

NM2 - ____10____

**APPROVED
RELEASE
RESPONSE
PLAN**

____July 15, 2020____

Jones, Brad A., EMNRD

From: Enviro, OCD, EMNRD
Sent: Tuesday, June 16, 2020 10:31 AM
To: McCartney, Gregory J.
Cc: Jones, Brad A., EMNRD; Stuart Hyde; Devin Hencmann
Subject: Re: Attn: Brad Jones, Bisti Landfarm 711 Permit NM-02-0010, Release Response Action Plan Addendum
Attachments: 2020 0615 NM2-010 Vadose Zone Release Response Action Plan approval signed.pdf

Dear Mr. McCartney,

Please see the attached approval for the Bisti Landfarm Vadose Zone Release Response Action Plan. If you have any questions regarding this matter, please do not hesitate to contact me.

Sincerely,

Brad

Brad A. Jones
Environmental Engineer
EMNRD Oil Conservation Division
1220 S. Saint Francis Drive
Santa Fe, New Mexico 87505
E-mail: brad.a.jones@state.nm.us
Office: (505) 476-3487
Fax: (505) 476-3462

From: Stuart Hyde <shyde@ltenv.com>
Sent: Monday, June 15, 2020 4:21 PM
To: Enviro, OCD, EMNRD
Cc: Devin Hencmann; McCartney, Gregory J.; Jones, Brad A., EMNRD
Subject: [EXT] Attn: Brad Jones, Bisti Landfarm 711 Permit NM-02-0010, Release Response Action Plan Addendum

On behalf of Western Refining Southwest, Inc., LT Environmental is submitting the attached *Addendum to the June 2020 Release Response Action Plan* for the Bisti Landfarm, 711 Permit NM-02-0010. Thank you and have a nice day.



Stuart Hyde, LG
Project Geologist
970.385.1096 office
970.903.1607 cell
848 East Second Avenue Durango, CO 81301
www.ltenv.com



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State of New Mexico
Energy, Minerals and Natural Resources Department

Michelle Lujan Grisham
Governor

Sarah Cottrell Propst
Cabinet Secretary

Todd E. Leahy, JD, PhD
Deputy Secretary

Adrienne Sandoval, Division Director
Oil Conservation Division



June 15, 2020

Greg McCartney,
Western Refining Southwest, Inc.
111 County Road 4990
Bloomfield, New Mexico 87413

**RE: OCD's Review and Determination of the Release Response Action Plan
Western Refining Southwest, Inc.
Bisti Landfarm
Permit NM2-010
Location: Unit F of Section 16, Township 25 North, Range 12 West, NMPM
San Juan County, New Mexico**

Dear Mr. McCartney:

The Oil Conservation Division (OCD) has completed the review Western Refining Southwest, Inc.'s (Western) vadose zone Release Response Action Plan, submitted on Western's behalf by LT Environmental, signed, dated, and emailed to OCD on June 15, 2020.

The OCD hereby grants Western approval of the June 1, 2020 vadose zone Release Response Action Plan, with the following recognitions and conditions:

1. Western shall comply with all applicable requirements of the Oil and Gas Act (Chapter 70, Article 2 NMSA 1978), the existing permit NM2-010, the transitional provisions of 19.15.36.20 NMAC, and all conditions specified in this approval;
2. Western shall comply with the requirements of 19.15.29 NMAC;
3. OCD is unable to accept the results for benzo(a)pyrene due to lab analyzing the constituent at a report limit (ranging from 0.019 to 0.02 mg/kg) that exceeds the background of 0.0099 mg/kg. Western must reassess benzo(a)pyrene pursuant to the requirements of 19.15.29.11 NMAC;
4. Western shall demonstrate compliance of the requirements of 19.15.29 NMAC (Part 29) by providing a copy of the work required by Part 29 and OCD's approval to update the administrative record;

5. OCD wishes to note that the 1100 mg/kg detection identified on Table 1 for mercury regarding sample CRUDE04 is an exceedance for potassium. The mercury result for sample CRUDE04 should be < 0.033, based upon the laboratory results; and
6. Western shall obtain written approval from OCD prior to implementing any changes to the June 15, 2020 vadose zone Release Response Action Plan.

Please be advised that approval of this request does not relieve Western of liability should operations result in pollution of surface water, ground water or the environment. Nor does approval relieve Western of its responsibility to comply with any other applicable governmental authority's rules and regulations.

If there are any questions regarding this matter, please do not hesitate to contact me at (505) 476-3487 or brad.a.jones@state.nm.us.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Brad A. Jones', with a stylized flourish at the end.

Brad A. Jones
Environmental Engineer

BAJ/baj

cc: Devin Hencmann, LT Environmental, Inc.
Stuart Hyde, LT Environmental, Inc.

Jones, Brad A., EMNRD

From: Stuart Hyde <shyde@ltenv.com>
Sent: Monday, June 15, 2020 4:22 PM
To: Enviro, OCD, EMNRD
Cc: Devin Hencmann; McCartney, Gregory J.; Jones, Brad A., EMNRD
Subject: [EXT] Attn: Brad Jones, Bisti Landfarm 711 Permit NM-02-0010, Release Response Action Plan Addendum
Attachments: Bisti Landfarm_Release Response Action Plan Addendum-ALL.pdf

On behalf of Western Refining Southwest, Inc., LT Environmental is submitting the attached *Addendum to the June 2020 Release Response Action Plan* for the Bisti Landfarm, 711 Permit NM-02-0010. Thank you and have a nice day.



Stuart Hyde, LG
Project Geologist
970.385.1096 *office*
970.903.1607 *cell*
848 East Second Avenue Durango, CO 81301
www.ltenv.com



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June 15, 2020

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

**RE: Addendum to the June 2020 Release Response Action Plan
711 Permit NM-02-0010
Western Refining Southwest, Inc.
Bisti Landfarm
San Juan County, New Mexico**

Dear Mr. Jones:

On behalf of Western Refining Southwest, Inc. (Western), LT Environmental (LTE) is submitting this addendum to the Bisti Landfarm *Release Response Action Plan* dated June 1, 2020. At the time of submittal, analytical results for the following constituents had not been received from the analytical laboratory: benzo(a)pyrene, total phenol, cyanide, radium 226/228, and total alkalinity as bicarbonate and carbonate. The attached Table 1 has been updated to include these constituents for the re-sampling event performed in May 2020.

In addition to the background/PQL concentration exceedances specified in the *Release Response Action Plan*, the following list has been updated to include the complete analytical results.

- **CRUDE01:** calcium, potassium, sodium, chloride, nitrogen, sulfate, and total alkalinity (carbonate and bicarbonate).
- **CRUDE02:** calcium and nitrogen.
- **CRUDE03:** DRO, MRO, TPH, calcium, sodium, and sulfate.
- **CRUDE04:** DRO, TPH, calcium, magnesium, sodium, and fluoride.
- **API01:** fluoride.
- **API02:** sodium and nitrogen.
- **API03:** calcium, potassium, sodium, fluoride, chloride, nitrogen, sulfate, and total alkalinity (carbonate and bicarbonate).
- **API04:** no exceedances.

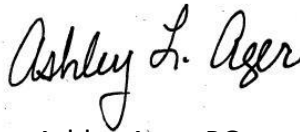
Table 1 summarizes the re-sampling soil analytical results, with laboratory reports included as Attachment 1. These results will be considered in the forthcoming delineation and potential remediation activities being performed at the Landfarm.

Sincerely,

LT ENVIRONMENTAL, INC.



Stuart Hyde, LG
Project Geologist



Ashley Ager, PG
Senior Geologist

cc: Greg McCartney, Marathon Petroleum Company LP

Attachments:

Table 1: Release Re-Sampling Soil Analytical Results

Attachment 1: Analytical Laboratory Report



TABLE 1
RELEASE RE-SAMPLING SOIL ANALYTICAL RESULTS

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

ANALYTE	UNITS	BACKGROUND SAMPLE	BACKGROUND SAMPLE	CRUDE CELL				API CELL			
		27-Mar-98	1-Sep-15	CRUDE01 5-May-20	CRUDE02 5-May-20	CRUDE03 5-May-20	CRUDE04 5-May-20	API01 5-May-20	API02 5-May-20	API03 5-May-20	API04 5-May-20
Petroleum Hydrocarbons by EPA Method 8015M/D											
Gasoline Range Organics (GRO)	mg/kg	NA	<4.8	<4.7	<4.7	<4.7	<5.0	<5.0	<4.7	<4.9	<4.9
Diesel Range Organics (DRO)	mg/kg	<50	<9.9	<9.8	<9.0	100	19	<9.2	<8.9	<9.7	<9.5
Motor Oil Range Organics (MRO)	mg/kg	NA	<50	<49	<45	150	<49	<46	<44	<48	<47
Total Petroleum Hydrocarbons by EPA Method 418.1											
TPH (418.1)	mg/kg	NA	<20	<19	<20	300	68	<19	<19	<19	<18
Volatile Organic Compounds by EPA Method 8260B											
benzene	mg/kg	NA	<0.048	<0.024	<0.023	<0.024	<0.025	<0.025	<0.023	<0.024	<0.025
toluene	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
ethylbenzene	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
methyl tert-butyl ether (MTBE)	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
1,2-dichloroethane (EDC)	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
1,2-dibromoethane (EDB)	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
naphthalene	mg/kg	NA	<0.095	<0.094	<0.093	<0.095	<0.099	<0.099	<0.094	<0.097	<0.099
1-methylnaphthalene	mg/kg	NA	<0.19	<0.19	<0.19	<0.19	<0.20	<0.20	<0.19	<0.19	<0.20
2-methylnaphthalene	mg/kg	NA	<0.19	<0.19	<0.19	<0.19	<0.20	<0.20	<0.19	<0.19	<0.20
bromodichloromethane	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
bromoform (tribromomethane)	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
bromomethane	mg/kg	NA	<0.14	<0.14	<0.14	<0.14	<0.15	<0.15	<0.14	<0.15	<0.15
carbon tetrachloride (tetrachloromethane)	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
chlorobenzene (monochlorobenzene)	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
chloroform (trichloromethane)	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
chloromethane	mg/kg	NA	<0.14	<0.14	<0.14	<0.14	<0.15	<0.15	<0.14	<0.15	<0.15
cis-1,2-dichloroethene (cis-1,2-DCE)	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
cis-1,3-dichloropropene	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
1,2-dichlorobenzene	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
1,4-dichlorobenzene	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
dichlorodifluoromethane	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
1,1-dichloroethane	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
1,1-dichloroethene	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
1,2-dichloropropane	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
1,1-dichloropropene	mg/kg	NA	<0.095	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
hexachlorobutadiene	mg/kg	NA	<0.095	<0.094	<0.093	<0.095	<0.099	<0.099	<0.094	<0.097	<0.099
methylene chloride (dichloromethane)	mg/kg	NA	<0.14	<0.14	<0.14	<0.14	<0.15	<0.15	<0.14	<0.15	<0.15
styrene	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
1,1,2,2-tetrachloroethane	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
tetrachloroethene (PCE)	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
trans-1,2-dichloroethene (trans-1,2-DCE)	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
trans-1,3-dichloropropene	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049

TABLE 1
RELEASE RE-SAMPLING SOIL ANALYTICAL RESULTS

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

ANALYTE	UNITS	BACKGROUND SAMPLE	BACKGROUND SAMPLE	CRUDE CELL				API CELL			
		27-Mar-98	1-Sep-15	CRUDE01 5-May-20	CRUDE02 5-May-20	CRUDE03 5-May-20	CRUDE04 5-May-20	API01 5-May-20	API02 5-May-20	API03 5-May-20	API04 5-May-20
1,2,4-trichlorobenzene	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
1,1,1-trichloroethane	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
1,1,2-trichloroethane	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
trichloroethene (TCE)	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
trichlorofluoromethane	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
vinyl chloride (chloroethene)	mg/kg	NA	<0.048	<0.047	<0.047	<0.047	<0.050	<0.050	<0.047	<0.049	<0.049
xylenes, total	mg/kg	NA	<0.095	<0.094	<0.093	<0.095	<0.099	<0.099	<0.094	<0.097	<0.099
Polycyclic Aromatic Hydrocarbons by EPA Method 8270											
Benzo(a)pyrene	mg/kg	NA	<0.0099	<0.020	<0.019	<0.019	<0.020	<0.019	<0.019	<0.020	<0.020
Total Phenol by Method 9066											
Total Phenol	mg/kg	NA	<0.67	<0.670	<0.670	<0.670	<0.670	<0.670	<0.670	<0.670	<0.670
Metals by EPA Method 6010/6020											
Arsenic	mg/kg	2.8	NA	<4.9	<4.8	<5.0	<5.1	<4.8	<5.1	<5.0	<5.1
Barium	mg/kg	180	NA	64	130	52	87	40	62	150	36
Cadmium	mg/kg	<1.3	NA	<0.20	<0.19	<0.20	<0.20	<0.19	<0.21	<0.20	<0.20
Calcium	mg/kg	2,500	NA	3,300	3,400	3,100	7,000	1,400	2,300	5,500	1,500
Chromium	mg/kg	<5.0	NA	2.3	1.9	2.6	2.9	1.4	1.6	2.5	1.3
Copper	mg/kg	NA	3.2	2.5	2.0	2.1	3.2	1.5	1.6	2.9	1.3
Iron	mg/kg	NA	7200	5,000	4,800	4,500	6,600	4,200	4,400	5,700	4,000
Lead	mg/kg	6.8	NA	0.84	1.3	1.7	1.5	1.7	1.2	1.6	1.6
Magnesium	mg/kg	1,300	NA	1,000	1,000	890	1,600	930	990	1,200	800
Manganese	mg/kg	NA	150	100	100	84	100	130	99	140	150
Mercury	mg/kg	<0.5	NA	<0.033	<0.035	<0.034	1,100	<0.034	<0.031	<0.033	<0.033
Potassium	mg/kg	810	NA	870	770	620	<0.033	600	630	1,000	500
Selenium	mg/kg	<2.5	NA	<4.9	<4.8	<5.0	<5.1	<4.8	<5.1	<5.0	<5.1
Silver	mg/kg	<1.3	NA	<0.49	<0.48	<0.50	<0.51	<0.48	<0.51	<0.50	<0.51
Sodium	mg/kg	90	NA	1,600	67	100	140	72	140	2,100	<51
Uranium	mg/kg	NA	<4.9	<9.8	<9.6	<10	<10	<9.7	<10	<10	<10
Zinc	mg/kg	NA	14	11	11	9.8	14	9.6	9.2	13	8.4
Polychlorinated Biphenyls by EPA Method 8082											
Aroclor 1016	mg/kg	NA	<0.020	<0.024	<0.025	<0.025	<0.024	<0.024	<0.024	<0.025	<0.024
Aroclor 1221	mg/kg	NA	<0.020	<0.024	<0.025	<0.025	<0.024	<0.024	<0.024	<0.025	<0.024
Aroclor 1232	mg/kg	NA	<0.020	<0.024	<0.025	<0.025	<0.024	<0.024	<0.024	<0.025	<0.024
Aroclor 1242	mg/kg	NA	<0.020	<0.024	<0.025	<0.025	<0.024	<0.024	<0.024	<0.025	<0.024
Aroclor 1248	mg/kg	NA	<0.020	<0.024	<0.025	<0.025	<0.024	<0.024	<0.024	<0.025	<0.024
Aroclor 1254	mg/kg	NA	<0.020	<0.024	<0.025	<0.025	<0.024	<0.024	<0.024	<0.025	<0.024
Aroclor 1260	mg/kg	NA	<0.020	<0.024	<0.025	<0.025	<0.024	<0.024	<0.024	<0.025	<0.024

TABLE 1
RELEASE RE-SAMPLING SOIL ANALYTICAL RESULTS

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

ANALYTE	UNITS	BACKGROUND SAMPLE	BACKGROUND SAMPLE	CRUDE CELL				API CELL			
				CRUDE01	CRUDE02	CRUDE03	CRUDE04	API01	API02	API03	API04
		27-Mar-98	1-Sep-15	5-May-20	5-May-20	5-May-20	5-May-20	5-May-20	5-May-20	5-May-20	5-May-20
Cyanide by Method 9012B											
Cyanide	mg/kg	NA	<0.25	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250	<0.250
Anions by EPA Method 300.0											
Fluoride	mg/kg	NA	0.84	<1.5	<1.5	<1.5	1.7	1.6	<1.5	2.2	<1.5
Chloride	mg/kg	<50	NA	800	<7.5	<7.5	8.9	<7.5	8.0	370	<7.5
Nitrogen, Nitrate (As N)	mg/kg	NA	<0.30	25	3.2	<1.5	15	<1.5	3.1	25	<1.5
Sulfate	mg/kg	140	NA	940	16	470	120	18	19	900	<7.5
pH by Method SM4500-H+B											
pH	pH units	NA	7.89	8.77	8.39	7.94	8.16	8.75	9.14	9.38	8.59
Radiochemistry by EPA Method 901.1											
Radium-226	pCi/g	NA	0.737 +/- 0.242	0.464 +/- 0.0981	0.455 +/- 0.108	0.666 +/- 0.186	0.898 +/- 0.142	0.512 +/- 0.191	0.584 +/- 0.127	0.446 +/- 0.103	0.563 +/- 0.142
Radium-228	pCi/g	NA	0.806 +/- 0.338	0.510 +/- 0.136	0.493 +/- 0.167	0.549 +/- 0.125	0.622 +/- 0.167	0.646 +/- 0.298	0.590 +/- 0.178	0.501 +/- 0.135	0.645 +/- 0.210
General Chemistry											
Total Alkalinity (carbonate/bicarbonate)	mg/kg	136	NA	148	94	63	98	92	93	182	90

Notes:

mg/kg - milligrams per kilograms

DRO - diesel range organics

GRO - gasoline range organics

TPH- total petroleum hydrocarbons

NE - not established

NA - not analyzed

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

Gray highlight indicates the background concentration/laboratory practical quantitation limit used to compare vadose-zone results

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





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

June 12, 2020

Stuart Hyde

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX:

RE: 2020 Bisti Landfarm

OrderNo.: 2005203

Dear Stuart Hyde:

Hall Environmental Analysis Laboratory received 8 sample(s) on 5/6/2020 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers 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 #NM0901

Sincerely,

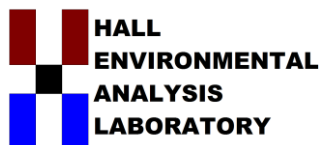
A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a horizontal line.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109



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

Case Narrative

WO#: 2005203
Date: 6/12/2020

CLIENT: Western Refining Southwest, Inc.
Project: 2020 Bisti Landfarm

Analytical Notes Regarding EPA Method 8310:

The initial extraction for PAHs has low recoveries for some compounds in the LCS. All samples were nondetect for PAH compounds. All samples were reextracted, past the holding time, with passing QC. All samples were again nondetect for all PAH compounds.

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Crude 01

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:30:00 AM

Lab ID: 2005203-001

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: CFC
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	5/12/2020	52385
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	ND	1.5		mg/Kg	5	5/11/2020 5:37:37 PM	52383
Chloride	800	30		mg/Kg	20	5/11/2020 5:50:01 PM	52383
Nitrogen, Nitrate (As N)	25	1.5		mg/Kg	5	5/11/2020 5:37:37 PM	52383
Sulfate	940	30		mg/Kg	20	5/11/2020 5:50:01 PM	52383
EPA METHOD 7471: MERCURY							Analyst: pmf
Mercury	ND	0.033		mg/Kg	1	5/13/2020 3:34:21 AM	52412
EPA METHOD 6010B: SOIL METALS							Analyst: ELS
Arsenic	ND	4.9		mg/Kg	2	5/12/2020 10:32:16 AM	52393
Barium	64	0.20		mg/Kg	2	5/12/2020 10:32:16 AM	52393
Cadmium	ND	0.20		mg/Kg	2	5/12/2020 10:32:16 AM	52393
Calcium	3300	49		mg/Kg	2	5/12/2020 10:32:16 AM	52393
Chromium	2.3	0.59		mg/Kg	2	5/12/2020 10:32:16 AM	52393
Copper	2.5	0.82		mg/Kg	2	5/18/2020 11:45:21 AM	52488
Iron	5000	250		mg/Kg	100	5/12/2020 9:46:32 AM	52393
Lead	0.84	0.59		mg/Kg	2	5/12/2020 10:32:16 AM	52393
Magnesium	1000	49		mg/Kg	2	5/12/2020 10:32:16 AM	52393
Manganese	100	0.39		mg/Kg	2	5/12/2020 10:32:16 AM	52393
Potassium	870	98		mg/Kg	2	5/12/2020 10:32:16 AM	52393
Selenium	ND	4.9		mg/Kg	2	5/12/2020 10:32:16 AM	52393
Silver	ND	0.49		mg/Kg	2	5/12/2020 11:57:16 AM	52393
Sodium	1600	49		mg/Kg	2	5/12/2020 10:32:16 AM	52393
Uranium	ND	9.8		mg/Kg	2	5/12/2020 11:57:16 AM	52393
Zinc	11	4.9		mg/Kg	2	5/12/2020 10:32:16 AM	52393
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Surr: BFB	93.6	70-130		%Rec	1	5/8/2020 3:47:52 PM	52316
EPA METHOD 8082A: PCB'S							Analyst: TOM
Aroclor 1016	ND	0.024		mg/Kg	1	5/11/2020 12:17:10 PM	52328
Aroclor 1221	ND	0.024		mg/Kg	1	5/11/2020 12:17:10 PM	52328
Aroclor 1232	ND	0.024		mg/Kg	1	5/11/2020 12:17:10 PM	52328
Aroclor 1242	ND	0.024		mg/Kg	1	5/11/2020 12:17:10 PM	52328
Aroclor 1248	ND	0.024		mg/Kg	1	5/11/2020 12:17:10 PM	52328
Aroclor 1254	ND	0.024		mg/Kg	1	5/11/2020 12:17:10 PM	52328
Aroclor 1260	ND	0.024		mg/Kg	1	5/11/2020 12:17:10 PM	52328
Surr: Decachlorobiphenyl	77.2	15-129		%Rec	1	5/11/2020 12:17:10 PM	52328

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
	PQL	Practical Quantitative Limit
	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 Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Crude 01

