle X \rangle$		
	12:00		Bist. Vadose Zone			-003										1	\triangleright	\mathbf{M}		
	12:25		Pethiavew Vadore Zane			-004											\triangleright	$\overline{\mathbf{X}}$		
V	12:15	\checkmark	API Vadore Zone	$\overline{}$		-005												ΔX		
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Deter				Deserved hur		Deta Timo	Day													
·16-15		Reminiquished by:		have by			Please CC: BHerbeltEnv.com													
Date: Time: Rélinquished by:			Received by: Date Time			- AAger@LTEnv.com														
14/ 1804 Int Walt		Doi. l	Benet	12/17/15 0745	PC)#	121	510	157			MIL	hck tolau	nse nse	LTE	invicol invicol	5			

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.