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:30:00 AM

Lab ID: 2005203-001

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8082A: PCB'S							Analyst: TOM
Surr: Tetrachloro-m-xylene	60.0	16.1-131		%Rec	1	5/11/2020 12:17:10 PM	52328
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	5/8/2020 9:49:38 AM	52322
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/8/2020 9:49:38 AM	52322
Surr: DNOP	113	55.1-146		%Rec	1	5/8/2020 9:49:38 AM	52322
EPA METHOD 8310: PAHS							Analyst: TOM
Naphthalene	ND	0.25		mg/Kg	1	5/13/2020 4:50:55 PM	52391
1-Methylnaphthalene	ND	0.25		mg/Kg	1	5/13/2020 4:50:55 PM	52391
2-Methylnaphthalene	ND	0.25		mg/Kg	1	5/13/2020 4:50:55 PM	52391
Acenaphthylene	ND	0.25		mg/Kg	1	5/13/2020 4:50:55 PM	52391
Acenaphthene	ND	0.25		mg/Kg	1	5/13/2020 4:50:55 PM	52391
Fluorene	ND	0.030		mg/Kg	1	5/13/2020 4:50:55 PM	52391
Phenanthrene	ND	0.015		mg/Kg	1	5/13/2020 4:50:55 PM	52391
Anthracene	ND	0.015		mg/Kg	1	5/13/2020 4:50:55 PM	52391
Fluoranthene	ND	0.030		mg/Kg	1	5/13/2020 4:50:55 PM	52391
Pyrene	ND	0.030		mg/Kg	1	5/13/2020 4:50:55 PM	52391
Benz(a)anthracene	ND	0.010		mg/Kg	1	5/13/2020 4:50:55 PM	52391
Chrysene	ND	0.025		mg/Kg	1	5/13/2020 4:50:55 PM	52391
Benzo(b)fluoranthene	ND	0.030		mg/Kg	1	5/13/2020 4:50:55 PM	52391
Benzo(k)fluoranthene	ND	0.030		mg/Kg	1	5/13/2020 4:50:55 PM	52391
Benzo(a)pyrene	ND	0.020		mg/Kg	1	5/13/2020 4:50:55 PM	52391
Dibenz(a,h)anthracene	ND	0.015		mg/Kg	1	5/13/2020 4:50:55 PM	52391
Benzo(g,h,i)perylene	ND	0.025		mg/Kg	1	5/13/2020 4:50:55 PM	52391
Indeno(1,2,3-cd)pyrene	ND	0.015		mg/Kg	1	5/13/2020 4:50:55 PM	52391
Surr: Benzo(e)pyrene	46.0	29-98.8		%Rec	1	5/13/2020 4:50:55 PM	52391
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Benzene	ND	0.024		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Toluene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Ethylbenzene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Methyl tert-butyl ether (MTBE)	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
1,2,4-Trimethylbenzene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
1,3,5-Trimethylbenzene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
1,2-Dichloroethane (EDC)	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
1,2-Dibromoethane (EDB)	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Naphthalene	ND	0.094		mg/Kg	1	5/8/2020 3:47:52 PM	52316
1-Methylnaphthalene	ND	0.19		mg/Kg	1	5/8/2020 3:47:52 PM	52316
2-Methylnaphthalene	ND	0.19		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Acetone	ND	0.71		mg/Kg	1	5/8/2020 3:47:52 PM	52316

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
	PQL	Practical Quantitative Limit
	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 Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Crude 01

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:30:00 AM

Lab ID: 2005203-001

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
Bromobenzene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Bromodichloromethane	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Bromoform	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Bromomethane	ND	0.14		mg/Kg	1	5/8/2020 3:47:52 PM	52316
2-Butanone	ND	0.47		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Carbon disulfide	ND	0.47		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Carbon tetrachloride	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Chlorobenzene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Chloroethane	ND	0.094		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Chloroform	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Chloromethane	ND	0.14		mg/Kg	1	5/8/2020 3:47:52 PM	52316
2-Chlorotoluene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
4-Chlorotoluene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
cis-1,2-DCE	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
cis-1,3-Dichloropropene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
1,2-Dibromo-3-chloropropane	ND	0.094		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Dibromochloromethane	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Dibromomethane	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
1,2-Dichlorobenzene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
1,3-Dichlorobenzene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
1,4-Dichlorobenzene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Dichlorodifluoromethane	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
1,1-Dichloroethane	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
1,1-Dichloroethene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
1,2-Dichloropropane	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
1,3-Dichloropropane	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
2,2-Dichloropropane	ND	0.094		mg/Kg	1	5/8/2020 3:47:52 PM	52316
1,1-Dichloropropene	ND	0.094		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Hexachlorobutadiene	ND	0.094		mg/Kg	1	5/8/2020 3:47:52 PM	52316
2-Hexanone	ND	0.47		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Isopropylbenzene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
4-Isopropyltoluene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
4-Methyl-2-pentanone	ND	0.47		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Methylene chloride	ND	0.14		mg/Kg	1	5/8/2020 3:47:52 PM	52316
n-Butylbenzene	ND	0.14		mg/Kg	1	5/8/2020 3:47:52 PM	52316
n-Propylbenzene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
sec-Butylbenzene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Styrene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
tert-Butylbenzene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316

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
	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
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Crude 01

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:30:00 AM

Lab ID: 2005203-001

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: DJF
1,1,1,2-Tetrachloroethane	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
1,1,2,2-Tetrachloroethane	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Tetrachloroethene (PCE)	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
trans-1,2-DCE	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
trans-1,3-Dichloropropene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
1,2,3-Trichlorobenzene	ND	0.094		mg/Kg	1	5/8/2020 3:47:52 PM	52316
1,2,4-Trichlorobenzene	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
1,1,1-Trichloroethane	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
1,1,2-Trichloroethane	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Trichloroethene (TCE)	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Trichlorofluoromethane	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
1,2,3-Trichloropropane	ND	0.094		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Vinyl chloride	ND	0.047		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Xylenes, Total	ND	0.094		mg/Kg	1	5/8/2020 3:47:52 PM	52316
Surr: Dibromofluoromethane	98.8	70-130		%Rec	1	5/8/2020 3:47:52 PM	52316
Surr: 1,2-Dichloroethane-d4	87.9	70-130		%Rec	1	5/8/2020 3:47:52 PM	52316
Surr: Toluene-d8	98.8	70-130		%Rec	1	5/8/2020 3:47:52 PM	52316
Surr: 4-Bromofluorobenzene	93.5	70-130		%Rec	1	5/8/2020 3:47:52 PM	52316
SM4500H+B/EPA 9040C							Analyst: JRR
pH	8.77			pH Units	1	5/8/2020 8:06:00 AM	R68742

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
	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
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Crude 02

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 12:00:00 PM

Lab ID: 2005203-002

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: CFC
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	5/12/2020	52385
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	ND	1.5		mg/Kg	5	5/11/2020 6:02:25 PM	52383
Chloride	ND	7.5		mg/Kg	5	5/11/2020 6:02:25 PM	52383
Nitrogen, Nitrate (As N)	3.2	1.5		mg/Kg	5	5/11/2020 6:02:25 PM	52383
Sulfate	16	7.5		mg/Kg	5	5/11/2020 6:02:25 PM	52383
EPA METHOD 7471: MERCURY							Analyst: pmf
Mercury	ND	0.035		mg/Kg	1	5/13/2020 3:36:54 AM	52412
EPA METHOD 6010B: SOIL METALS							Analyst: ELS
Arsenic	ND	4.8		mg/Kg	2	5/12/2020 10:34:04 AM	52393
Barium	130	0.19		mg/Kg	2	5/12/2020 10:34:04 AM	52393
Cadmium	ND	0.19		mg/Kg	2	5/12/2020 10:34:04 AM	52393
Calcium	3400	48		mg/Kg	2	5/12/2020 10:34:04 AM	52393
Chromium	1.9	0.58		mg/Kg	2	5/12/2020 10:34:04 AM	52393
Copper	2.0	0.81		mg/Kg	2	5/18/2020 11:46:28 AM	52488
Iron	4800	240		mg/Kg	100	5/12/2020 9:48:20 AM	52393
Lead	1.3	0.58		mg/Kg	2	5/12/2020 10:34:04 AM	52393
Magnesium	1000	48		mg/Kg	2	5/12/2020 10:34:04 AM	52393
Manganese	100	0.38		mg/Kg	2	5/12/2020 10:34:04 AM	52393
Potassium	770	96		mg/Kg	2	5/12/2020 10:34:04 AM	52393
Selenium	ND	4.8		mg/Kg	2	5/12/2020 10:34:04 AM	52393
Silver	ND	0.48		mg/Kg	2	5/12/2020 11:58:22 AM	52393
Sodium	67	48		mg/Kg	2	5/12/2020 10:34:04 AM	52393
Uranium	ND	9.6		mg/Kg	2	5/12/2020 11:58:22 AM	52393
Zinc	11	4.8		mg/Kg	2	5/12/2020 10:34:04 AM	52393
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Surr: BFB	98.6	70-130		%Rec	1	5/7/2020 9:03:06 PM	52316
EPA METHOD 8082A: PCB'S							Analyst: TOM
Aroclor 1016	ND	0.025		mg/Kg	1	5/11/2020 2:08:26 PM	52328
Aroclor 1221	ND	0.025		mg/Kg	1	5/11/2020 2:08:26 PM	52328
Aroclor 1232	ND	0.025		mg/Kg	1	5/11/2020 2:08:26 PM	52328
Aroclor 1242	ND	0.025		mg/Kg	1	5/11/2020 2:08:26 PM	52328
Aroclor 1248	ND	0.025		mg/Kg	1	5/11/2020 2:08:26 PM	52328
Aroclor 1254	ND	0.025		mg/Kg	1	5/11/2020 2:08:26 PM	52328
Aroclor 1260	ND	0.025		mg/Kg	1	5/11/2020 2:08:26 PM	52328
Surr: Decachlorobiphenyl	70.8	15-129		%Rec	1	5/11/2020 2:08:26 PM	52328

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
	PQL	Practical Quantitative Limit
	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 Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Crude 02

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 12:00:00 PM

Lab ID: 2005203-002

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8082A: PCB'S							Analyst: TOM
Surr: Tetrachloro-m-xylene	50.0	16.1-131		%Rec	1	5/11/2020 2:08:26 PM	52328
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	5/8/2020 11:02:47 AM	52322
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	5/8/2020 11:02:47 AM	52322
Surr: DNOP	121	55.1-146		%Rec	1	5/8/2020 11:02:47 AM	52322
EPA METHOD 8310: PAHS							Analyst: TOM
Naphthalene	ND	0.24		mg/Kg	1	5/18/2020 1:55:44 PM	52466
1-Methylnaphthalene	ND	0.24		mg/Kg	1	5/18/2020 1:55:44 PM	52466
2-Methylnaphthalene	ND	0.24		mg/Kg	1	5/18/2020 1:55:44 PM	52466
Acenaphthylene	ND	0.24		mg/Kg	1	5/18/2020 1:55:44 PM	52466
Acenaphthene	ND	0.24		mg/Kg	1	5/18/2020 1:55:44 PM	52466
Fluorene	ND	0.029		mg/Kg	1	5/18/2020 1:55:44 PM	52466
Phenanthrene	ND	0.014		mg/Kg	1	5/18/2020 1:55:44 PM	52466
Anthracene	ND	0.014		mg/Kg	1	5/18/2020 1:55:44 PM	52466
Fluoranthene	ND	0.029		mg/Kg	1	5/18/2020 1:55:44 PM	52466
Pyrene	ND	0.029		mg/Kg	1	5/18/2020 1:55:44 PM	52466
Benz(a)anthracene	ND	0.0096		mg/Kg	1	5/18/2020 1:55:44 PM	52466
Chrysene	ND	0.024		mg/Kg	1	5/18/2020 1:55:44 PM	52466
Benzo(b)fluoranthene	ND	0.029		mg/Kg	1	5/18/2020 1:55:44 PM	52466
Benzo(k)fluoranthene	ND	0.029		mg/Kg	1	5/18/2020 1:55:44 PM	52466
Benzo(a)pyrene	ND	0.019		mg/Kg	1	5/18/2020 1:55:44 PM	52466
Dibenz(a,h)anthracene	ND	0.014		mg/Kg	1	5/18/2020 1:55:44 PM	52466
Benzo(g,h,i)perylene	ND	0.024		mg/Kg	1	5/18/2020 1:55:44 PM	52466
Indeno(1,2,3-cd)pyrene	ND	0.014		mg/Kg	1	5/18/2020 1:55:44 PM	52466
Surr: Benzo(e)pyrene	59.0	29-98.8		%Rec	1	5/18/2020 1:55:44 PM	52466
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	0.023		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Toluene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Ethylbenzene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Methyl tert-butyl ether (MTBE)	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
1,2,4-Trimethylbenzene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
1,3,5-Trimethylbenzene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
1,2-Dichloroethane (EDC)	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
1,2-Dibromoethane (EDB)	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Naphthalene	ND	0.093		mg/Kg	1	5/7/2020 9:03:06 PM	52316
1-Methylnaphthalene	ND	0.19		mg/Kg	1	5/7/2020 9:03:06 PM	52316
2-Methylnaphthalene	ND	0.19		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Acetone	ND	0.70		mg/Kg	1	5/7/2020 9:03:06 PM	52316

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
	PQL	Practical Quantitative Limit
	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 Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Crude 02

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 12:00:00 PM

Lab ID: 2005203-002

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Bromobenzene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Bromodichloromethane	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Bromoform	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Bromomethane	ND	0.14		mg/Kg	1	5/7/2020 9:03:06 PM	52316
2-Butanone	ND	0.47		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Carbon disulfide	ND	0.47		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Carbon tetrachloride	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Chlorobenzene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Chloroethane	ND	0.093		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Chloroform	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Chloromethane	ND	0.14		mg/Kg	1	5/7/2020 9:03:06 PM	52316
2-Chlorotoluene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
4-Chlorotoluene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
cis-1,2-DCE	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
cis-1,3-Dichloropropene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
1,2-Dibromo-3-chloropropane	ND	0.093		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Dibromochloromethane	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Dibromomethane	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
1,2-Dichlorobenzene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
1,3-Dichlorobenzene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
1,4-Dichlorobenzene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Dichlorodifluoromethane	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
1,1-Dichloroethane	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
1,1-Dichloroethene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
1,2-Dichloropropane	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
1,3-Dichloropropane	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
2,2-Dichloropropane	ND	0.093		mg/Kg	1	5/7/2020 9:03:06 PM	52316
1,1-Dichloropropene	ND	0.093		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Hexachlorobutadiene	ND	0.093		mg/Kg	1	5/7/2020 9:03:06 PM	52316
2-Hexanone	ND	0.47		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Isopropylbenzene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
4-Isopropyltoluene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
4-Methyl-2-pentanone	ND	0.47		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Methylene chloride	ND	0.14		mg/Kg	1	5/7/2020 9:03:06 PM	52316
n-Butylbenzene	ND	0.14		mg/Kg	1	5/7/2020 9:03:06 PM	52316
n-Propylbenzene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
sec-Butylbenzene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Styrene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
tert-Butylbenzene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316

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
	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
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Crude 02

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 12:00:00 PM

Lab ID: 2005203-002

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,1,1,2-Tetrachloroethane	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
1,1,2,2-Tetrachloroethane	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Tetrachloroethene (PCE)	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
trans-1,2-DCE	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
trans-1,3-Dichloropropene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
1,2,3-Trichlorobenzene	ND	0.093		mg/Kg	1	5/7/2020 9:03:06 PM	52316
1,2,4-Trichlorobenzene	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
1,1,1-Trichloroethane	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
1,1,2-Trichloroethane	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Trichloroethene (TCE)	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Trichlorofluoromethane	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
1,2,3-Trichloropropane	ND	0.093		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Vinyl chloride	ND	0.047		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Xylenes, Total	ND	0.093		mg/Kg	1	5/7/2020 9:03:06 PM	52316
Surr: Dibromofluoromethane	100	70-130		%Rec	1	5/7/2020 9:03:06 PM	52316
Surr: 1,2-Dichloroethane-d4	91.2	70-130		%Rec	1	5/7/2020 9:03:06 PM	52316
Surr: Toluene-d8	98.0	70-130		%Rec	1	5/7/2020 9:03:06 PM	52316
Surr: 4-Bromofluorobenzene	98.0	70-130		%Rec	1	5/7/2020 9:03:06 PM	52316
SM4500H+B/EPA 9040C							Analyst: JRR
pH	8.39			pH Units	1	5/8/2020 8:06:00 AM	R68742

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
	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
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Crude 03

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 10:45:00 AM

Lab ID: 2005203-003

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: CFC
Petroleum Hydrocarbons, TR	300	20		mg/Kg	1	5/12/2020	52385
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	ND	1.5		mg/Kg	5	5/11/2020 6:27:14 PM	52383
Chloride	ND	7.5		mg/Kg	5	5/11/2020 6:27:14 PM	52383
Nitrogen, Nitrate (As N)	ND	1.5		mg/Kg	5	5/11/2020 6:27:14 PM	52383
Sulfate	470	7.5		mg/Kg	5	5/11/2020 6:27:14 PM	52383
EPA METHOD 7471: MERCURY							Analyst: pmf
Mercury	ND	0.034		mg/Kg	1	5/13/2020 3:39:28 AM	52412
EPA METHOD 6010B: SOIL METALS							Analyst: ELS
Arsenic	ND	5.0		mg/Kg	2	5/12/2020 10:35:53 AM	52393
Barium	52	0.20		mg/Kg	2	5/12/2020 10:35:53 AM	52393
Cadmium	ND	0.20		mg/Kg	2	5/12/2020 10:35:53 AM	52393
Calcium	3100	50		mg/Kg	2	5/12/2020 10:35:53 AM	52393
Chromium	2.6	0.60		mg/Kg	2	5/12/2020 10:35:53 AM	52393
Copper	2.1	0.80		mg/Kg	2	5/18/2020 11:47:34 AM	52488
Iron	4500	250		mg/Kg	100	5/12/2020 10:00:28 AM	52393
Lead	1.7	0.60		mg/Kg	2	5/12/2020 10:35:53 AM	52393
Magnesium	890	50		mg/Kg	2	5/12/2020 10:35:53 AM	52393
Manganese	84	0.40		mg/Kg	2	5/12/2020 10:35:53 AM	52393
Potassium	620	100		mg/Kg	2	5/12/2020 10:35:53 AM	52393
Selenium	ND	5.0		mg/Kg	2	5/12/2020 10:35:53 AM	52393
Silver	ND	0.50		mg/Kg	2	5/12/2020 11:59:28 AM	52393
Sodium	100	50		mg/Kg	2	5/12/2020 10:35:53 AM	52393
Uranium	ND	10		mg/Kg	2	5/12/2020 11:59:28 AM	52393
Zinc	9.8	5.0		mg/Kg	2	5/12/2020 10:35:53 AM	52393
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Surr: BFB	93.7	70-130		%Rec	1	5/7/2020 9:32:07 PM	52316
EPA METHOD 8082A: PCB'S							Analyst: TOM
Aroclor 1016	ND	0.025		mg/Kg	1	5/11/2020 3:20:31 PM	52328
Aroclor 1221	ND	0.025		mg/Kg	1	5/11/2020 3:20:31 PM	52328
Aroclor 1232	ND	0.025		mg/Kg	1	5/11/2020 3:20:31 PM	52328
Aroclor 1242	ND	0.025		mg/Kg	1	5/11/2020 3:20:31 PM	52328
Aroclor 1248	ND	0.025		mg/Kg	1	5/11/2020 3:20:31 PM	52328
Aroclor 1254	ND	0.025		mg/Kg	1	5/11/2020 3:20:31 PM	52328
Aroclor 1260	ND	0.025		mg/Kg	1	5/11/2020 3:20:31 PM	52328
Surr: Decachlorobiphenyl	94.0	15-129		%Rec	1	5/11/2020 3:20:31 PM	52328

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
	PQL	Practical Quantitative Limit
	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 Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Crude 03

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 10:45:00 AM

Lab ID: 2005203-003

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8082A: PCB'S							Analyst: TOM
Surr: Tetrachloro-m-xylene	78.4	16.1-131		%Rec	1	5/11/2020 3:20:31 PM	52328
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	100	9.2		mg/Kg	1	5/13/2020 12:06:15 PM	52384
Motor Oil Range Organics (MRO)	150	46		mg/Kg	1	5/13/2020 12:06:15 PM	52384
Surr: DNOP	107	55.1-146		%Rec	1	5/13/2020 12:06:15 PM	52384
EPA METHOD 8310: PAHS							Analyst: TOM
Naphthalene	ND	0.24		mg/Kg	1	5/18/2020 2:21:15 PM	52466
1-Methylnaphthalene	ND	0.24		mg/Kg	1	5/18/2020 2:21:15 PM	52466
2-Methylnaphthalene	ND	0.24		mg/Kg	1	5/18/2020 2:21:15 PM	52466
Acenaphthylene	ND	0.24		mg/Kg	1	5/18/2020 2:21:15 PM	52466
Acenaphthene	ND	0.24		mg/Kg	1	5/18/2020 2:21:15 PM	52466
Fluorene	ND	0.029		mg/Kg	1	5/18/2020 2:21:15 PM	52466
Phenanthrene	ND	0.014		mg/Kg	1	5/18/2020 2:21:15 PM	52466
Anthracene	ND	0.014		mg/Kg	1	5/18/2020 2:21:15 PM	52466
Fluoranthene	ND	0.029		mg/Kg	1	5/18/2020 2:21:15 PM	52466
Pyrene	ND	0.029		mg/Kg	1	5/18/2020 2:21:15 PM	52466
Benz(a)anthracene	ND	0.0096		mg/Kg	1	5/18/2020 2:21:15 PM	52466
Chrysene	ND	0.024		mg/Kg	1	5/18/2020 2:21:15 PM	52466
Benzo(b)fluoranthene	ND	0.029		mg/Kg	1	5/18/2020 2:21:15 PM	52466
Benzo(k)fluoranthene	ND	0.029		mg/Kg	1	5/18/2020 2:21:15 PM	52466
Benzo(a)pyrene	ND	0.019		mg/Kg	1	5/18/2020 2:21:15 PM	52466
Dibenz(a,h)anthracene	ND	0.014		mg/Kg	1	5/18/2020 2:21:15 PM	52466
Benzo(g,h,i)perylene	ND	0.024		mg/Kg	1	5/18/2020 2:21:15 PM	52466
Indeno(1,2,3-cd)pyrene	ND	0.014		mg/Kg	1	5/18/2020 2:21:15 PM	52466
Surr: Benzo(e)pyrene	82.7	29-98.8		%Rec	1	5/18/2020 2:21:15 PM	52466
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	0.024		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Toluene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Ethylbenzene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Methyl tert-butyl ether (MTBE)	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
1,2,4-Trimethylbenzene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
1,3,5-Trimethylbenzene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
1,2-Dichloroethane (EDC)	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
1,2-Dibromoethane (EDB)	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Naphthalene	ND	0.095		mg/Kg	1	5/7/2020 9:32:07 PM	52316
1-Methylnaphthalene	ND	0.19		mg/Kg	1	5/7/2020 9:32:07 PM	52316
2-Methylnaphthalene	ND	0.19		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Acetone	ND	0.71		mg/Kg	1	5/7/2020 9:32:07 PM	52316

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
	PQL	Practical Quantitative Limit
	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 Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Crude 03

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 10:45:00 AM

Lab ID: 2005203-003

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Bromobenzene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Bromodichloromethane	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Bromoform	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Bromomethane	ND	0.14		mg/Kg	1	5/7/2020 9:32:07 PM	52316
2-Butanone	ND	0.47		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Carbon disulfide	ND	0.47		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Carbon tetrachloride	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Chlorobenzene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Chloroethane	ND	0.095		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Chloroform	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Chloromethane	ND	0.14		mg/Kg	1	5/7/2020 9:32:07 PM	52316
2-Chlorotoluene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
4-Chlorotoluene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
cis-1,2-DCE	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
cis-1,3-Dichloropropene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
1,2-Dibromo-3-chloropropane	ND	0.095		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Dibromochloromethane	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Dibromomethane	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
1,2-Dichlorobenzene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
1,3-Dichlorobenzene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
1,4-Dichlorobenzene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Dichlorodifluoromethane	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
1,1-Dichloroethane	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
1,1-Dichloroethene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
1,2-Dichloropropane	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
1,3-Dichloropropane	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
2,2-Dichloropropane	ND	0.095		mg/Kg	1	5/7/2020 9:32:07 PM	52316
1,1-Dichloropropene	ND	0.095		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Hexachlorobutadiene	ND	0.095		mg/Kg	1	5/7/2020 9:32:07 PM	52316
2-Hexanone	ND	0.47		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Isopropylbenzene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
4-Isopropyltoluene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
4-Methyl-2-pentanone	ND	0.47		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Methylene chloride	ND	0.14		mg/Kg	1	5/7/2020 9:32:07 PM	52316
n-Butylbenzene	ND	0.14		mg/Kg	1	5/7/2020 9:32:07 PM	52316
n-Propylbenzene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
sec-Butylbenzene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Styrene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
tert-Butylbenzene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316

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
	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
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Crude 03

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 10:45:00 AM

Lab ID: 2005203-003

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,1,1,2-Tetrachloroethane	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
1,1,2,2-Tetrachloroethane	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Tetrachloroethene (PCE)	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
trans-1,2-DCE	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
trans-1,3-Dichloropropene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
1,2,3-Trichlorobenzene	ND	0.095		mg/Kg	1	5/7/2020 9:32:07 PM	52316
1,2,4-Trichlorobenzene	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
1,1,1-Trichloroethane	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
1,1,2-Trichloroethane	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Trichloroethene (TCE)	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Trichlorofluoromethane	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
1,2,3-Trichloropropane	ND	0.095		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Vinyl chloride	ND	0.047		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Xylenes, Total	ND	0.095		mg/Kg	1	5/7/2020 9:32:07 PM	52316
Surr: Dibromofluoromethane	102	70-130		%Rec	1	5/7/2020 9:32:07 PM	52316
Surr: 1,2-Dichloroethane-d4	90.1	70-130		%Rec	1	5/7/2020 9:32:07 PM	52316
Surr: Toluene-d8	99.0	70-130		%Rec	1	5/7/2020 9:32:07 PM	52316
Surr: 4-Bromofluorobenzene	94.1	70-130		%Rec	1	5/7/2020 9:32:07 PM	52316
SM4500H+B/EPA 9040C							Analyst: JRR
pH	7.94			pH Units	1	5/8/2020 8:06:00 AM	R68742

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
	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
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Crude 04

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:00:00 AM

Lab ID: 2005203-004

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: CFC
Petroleum Hydrocarbons, TR	68	19		mg/Kg	1	5/12/2020	52385
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	1.7	1.5		mg/Kg	5	5/11/2020 6:52:04 PM	52383
Chloride	8.9	7.5		mg/Kg	5	5/11/2020 6:52:04 PM	52383
Nitrogen, Nitrate (As N)	15	1.5		mg/Kg	5	5/11/2020 6:52:04 PM	52383
Sulfate	120	7.5		mg/Kg	5	5/11/2020 6:52:04 PM	52383
EPA METHOD 7471: MERCURY							Analyst: pmf
Mercury	ND	0.033		mg/Kg	1	5/13/2020 3:41:59 AM	52412
EPA METHOD 6010B: SOIL METALS							Analyst: ELS
Arsenic	ND	5.1		mg/Kg	2	5/12/2020 10:37:41 AM	52393
Barium	87	0.20		mg/Kg	2	5/12/2020 10:37:41 AM	52393
Cadmium	ND	0.20		mg/Kg	2	5/12/2020 10:37:41 AM	52393
Calcium	7000	51		mg/Kg	2	5/12/2020 10:37:41 AM	52393
Chromium	2.9	0.61		mg/Kg	2	5/12/2020 10:37:41 AM	52393
Copper	3.2	0.80		mg/Kg	2	5/18/2020 11:48:40 AM	52488
Iron	6600	250		mg/Kg	100	5/12/2020 10:02:36 AM	52393
Lead	1.5	0.61		mg/Kg	2	5/12/2020 10:37:41 AM	52393
Magnesium	1600	51		mg/Kg	2	5/12/2020 10:37:41 AM	52393
Manganese	100	0.41		mg/Kg	2	5/12/2020 10:37:41 AM	52393
Potassium	1100	100		mg/Kg	2	5/12/2020 10:37:41 AM	52393
Selenium	ND	5.1		mg/Kg	2	5/12/2020 10:37:41 AM	52393
Silver	ND	0.51		mg/Kg	2	5/12/2020 12:00:33 PM	52393
Sodium	140	51		mg/Kg	2	5/12/2020 10:37:41 AM	52393
Uranium	ND	10		mg/Kg	2	5/12/2020 12:00:33 PM	52393
Zinc	14	5.1		mg/Kg	2	5/12/2020 10:37:41 AM	52393
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Surr: BFB	96.4	70-130		%Rec	1	5/7/2020 10:01:05 PM	52316
EPA METHOD 8082A: PCB'S							Analyst: TOM
Aroclor 1016	ND	0.024		mg/Kg	1	5/11/2020 3:56:34 PM	52328
Aroclor 1221	ND	0.024		mg/Kg	1	5/11/2020 3:56:34 PM	52328
Aroclor 1232	ND	0.024		mg/Kg	1	5/11/2020 3:56:34 PM	52328
Aroclor 1242	ND	0.024		mg/Kg	1	5/11/2020 3:56:34 PM	52328
Aroclor 1248	ND	0.024		mg/Kg	1	5/11/2020 3:56:34 PM	52328
Aroclor 1254	ND	0.024		mg/Kg	1	5/11/2020 3:56:34 PM	52328
Aroclor 1260	ND	0.024		mg/Kg	1	5/11/2020 3:56:34 PM	52328
Surr: Decachlorobiphenyl	78.4	15-129		%Rec	1	5/11/2020 3:56:34 PM	52328

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
	PQL	Practical Quantitative Limit
	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 Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Crude 04

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:00:00 AM

Lab ID: 2005203-004

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8082A: PCB'S							Analyst: TOM
Surr: Tetrachloro-m-xylene	62.0	16.1-131		%Rec	1	5/11/2020 3:56:34 PM	52328
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	19	9.9		mg/Kg	1	5/8/2020 11:27:09 AM	52322
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/8/2020 11:27:09 AM	52322
Surr: DNOP	114	55.1-146		%Rec	1	5/8/2020 11:27:09 AM	52322
EPA METHOD 8310: PAHS							Analyst: TOM
Naphthalene	ND	0.25		mg/Kg	1	5/18/2020 3:12:15 PM	52466
1-Methylnaphthalene	ND	0.25		mg/Kg	1	5/18/2020 3:12:15 PM	52466
2-Methylnaphthalene	ND	0.25		mg/Kg	1	5/18/2020 3:12:15 PM	52466
Acenaphthylene	ND	0.25		mg/Kg	1	5/18/2020 3:12:15 PM	52466
Acenaphthene	ND	0.25		mg/Kg	1	5/18/2020 3:12:15 PM	52466
Fluorene	ND	0.030		mg/Kg	1	5/18/2020 3:12:15 PM	52466
Phenanthrene	ND	0.015		mg/Kg	1	5/18/2020 3:12:15 PM	52466
Anthracene	ND	0.015		mg/Kg	1	5/18/2020 3:12:15 PM	52466
Fluoranthene	ND	0.030		mg/Kg	1	5/18/2020 3:12:15 PM	52466
Pyrene	ND	0.030		mg/Kg	1	5/18/2020 3:12:15 PM	52466
Benz(a)anthracene	ND	0.0099		mg/Kg	1	5/18/2020 3:12:15 PM	52466
Chrysene	ND	0.025		mg/Kg	1	5/18/2020 3:12:15 PM	52466
Benzo(b)fluoranthene	ND	0.030		mg/Kg	1	5/18/2020 3:12:15 PM	52466
Benzo(k)fluoranthene	ND	0.030		mg/Kg	1	5/18/2020 3:12:15 PM	52466
Benzo(a)pyrene	ND	0.020		mg/Kg	1	5/18/2020 3:12:15 PM	52466
Dibenz(a,h)anthracene	ND	0.015		mg/Kg	1	5/18/2020 3:12:15 PM	52466
Benzo(g,h,i)perylene	ND	0.025		mg/Kg	1	5/18/2020 3:12:15 PM	52466
Indeno(1,2,3-cd)pyrene	ND	0.015		mg/Kg	1	5/18/2020 3:12:15 PM	52466
Surr: Benzo(e)pyrene	58.2	29-98.8		%Rec	1	5/18/2020 3:12:15 PM	52466
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	0.025		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Toluene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Ethylbenzene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Methyl tert-butyl ether (MTBE)	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
1,2,4-Trimethylbenzene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
1,3,5-Trimethylbenzene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
1,2-Dichloroethane (EDC)	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
1,2-Dibromoethane (EDB)	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Naphthalene	ND	0.099		mg/Kg	1	5/7/2020 10:01:05 PM	52316
1-Methylnaphthalene	ND	0.20		mg/Kg	1	5/7/2020 10:01:05 PM	52316
2-Methylnaphthalene	ND	0.20		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Acetone	ND	0.74		mg/Kg	1	5/7/2020 10:01:05 PM	52316

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
	PQL	Practical Quantitative Limit
	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 Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Crude 04

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:00:00 AM

Lab ID: 2005203-004

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Bromobenzene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Bromodichloromethane	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Bromoform	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Bromomethane	ND	0.15		mg/Kg	1	5/7/2020 10:01:05 PM	52316
2-Butanone	ND	0.50		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Carbon disulfide	ND	0.50		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Carbon tetrachloride	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Chlorobenzene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Chloroethane	ND	0.099		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Chloroform	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Chloromethane	ND	0.15		mg/Kg	1	5/7/2020 10:01:05 PM	52316
2-Chlorotoluene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
4-Chlorotoluene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
cis-1,2-DCE	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
cis-1,3-Dichloropropene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
1,2-Dibromo-3-chloropropane	ND	0.099		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Dibromochloromethane	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Dibromomethane	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
1,2-Dichlorobenzene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
1,3-Dichlorobenzene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
1,4-Dichlorobenzene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Dichlorodifluoromethane	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
1,1-Dichloroethane	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
1,1-Dichloroethene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
1,2-Dichloropropane	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
1,3-Dichloropropane	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
2,2-Dichloropropane	ND	0.099		mg/Kg	1	5/7/2020 10:01:05 PM	52316
1,1-Dichloropropene	ND	0.099		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Hexachlorobutadiene	ND	0.099		mg/Kg	1	5/7/2020 10:01:05 PM	52316
2-Hexanone	ND	0.50		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Isopropylbenzene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
4-Isopropyltoluene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
4-Methyl-2-pentanone	ND	0.50		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Methylene chloride	ND	0.15		mg/Kg	1	5/7/2020 10:01:05 PM	52316
n-Butylbenzene	ND	0.15		mg/Kg	1	5/7/2020 10:01:05 PM	52316
n-Propylbenzene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
sec-Butylbenzene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Styrene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
tert-Butylbenzene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316

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
	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
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Crude 04

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:00:00 AM

Lab ID: 2005203-004

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,1,1,2-Tetrachloroethane	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Tetrachloroethene (PCE)	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
trans-1,2-DCE	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
trans-1,3-Dichloropropene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
1,2,3-Trichlorobenzene	ND	0.099		mg/Kg	1	5/7/2020 10:01:05 PM	52316
1,2,4-Trichlorobenzene	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
1,1,1-Trichloroethane	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
1,1,2-Trichloroethane	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Trichloroethene (TCE)	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Trichlorofluoromethane	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
1,2,3-Trichloropropane	ND	0.099		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Vinyl chloride	ND	0.050		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Xylenes, Total	ND	0.099		mg/Kg	1	5/7/2020 10:01:05 PM	52316
Surr: Dibromofluoromethane	102	70-130		%Rec	1	5/7/2020 10:01:05 PM	52316
Surr: 1,2-Dichloroethane-d4	88.4	70-130		%Rec	1	5/7/2020 10:01:05 PM	52316
Surr: Toluene-d8	99.3	70-130		%Rec	1	5/7/2020 10:01:05 PM	52316
Surr: 4-Bromofluorobenzene	94.5	70-130		%Rec	1	5/7/2020 10:01:05 PM	52316
SM4500H+B/EPA 9040C							Analyst: JRR
pH	8.16			pH Units	1	5/8/2020 8:06:00 AM	R68742

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
	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
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 01

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:12:00 AM

Lab ID: 2005203-005

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: CFC
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	5/12/2020	52385
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	1.6	1.5		mg/Kg	5	5/11/2020 7:41:41 PM	52383
Chloride	ND	7.5		mg/Kg	5	5/11/2020 7:41:41 PM	52383
Nitrogen, Nitrate (As N)	ND	1.5		mg/Kg	5	5/11/2020 7:41:41 PM	52383
Sulfate	18	7.5		mg/Kg	5	5/11/2020 7:41:41 PM	52383
EPA METHOD 7471: MERCURY							Analyst: pmf
Mercury	ND	0.034		mg/Kg	1	5/13/2020 3:44:30 AM	52412
EPA METHOD 6010B: SOIL METALS							Analyst: ELS
Arsenic	ND	4.8		mg/Kg	2	5/12/2020 10:39:30 AM	52393
Barium	40	0.19		mg/Kg	2	5/12/2020 10:39:30 AM	52393
Cadmium	ND	0.19		mg/Kg	2	5/12/2020 10:39:30 AM	52393
Calcium	1400	48		mg/Kg	2	5/12/2020 10:39:30 AM	52393
Chromium	1.4	0.58		mg/Kg	2	5/12/2020 10:39:30 AM	52393
Copper	1.5	0.82		mg/Kg	2	5/18/2020 11:49:45 AM	52488
Iron	4200	240		mg/Kg	100	5/12/2020 10:04:24 AM	52393
Lead	1.7	0.58		mg/Kg	2	5/12/2020 10:39:30 AM	52393
Magnesium	930	48		mg/Kg	2	5/12/2020 10:39:30 AM	52393
Manganese	130	0.39		mg/Kg	2	5/12/2020 10:39:30 AM	52393
Potassium	600	97		mg/Kg	2	5/12/2020 10:39:30 AM	52393
Selenium	ND	4.8		mg/Kg	2	5/12/2020 10:39:30 AM	52393
Silver	ND	0.48		mg/Kg	2	5/12/2020 12:01:39 PM	52393
Sodium	72	48		mg/Kg	2	5/12/2020 10:39:30 AM	52393
Uranium	ND	9.7		mg/Kg	2	5/12/2020 12:01:39 PM	52393
Zinc	9.6	4.8		mg/Kg	2	5/12/2020 10:39:30 AM	52393
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Surr: BFB	96.0	70-130		%Rec	1	5/8/2020 12:53:26 AM	52316
EPA METHOD 8082A: PCB'S							Analyst: TOM
Aroclor 1016	ND	0.024		mg/Kg	1	5/11/2020 4:32:32 PM	52328
Aroclor 1221	ND	0.024		mg/Kg	1	5/11/2020 4:32:32 PM	52328
Aroclor 1232	ND	0.024		mg/Kg	1	5/11/2020 4:32:32 PM	52328
Aroclor 1242	ND	0.024		mg/Kg	1	5/11/2020 4:32:32 PM	52328
Aroclor 1248	ND	0.024		mg/Kg	1	5/11/2020 4:32:32 PM	52328
Aroclor 1254	ND	0.024		mg/Kg	1	5/11/2020 4:32:32 PM	52328
Aroclor 1260	ND	0.024		mg/Kg	1	5/11/2020 4:32:32 PM	52328
Surr: Decachlorobiphenyl	68.8	15-129		%Rec	1	5/11/2020 4:32:32 PM	52328

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
	PQL	Practical Quantitative Limit
	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 Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 01

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:12:00 AM

Lab ID: 2005203-005

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8082A: PCB'S							Analyst: TOM
Surr: Tetrachloro-m-xylene	54.0	16.1-131		%Rec	1	5/11/2020 4:32:32 PM	52328
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	5/8/2020 11:51:42 AM	52322
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	5/8/2020 11:51:42 AM	52322
Surr: DNOP	125	55.1-146		%Rec	1	5/8/2020 11:51:42 AM	52322
EPA METHOD 8310: PAHS							Analyst: TOM
Naphthalene	ND	0.24		mg/Kg	1	5/18/2020 4:28:51 PM	52466
1-Methylnaphthalene	ND	0.24		mg/Kg	1	5/18/2020 4:28:51 PM	52466
2-Methylnaphthalene	ND	0.24		mg/Kg	1	5/18/2020 4:28:51 PM	52466
Acenaphthylene	ND	0.24		mg/Kg	1	5/18/2020 4:28:51 PM	52466
Acenaphthene	ND	0.24		mg/Kg	1	5/18/2020 4:28:51 PM	52466
Fluorene	ND	0.029		mg/Kg	1	5/18/2020 4:28:51 PM	52466
Phenanthrene	ND	0.015		mg/Kg	1	5/18/2020 4:28:51 PM	52466
Anthracene	ND	0.015		mg/Kg	1	5/18/2020 4:28:51 PM	52466
Fluoranthene	ND	0.029		mg/Kg	1	5/18/2020 4:28:51 PM	52466
Pyrene	ND	0.029		mg/Kg	1	5/18/2020 4:28:51 PM	52466
Benz(a)anthracene	ND	0.0097		mg/Kg	1	5/18/2020 4:28:51 PM	52466
Chrysene	ND	0.024		mg/Kg	1	5/18/2020 4:28:51 PM	52466
Benzo(b)fluoranthene	ND	0.029		mg/Kg	1	5/18/2020 4:28:51 PM	52466
Benzo(k)fluoranthene	ND	0.029		mg/Kg	1	5/18/2020 4:28:51 PM	52466
Benzo(a)pyrene	ND	0.019		mg/Kg	1	5/18/2020 4:28:51 PM	52466
Dibenz(a,h)anthracene	ND	0.015		mg/Kg	1	5/18/2020 4:28:51 PM	52466
Benzo(g,h,i)perylene	ND	0.024		mg/Kg	1	5/18/2020 4:28:51 PM	52466
Indeno(1,2,3-cd)pyrene	ND	0.015		mg/Kg	1	5/18/2020 4:28:51 PM	52466
Surr: Benzo(e)pyrene	49.8	29-98.8		%Rec	1	5/18/2020 4:28:51 PM	52466
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	0.025		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Toluene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Ethylbenzene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Methyl tert-butyl ether (MTBE)	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
1,2,4-Trimethylbenzene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
1,3,5-Trimethylbenzene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
1,2-Dichloroethane (EDC)	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
1,2-Dibromoethane (EDB)	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Naphthalene	ND	0.099		mg/Kg	1	5/8/2020 12:53:26 AM	52316
1-Methylnaphthalene	ND	0.20		mg/Kg	1	5/8/2020 12:53:26 AM	52316
2-Methylnaphthalene	ND	0.20		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Acetone	ND	0.74		mg/Kg	1	5/8/2020 12:53:26 AM	52316

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
	PQL	Practical Quantitative Limit
	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 Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 01

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:12:00 AM

Lab ID: 2005203-005

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Bromobenzene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Bromodichloromethane	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Bromoform	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Bromomethane	ND	0.15		mg/Kg	1	5/8/2020 12:53:26 AM	52316
2-Butanone	ND	0.50		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Carbon disulfide	ND	0.50		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Carbon tetrachloride	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Chlorobenzene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Chloroethane	ND	0.099		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Chloroform	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Chloromethane	ND	0.15		mg/Kg	1	5/8/2020 12:53:26 AM	52316
2-Chlorotoluene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
4-Chlorotoluene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
cis-1,2-DCE	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
cis-1,3-Dichloropropene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
1,2-Dibromo-3-chloropropane	ND	0.099		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Dibromochloromethane	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Dibromomethane	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
1,2-Dichlorobenzene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
1,3-Dichlorobenzene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
1,4-Dichlorobenzene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Dichlorodifluoromethane	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
1,1-Dichloroethane	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
1,1-Dichloroethene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
1,2-Dichloropropane	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
1,3-Dichloropropane	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
2,2-Dichloropropane	ND	0.099		mg/Kg	1	5/8/2020 12:53:26 AM	52316
1,1-Dichloropropene	ND	0.099		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Hexachlorobutadiene	ND	0.099		mg/Kg	1	5/8/2020 12:53:26 AM	52316
2-Hexanone	ND	0.50		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Isopropylbenzene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
4-Isopropyltoluene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
4-Methyl-2-pentanone	ND	0.50		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Methylene chloride	ND	0.15		mg/Kg	1	5/8/2020 12:53:26 AM	52316
n-Butylbenzene	ND	0.15		mg/Kg	1	5/8/2020 12:53:26 AM	52316
n-Propylbenzene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
sec-Butylbenzene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Styrene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
tert-Butylbenzene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316

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
	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
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 01

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:12:00 AM

Lab ID: 2005203-005

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,1,1,2-Tetrachloroethane	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Tetrachloroethene (PCE)	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
trans-1,2-DCE	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
trans-1,3-Dichloropropene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
1,2,3-Trichlorobenzene	ND	0.099		mg/Kg	1	5/8/2020 12:53:26 AM	52316
1,2,4-Trichlorobenzene	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
1,1,1-Trichloroethane	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
1,1,2-Trichloroethane	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Trichloroethene (TCE)	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Trichlorofluoromethane	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
1,2,3-Trichloropropane	ND	0.099		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Vinyl chloride	ND	0.050		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Xylenes, Total	ND	0.099		mg/Kg	1	5/8/2020 12:53:26 AM	52316
Surr: Dibromofluoromethane	105	70-130		%Rec	1	5/8/2020 12:53:26 AM	52316
Surr: 1,2-Dichloroethane-d4	91.6	70-130		%Rec	1	5/8/2020 12:53:26 AM	52316
Surr: Toluene-d8	99.0	70-130		%Rec	1	5/8/2020 12:53:26 AM	52316
Surr: 4-Bromofluorobenzene	93.9	70-130		%Rec	1	5/8/2020 12:53:26 AM	52316
SM4500H+B/EPA 9040C							Analyst: JRR
pH	8.75			pH Units	1	5/8/2020 8:06:00 AM	R68742

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
	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
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 02

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:16:00 AM

Lab ID: 2005203-006

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: CFC
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	5/12/2020	52385
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	ND	1.5		mg/Kg	5	5/11/2020 8:06:31 PM	52383
Chloride	8.0	7.5		mg/Kg	5	5/11/2020 8:06:31 PM	52383
Nitrogen, Nitrate (As N)	3.1	1.5		mg/Kg	5	5/11/2020 8:06:31 PM	52383
Sulfate	19	7.5		mg/Kg	5	5/11/2020 8:06:31 PM	52383
EPA METHOD 7471: MERCURY							Analyst: pmf
Mercury	ND	0.031		mg/Kg	1	5/13/2020 3:47:01 AM	52412
EPA METHOD 6010B: SOIL METALS							Analyst: ELS
Arsenic	ND	5.1		mg/Kg	2	5/12/2020 10:41:12 AM	52393
Barium	62	0.21		mg/Kg	2	5/12/2020 10:41:12 AM	52393
Cadmium	ND	0.21		mg/Kg	2	5/12/2020 10:41:12 AM	52393
Calcium	2300	51		mg/Kg	2	5/12/2020 10:41:12 AM	52393
Chromium	1.6	0.62		mg/Kg	2	5/12/2020 10:41:12 AM	52393
Copper	1.6	0.79		mg/Kg	2	5/18/2020 11:58:14 AM	52488
Iron	4400	260		mg/Kg	100	5/12/2020 10:06:24 AM	52393
Lead	1.2	0.62		mg/Kg	2	5/12/2020 10:41:12 AM	52393
Magnesium	990	51		mg/Kg	2	5/12/2020 10:41:12 AM	52393
Manganese	99	0.41		mg/Kg	2	5/12/2020 10:41:12 AM	52393
Potassium	630	100		mg/Kg	2	5/12/2020 10:41:12 AM	52393
Selenium	ND	5.1		mg/Kg	2	5/12/2020 10:41:12 AM	52393
Silver	ND	0.51		mg/Kg	2	5/12/2020 12:02:45 PM	52393
Sodium	140	51		mg/Kg	2	5/12/2020 10:41:12 AM	52393
Uranium	ND	10		mg/Kg	2	5/12/2020 12:02:45 PM	52393
Zinc	9.2	5.1		mg/Kg	2	5/12/2020 10:41:12 AM	52393
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Surr: BFB	96.3	70-130		%Rec	1	5/8/2020 1:22:17 AM	52316
EPA METHOD 8082A: PCB'S							Analyst: TOM
Aroclor 1016	ND	0.024		mg/Kg	1	5/11/2020 5:08:35 PM	52328
Aroclor 1221	ND	0.024		mg/Kg	1	5/11/2020 5:08:35 PM	52328
Aroclor 1232	ND	0.024		mg/Kg	1	5/11/2020 5:08:35 PM	52328
Aroclor 1242	ND	0.024		mg/Kg	1	5/11/2020 5:08:35 PM	52328
Aroclor 1248	ND	0.024		mg/Kg	1	5/11/2020 5:08:35 PM	52328
Aroclor 1254	ND	0.024		mg/Kg	1	5/11/2020 5:08:35 PM	52328
Aroclor 1260	ND	0.024		mg/Kg	1	5/11/2020 5:08:35 PM	52328
Surr: Decachlorobiphenyl	82.0	15-129		%Rec	1	5/11/2020 5:08:35 PM	52328

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
	PQL	Practical Quantitative Limit
	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 Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 02

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:16:00 AM

Lab ID: 2005203-006

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8082A: PCB'S							Analyst: TOM
Surr: Tetrachloro-m-xylene	71.2	16.1-131		%Rec	1	5/11/2020 5:08:35 PM	52328
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	5/8/2020 12:15:59 PM	52322
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	5/8/2020 12:15:59 PM	52322
Surr: DNOP	123	55.1-146		%Rec	1	5/8/2020 12:15:59 PM	52322
EPA METHOD 8310: PAHS							Analyst: TOM
Naphthalene	ND	0.24		mg/Kg	1	5/18/2020 4:54:23 PM	52466
1-Methylnaphthalene	ND	0.24		mg/Kg	1	5/18/2020 4:54:23 PM	52466
2-Methylnaphthalene	ND	0.24		mg/Kg	1	5/18/2020 4:54:23 PM	52466
Acenaphthylene	ND	0.24		mg/Kg	1	5/18/2020 4:54:23 PM	52466
Acenaphthene	ND	0.24		mg/Kg	1	5/18/2020 4:54:23 PM	52466
Fluorene	ND	0.029		mg/Kg	1	5/18/2020 4:54:23 PM	52466
Phenanthrene	ND	0.014		mg/Kg	1	5/18/2020 4:54:23 PM	52466
Anthracene	ND	0.014		mg/Kg	1	5/18/2020 4:54:23 PM	52466
Fluoranthene	ND	0.029		mg/Kg	1	5/18/2020 4:54:23 PM	52466
Pyrene	ND	0.029		mg/Kg	1	5/18/2020 4:54:23 PM	52466
Benz(a)anthracene	ND	0.0096		mg/Kg	1	5/18/2020 4:54:23 PM	52466
Chrysene	ND	0.024		mg/Kg	1	5/18/2020 4:54:23 PM	52466
Benzo(b)fluoranthene	ND	0.029		mg/Kg	1	5/18/2020 4:54:23 PM	52466
Benzo(k)fluoranthene	ND	0.029		mg/Kg	1	5/18/2020 4:54:23 PM	52466
Benzo(a)pyrene	ND	0.019		mg/Kg	1	5/18/2020 4:54:23 PM	52466
Dibenz(a,h)anthracene	ND	0.014		mg/Kg	1	5/18/2020 4:54:23 PM	52466
Benzo(g,h,i)perylene	ND	0.024		mg/Kg	1	5/18/2020 4:54:23 PM	52466
Indeno(1,2,3-cd)pyrene	ND	0.014		mg/Kg	1	5/18/2020 4:54:23 PM	52466
Surr: Benzo(e)pyrene	57.8	29-98.8		%Rec	1	5/18/2020 4:54:23 PM	52466
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	0.023		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Toluene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Ethylbenzene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Methyl tert-butyl ether (MTBE)	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
1,2,4-Trimethylbenzene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
1,3,5-Trimethylbenzene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
1,2-Dichloroethane (EDC)	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
1,2-Dibromoethane (EDB)	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Naphthalene	ND	0.094		mg/Kg	1	5/8/2020 1:22:17 AM	52316
1-Methylnaphthalene	ND	0.19		mg/Kg	1	5/8/2020 1:22:17 AM	52316
2-Methylnaphthalene	ND	0.19		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Acetone	ND	0.70		mg/Kg	1	5/8/2020 1:22:17 AM	52316

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
	PQL	Practical Quantitative Limit
	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 Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 02

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:16:00 AM

Lab ID: 2005203-006

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Bromobenzene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Bromodichloromethane	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Bromoform	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Bromomethane	ND	0.14		mg/Kg	1	5/8/2020 1:22:17 AM	52316
2-Butanone	ND	0.47		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Carbon disulfide	ND	0.47		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Carbon tetrachloride	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Chlorobenzene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Chloroethane	ND	0.094		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Chloroform	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Chloromethane	ND	0.14		mg/Kg	1	5/8/2020 1:22:17 AM	52316
2-Chlorotoluene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
4-Chlorotoluene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
cis-1,2-DCE	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
cis-1,3-Dichloropropene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
1,2-Dibromo-3-chloropropane	ND	0.094		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Dibromochloromethane	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Dibromomethane	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
1,2-Dichlorobenzene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
1,3-Dichlorobenzene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
1,4-Dichlorobenzene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Dichlorodifluoromethane	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
1,1-Dichloroethane	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
1,1-Dichloroethene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
1,2-Dichloropropane	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
1,3-Dichloropropane	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
2,2-Dichloropropane	ND	0.094		mg/Kg	1	5/8/2020 1:22:17 AM	52316
1,1-Dichloropropene	ND	0.094		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Hexachlorobutadiene	ND	0.094		mg/Kg	1	5/8/2020 1:22:17 AM	52316
2-Hexanone	ND	0.47		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Isopropylbenzene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
4-Isopropyltoluene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
4-Methyl-2-pentanone	ND	0.47		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Methylene chloride	ND	0.14		mg/Kg	1	5/8/2020 1:22:17 AM	52316
n-Butylbenzene	ND	0.14		mg/Kg	1	5/8/2020 1:22:17 AM	52316
n-Propylbenzene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
sec-Butylbenzene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Styrene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
tert-Butylbenzene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316

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
	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
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 02

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:16:00 AM

Lab ID: 2005203-006

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,1,1,2-Tetrachloroethane	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
1,1,2,2-Tetrachloroethane	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Tetrachloroethene (PCE)	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
trans-1,2-DCE	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
trans-1,3-Dichloropropene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
1,2,3-Trichlorobenzene	ND	0.094		mg/Kg	1	5/8/2020 1:22:17 AM	52316
1,2,4-Trichlorobenzene	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
1,1,1-Trichloroethane	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
1,1,2-Trichloroethane	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Trichloroethene (TCE)	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Trichlorofluoromethane	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
1,2,3-Trichloropropane	ND	0.094		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Vinyl chloride	ND	0.047		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Xylenes, Total	ND	0.094		mg/Kg	1	5/8/2020 1:22:17 AM	52316
Surr: Dibromofluoromethane	104	70-130		%Rec	1	5/8/2020 1:22:17 AM	52316
Surr: 1,2-Dichloroethane-d4	91.5	70-130		%Rec	1	5/8/2020 1:22:17 AM	52316
Surr: Toluene-d8	101	70-130		%Rec	1	5/8/2020 1:22:17 AM	52316
Surr: 4-Bromofluorobenzene	93.1	70-130		%Rec	1	5/8/2020 1:22:17 AM	52316
SM4500H+B/EPA 9040C							Analyst: JRR
pH	9.14			pH Units	1	5/8/2020 8:06:00 AM	R68742

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
	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
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 03

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:39:00 AM

Lab ID: 2005203-007

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: CFC
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	5/12/2020	52385
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	2.2	1.5		mg/Kg	5	5/11/2020 8:31:19 PM	52383
Chloride	370	30		mg/Kg	20	5/11/2020 8:43:44 PM	52383
Nitrogen, Nitrate (As N)	25	1.5		mg/Kg	5	5/11/2020 8:31:19 PM	52383
Sulfate	900	30		mg/Kg	20	5/11/2020 8:43:44 PM	52383
EPA METHOD 7471: MERCURY							Analyst: pmf
Mercury	ND	0.033		mg/Kg	1	5/13/2020 3:49:33 AM	52412
EPA METHOD 6010B: SOIL METALS							Analyst: ELS
Arsenic	ND	5.0		mg/Kg	2	5/12/2020 10:42:59 AM	52393
Barium	150	0.20		mg/Kg	2	5/12/2020 10:42:59 AM	52393
Cadmium	ND	0.20		mg/Kg	2	5/12/2020 10:42:59 AM	52393
Calcium	5500	50		mg/Kg	2	5/12/2020 10:42:59 AM	52393
Chromium	2.5	0.61		mg/Kg	2	5/12/2020 10:42:59 AM	52393
Copper	2.9	0.80		mg/Kg	2	5/18/2020 11:59:19 AM	52488
Iron	5700	250		mg/Kg	100	5/12/2020 10:08:24 AM	52393
Lead	1.6	0.61		mg/Kg	2	5/12/2020 10:42:59 AM	52393
Magnesium	1200	50		mg/Kg	2	5/12/2020 10:42:59 AM	52393
Manganese	140	0.40		mg/Kg	2	5/12/2020 10:42:59 AM	52393
Potassium	1000	100		mg/Kg	2	5/12/2020 10:42:59 AM	52393
Selenium	ND	5.0		mg/Kg	2	5/12/2020 10:42:59 AM	52393
Silver	ND	0.50		mg/Kg	2	5/12/2020 12:03:50 PM	52393
Sodium	2100	50		mg/Kg	2	5/12/2020 10:42:59 AM	52393
Uranium	ND	10		mg/Kg	2	5/12/2020 12:03:50 PM	52393
Zinc	13	5.0		mg/Kg	2	5/12/2020 10:42:59 AM	52393
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Surr: BFB	95.6	70-130		%Rec	1	5/8/2020 1:51:11 AM	52316
EPA METHOD 8082A: PCB'S							Analyst: TOM
Aroclor 1016	ND	0.025		mg/Kg	1	5/11/2020 5:44:38 PM	52328
Aroclor 1221	ND	0.025		mg/Kg	1	5/11/2020 5:44:38 PM	52328
Aroclor 1232	ND	0.025		mg/Kg	1	5/11/2020 5:44:38 PM	52328
Aroclor 1242	ND	0.025		mg/Kg	1	5/11/2020 5:44:38 PM	52328
Aroclor 1248	ND	0.025		mg/Kg	1	5/11/2020 5:44:38 PM	52328
Aroclor 1254	ND	0.025		mg/Kg	1	5/11/2020 5:44:38 PM	52328
Aroclor 1260	ND	0.025		mg/Kg	1	5/11/2020 5:44:38 PM	52328
Surr: Decachlorobiphenyl	84.8	15-129		%Rec	1	5/11/2020 5:44:38 PM	52328

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
	PQL	Practical Quantitative Limit
	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 Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 03

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:39:00 AM

Lab ID: 2005203-007

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8082A: PCB'S							Analyst: TOM
Surr: Tetrachloro-m-xylene	75.2	16.1-131		%Rec	1	5/11/2020 5:44:38 PM	52328
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	5/8/2020 12:40:18 PM	52322
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/8/2020 12:40:18 PM	52322
Surr: DNOP	103	55.1-146		%Rec	1	5/8/2020 12:40:18 PM	52322
EPA METHOD 8310: PAHS							Analyst: TOM
Naphthalene	ND	0.25		mg/Kg	1	5/18/2020 5:19:54 PM	52466
1-Methylnaphthalene	ND	0.25		mg/Kg	1	5/18/2020 5:19:54 PM	52466
2-Methylnaphthalene	ND	0.25		mg/Kg	1	5/18/2020 5:19:54 PM	52466
Acenaphthylene	ND	0.25		mg/Kg	1	5/18/2020 5:19:54 PM	52466
Acenaphthene	ND	0.25		mg/Kg	1	5/18/2020 5:19:54 PM	52466
Fluorene	ND	0.030		mg/Kg	1	5/18/2020 5:19:54 PM	52466
Phenanthrene	ND	0.015		mg/Kg	1	5/18/2020 5:19:54 PM	52466
Anthracene	ND	0.015		mg/Kg	1	5/18/2020 5:19:54 PM	52466
Fluoranthene	ND	0.030		mg/Kg	1	5/18/2020 5:19:54 PM	52466
Pyrene	ND	0.030		mg/Kg	1	5/18/2020 5:19:54 PM	52466
Benz(a)anthracene	ND	0.0098		mg/Kg	1	5/18/2020 5:19:54 PM	52466
Chrysene	ND	0.025		mg/Kg	1	5/18/2020 5:19:54 PM	52466
Benzo(b)fluoranthene	ND	0.030		mg/Kg	1	5/18/2020 5:19:54 PM	52466
Benzo(k)fluoranthene	ND	0.030		mg/Kg	1	5/18/2020 5:19:54 PM	52466
Benzo(a)pyrene	ND	0.020		mg/Kg	1	5/18/2020 5:19:54 PM	52466
Dibenz(a,h)anthracene	ND	0.015		mg/Kg	1	5/18/2020 5:19:54 PM	52466
Benzo(g,h,i)perylene	ND	0.025		mg/Kg	1	5/18/2020 5:19:54 PM	52466
Indeno(1,2,3-cd)pyrene	ND	0.015		mg/Kg	1	5/18/2020 5:19:54 PM	52466
Surr: Benzo(e)pyrene	57.7	29-98.8		%Rec	1	5/18/2020 5:19:54 PM	52466
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	0.024		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Toluene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Ethylbenzene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Methyl tert-butyl ether (MTBE)	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
1,2,4-Trimethylbenzene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
1,3,5-Trimethylbenzene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
1,2-Dichloroethane (EDC)	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
1,2-Dibromoethane (EDB)	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Naphthalene	ND	0.097		mg/Kg	1	5/8/2020 1:51:11 AM	52316
1-Methylnaphthalene	ND	0.19		mg/Kg	1	5/8/2020 1:51:11 AM	52316
2-Methylnaphthalene	ND	0.19		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Acetone	ND	0.73		mg/Kg	1	5/8/2020 1:51:11 AM	52316

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
	PQL	Practical Quantitative Limit
	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 Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 03

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:39:00 AM

Lab ID: 2005203-007

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Bromobenzene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Bromodichloromethane	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Bromoform	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Bromomethane	ND	0.15		mg/Kg	1	5/8/2020 1:51:11 AM	52316
2-Butanone	ND	0.49		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Carbon disulfide	ND	0.49		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Carbon tetrachloride	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Chlorobenzene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Chloroethane	ND	0.097		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Chloroform	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Chloromethane	ND	0.15		mg/Kg	1	5/8/2020 1:51:11 AM	52316
2-Chlorotoluene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
4-Chlorotoluene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
cis-1,2-DCE	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
cis-1,3-Dichloropropene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
1,2-Dibromo-3-chloropropane	ND	0.097		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Dibromochloromethane	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Dibromomethane	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
1,2-Dichlorobenzene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
1,3-Dichlorobenzene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
1,4-Dichlorobenzene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Dichlorodifluoromethane	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
1,1-Dichloroethane	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
1,1-Dichloroethene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
1,2-Dichloropropane	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
1,3-Dichloropropane	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
2,2-Dichloropropane	ND	0.097		mg/Kg	1	5/8/2020 1:51:11 AM	52316
1,1-Dichloropropene	ND	0.097		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Hexachlorobutadiene	ND	0.097		mg/Kg	1	5/8/2020 1:51:11 AM	52316
2-Hexanone	ND	0.49		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Isopropylbenzene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
4-Isopropyltoluene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
4-Methyl-2-pentanone	ND	0.49		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Methylene chloride	ND	0.15		mg/Kg	1	5/8/2020 1:51:11 AM	52316
n-Butylbenzene	ND	0.15		mg/Kg	1	5/8/2020 1:51:11 AM	52316
n-Propylbenzene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
sec-Butylbenzene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Styrene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
tert-Butylbenzene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316

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
	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
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 03

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:39:00 AM

Lab ID: 2005203-007

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,1,1,2-Tetrachloroethane	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
1,1,2,2-Tetrachloroethane	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Tetrachloroethene (PCE)	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
trans-1,2-DCE	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
trans-1,3-Dichloropropene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
1,2,3-Trichlorobenzene	ND	0.097		mg/Kg	1	5/8/2020 1:51:11 AM	52316
1,2,4-Trichlorobenzene	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
1,1,1-Trichloroethane	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
1,1,2-Trichloroethane	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Trichloroethene (TCE)	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Trichlorofluoromethane	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
1,2,3-Trichloropropane	ND	0.097		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Vinyl chloride	ND	0.049		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Xylenes, Total	ND	0.097		mg/Kg	1	5/8/2020 1:51:11 AM	52316
Surr: Dibromofluoromethane	104	70-130		%Rec	1	5/8/2020 1:51:11 AM	52316
Surr: 1,2-Dichloroethane-d4	88.7	70-130		%Rec	1	5/8/2020 1:51:11 AM	52316
Surr: Toluene-d8	100	70-130		%Rec	1	5/8/2020 1:51:11 AM	52316
Surr: 4-Bromofluorobenzene	93.0	70-130		%Rec	1	5/8/2020 1:51:11 AM	52316
SM4500H+B/EPA 9040C							Analyst: JRR
pH	9.38			pH Units	1	5/8/2020 8:06:00 AM	R68742

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
	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
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 04

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:48:00 AM

Lab ID: 2005203-008

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: CFC
Petroleum Hydrocarbons, TR	ND	18		mg/Kg	1	5/12/2020	52385
EPA METHOD 300.0: ANIONS							Analyst: JMT
Fluoride	ND	1.5		mg/Kg	5	5/11/2020 8:56:09 PM	52383
Chloride	ND	7.5		mg/Kg	5	5/11/2020 8:56:09 PM	52383
Nitrogen, Nitrate (As N)	ND	1.5		mg/Kg	5	5/11/2020 8:56:09 PM	52383
Sulfate	ND	7.5		mg/Kg	5	5/11/2020 8:56:09 PM	52383
EPA METHOD 7471: MERCURY							Analyst: pmf
Mercury	ND	0.033		mg/Kg	1	5/13/2020 3:57:07 AM	52412
EPA METHOD 6010B: SOIL METALS							Analyst: ELS
Arsenic	ND	5.1		mg/Kg	2	5/12/2020 10:44:41 AM	52393
Barium	36	0.20		mg/Kg	2	5/12/2020 10:44:41 AM	52393
Cadmium	ND	0.20		mg/Kg	2	5/12/2020 10:44:41 AM	52393
Calcium	1500	51		mg/Kg	2	5/12/2020 10:44:41 AM	52393
Chromium	1.3	0.61		mg/Kg	2	5/12/2020 10:44:41 AM	52393
Copper	1.3	0.81		mg/Kg	2	5/18/2020 12:00:24 PM	52488
Iron	4000	260		mg/Kg	100	5/12/2020 10:10:12 AM	52393
Lead	1.6	0.61		mg/Kg	2	5/12/2020 10:44:41 AM	52393
Magnesium	800	51		mg/Kg	2	5/12/2020 10:44:41 AM	52393
Manganese	150	0.41		mg/Kg	2	5/12/2020 10:44:41 AM	52393
Potassium	500	100		mg/Kg	2	5/12/2020 10:44:41 AM	52393
Selenium	ND	5.1		mg/Kg	2	5/12/2020 10:44:41 AM	52393
Silver	ND	0.51		mg/Kg	2	5/12/2020 12:08:57 PM	52393
Sodium	ND	51		mg/Kg	2	5/12/2020 10:44:41 AM	52393
Uranium	ND	10		mg/Kg	2	5/12/2020 12:08:57 PM	52393
Zinc	8.4	5.1		mg/Kg	2	5/12/2020 10:44:41 AM	52393
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Surr: BFB	93.8	70-130		%Rec	1	5/8/2020 2:20:04 AM	52316
EPA METHOD 8082A: PCB'S							Analyst: TOM
Aroclor 1016	ND	0.024		mg/Kg	1	5/11/2020 6:20:41 PM	52328
Aroclor 1221	ND	0.024		mg/Kg	1	5/11/2020 6:20:41 PM	52328
Aroclor 1232	ND	0.024		mg/Kg	1	5/11/2020 6:20:41 PM	52328
Aroclor 1242	ND	0.024		mg/Kg	1	5/11/2020 6:20:41 PM	52328
Aroclor 1248	ND	0.024		mg/Kg	1	5/11/2020 6:20:41 PM	52328
Aroclor 1254	ND	0.024		mg/Kg	1	5/11/2020 6:20:41 PM	52328
Aroclor 1260	ND	0.024		mg/Kg	1	5/11/2020 6:20:41 PM	52328
Surr: Decachlorobiphenyl	78.0	15-129		%Rec	1	5/11/2020 6:20:41 PM	52328

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
	PQL	Practical Quantitative Limit
	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 Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 04

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:48:00 AM

Lab ID: 2005203-008

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8082A: PCB'S							Analyst: TOM
Surr: Tetrachloro-m-xylene	52.0	16.1-131		%Rec	1	5/11/2020 6:20:41 PM	52328
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	5/8/2020 1:04:36 PM	52322
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	5/8/2020 1:04:36 PM	52322
Surr: DNOP	114	55.1-146		%Rec	1	5/8/2020 1:04:36 PM	52322
EPA METHOD 8310: PAHS							Analyst: TOM
Naphthalene	ND	0.24		mg/Kg	1	5/18/2020 5:45:25 PM	52466
1-Methylnaphthalene	ND	0.24		mg/Kg	1	5/18/2020 5:45:25 PM	52466
2-Methylnaphthalene	ND	0.24		mg/Kg	1	5/18/2020 5:45:25 PM	52466
Acenaphthylene	ND	0.24		mg/Kg	1	5/18/2020 5:45:25 PM	52466
Acenaphthene	ND	0.24		mg/Kg	1	5/18/2020 5:45:25 PM	52466
Fluorene	ND	0.029		mg/Kg	1	5/18/2020 5:45:25 PM	52466
Phenanthrene	ND	0.015		mg/Kg	1	5/18/2020 5:45:25 PM	52466
Anthracene	ND	0.015		mg/Kg	1	5/18/2020 5:45:25 PM	52466
Fluoranthene	ND	0.029		mg/Kg	1	5/18/2020 5:45:25 PM	52466
Pyrene	ND	0.029		mg/Kg	1	5/18/2020 5:45:25 PM	52466
Benz(a)anthracene	ND	0.0098		mg/Kg	1	5/18/2020 5:45:25 PM	52466
Chrysene	ND	0.024		mg/Kg	1	5/18/2020 5:45:25 PM	52466
Benzo(b)fluoranthene	ND	0.029		mg/Kg	1	5/18/2020 5:45:25 PM	52466
Benzo(k)fluoranthene	ND	0.029		mg/Kg	1	5/18/2020 5:45:25 PM	52466
Benzo(a)pyrene	ND	0.020		mg/Kg	1	5/18/2020 5:45:25 PM	52466
Dibenz(a,h)anthracene	ND	0.015		mg/Kg	1	5/18/2020 5:45:25 PM	52466
Benzo(g,h,i)perylene	ND	0.024		mg/Kg	1	5/18/2020 5:45:25 PM	52466
Indeno(1,2,3-cd)pyrene	ND	0.015		mg/Kg	1	5/18/2020 5:45:25 PM	52466
Surr: Benzo(e)pyrene	58.6	29-98.8		%Rec	1	5/18/2020 5:45:25 PM	52466
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Benzene	ND	0.025		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Toluene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Ethylbenzene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Methyl tert-butyl ether (MTBE)	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
1,2,4-Trimethylbenzene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
1,3,5-Trimethylbenzene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
1,2-Dichloroethane (EDC)	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
1,2-Dibromoethane (EDB)	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Naphthalene	ND	0.099		mg/Kg	1	5/8/2020 2:20:04 AM	52316
1-Methylnaphthalene	ND	0.20		mg/Kg	1	5/8/2020 2:20:04 AM	52316
2-Methylnaphthalene	ND	0.20		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Acetone	ND	0.74		mg/Kg	1	5/8/2020 2:20:04 AM	52316

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
	PQL	Practical Quantitative Limit
	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 Limit

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 04

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:48:00 AM

Lab ID: 2005203-008

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
Bromobenzene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Bromodichloromethane	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Bromoform	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Bromomethane	ND	0.15		mg/Kg	1	5/8/2020 2:20:04 AM	52316
2-Butanone	ND	0.49		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Carbon disulfide	ND	0.49		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Carbon tetrachloride	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Chlorobenzene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Chloroethane	ND	0.099		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Chloroform	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Chloromethane	ND	0.15		mg/Kg	1	5/8/2020 2:20:04 AM	52316
2-Chlorotoluene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
4-Chlorotoluene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
cis-1,2-DCE	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
cis-1,3-Dichloropropene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
1,2-Dibromo-3-chloropropane	ND	0.099		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Dibromochloromethane	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Dibromomethane	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
1,2-Dichlorobenzene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
1,3-Dichlorobenzene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
1,4-Dichlorobenzene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Dichlorodifluoromethane	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
1,1-Dichloroethane	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
1,1-Dichloroethene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
1,2-Dichloropropane	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
1,3-Dichloropropane	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
2,2-Dichloropropane	ND	0.099		mg/Kg	1	5/8/2020 2:20:04 AM	52316
1,1-Dichloropropene	ND	0.099		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Hexachlorobutadiene	ND	0.099		mg/Kg	1	5/8/2020 2:20:04 AM	52316
2-Hexanone	ND	0.49		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Isopropylbenzene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
4-Isopropyltoluene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
4-Methyl-2-pentanone	ND	0.49		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Methylene chloride	ND	0.15		mg/Kg	1	5/8/2020 2:20:04 AM	52316
n-Butylbenzene	ND	0.15		mg/Kg	1	5/8/2020 2:20:04 AM	52316
n-Propylbenzene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
sec-Butylbenzene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Styrene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
tert-Butylbenzene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316

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
	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
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

Hall Environmental Analysis Laboratory, Inc.

Analytical Report

Lab Order 2005203

Date Reported: 6/12/2020

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 04

Project: 2020 Bisti Landfarm

Collection Date: 5/5/2020 11:48:00 AM

Lab ID: 2005203-008

Matrix: SOIL

Received Date: 5/6/2020 8:14:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8260B: VOLATILES							Analyst: JMR
1,1,1,2-Tetrachloroethane	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
1,1,2,2-Tetrachloroethane	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Tetrachloroethene (PCE)	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
trans-1,2-DCE	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
trans-1,3-Dichloropropene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
1,2,3-Trichlorobenzene	ND	0.099		mg/Kg	1	5/8/2020 2:20:04 AM	52316
1,2,4-Trichlorobenzene	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
1,1,1-Trichloroethane	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
1,1,2-Trichloroethane	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Trichloroethene (TCE)	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Trichlorofluoromethane	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
1,2,3-Trichloropropane	ND	0.099		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Vinyl chloride	ND	0.049		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Xylenes, Total	ND	0.099		mg/Kg	1	5/8/2020 2:20:04 AM	52316
Surr: Dibromofluoromethane	104	70-130		%Rec	1	5/8/2020 2:20:04 AM	52316
Surr: 1,2-Dichloroethane-d4	90.6	70-130		%Rec	1	5/8/2020 2:20:04 AM	52316
Surr: Toluene-d8	98.9	70-130		%Rec	1	5/8/2020 2:20:04 AM	52316
Surr: 4-Bromofluorobenzene	94.4	70-130		%Rec	1	5/8/2020 2:20:04 AM	52316
SM4500H+B/EPA 9040C							Analyst: JRR
pH	8.59			pH Units	1	5/8/2020 8:06:00 AM	R68742

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
	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
	ND	Not Detected at the Reporting Limit	P	Sample pH Not In Range
	PQL	Practical Quantitative Limit	RL	Reporting Limit
	S	% Recovery outside of range due to dilution or matrix		

May 18, 2020

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1216570
Samples Received: 05/07/2020
Project Number:
Description:

Report To:

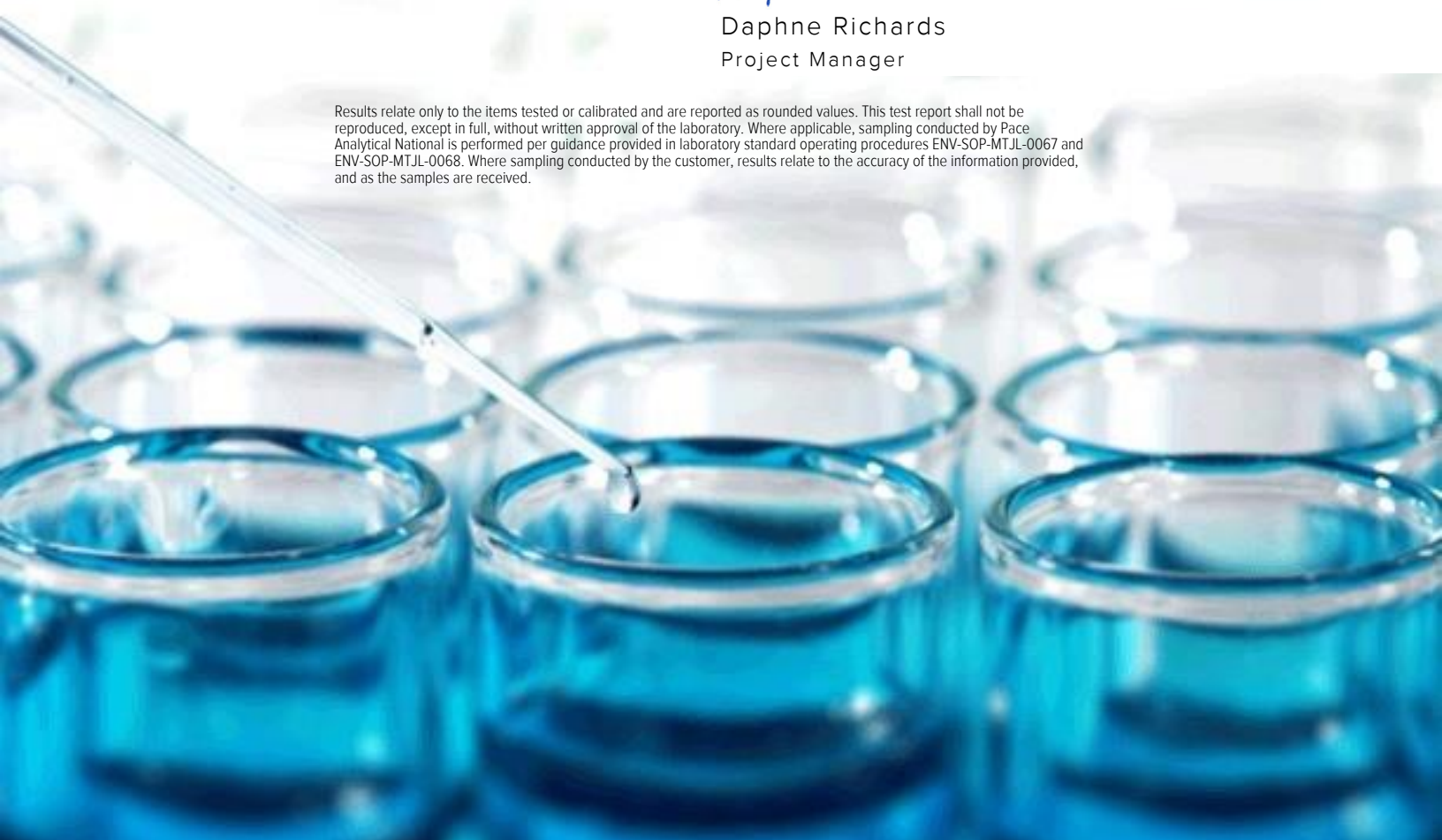
4901 Hawkins NE
Albuquerque, NM 87109

Entire Report Reviewed By:



Daphne Richards
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

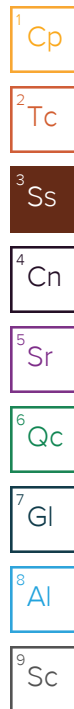




Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	5	
Sr: Sample Results	6	³ Ss
2005203-001B CRUDE 01 L1216570-01	6	
2005203-002B CRUDE 02 L1216570-02	7	⁴ Cn
2005203-003B CRUDE 03 L1216570-03	8	⁵ Sr
2005203-004B CRUDE 04 L1216570-04	9	
2005203-005B API 01 L1216570-05	10	⁶ Qc
2005203-006B API 02 L1216570-06	11	
2005203-007B API 03 L1216570-07	12	⁷ Gl
2005203-008B API 04 L1216570-08	13	⁸ Al
Qc: Quality Control Summary	14	
Wet Chemistry by Method 9012B	14	⁹ Sc
Wet Chemistry by Method 9066	15	
Gl: Glossary of Terms	18	
Al: Accreditations & Locations	19	
Sc: Sample Chain of Custody	20	



2005203-001B CRUDE 01 L1216570-01 Solid				Collected by	Collected date/time	Received date/time
					05/05/20 11:30	05/07/20 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9012B	WG1476829	1	05/16/20 01:21	05/16/20 11:36	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9066	WG1474906	1	05/13/20 10:00	05/13/20 23:41	JER	Mt. Juliet, TN
2005203-002B CRUDE 02 L1216570-02 Solid				Collected by	Collected date/time	Received date/time
					05/05/20 12:00	05/07/20 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9012B	WG1476829	1	05/16/20 01:21	05/16/20 11:39	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9066	WG1474906	1	05/13/20 10:00	05/13/20 23:42	JER	Mt. Juliet, TN
2005203-003B CRUDE 03 L1216570-03 Solid				Collected by	Collected date/time	Received date/time
					05/05/20 10:45	05/07/20 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9012B	WG1476829	1	05/16/20 01:21	05/16/20 11:51	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9066	WG1474906	1	05/13/20 10:00	05/13/20 23:42	JER	Mt. Juliet, TN
2005203-004B CRUDE 04 L1216570-04 Solid				Collected by	Collected date/time	Received date/time
					05/05/20 11:00	05/07/20 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9012B	WG1476829	1	05/16/20 01:21	05/16/20 11:53	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9066	WG1473939	1	05/11/20 11:00	05/11/20 18:20	JER	Mt. Juliet, TN
2005203-005B API 01 L1216570-05 Solid				Collected by	Collected date/time	Received date/time
					05/05/20 11:12	05/07/20 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9012B	WG1476829	1	05/16/20 01:21	05/16/20 11:54	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9066	WG1473939	1	05/11/20 11:00	05/11/20 18:21	JER	Mt. Juliet, TN
2005203-006B API 02 L1216570-06 Solid				Collected by	Collected date/time	Received date/time
					05/05/20 11:16	05/07/20 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9012B	WG1476829	1	05/16/20 01:21	05/16/20 11:55	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9066	WG1473939	1	05/11/20 11:00	05/11/20 18:24	JER	Mt. Juliet, TN
2005203-007B API 03 L1216570-07 Solid				Collected by	Collected date/time	Received date/time
					05/05/20 11:39	05/07/20 08:45
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9012B	WG1476829	1	05/16/20 01:21	05/16/20 11:56	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9066	WG1473939	1	05/11/20 11:00	05/11/20 18:24	JER	Mt. Juliet, TN



2005203-008B API 04 L1216570-08 Solid

	Collected by			Collected date/time	Received date/time	
				05/05/20 11:48	05/07/20 08:45	
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9012B	WG1476829	1	05/16/20 01:21	05/16/20 11:57	SDL	Mt. Juliet, TN
Wet Chemistry by Method 9066	WG1474906	1	05/13/20 10:00	05/13/20 23:47	JER	Mt. Juliet, TN

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Daphne Richards
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Cyanide	ND		0.250	1	05/16/2020 11:36	WG1476829

¹ Cp

² Tc

Wet Chemistry by Method 9066

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Total Phenol by 4AAP	ND		0.670	1	05/13/2020 23:41	WG1474906

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Cyanide	ND		0.250	1	05/16/2020 11:39	WG1476829

¹ Cp

² Tc

Wet Chemistry by Method 9066

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Total Phenol by 4AAP	ND		0.670	1	05/13/2020 23:42	WG1474906

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Cyanide	ND		0.250	1	05/16/2020 11:51	WG1476829

¹ Cp

² Tc

Wet Chemistry by Method 9066

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Total Phenol by 4AAP	ND		0.670	1	05/13/2020 23:42	WG1474906

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Cyanide	ND		0.250	1	05/16/2020 11:53	WG1476829

¹ Cp

² Tc

Wet Chemistry by Method 9066

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Total Phenol by 4AAP	ND	J4	0.670	1	05/11/2020 18:20	WG1473939

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	05/16/2020 11:54	WG1476829

¹ Cp

² Tc

Wet Chemistry by Method 9066

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Phenol by 4AAP	ND	<u>J4</u>	0.670	1	05/11/2020 18:21	WG1473939

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	05/16/2020 11:55	WG1476829

¹ Cp

² Tc

Wet Chemistry by Method 9066

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Phenol by 4AAP	ND	<u>J4</u>	0.670	1	05/11/2020 18:24	WG1473939

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Cyanide	ND		0.250	1	05/16/2020 11:56	WG1476829

¹ Cp

² Tc

Wet Chemistry by Method 9066

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Phenol by 4AAP	ND	<u>J4</u>	0.670	1	05/11/2020 18:24	WG1473939

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Wet Chemistry by Method 9012B

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Cyanide	ND		0.250	1	05/16/2020 11:57	WG1476829

¹ Cp

² Tc

Wet Chemistry by Method 9066

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	mg/kg		mg/kg		date / time	
Total Phenol by 4AAP	ND		0.670	1	05/13/2020 23:47	WG1474906

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Method Blank (MB)

(MB) R3528591-1 05/16/20 11:30

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Cyanide	U		0.0733	0.250

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L1216478-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1216478-01 05/16/20 11:34 • (DUP) R3528591-2 05/16/20 11:35

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Cyanide	0.817	0.993	1	19.4		20

L1216570-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1216570-03 05/16/20 11:51 • (DUP) R3528591-5 05/16/20 11:52

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Cyanide	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3528591-8 05/16/20 12:26

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Cyanide	2.50	2.71	108	85.0-115	

L1216570-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1216570-01 05/16/20 11:36 • (MS) R3528591-3 05/16/20 11:37 • (MSD) R3528591-4 05/16/20 11:38

	Spike Amount	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	%	%		%			%	%
Cyanide	1.67	ND	1.38	1.65	82.6	98.8	1	75.0-125			17.9	20

L1216570-08 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1216570-08 05/16/20 11:57 • (MS) R3528591-6 05/16/20 11:58 • (MSD) R3528591-7 05/16/20 11:59

	Spike Amount	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	%	%		%			%	%
Cyanide	1.67	ND	1.64	1.57	98.5	94.3	1	75.0-125			4.40	20

Method Blank (MB)

(MB) R3526729-1 05/11/20 18:05

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Total Phenol by 4AAP	2.72		0.220	0.670

Laboratory Control Sample (LCS)

(LCS) R3526729-2 05/11/20 18:05

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Phenol by 4AAP	8.33	10.1	122	90.0-110	<u>J4</u>

1Cp

2Tc

3Ss

4Cn

5Sr

6Qc

7Gl

8Al

9Sc



Method Blank (MB)

(MB) R3528007-1 05/13/20 23:30

	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg		mg/kg	mg/kg
Total Phenol by 4AAP	U		0.220	0.670

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

L1216570-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1216570-03 05/13/20 23:42 • (DUP) R3528007-4 05/13/20 23:43

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Total Phenol by 4AAP	ND	ND	1	0.000		20

L1216570-08 Original Sample (OS) • Duplicate (DUP)

(OS) L1216570-08 05/13/20 23:47 • (DUP) R3528007-7 05/13/20 23:48

	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Analyte	mg/kg	mg/kg		%		%
Total Phenol by 4AAP	ND	ND	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3528007-2 05/13/20 23:31

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Total Phenol by 4AAP	8.33	7.37	88.4	72.1-129	

Laboratory Control Sample (LCS)

(LCS) R3528007-3 05/13/20 23:38

	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Total Phenol by 4AAP	8.33	7.28	87.4	72.1-129	

L1216570-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1216570-03 05/13/20 23:42 • (MS) R3528007-5 05/13/20 23:45 • (MSD) R3528007-6 05/13/20 23:46

	Spike Amount	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	%	%		%			%	%
Total Phenol by 4AAP	16.7	ND	15.1	15.1	90.5	90.7	1	15.4-151			0.198	20



L1216570-08 Original Sample (OS) • Matrix Spike (MS)

(OS) L1216570-08 05/13/20 23:47 • (MS) R3528007-8 05/13/20 23:49

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	<u>MS Qualifier</u>
Total Phenol by 4AAP	16.7	ND	15.6	93.1	1	15.4-151	

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J4	The associated batch QC was outside the established quality control range for accuracy.
----	---

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 Gi

8 Ai

9 Sc



Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana ¹	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

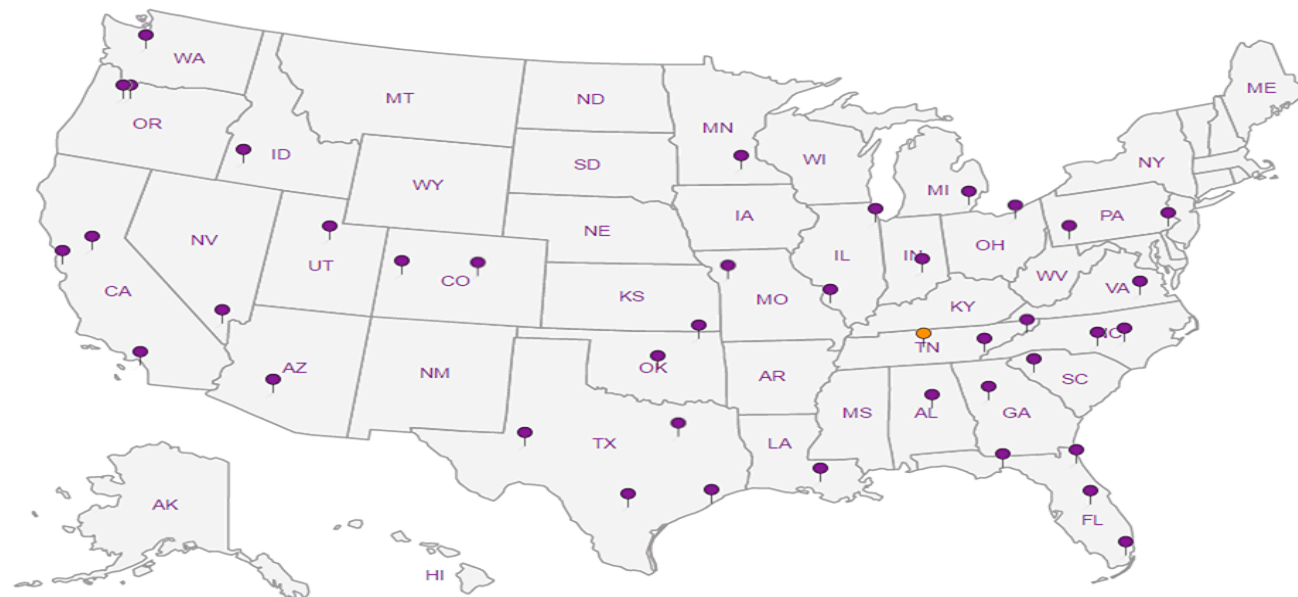
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

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

SUB CONTRACTOR: Pace TN		COMPANY: PACE TN		PHONE: (800) 767-5859		FAX: (615) 758-5859	
ADDRESS: 12065 Lebanon Rd				ACCOUNT #:		EMAIL:	
CITY, STATE, ZIP: Mt. Juliet, TN 37122							

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2005203-001B	Crude 01	ziploc	Soil	5/5/2020 11:30:00 AM	1	Alkalinity, Total Cyanide, Ra 226/228 1216576 - 01
2	2005203-002B	Crude 02	ziploc	Soil	5/5/2020 12:00:00 PM	1	Alkalinity, Total Cyanide, Ra 226/228 02
3	2005203-003B	Crude 03	ziploc	Soil	5/5/2020 10:45:00 AM	1	Alkalinity, Total Cyanide, Ra 226/228 03
4	2005203-004B	Crude 04	ziploc	Soil	5/5/2020 11:00:00 AM	1	Alkalinity, Total Cyanide, Ra 226/228 04
5	2005203-005B	API 01	ziploc	Soil	5/5/2020 11:12:00 AM	1	Alkalinity, Total Cyanide, Ra 226/228 05
6	2005203-006B	API 02	ziploc	Soil	5/5/2020 11:16:00 AM	1	Alkalinity, Total Cyanide, Ra 226/228 06
7	2005203-007B	API 03	ziploc	Soil	5/5/2020 11:39:00 AM	1	Alkalinity, Total Cyanide, Ra 226/228 07
8	2005203-008B	API 04	ziploc	Soil	5/5/2020 11:48:00 AM	1	Alkalinity, Total Cyanide, Ra 226/228 08

MPB
4.8 to 25.1
RAD SCREEN: <0.5 mR/hr

B230

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By: 	Date: 5/6/2020	Time: 9:46 AM	Received By: 	Date: 5/6/2020	Time: 1:00 PM
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:

TAT: Standard ☒ RUSH ☐		Next BD ☐ 2nd BD ☐ 3rd BD ☐	
---	--	--	--

REPORT TRANSMITTAL DESIRED:			
☐ HARDCOPY (extra cost)	☐ FAX	☐ EMAIL	☐ ONLINE
FOR LAB USE ONLY			
Temp of samples _____ °C		Attempt to Cool ? _____	
Comments: _____			

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client: <u>HALLENVANM</u>	1216570	
Cooler Received/Opened On: 5 / 7 / 20	Temperature: (-)	
Received By: Tanner Windham		
Signature: <u>TANNER WINDHAM</u>		
Receipt Check List	NP	Yes
COC Seal Present / Intact?	/	
COC Signed / Accurate?		/
Bottles arrive intact?		/
Correct bottles used?		/
Sufficient volume sent?		/
If Applicable		
VOA Zero headspace?		
Preservation Correct / Checked?		

June 02, 2020

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc

Hall Environmental Analysis Laboratory

Sample Delivery Group: L1216571
Samples Received: 05/07/2020
Project Number:
Description:

Report To:

Entire Report Reviewed By:



John Hawkins
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



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Cn: Case Narrative	4
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2005203-005B API 01 L1216571-05	9
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2005203-001B CRUDE 01 L1216571-01 Solids and Chemical Materials

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)	WG1479575	1	05/12/20 08:30	06/02/20 10:33	DME	Mt. Juliet, TN

Collected by

Collected date/time

Received date/time

05/05/20 11:30

05/07/20 08:45

¹Cp

2005203-002B CRUDE 02 L1216571-02 Solids and Chemical Materials

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)	WG1479575	1	05/12/20 08:30	06/02/20 11:00	DME	Mt. Juliet, TN

Collected by

Collected date/time

Received date/time

05/05/20 12:00

05/07/20 08:45

²Tc³Ss⁴Cn⁵Sr⁶Qc

2005203-003B CRUDE 03 L1216571-03 Solids and Chemical Materials

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)	WG1479575	1	05/12/20 08:30	06/02/20 09:10	DME	Mt. Juliet, TN

Collected by

Collected date/time

Received date/time

05/05/20 10:45

05/07/20 08:45

⁷Gl⁸Al

2005203-004B CRUDE 04 L1216571-04 Solids and Chemical Materials

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)	WG1479575	1	05/12/20 08:30	06/02/20 10:15	DME	Mt. Juliet, TN

Collected by

Collected date/time

Received date/time

05/05/20 11:00

05/07/20 08:45

⁹Sc

2005203-005B API 01 L1216571-05 Solids and Chemical Materials

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)	WG1479575	1	05/12/20 08:30	06/02/20 11:25	DME	Mt. Juliet, TN

Collected by

Collected date/time

Received date/time

05/05/20 11:12

05/07/20 08:45

2005203-006B API 02 L1216571-06 Solids and Chemical Materials

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)	WG1479575	1	05/12/20 08:30	06/02/20 11:35	DME	Mt. Juliet, TN

Collected by

Collected date/time

Received date/time

05/05/20 11:16

05/07/20 08:45

2005203-007B API 03 L1216571-07 Solids and Chemical Materials

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)	WG1479575	1	05/12/20 08:30	06/02/20 11:45	DME	Mt. Juliet, TN

Collected by

Collected date/time

Received date/time

05/05/20 11:39

05/07/20 08:45

2005203-008B API 04 L1216571-08 Solids and Chemical Materials

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)	WG1479575	1	05/12/20 08:30	06/02/20 12:13	DME	Mt. Juliet, TN

Collected by

Collected date/time

Received date/time

05/05/20 11:48

05/07/20 08:45



All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All radiochemical sample results for solids are reported on a dry weight basis with the exception of tritium, carbon-14 and radon, unless wet weight was requested by the client. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

John Hawkins
Project Manager

¹ Cp

² Tc

³ Ss

⁴ Cn

⁵ Sr

⁶ Qc

⁷ Gl

⁸ Al

⁹ Sc



Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/g		+ / -	pCi/g	date / time	
Actinium-228 (Ra-228)	0.510		0.136	0.212	06/02/2020 10:33	WG1479575
Bismuth-214 (Ra-226)	0.464		0.0981	0.109	06/02/2020 10:33	WG1479575

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/g		+ / -	pCi/g	date / time	
Actinium-228 (Ra-228)	0.493		0.167	0.277	06/02/2020 11:00	WG1479575
Bismuth-214 (Ra-226)	0.455		0.108	0.13	06/02/2020 11:00	WG1479575

1

Cp

2

Tc

3

Ss

4

Cn

5

Sr

6

Qc

7

Gl

8

Al

9

Sc

Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/g		+ / -	pCi/g	date / time	
Actinium-228 (Ra-228)	0.666		0.186	0.294	06/02/2020 09:10	WG1479575
Bismuth-214 (Ra-226)	0.549		0.125	0.168	06/02/2020 09:10	WG1479575

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/g		+ / -	pCi/g	date / time	
Actinium-228 (Ra-228)	0.622		0.167	0.268	06/02/2020 10:15	WG1479575
Bismuth-214 (Ra-226)	0.898		0.142	0.155	06/02/2020 10:15	WG1479575

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/g		+ / -	pCi/g	date / time	
Actinium-228 (Ra-228)	0.646		0.298	0.531	06/02/2020 11:25	WG1479575
Bismuth-214 (Ra-226)	0.512		0.191	0.288	06/02/2020 11:25	WG1479575

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/g		+ / -	pCi/g	date / time	
Actinium-228 (Ra-228)	0.590		0.178	0.287	06/02/2020 11:35	WG1479575
Bismuth-214 (Ra-226)	0.584		0.127	0.143	06/02/2020 11:35	WG1479575

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)

Analyte	Result	Qualifier	Uncertainty	MDA	Analysis Date	Batch
	pCi/g		+ / -	pCi/g	date / time	
Actinium-228 (Ra-228)	0.501		0.135	0.212	06/02/2020 11:45	WG1479575
Bismuth-214 (Ra-226)	0.446		0.103	0.13	06/02/2020 11:45	WG1479575

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc

Radiochemistry by Method DOE Ga-01-R/901.1 (21 day)

Analyte	Result pCi/g	Qualifier	Uncertainty + / -	MDA pCi/g	Analysis Date date / time	Batch
Actinium-228 (Ra-228)	0.645		0.210	0.353	06/02/2020 12:13	WG1479575
Bismuth-214 (Ra-226)	0.563		0.142	0.186	06/02/2020 12:13	WG1479575

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Method Blank (MB)

(MB) R3532736-4 05/28/20 14:44

Analyte	MB Result pCi/g	MB Qualifier	MB MDA pCi/g
Actinium-228 (Ra-228)	-0.000556		0.411
Americium-241	-0.0440		0.151
Bismuth-214 (Ra-226)	0.238		0.217
Cesium-137	-0.0281		0.129
Cobalt-60	0.00582		0.142

Original Sample (OS) • Duplicate (DUP)

(OS) • (DUP) R3532736-3 05/28/20 14:42

Analyte	Original Result pCi/g	DUP Result pCi/g	Dilution	DUP RPD %	DUP RER	DUP Qualifier	DUP RPD Limits %	DUP RER Limit
Actinium-228 (Ra-228)	0.532		1	62.1	1.33		20	3
Bismuth-214 (Ra-226)	0.960		1	31.4	1.02		20	3

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

(LCS) R3532736-1 05/28/20 10:43 • (LCSD) R3532736-2 05/28/20 11:14

Analyte	Spike Amount pCi/g	LCS Result pCi/g	LCSD Result pCi/g	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Americium-241	47.3	45.2	43.7	95.5	92.3	80.0-120			3.38	20
Cesium-137	72.4	79.8	72.6	110	100	80.0-120			9.56	20
Cobalt-60	86.9	92.8	82.5	107	94.9	80.0-120			11.8	20

¹Cp

²Tc

³Ss

⁴Cn

⁵Sr

⁶Qc

⁷Gl

⁸Al

⁹Sc



Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

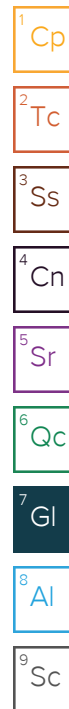
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDA	Minimum Detectable Activity.
Rec.	Recovery.
RER	Replicate Error Ratio.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

The remainder of this page intentionally left blank, there are no qualifiers applied to this SDG.





Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico ¹	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1 6}	90010	South Carolina	84004
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1 4}	2006
Louisiana ¹	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas ⁵	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

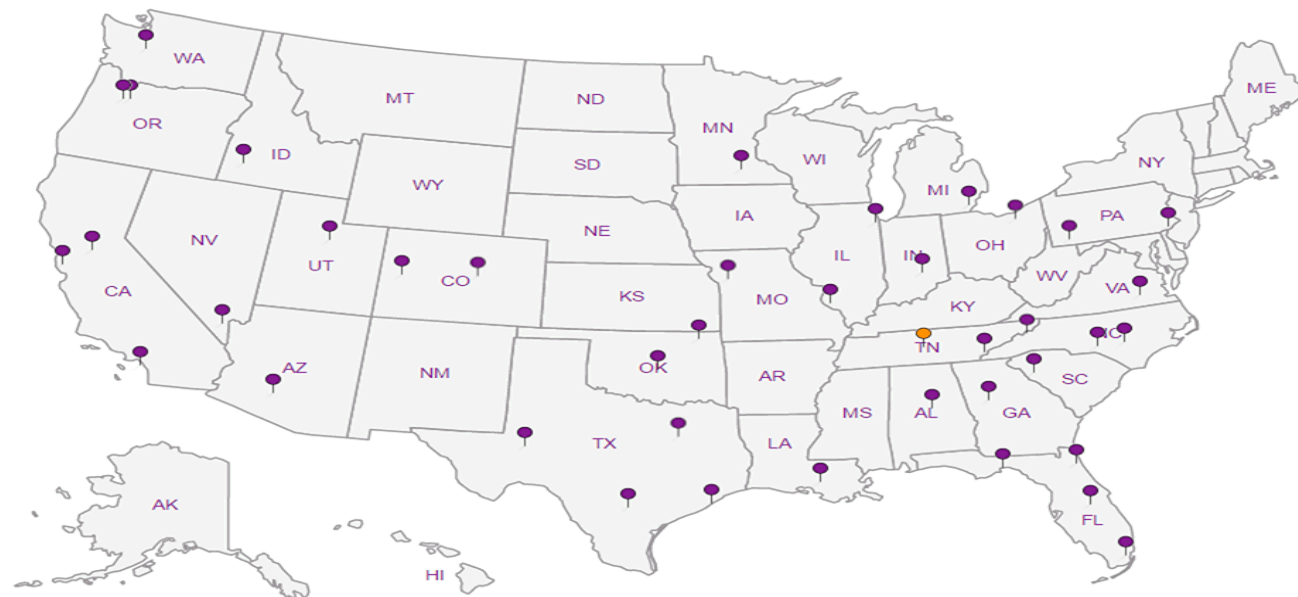
Third Party Federal Accreditations

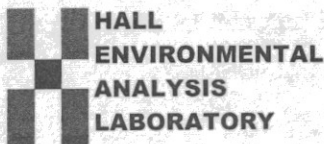
A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.





CHAIN OF CUSTODY RECORD

PAGE: 1 OF: 1

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

SUB CONTRACTOR: Pace TN		COMPANY: PACE TN		PHONE: (800) 767-5859		FAX: (615) 758-5859	
ADDRESS: 12065 Lebanon Rd				ACCOUNT #:		EMAIL:	
CITY, STATE, ZIP: Mt. Juliet, TN 37122							
ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2005203-001B	Crude 01	ziploc	Soil	5/5/2020 11:30:00 AM	1	Alkalinity, Total Cyanide, Ra 226/228 1216571 - 01
2	2005203-002B	Crude 02	ziploc	Soil	5/5/2020 12:00:00 PM	1	Alkalinity, Total Cyanide, Ra 226/228 02
3	2005203-003B	Crude 03	ziploc	Soil	5/5/2020 10:45:00 AM	1	Alkalinity, Total Cyanide, Ra 226/228 03
4	2005203-004B	Crude 04	ziploc	Soil	5/5/2020 11:00:00 AM	1	Alkalinity, Total Cyanide, Ra 226/228 04
5	2005203-005B	API 01	ziploc	Soil	5/5/2020 11:12:00 AM	1	Alkalinity, Total Cyanide, Ra 226/228 05
6	2005203-006B	API 02	ziploc	Soil	5/5/2020 11:16:00 AM	1	Alkalinity, Total Cyanide, Ra 226/228 06
7	2005203-007B	API 03	ziploc	Soil	5/5/2020 11:39:00 AM	1	Alkalinity, Total Cyanide, Ra 226/228 07
8	2005203-008B	API 04	ziploc	Soil	5/5/2020 11:48:00 AM	1	Alkalinity, Total Cyanide, Ra 226/228 08

MP AB
4.8-13.5-1
RAD SCREEN: <0.5 mR/hr

B230

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports. Please e-mail results to lab@hallenvironmental.com. Please return all coolers and blue ice. Thank you.

Relinquished By:	Date: 5/6/2020	Time: 9:46 AM	Received By:	Date: 5/6/2020	Time: 01:15
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
Relinquished By:	Date:	Time:	Received By:	Date:	Time:
TAT: Standard ☒ RUSH ☐ Next BD ☐ 2nd BD ☐ 3rd BD ☐					
REPORT TRANSMITTAL DESIRED: ☐ HARDCOPY (extra cost) ☐ FAX ☐ EMAIL ☐ ONLINE					
FOR LAB USE ONLY					
Temp of samples _____ °C Attempt to Cool? _____					
Comments: _____					

Pace Analytical National Center for Testing & Innovation
Cooler Receipt Form

Client: <i>HALLENVANM</i>		<i>1216571</i>	
Cooler Received/Opened On: <i>5 / 7 / 20</i>		Temperature: <i>5</i>	
Received By: <i>Tanner Windham</i>			
Signature: <i>TANNER WINDHAM</i>			
Receipt Check List	NP	Yes	No
COC Seal Present / Intact?	<i>/</i>		
COC Signed / Accurate?		<i>/</i>	
Bottles arrive intact?		<i>/</i>	
Correct bottles used?		<i>/</i>	
Sufficient volume sent?		<i>/</i>	
If Applicable			
VOA Zero headspace?			
Preservation Correct / Checked?			



ANALYTICAL SUMMARY REPORT

June 12, 2020

Hall Environmental

4901 Hawkins St NE Ste D
Albuquerque, NM 87109-4372

Work Order: B20060714

Project Name: Not Indicated

Energy Laboratories Inc Billings MT received the following 8 samples for Hall Environmental on 6/9/2020 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B20060714-001	2005203-001C, Crude	05/05/20 11:30	06/09/20	Soil	Alkalinity, Water Extractable DI Water Soil Extract ASA10-3
B20060714-002	2005203-002C, Crude	05/05/20 12:00	06/09/20	Soil	Same As Above
B20060714-003	2005203-003C, Crude	05/05/20 10:45	06/09/20	Soil	Same As Above
B20060714-004	2005203-004C, Crude	05/05/20 11:00	06/09/20	Soil	Same As Above
B20060714-005	2005203-005C, API 01	05/05/20 11:12	06/09/20	Soil	Same As Above
B20060714-006	2005203-006C, API 02	05/05/20 11:16	06/09/20	Soil	Same As Above
B20060714-007	2005203-007C, API 03	05/05/20 11:39	06/09/20	Soil	Same As Above
B20060714-008	2005203-008C, API 04	05/05/20 11:48	06/09/20	Soil	Same As Above

The analyses presented in this report were performed by Energy Laboratories, Inc., 1120 S 27th St., Billings, MT 59101, unless otherwise noted. Any exceptions or problems with the analyses are noted in the Laboratory Analytical Report, the QA/QC Summary Report, or the Case Narrative. Any issues encountered during sample receipt are documented in the Work Order Receipt Checklist.

The results as reported relate only to the item(s) submitted for testing. This report shall be used or copied only in its entirety. Energy Laboratories, Inc. is not responsible for the consequences arising from the use of a partial report.

If you have any questions regarding these test results, please contact your Project Manager.

Report Approved By:



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B20060714-001
Client Sample ID: 2005203-001C, Crude 01

Report Date: 06/12/20
Collection Date: 05/05/20 11:30
Date Received: 06/09/20
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
WATER EXTRACTABLE CONSTITUENTS							
Alkalinity, 1:2	148	mg/kg		4		ASA10-3	06/11/20 09:38 / gie

Report Definitions: RL - Analyte Reporting Limit
QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B20060714-002
Client Sample ID: 2005203-002C, Crude 02

Report Date: 06/12/20
Collection Date: 05/05/20 12:00
Date Received: 06/09/20
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
WATER EXTRACTABLE CONSTITUENTS							
Alkalinity, 1:2	94	mg/kg		4		ASA10-3	06/11/20 09:46 / gie

Report Definitions: RL - Analyte Reporting Limit
QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B20060714-003
Client Sample ID: 2005203-003C, Crude 03

Report Date: 06/12/20
Collection Date: 05/05/20 10:45
DateReceived: 06/09/20
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
WATER EXTRACTABLE CONSTITUENTS							
Alkalinity, 1:2	63	mg/kg		4		ASA10-3	06/11/20 09:55 / gie

Report Definitions: RL - Analyte Reporting Limit
QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B20060714-004
Client Sample ID: 2005203-004C, Crude 04

Report Date: 06/12/20
Collection Date: 05/05/20 11:00
Date Received: 06/09/20
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
WATER EXTRACTABLE CONSTITUENTS							
Alkalinity, 1:2	98	mg/kg		4		ASA10-3	06/11/20 10:00 / gie

Report Definitions: RL - Analyte Reporting Limit
QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B20060714-005
Client Sample ID: 2005203-005C, API 01

Report Date: 06/12/20
Collection Date: 05/05/20 11:12
DateReceived: 06/09/20
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
WATER EXTRACTABLE CONSTITUENTS							
Alkalinity, 1:2	92	mg/kg		4		ASA10-3	06/11/20 10:12 / gie

Report Definitions: RL - Analyte Reporting Limit
QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B20060714-006
Client Sample ID: 2005203-006C, API 02

Report Date: 06/12/20
Collection Date: 05/05/20 11:16
Date Received: 06/09/20
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
WATER EXTRACTABLE CONSTITUENTS							
Alkalinity, 1:2	93	mg/kg		4		ASA10-3	06/11/20 10:20 / gie

Report Definitions: RL - Analyte Reporting Limit
QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B20060714-007
Client Sample ID: 2005203-007C, API 03

Report Date: 06/12/20
Collection Date: 05/05/20 11:39
DateReceived: 06/09/20
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
WATER EXTRACTABLE CONSTITUENTS							
Alkalinity, 1:2	182	mg/kg		4		ASA10-3	06/11/20 10:27 / gie

Report Definitions: RL - Analyte Reporting Limit
QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated
Lab ID: B20060714-008
Client Sample ID: 2005203-008C, API 04

Report Date: 06/12/20
Collection Date: 05/05/20 11:48
DateReceived: 06/09/20
Matrix: Soil

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
WATER EXTRACTABLE CONSTITUENTS							
Alkalinity, 1:2	90	mg/kg		4		ASA10-3	06/11/20 10:31 / gie

Report Definitions: RL - Analyte Reporting Limit
QCL - Quality Control Limit

MCL - Maximum Contaminant Level
ND - Not detected at the Reporting Limit (RL)



QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental

Work Order: B20060714

Report Date: 06/12/20

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA10-3										Batch: 145434
Lab ID: LCS-145434										Run: ORIONVERSASTARPRO_200 06/11/20 09:31
Alkalinity, 1:2		206	mg/kg	4.0	88	70	130			
Lab ID: B20060714-004A DUP										Run: ORIONVERSASTARPRO_200 06/11/20 10:06
Alkalinity, 1:2		98.2	mg/kg	4.0				0.0	30	

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



Work Order Receipt Checklist

Hall Environmental

B20060714

Login completed by: Leslie S. Cadreau

Date Received: 6/9/2020

Reviewed by: BL2000\darcy

Received by: gda

Reviewed Date: 6/12/2020

Carrier name: Return-UPS Ground

Shipping container/cooler in good condition?	Yes ☒	No ☐	Not Present ☐
Custody seals intact on all shipping container(s)/cooler(s)?	Yes ☐	No ☐	Not Present ☒
Custody seals intact on all sample bottles?	Yes ☐	No ☐	Not Present ☒
Chain of custody present?	Yes ☒	No ☐	
Chain of custody signed when relinquished and received?	Yes ☒	No ☐	
Chain of custody agrees with sample labels?	Yes ☒	No ☐	
Samples in proper container/bottle?	Yes ☒	No ☐	
Sample containers intact?	Yes ☒	No ☐	
Sufficient sample volume for indicated test?	Yes ☒	No ☐	
All samples received within holding time? (Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.)	Yes ☒	No ☐	
Temp Blank received in all shipping container(s)/cooler(s)?	Yes ☐	No ☒	Not Applicable ☐
Container/Temp Blank temperature:	19.3°C Blue Ice		
Water - VOA vials have zero headspace?	Yes ☐	No ☐	No VOA vials submitted ☒
Water - pH acceptable upon receipt?	Yes ☐	No ☐	Not Applicable ☒

Standard Reporting Procedures:

Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH, Dissolved Oxygen and Residual Chlorine, are qualified as being analyzed outside of recommended holding time.

Solid/soil samples are reported on a wet weight basis (as received) unless specifically indicated. If moisture corrected, data units are typically noted as –dry. For agricultural and mining soil parameters/characteristics, all samples are dried and ground prior to sample analysis.

Radiochemical precision results represent a 2-sigma Total Measurement Uncertainty.

Contact and Corrective Action Comments:

None



CHAIN OF CUSTODY RECORD

PAGE 1 OF 1

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

SUB CONTRACTOR		Energy Labs -Billings		COMPANY		Energy Laboratories		PHONE		FAX		(406) 252-6069	
ADDRESS		1120 South 27th Street		ACCOUNT #				EMAIL					
CITY STATE ZIP		Billings, MT 59107											
												ANALYTICAL COMMENTS	
ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS							
1	2005203-001C	Crude 01	4OZGU	Soil	5/5/2020 11:30:00 AM	1	Alkalinity RUSH ASAP						
2	2005203-002C	Crude 02	4OZGU	Soil	5/5/2020 12:00:00 PM	1	Alkalinity RUSH ASAP						
3	2005203-003C	Crude 03	4OZGU	Soil	5/5/2020 10:45:00 AM	1	Alkalinity RUSH ASAP						
4	2005203-004C	Crude 04	4OZGU	Soil	5/5/2020 11:00:00 AM	1	Alkalinity RUSH ASAP						
5	2005203-005C	API 01	4OZGU	Soil	5/5/2020 11:12:00 AM	1	Alkalinity RUSH ASAP						
6	2005203-006C	API 02	4OZGU	Soil	5/5/2020 11:16:00 AM	1	Alkalinity RUSH ASAP						
7	2005203-007C	API 03	4OZGU	Soil	5/5/2020 11:39:00 AM	1	Alkalinity RUSH ASAP						
8	2005203-008C	API 04	4OZGU	Soil	5/5/2020 11:48:00 AM	1	Alkalinity RUSH ASAP						

4 day rush per
Sanya. 6/19/2020

SPECIAL INSTRUCTIONS / COMMENTS:

Please include the LAB ID and the CLIENT SAMPLE ID on all final reports Please e-mail results to lab@hallenvironmental.com Please return all coolers and blue ice Thank you

Relinquished By	Date	Time	Received By	Date	Time	REPORT TRANSMITTAL DESIRED	HARD COPY (extra cost)	FAX	EMAIL	ONLINE
Relinquished By	6/4/2020	12:27 PM	Gabriel Aschman	6/4/2020	1:59 PM					
Relinquished By			Received By							
Relinquished By			Received By							
						FOR LAB USE ONLY				
						Temp of samples				
						Attempt to Cool ?				
						Comments				

RUSH

TAT:

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2005203

12-Jun-20

Client: Western Refining Southwest, Inc.

Project: 2020 Bisti Landfarm

Sample ID: MB-52383	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 52383	RunNo: 68806								
Prep Date: 5/11/2020	Analysis Date: 5/11/2020	SeqNo: 2381242			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								
Nitrogen, Nitrate (As N)	ND	0.30								
Sulfate	ND	1.5								

Sample ID: LCS-52383	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 52383	RunNo: 68806								
Prep Date: 5/11/2020	Analysis Date: 5/11/2020	SeqNo: 2381244			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	90.6	90	110			
Nitrogen, Nitrate (As N)	6.9	0.30	7.500	0	92.3	90	110			
Sulfate	28	1.5	30.00	0	92.2	90	110			

Sample ID: MB-52383	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 52383	RunNo: 68806								
Prep Date: 5/11/2020	Analysis Date: 5/11/2020	SeqNo: 2381275			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								
Nitrogen, Nitrate (As N)	ND	0.30								
Sulfate	ND	1.5								

Sample ID: LCS-52383	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 52383	RunNo: 68806								
Prep Date: 5/11/2020	Analysis Date: 5/11/2020	SeqNo: 2381276			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.4	0.30	1.500	0	93.7	90	110			
Chloride	14	1.5	15.00	0	90.7	90	110			
Nitrogen, Nitrate (As N)	6.9	0.30	7.500	0	92.6	90	110			
Sulfate	28	1.5	30.00	0	92.4	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
PQL Practical Quantitative Limit
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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2005203

12-Jun-20

Client: Western Refining Southwest, Inc.

Project: 2020 Bisti Landfarm

Sample ID: MB-52385	SampType: MBLK	TestCode: EPA Method 418.1: TPH
Client ID: PBS	Batch ID: 52385	RunNo: 68811
Prep Date: 5/11/2020	Analysis Date: 5/12/2020	SeqNo: 2381698 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Petroleum Hydrocarbons, TR	ND	20

Sample ID: LCS-52385	SampType: LCS	TestCode: EPA Method 418.1: TPH
Client ID: LCSS	Batch ID: 52385	RunNo: 68811
Prep Date: 5/11/2020	Analysis Date: 5/12/2020	SeqNo: 2381699 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Petroleum Hydrocarbons, TR	140	20 134.0 0 106 62.5 123

Sample ID: LCSD-52385	SampType: LCSD	TestCode: EPA Method 418.1: TPH
Client ID: LCSS02	Batch ID: 52385	RunNo: 68811
Prep Date: 5/11/2020	Analysis Date: 5/12/2020	SeqNo: 2381700 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Petroleum Hydrocarbons, TR	140	20 134.0 0 104 62.5 123 1.97 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
PQL Practical Quantitative Limit
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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2005203

12-Jun-20

Client: Western Refining Southwest, Inc.

Project: 2020 Bisti Landfarm

Sample ID: 2005203-001AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: Crude 01	Batch ID: 52322	RunNo: 68740
Prep Date: 5/7/2020	Analysis Date: 5/8/2020	SeqNo: 2378979 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Diesel Range Organics (DRO)	47	9.5 47.39 0 99.9 47.4 136
Surr: DNOP	5.0	4.739 105 55.1 146

Sample ID: 2005203-001AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: Crude 01	Batch ID: 52322	RunNo: 68740
Prep Date: 5/7/2020	Analysis Date: 5/8/2020	SeqNo: 2378980 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Diesel Range Organics (DRO)	49	9.6 48.03 0 101 47.4 136 2.56 43.4
Surr: DNOP	5.1	4.803 106 55.1 146 0 0

Sample ID: LCS-52322	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: LCSS	Batch ID: 52322	RunNo: 68740
Prep Date: 5/7/2020	Analysis Date: 5/8/2020	SeqNo: 2378988 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Diesel Range Organics (DRO)	52	10 50.00 0 105 70 130
Surr: DNOP	5.6	5.000 111 55.1 146

Sample ID: MB-52322	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: PBS	Batch ID: 52322	RunNo: 68740
Prep Date: 5/7/2020	Analysis Date: 5/8/2020	SeqNo: 2378989 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	14	10.00 141 55.1 146

Sample ID: MB-52384	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics
Client ID: PBS	Batch ID: 52384	RunNo: 68819
Prep Date: 5/11/2020	Analysis Date: 5/12/2020	SeqNo: 2381742 Units: mg/Kg
Analyte	Result	PQL SPK value SPK Ref Val %REC LowLimit HighLimit %RPD RPDLimit Qual
Diesel Range Organics (DRO)	ND	10
Motor Oil Range Organics (MRO)	ND	50
Surr: DNOP	9.2	10.00 92.2 55.1 146

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
PQL Practical Quantitative Limit
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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2005203

12-Jun-20

Client: Western Refining Southwest, Inc.

Project: 2020 Bisti Landfarm

Sample ID: LCS-52384	SampType: LCS			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: LCSS	Batch ID: 52384			RunNo: 68819						
Prep Date: 5/11/2020	Analysis Date: 5/12/2020			SeqNo: 2381743		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	91.4	70	130			
Surr: DNOP	4.1		5.000		82.3	55.1	146			

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
PQL Practical Quantitative Limit
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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2005203

12-Jun-20

Client: Western Refining Southwest, Inc.

Project: 2020 Bisti Landfarm

Sample ID: MB-52328	SampType: MBLK	TestCode: EPA Method 8082A: PCB's								
Client ID: PBS	Batch ID: 52328	RunNo: 68790								
Prep Date: 5/7/2020	Analysis Date: 5/11/2020	SeqNo: 2381072 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.025								
Aroclor 1221	ND	0.025								
Aroclor 1232	ND	0.025								
Aroclor 1242	ND	0.025								
Aroclor 1248	ND	0.025								
Aroclor 1254	ND	0.025								
Aroclor 1260	ND	0.025								
Surr: Decachlorobiphenyl	0.046		0.06250		73.2	15	129			
Surr: Tetrachloro-m-xylene	0.032		0.06250		50.4	16.1	131			

Sample ID: LCS-52328	SampType: LCS	TestCode: EPA Method 8082A: PCB's								
Client ID: LCSS	Batch ID: 52328	RunNo: 68790								
Prep Date: 5/7/2020	Analysis Date: 5/11/2020	SeqNo: 2381073 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.078	0.025	0.1250	0	62.0	25.1	122			
Aroclor 1260	0.089	0.025	0.1250	0	71.3	32.4	92.8			
Surr: Decachlorobiphenyl	0.040		0.06250		64.0	15	129			
Surr: Tetrachloro-m-xylene	0.031		0.06250		49.2	16.1	131			

Sample ID: 2005203-001AMS	SampType: MS	TestCode: EPA Method 8082A: PCB's								
Client ID: Crude 01	Batch ID: 52328	RunNo: 68790								
Prep Date: 5/7/2020	Analysis Date: 5/11/2020	SeqNo: 2381075 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.077	0.024	0.1179	0	65.5	15	157			
Aroclor 1260	0.11	0.024	0.1179	0	92.3	15	147			
Surr: Decachlorobiphenyl	0.055		0.05896		92.8	15	129			
Surr: Tetrachloro-m-xylene	0.035		0.05896		59.2	16.1	131			

Sample ID: 2005203-001AMSD	SampType: MSD	TestCode: EPA Method 8082A: PCB's								
Client ID: Crude 01	Batch ID: 52328	RunNo: 68790								
Prep Date: 5/7/2020	Analysis Date: 5/11/2020	SeqNo: 2381076 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.085	0.024	0.1222	0	69.4	15	157	9.35	49.3	
Aroclor 1260	0.11	0.024	0.1222	0	86.2	15	147	3.30	60.8	
Surr: Decachlorobiphenyl	0.054		0.06112		87.6	15	129	0	0	
Surr: Tetrachloro-m-xylene	0.033		0.06112		54.8	16.1	131	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2005203

12-Jun-20

Client: Western Refining Southwest, Inc.

Project: 2020 Bisti Landfarm

Sample ID: MB-52328		SampType: MBLK		TestCode: EPA Method 8082A: PCB's						
Client ID: PBS		Batch ID: 52328		RunNo: 68790						
Prep Date: 5/7/2020		Analysis Date: 5/11/2020		SeqNo: 2381090		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.025								
Aroclor 1221	ND	0.025								
Aroclor 1232	ND	0.025								
Aroclor 1242	ND	0.025								
Aroclor 1248	ND	0.025								
Aroclor 1254	ND	0.025								
Aroclor 1260	ND	0.025								
Surr: Decachlorobiphenyl	0.051		0.06250		81.2	15	129			
Surr: Tetrachloro-m-xylene	0.034		0.06250		54.8	16.1	131			

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
PQL Practical Quantitative Limit
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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2005203

12-Jun-20

Client: Western Refining Southwest, Inc.

Project: 2020 Bisti Landfarm

Sample ID: mb-52316	SampType: MBLK	TestCode: EPA Method 8260B: Volatiles								
Client ID: PBS	Batch ID: 52316	RunNo: 68724								
Prep Date: 5/6/2020	Analysis Date: 5/7/2020	SeqNo: 2378902	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2005203

12-Jun-20

Client: Western Refining Southwest, Inc.

Project: 2020 Bisti Landfarm

Sample ID: mb-52316	SampType: MBLK			TestCode: EPA Method 8260B: Volatiles						
Client ID: PBS	Batch ID: 52316			RunNo: 68724						
Prep Date: 5/6/2020	Analysis Date: 5/7/2020			SeqNo: 2378902		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.50		0.5000		100	70	130			
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		90.6	70	130			
Surr: Toluene-d8	0.48		0.5000		95.0	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.4	70	130			

Sample ID: lcs-52316	SampType: LCS			TestCode: EPA Method 8260B: Volatiles						
Client ID: LCSS	Batch ID: 52316			RunNo: 68724						
Prep Date: 5/6/2020	Analysis Date: 5/7/2020			SeqNo: 2378903		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.97	0.025	1.000	0	96.8	70	130			
Toluene	1.0	0.050	1.000	0	103	70	130			
Chlorobenzene	1.1	0.050	1.000	0	112	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
PQL Practical Quantitative Limit
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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2005203

12-Jun-20

Client: Western Refining Southwest, Inc.

Project: 2020 Bisti Landfarm

Sample ID: Ics-52316	SampType: LCS		TestCode: EPA Method 8260B: Volatiles							
Client ID: LCSS	Batch ID: 52316		RunNo: 68724							
Prep Date: 5/6/2020	Analysis Date: 5/7/2020		SeqNo: 2378903		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	1.1	0.050	1.000	0	107	70	130			
Trichloroethene (TCE)	0.91	0.050	1.000	0	90.6	70	130			
Surr: Dibromofluoromethane	0.51		0.5000		103	70	130			
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		90.1	70	130			
Surr: Toluene-d8	0.48		0.5000		95.6	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.4	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
PQL Practical Quantitative Limit
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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2005203

12-Jun-20

Client: Western Refining Southwest, Inc.

Project: 2020 Bisti Landfarm

Sample ID: MB-52391	SampType: MBLK	TestCode: EPA Method 8310: PAHs								
Client ID: PBS	Batch ID: 52391	RunNo: 68837								
Prep Date: 5/11/2020	Analysis Date: 5/13/2020	SeqNo: 2382960	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.25								
1-Methylnaphthalene	ND	0.25								
2-Methylnaphthalene	ND	0.25								
Acenaphthylene	ND	0.25								
Acenaphthene	ND	0.25								
Fluorene	ND	0.030								
Phenanthrene	ND	0.015								
Anthracene	ND	0.015								
Fluoranthene	ND	0.030								
Pyrene	ND	0.030								
Benz(a)anthracene	ND	0.010								
Chrysene	ND	0.025								
Benzo(b)fluoranthene	ND	0.030								
Benzo(k)fluoranthene	ND	0.030								
Benzo(a)pyrene	ND	0.020								
Dibenz(a,h)anthracene	ND	0.015								
Benzo(g,h,i)perylene	ND	0.025								
Indeno(1,2,3-cd)pyrene	ND	0.015								
Surr: Benzo(e)pyrene	0.23		0.5000		46.1	29	98.8			

Sample ID: LCS-52391	SampType: LCS	TestCode: EPA Method 8310: PAHs								
Client ID: LCSS	Batch ID: 52391	RunNo: 68837								
Prep Date: 5/11/2020	Analysis Date: 5/13/2020	SeqNo: 2382961	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	0.57	0.25	2.000	0	28.3	33	89.2			S
1-Methylnaphthalene	0.62	0.25	2.000	0	31.2	35.1	91.5			S
2-Methylnaphthalene	0.61	0.25	2.000	0	30.5	34.2	92.1			S
Acenaphthylene	0.62	0.25	2.000	0	31.1	33.8	98.7			S
Acenaphthene	0.64	0.25	2.000	0	31.8	35.5	94.1			S
Fluorene	0.062	0.030	0.2000	0	30.8	37.1	95.6			S
Phenanthrene	0.035	0.015	0.1006	0	34.8	36.4	98.6			S
Anthracene	0.035	0.015	0.1006	0	34.8	34.6	101			
Fluoranthene	0.081	0.030	0.2006	0	40.3	32.5	105			
Pyrene	0.078	0.030	0.2000	0	39.0	32.5	107			
Benz(a)anthracene	ND	0.010	0.02000	0	41.2	36.8	108			
Chrysene	0.042	0.025	0.1006	0	42.2	39.5	104			
Benzo(b)fluoranthene	ND	0.030	0.02500	0	39.0	33.2	109			
Benzo(k)fluoranthene	ND	0.030	0.01250	0	42.0	31.8	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
PQL Practical Quantitative Limit
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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2005203

12-Jun-20

Client: Western Refining Southwest, Inc.

Project: 2020 Bisti Landfarm

Sample ID: LCS-52391	SampType: LCS			TestCode: EPA Method 8310: PAHs						
Client ID: LCSS	Batch ID: 52391			RunNo: 68837						
Prep Date: 5/11/2020	Analysis Date: 5/13/2020			SeqNo: 2382961		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzo(a)pyrene	ND	0.020	0.01250	0	12.0	15	98.1			S
Dibenz(a,h)anthracene	ND	0.015	0.02500	0	45.0	33.8	112			
Benzo(g,h,i)perylene	ND	0.025	0.02500	0	40.0	30.7	110			
Indeno(1,2,3-cd)pyrene	0.021	0.015	0.05002	0	42.0	34.5	109			
Surr: Benzo(e)pyrene	0.22		0.5000		44.6	29	98.8			

Sample ID: MB-52391	SampType: MBLK			TestCode: EPA Method 8310: PAHs						
Client ID: PBS	Batch ID: 52391			RunNo: 68837						
Prep Date: 5/11/2020	Analysis Date: 5/13/2020			SeqNo: 2382985		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.25								
1-Methylnaphthalene	ND	0.25								
2-Methylnaphthalene	ND	0.25								
Acenaphthylene	ND	0.25								
Acenaphthene	ND	0.25								
Fluorene	ND	0.030								
Phenanthrene	ND	0.015								
Anthracene	ND	0.015								
Fluoranthene	ND	0.030								
Pyrene	ND	0.030								
Benz(a)anthracene	ND	0.010								
Chrysene	ND	0.025								
Benzo(b)fluoranthene	ND	0.030								
Benzo(k)fluoranthene	ND	0.030								
Benzo(a)pyrene	ND	0.020								
Dibenz(a,h)anthracene	ND	0.015								
Benzo(g,h,i)perylene	ND	0.025								
Indeno(1,2,3-cd)pyrene	ND	0.015								
Surr: Benzo(e)pyrene	0.24		0.5000		47.2	29	98.8			

Sample ID: MB-52466	SampType: MBLK			TestCode: EPA Method 8310: PAHs						
Client ID: PBS	Batch ID: 52466			RunNo: 68967						
Prep Date: 5/14/2020	Analysis Date: 5/18/2020			SeqNo: 2388226		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.25								
1-Methylnaphthalene	ND	0.25								
2-Methylnaphthalene	ND	0.25								
Acenaphthylene	ND	0.25								

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
PQL Practical Quantitative Limit
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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2005203

12-Jun-20

Client: Western Refining Southwest, Inc.

Project: 2020 Bisti Landfarm

Sample ID: MB-52466	SampType: MBLK	TestCode: EPA Method 8310: PAHs								
Client ID: PBS	Batch ID: 52466	RunNo: 68967								
Prep Date: 5/14/2020	Analysis Date: 5/18/2020	SeqNo: 2388226	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Acenaphthene	ND	0.25								
Fluorene	ND	0.030								
Phenanthrene	ND	0.015								
Anthracene	ND	0.015								
Fluoranthene	ND	0.030								
Pyrene	ND	0.030								
Benz(a)anthracene	ND	0.010								
Chrysene	ND	0.025								
Benzo(b)fluoranthene	ND	0.030								
Benzo(k)fluoranthene	ND	0.030								
Benzo(a)pyrene	ND	0.020								
Dibenz(a,h)anthracene	ND	0.015								
Benzo(g,h,i)perylene	ND	0.025								
Indeno(1,2,3-cd)pyrene	ND	0.015								
Surr: Benzo(e)pyrene	0.25		0.5000		50.1	29	98.8			

Sample ID: 2005203-004AMS	SampType: MS	TestCode: EPA Method 8310: PAHs								
Client ID: Crude 04	Batch ID: 52466	RunNo: 68967								
Prep Date: 5/14/2020	Analysis Date: 5/18/2020	SeqNo: 2388239	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	0.74	0.25	1.968	0	37.8	19	86.7			
1-Methylnaphthalene	0.77	0.25	1.968	0	39.3	15	96.5			
2-Methylnaphthalene	0.77	0.25	1.968	0	39.4	15.8	97.2			
Acenaphthylene	0.79	0.25	1.968	0	40.3	20.9	95.8			
Acenaphthene	0.81	0.25	1.968	0	41.1	15	94.3			
Fluorene	0.083	0.030	0.1968	0	42.0	20.8	93.7			
Phenanthrene	0.048	0.015	0.09897	0	48.5	23.2	94.1			
Anthracene	0.033	0.015	0.09897	0	33.8	22.7	106			
Fluoranthene	0.11	0.030	0.1973	0	56.1	26.7	99.1			
Pyrene	0.11	0.030	0.1968	0	53.4	16	111			
Benz(a)anthracene	0.011	0.0098	0.01968	0	55.0	15	121			
Chrysene	0.056	0.025	0.09897	0	56.2	15	115			
Benzo(b)fluoranthene	ND	0.030	0.02459	0	53.0	16.3	115			
Benzo(k)fluoranthene	ND	0.030	0.01230	0	54.0	19.2	107			
Benzo(a)pyrene	ND	0.020	0.01230	0	48.0	15	112			
Dibenz(a,h)anthracene	ND	0.015	0.02459	0	56.0	27.4	103			
Benzo(g,h,i)perylene	ND	0.025	0.02459	0	53.0	15	115			
Indeno(1,2,3-cd)pyrene	0.026	0.015	0.04921	0	52.5	15	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
PQL Practical Quantitative Limit
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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2005203

12-Jun-20

Client: Western Refining Southwest, Inc.

Project: 2020 Bisti Landfarm

Sample ID: 2005203-004AMS		SampType: MS		TestCode: EPA Method 8310: PAHs						
Client ID: Crude 04		Batch ID: 52466		RunNo: 68967						
Prep Date: 5/14/2020		Analysis Date: 5/18/2020		SeqNo: 2388239		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: Benzo(e)pyrene	0.28		0.4919		57.6	29	98.8			

Sample ID: 2005203-004AMSD		SampType: MSD		TestCode: EPA Method 8310: PAHs						
Client ID: Crude 04		Batch ID: 52466		RunNo: 68967						
Prep Date: 5/14/2020		Analysis Date: 5/18/2020		SeqNo: 2388240		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	0.69	0.25	1.999	0	34.4	19	86.7	7.63	61.3	
1-Methylnaphthalene	0.72	0.25	1.999	0	36.1	15	96.5	6.90	56.7	
2-Methylnaphthalene	0.72	0.25	1.999	0	35.8	15.8	97.2	7.83	66.9	
Acenaphthylene	0.73	0.25	1.999	0	36.4	20.9	95.8	8.52	66.3	
Acenaphthene	0.74	0.25	1.999	0	37.1	15	94.3	8.65	63.9	
Fluorene	0.073	0.030	0.1999	0	36.8	20.8	93.7	11.8	59.8	
Phenanthrene	0.046	0.015	0.1005	0	45.7	23.2	94.1	4.22	66.9	
Anthracene	0.041	0.015	0.1005	0	41.0	22.7	106	20.8	55.1	
Fluoranthene	0.10	0.030	0.2005	0	52.3	26.7	99.1	5.31	42.1	
Pyrene	0.097	0.030	0.1999	0	48.8	16	111	7.47	49.5	
Benz(a)anthracene	0.011	0.010	0.01999	0	55.0	15	121	1.59	57.4	
Chrysene	0.055	0.025	0.1005	0	55.2	15	115	0.199	57.8	
Benzo(b)fluoranthene	ND	0.030	0.02499	0	49.0	16.3	115	0	56.5	
Benzo(k)fluoranthene	ND	0.030	0.01249	0	52.0	19.2	107	0	47.8	
Benzo(a)pyrene	ND	0.020	0.01249	0	46.0	15	112	0	53.2	
Dibenz(a,h)anthracene	ND	0.015	0.02499	0	56.0	27.4	103	0	48.2	
Benzo(g,h,i)perylene	ND	0.025	0.02499	0	54.0	15	115	0	56.4	
Indeno(1,2,3-cd)pyrene	0.028	0.015	0.05000	0	56.0	15	113	8.04	44.6	
Surr: Benzo(e)pyrene	0.28		0.4998		56.4	29	98.8	0	20	

Sample ID: LCS-52466		SampType: LCS		TestCode: EPA Method 8310: PAHs						
Client ID: LCSS		Batch ID: 52466			RunNo: 68967					
Prep Date: 5/14/2020		Analysis Date: 5/18/2020			SeqNo: 2388304		Units: mg/Kg			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	0.75	0.25	2.000	0	37.7	33	89.2			
1-Methylnaphthalene	0.80	0.25	2.000	0	40.1	35.1	91.5			
2-Methylnaphthalene	0.80	0.25	2.000	0	39.9	34.2	92.1			
Acenaphthylene	0.81	0.25	2.000	0	40.3	33.8	98.7			
Acenaphthene	0.83	0.25	2.000	0	41.6	35.5	94.1			
Fluorene	0.083	0.030	0.2000	0	41.6	37.1	95.6			
Phenanthrene	0.045	0.015	0.1006	0	44.7	36.4	98.6			
Anthracene	0.045	0.015	0.1006	0	44.7	34.6	101			

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
PQL Practical Quantitative Limit
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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2005203

12-Jun-20

Client: Western Refining Southwest, Inc.

Project: 2020 Bisti Landfarm

Sample ID: LCS-52466	SampType: LCS		TestCode: EPA Method 8310: PAHs							
Client ID: LCSS	Batch ID: 52466		RunNo: 68967							
Prep Date: 5/14/2020	Analysis Date: 5/18/2020		SeqNo: 2388304		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoranthene	0.10	0.030	0.2006	0	51.1	32.5	105			
Pyrene	0.10	0.030	0.2000	0	49.9	32.5	107			
Benz(a)anthracene	0.011	0.010	0.02000	0	52.5	36.8	108			
Chrysene	0.052	0.025	0.1006	0	51.9	39.5	104			
Benzo(b)fluoranthene	ND	0.030	0.02500	0	48.0	33.2	109			
Benzo(k)fluoranthene	0.0065	0	0.01250	0	52.0	31.8	113			
Benzo(a)pyrene	0.0019	0	0.01250	0	15.0	15	98.1			
Dibenz(a,h)anthracene	ND	0.015	0.02500	0	51.0	33.8	112			
Benzo(g,h,i)perylene	0.012	0	0.02500	0	46.0	30.7	110			
Indeno(1,2,3-cd)pyrene	0.026	0.015	0.05002	0	51.0	34.5	109			
Surr: Benzo(e)pyrene	0.29		0.5000		58.3	29	98.8			

Sample ID: MB-52466	SampType: MBLK		TestCode: EPA Method 8310: PAHs							
Client ID: PBS	Batch ID: 52466		RunNo: 68967							
Prep Date: 5/14/2020	Analysis Date: 5/18/2020		SeqNo: 2388309		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.25								
1-Methylnaphthalene	ND	0.25								
2-Methylnaphthalene	ND	0.25								
Acenaphthylene	ND	0.25								
Acenaphthene	ND	0.25								
Fluorene	ND	0.030								
Phenanthrene	ND	0.015								
Anthracene	ND	0.015								
Fluoranthene	ND	0.030								
Pyrene	ND	0.030								
Benz(a)anthracene	ND	0.010								
Chrysene	ND	0.025								
Benzo(b)fluoranthene	ND	0.030								
Benzo(k)fluoranthene	ND	0.030								
Benzo(a)pyrene	ND	0.020								
Dibenz(a,h)anthracene	ND	0.015								
Benzo(g,h,i)perylene	ND	0.025								
Indeno(1,2,3-cd)pyrene	ND	0.015								
Surr: Benzo(e)pyrene	0.24		0.5000		48.6	29	98.8			

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
PQL Practical Quantitative Limit
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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2005203

12-Jun-20

Client: Western Refining Southwest, Inc.

Project: 2020 Bisti Landfarm

Sample ID: MB-52412	SampType: MBLK		TestCode: EPA Method 7471: Mercury							
Client ID: PBS	Batch ID: 52412		RunNo: 68831							
Prep Date: 5/12/2020	Analysis Date: 5/13/2020		SeqNo: 2382080		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID: LL LCS-52412	SampType: LCSLL		TestCode: EPA Method 7471: Mercury							
Client ID: BatchQC	Batch ID: 52412		RunNo: 68831							
Prep Date: 5/12/2020	Analysis Date: 5/13/2020		SeqNo: 2382081		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033	0.006660	0	103	70	130			

Sample ID: LCS-52412	SampType: LCS		TestCode: EPA Method 7471: Mercury							
Client ID: LCSS	Batch ID: 52412		RunNo: 68831							
Prep Date: 5/12/2020	Analysis Date: 5/13/2020		SeqNo: 2382082		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.16	0.033	0.1667	0	97.6	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
PQL Practical Quantitative Limit
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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2005203

12-Jun-20

Client: Western Refining Southwest, Inc.

Project: 2020 Bisti Landfarm

Sample ID: LCS-52393	SampType: LCS		TestCode: EPA Method 6010B: Soil Metals							
Client ID: LCSS	Batch ID: 52393		RunNo: 68815							
Prep Date: 5/11/2020	Analysis Date: 5/12/2020		SeqNo: 2381555		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	23	2.5	25.00	0	93.3	80	120			
Barium	24	0.10	25.00	0	96.5	80	120			
Cadmium	24	0.10	25.00	0	95.4	80	120			
Calcium	2700	25	2500	0	107	80	120			B
Chromium	24	0.30	25.00	0	96.1	80	120			
Iron	26	2.5	25.00	0	105	80	120			
Lead	24	0.30	25.00	0	96.5	80	120			
Magnesium	2600	25	2500	0	103	80	120			
Manganese	24	0.20	25.00	0	95.6	80	120			
Potassium	2500	50	2500	0	101	80	120			
Selenium	24	2.5	25.00	0	95.8	80	120			
Silver	4.6	0.25	5.000	0	91.7	80	120			
Sodium	2500	25	2500	0	100	80	120			
Zinc	24	2.5	25.00	0	97.2	80	120			

Sample ID: MB-52393	SampType: MBLK		TestCode: EPA Method 6010B: Soil Metals							
Client ID: PBS	Batch ID: 52393		RunNo: 68815							
Prep Date: 5/11/2020	Analysis Date: 5/12/2020		SeqNo: 2381563		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								
Barium	ND	0.10								
Cadmium	ND	0.10								
Calcium	29	25								
Chromium	ND	0.30								
Iron	ND	2.5								
Lead	ND	0.30								
Magnesium	ND	25								
Manganese	ND	0.20								
Potassium	ND	50								
Selenium	ND	2.5								
Silver	ND	0.25								
Sodium	ND	25								
Zinc	ND	2.5								

Sample ID: MB-52393	SampType: MBLK		TestCode: EPA Method 6010B: Soil Metals							
Client ID: PBS	Batch ID: 52393		RunNo: 68815							
Prep Date: 5/11/2020	Analysis Date: 5/12/2020		SeqNo: 2381718		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
PQL Practical Quantitative Limit
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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2005203

12-Jun-20

Client: Western Refining Southwest, Inc.

Project: 2020 Bisti Landfarm

Sample ID: MB-52393	SampType: MBLK	TestCode: EPA Method 6010B: Soil Metals								
Client ID: PBS	Batch ID: 52393	RunNo: 68815								
Prep Date: 5/11/2020	Analysis Date: 5/12/2020	SeqNo: 2381718 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	ND	5.0								

Sample ID: LCS-52393	SampType: LCS	TestCode: EPA Method 6010B: Soil Metals								
Client ID: LCSS	Batch ID: 52393	RunNo: 68815								
Prep Date: 5/11/2020	Analysis Date: 5/12/2020	SeqNo: 2381719 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Uranium	27	5.0	25.00	0	109	80	120			

Sample ID: LCS-52488	SampType: LCS	TestCode: EPA Method 6010B: Soil Metals								
Client ID: LCSS	Batch ID: 52488	RunNo: 68977								
Prep Date: 5/15/2020	Analysis Date: 5/18/2020	SeqNo: 2387741 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	28	0.40	25.00	0	111	80	120			

Sample ID: 2005203-005AMS	SampType: MS	TestCode: EPA Method 6010B: Soil Metals								
Client ID: API 01	Batch ID: 52488	RunNo: 68977								
Prep Date: 5/15/2020	Analysis Date: 5/18/2020	SeqNo: 2387748 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	18	0.81	25.29	1.490	66.2	75	125			S

Sample ID: 2005203-005AMSD	SampType: MSD	TestCode: EPA Method 6010B: Soil Metals								
Client ID: API 01	Batch ID: 52488	RunNo: 68977								
Prep Date: 5/15/2020	Analysis Date: 5/18/2020	SeqNo: 2387749 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	22	0.82	25.50	1.490	79.7	75	125	17.8	20	

Sample ID: MB-52488	SampType: MBLK	TestCode: EPA Method 6010B: Soil Metals								
Client ID: PBS	Batch ID: 52488	RunNo: 68977								
Prep Date: 5/15/2020	Analysis Date: 5/18/2020	SeqNo: 2387753 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Copper	ND	0.40								

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
PQL Practical Quantitative Limit
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 Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2005203

12-Jun-20

Client: Western Refining Southwest, Inc.

Project: 2020 Bisti Landfarm

Sample ID: mb-52316	SampType: MBLK				TestCode: EPA Method 8015D Mod: Gasoline Range					
Client ID: PBS	Batch ID: 52316				RunNo: 68724					
Prep Date: 5/6/2020	Analysis Date: 5/7/2020				SeqNo: 2378920	Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	480		500.0		95.6	70	130			

Sample ID: lcs-52316	SampType: LCS				TestCode: EPA Method 8015D Mod: Gasoline Range					
Client ID: LCSS	Batch ID: 52316				RunNo: 68724					
Prep Date: 5/6/2020	Analysis Date: 5/7/2020				SeqNo: 2378921	Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	87.7	70	130			
Surr: BFB	490		500.0		97.7	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
PQL Practical Quantitative Limit
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 Limit

Sample Log-In Check List

Client Name: **Western Refining Southw**

Work Order Number: **2005203**

RcptNo: 1

Received By: **Emily Mocho** 5/6/2020 8:14:00 AM

Completed By: **Desiree Dominguez** 5/6/2020 8:36:22 AM

Reviewed By: **DAD 5/6/20**

DP

Chain of Custody

1. Is Chain of Custody sufficiently complete? Yes ☒ No ☐ Not Present ☐
2. How was the sample delivered? Courier

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of >0° C to 6.0°C Yes ☒ No ☐ NA ☐
5. Sample(s) in proper container(s)? Yes ☒ No ☐
6. Sufficient sample volume for indicated test(s)? Yes ☒ No ☐
7. Are samples (except VOA and ONG) properly preserved? Yes ☒ No ☐
8. Was preservative added to bottles? Yes ☐ No ☒ NA ☐
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes ☐ No ☐ NA ☒
10. Were any sample containers received broken? Yes ☐ No ☒
11. Does paperwork match bottle labels?
(Note discrepancies on chain of custody) Yes ☒ No ☐
12. Are matrices correctly identified on Chain of Custody? Yes ☒ No ☐
13. Is it clear what analyses were requested? Yes ☒ No ☐
14. Were all holding times able to be met?
(If no, notify customer for authorization.) Yes ☒ No ☐

of preserved bottles checked for pH: 50
5/6/20
(<2 or >12 unless noted)
Adjusted? _____
Checked by: _____

Special Handling (if applicable)

15. 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: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	3.3	Good	Yes			

[illegible]

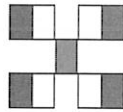
Turn-Around Time:			
☒ Standard ☐ Rush			
Project Name:			
2020 Bisti Landfarm			
Project #:			
02952002			
Project Manager:			
Stuart Hyde			
Sampler: CM, TS			
On Ice:		☒ Yes ☐ No	
# of Coolers: 1			
Cooler Temp (including CF): $3.3 \pm 0 = 3.3^{\circ}\text{C}$			
Container Type and #	Preservative Type	HEAL No.	
2 4oz jars	cool	2005203	
1 bag		-001	
		-002	
		-003	
		-004	
		-005	
		-006	
		-007	
		-008	
Received by:		Via:	Date
Chantel			5/5/20
9km			1342
Received by:		Via:	Date
courier			5/6/20
			8:14

Chain-of-Custody Record			
Client: <u>Western Refining</u>			
Greg McCartney			
Mailing Address: <u>539 S. Main St. Room M-708</u>			
<u>Findlay, OH 45840</u>			
Phone #: <u>419.421.2338</u>			
email or Fax#: <u>gjmccartney@marathon</u>			
QA/QC Package: <u>Petroleum.com</u>			
☒ Standard ☐ Level 4 (Full Validation)			
Accreditation: ☐ Az Compliance ☐ NELAC ☐ Other _____			
☒ EDD (Type) <u>PDF</u>			
Date	Time	Matrix	Sample Name
5-5-20	1130	Soil	Crude 01
↓	1200	↓	Crude 02
↓	1045	↓	Crude 03
↓	1100	↓	Crude 04
↓	1112	↓	API 01
↓	1116	↓	API 02
↓	1139	↓	API 03
↓	1148	↓	API 04
Date: <u>5-5-20</u>	Time: <u>1342</u>	Relinquished by: <u>Carlton M...</u>	
Date: <u>5/5/2020</u>	Time: <u>1747</u>	Relinquished by: <u>Christy White</u>	

Turn-Around Time:			
☒ Standard ☐ Rush			
Project Name:			
2020 Bisti Landfarm			
Project #:			
02952002			
Project Manager:			
Stuart Hyde			
Sampler: CM, TS			
On Ice:		☒ Yes ☐ No	
# of Coolers: 1			
Cooler Temp (including CF): $3.3 \pm 0 = 3.3^{\circ}\text{C}$			
Container Type and #	Preservative Type	HEAL No.	
2 4oz jars	cool	2005203	
1 bag		-001	
		-002	
		-003	
		-004	
		-005	
		-006	
		-007	
		-008	
Received by:		Via:	Date
Chantel			5/5/20
9km			1342
Received by:		Via:	Date
courier			5/6/20
			8:14

Chain-of-Custody Record			
Client: <u>Western Refining</u>			
Greg McCartney			
Mailing Address: <u>539 S. Main St. Room M-708</u>			
<u>Findlay, OH 45840</u>			
Phone #: <u>419.421.2338</u>			
email or Fax#: <u>gjmccartney@marathon</u>			
QA/QC Package: <u>Petroleum.com</u>			
☒ Standard ☐ Level 4 (Full Validation)			
Accreditation: ☐ Az Compliance ☐ NELAC ☐ Other _____			
☒ EDD (Type) <u>PDF</u>			
Date	Time	Matrix	Sample Name
5-5-20	1130	Soil	Crude 01
↓	1200	↓	Crude 02
↓	1045	↓	Crude 03
↓	1100	↓	Crude 04
↓	1112	↓	API 01
↓	1116	↓	API 02
↓	1139	↓	API 03
↓	1148	↓	API 04
Date: <u>5-5-20</u>	Time: <u>1342</u>	Relinquished by: <u>Carlton M...</u>	
Date: <u>5/5/2020</u>	Time: <u>1747</u>	Relinquished by: <u>Christy White</u>	

10. *Journal of the American Medical Association*, 2000; 283: 2689-2693.



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

[illegible]

Remarks: cc: Shyde@itenv.com *call w/
cmginn@itenv.com questions
tsnort@itenv.com
Bill to: 4500183750

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 1
BACKGROUND SOIL LABORATORY ANALYTICAL RESULTS

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

For Analysis
↓

PGL's
↓

ANALYTE	UNITS	BACKGROUND SAMPLE	BACKGROUND SAMPLE
		27-Mar-98	1-Sept-15
BTEX Compounds by EPA Method 8260B			
Benzene	mg/kg	<0.05	<0.048
Toluene	mg/kg	<0.05	<0.048
Ethylbenzene	mg/kg	<0.05	<0.048
Xylenes, Total	mg/kg	<0.05	<0.048
Petroleum Hydrocarbons by EPA Method 8015M/D			
Gasoline Range Organics (GRO)	mg/kg	NA	<4.8
Diesel Range Organics (DRO)	mg/kg	<50	<9.9
Motor Oil Range Organics (MRO)	mg/kg	NA	<50
Total Petroleum Hydrocarbons by EPA Method 418.1			
TPH (418.1)	mg/kg	NA	<20
Volatile Organic Compounds by EPA Method 8260B			
benzene	mg/kg	NA	<0.048
toluene	mg/kg	NA	<0.048
ethylbenzene	mg/kg	NA	<0.048
methyl tert-butyl ether (MTBE)	mg/kg	NA	<0.048
1,2-dichloroethane (EDC)	mg/kg	NA	<0.048
1,2-dibromoethane (EDB)	mg/kg	NA	<0.048
naphthalene	mg/kg	NA	<0.095
1-methylnaphthalene	mg/kg	NA	<0.19
2-methylnaphthalene	mg/kg	NA	<0.19
bromodichloromethane	mg/kg	NA	<0.048
bromoform (tribromomethane)	mg/kg	NA	<0.048
bromomethane	mg/kg	NA	<0.14
carbon tetrachloride (tetrachloromethane)	mg/kg	NA	<0.048
chlorobenzene (monochlorobenzene)	mg/kg	NA	<0.048
chloroform (trichloromethane)	mg/kg	NA	<0.048
chloromethane	mg/kg	NA	<0.14
cis-1,2-dichloroethene (cis-1,2-DCE)	mg/kg	NA	<0.048
cis-1,3-dichloropropene	mg/kg	NA	<0.048
1,2-dichlorobenzene	mg/kg	NA	<0.048
1,4-dichlorobenzene	mg/kg	NA	<0.048
dichlorodifluoromethane	mg/kg	NA	<0.048

ANALYTE	UNITS	BACKGROUND SAMPLE	BACKGROUND SAMPLE
		27-Mar-98	1-Sept-15
1,1-dichloroethane	mg/kg	NA	<0.048
1,1-dichloroethene	mg/kg	NA	<0.048
1,2-dichloropropane	mg/kg	NA	<0.048
1,1-dichloropropene	mg/kg	NA	<0.095
hexachlorobutadiene	mg/kg	NA	<0.095
methylene chloride (dichloromethane)	mg/kg	NA	<0.14
styrene	mg/kg	NA	<0.048
1,1,2,2-tetrachloroethane	mg/kg	NA	<0.048
tetrachloroethene (PCE)	mg/kg	NA	<0.048
trans-1,2-dichloroethene (trans-1,2-DCE)	mg/kg	NA	<0.048
trans-1,3-dichloropropene	mg/kg	NA	<0.048
1,2,4-trichlorobenzene	mg/kg	NA	<0.048
1,1,1-trichloroethane	mg/kg	NA	<0.048
1,1,2-trichloroethane	mg/kg	NA	<0.048
trichloroethene (TCE)	mg/kg	NA	<0.048
trichlorofluoromethane	mg/kg	NA	<0.048
vinyl chloride (chloroethene)	mg/kg	NA	<0.048
xylene, total	mg/kg	NA	<0.095
Polycyclic Aromatic Hydrocarbons by EPA Method 8270			
Naphthalene	mg/kg	NA	<0.25
1-Methylnaphthalene	mg/kg	NA	<0.25
2-Methylnaphthalene	mg/kg	NA	<0.25
Benzo(a)pyrene	mg/kg	NA	<0.0099
Total Phenol by Method 9066	mg/kg	NA	<0.67
Metals by EPA Method 6010/6020			
Arsenic	mg/kg	2.8	NA
Barium	mg/kg	180	NA
Cadmium	mg/kg	<1.3	NA
Calcium	mg/kg	2,500	NA
Chromium	mg/kg	<5.0	NA
Copper	mg/kg	NA	3.2
Iron	mg/kg	NA	7200
Lead	mg/kg	6.8	NA
Magnesium	mg/kg	1,300	NA
Manganese	mg/kg	NA	150
Mercury	mg/kg	<0.5	NA
Potassium	mg/kg	810	NA
Selenium	mg/kg	<2.5	NA
Silver	mg/kg	<1.3	NA

Table 1_Background Samples.xlsx 5/1/2020

ANALYTE	UNITS	BACKGROUND SAMPLE	BACKGROUND SAMPLE
		27-Mar-98	1-Sept-15
Uranium	mg/kg	NA	<4.9
Zinc	mg/kg	NA	14
Polychlorinated Biphenyls by EPA Method 8082			
Aroclor 1016	mg/kg	NA	<0.020
Aroclor 1221	mg/kg	NA	<0.020
Aroclor 1232	mg/kg	NA	<0.020
Aroclor 1242	mg/kg	NA	<0.020
Aroclor 1248	mg/kg	NA	<0.020
Aroclor 1254	mg/kg	NA	<0.020
Aroclor 1260	mg/kg	NA	<0.020
Cyanide by Method 9012B	mg/kg	NA	<0.25
Anions by EPA Method 300.0			
Chloride	mg/kg	<50	NA
Fluoride	mg/kg	NA	0.84
Nitrogen, Nitrate (As N)	mg/kg	NA	<0.30
pH by Method SM4500-H+B	pH units	NA	7.89
Radiochemistry by EPA Method 901.1			
Radium-226	pCi/g	NA	0.737 +/- 0.242
Radium-228	pCi/g	NA	0.806 +/- 0.338
General Chemistry			
Bicarbonate	mg/kg	110	NA
Carbonate	mg/kg	26	NA
Sodium	mg/kg	90	NA
Sulfate	mg/kg	140	NA

Notes:

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

NA - not analyzed

Where two results are listed, the background will be considered the lower of the two.