



April 8, 2021

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

**Subject: Western Refining Southwest, LLC - Bisti Landfarm
2020 Annual Compliance Monitoring Report
NMOCD Rule 711 Permit Number: NM-02-0010
San Juan County, New Mexico**

Dear Mr. McCartney:

WSP USA Inc. (WSP, formerly LT Environmental, Inc.), on behalf of Western Refining Southwest, LLC (Western), has prepared this report detailing compliance soil sampling completed from January 2020 through December 2020 to monitor soil remediation at the Bisti Landfarm (Site), permit number NM-02-0010, in San Juan County, New Mexico.

SITE DESCRIPTION AND HISTORY

The Site occupies approximately 28 acres in Section 16, Township 25 North, Range 12 West in San Juan County, New Mexico (Figure 1). It is located on a 640-acre parcel of land which is privately owned by Western Refining Southwest, Inc. In 1998, Giant Industries, Arizona (Giant) permitted the Site as a surface waste management facility through the New Mexico Oil Conservation District (NMOCD) under former Rule 711. Petroleum hydrocarbon impacted soil was originally disposed at the Site in three treatment cells based on the origin of the soil: the API Cell, Crude Cell, and Cell 1. The Crude Cell is further divided into four source zones containing material originating from Pettigrew, East Line, Bisti, and West Line. No new cells or lifts had been added to the landfarm since 2004, prior to Western's purchase of the property. Cell 1 is no longer tilled or monitored based on a letter dated March 8, 2004, from the NMOCD to Giant stating Cell 1 was approved for discontinued maintenance.

In 2007, the NMOCD promulgated a new rule, 19.15.36 of the New Mexico Administrative Code (NMAC, also referred to as Rule 36) pertaining to surface waste management facilities and required compliance with the new transitional provisions. Western acquired the Site from Giant in June 2007. Western has continued to monitor and maintain the API Cell and the Crude Cell using the Rule 711 and provisional requirements of Rule 36. Total petroleum hydrocarbons (TPH) and chloride have historically been detected in vadose zone soils at concentrations determined to be a "release" as defined in Rule 36. After discussions with the NMOCD, Western submitted a Form C-141 Release Notification on July 6, 2020. The Form C-141 was submitted for the release reported in March 2020, as well as historical releases identified at the Site between 2015 and 2020. Western initiated a subsurface investigation to delineate the chloride and TPH based on 19.15.29 NMAC (Part 29).

DELINEATION AND SITE CHARACTERIZATION ACTIVITIES

In an effort to address all potential releases under Part 29, Western conducted drilling activities in the summer of 2020 to vertically and laterally delineate soil impacts at the Site. Delineation activities performed at the Site are summarized in the LT Environmental, Inc. *Site Characterization Report and Variance Request*, dated October 2020. Based on the site characterization information presented in the site characterization report, groundwater was determined to be present at depths greater than 100 feet and no sensitive receptors are present within the radii presented in 19.15.29.11 NMAC. As such, *Table 1 Closure Criteria for Soils Impacted by a Release* (Table 1 of 19.15.29.12[E] NMAC) for sites with groundwater greater than 100 feet below ground surface (bgs) are applicable at the Site: TPH of 2,500 milligrams per kilogram (mg/kg) and chloride of 20,000 mg/kg. These closure criteria are specific to soils at depths greater than 4 feet bgs.



In addition, and according to 19.15.29.13(D) NMAC, reclamation of areas no longer in use must contain a minimum of 4 feet of non-waste containing, uncontaminated, earthen material. This is defined in Part 29 as soil containing less than 600 mg/kg of chloride. There is no specific reference to TPH in the reclamation requirements. However, the NMOCD letter titled *Procedures for Implementation of the Spill Rule* (dated September 6, 2019), interprets uncontaminated material to include TPH concentrations less than 100 mg/kg. These criteria are specific to soils located from ground surface to a depth of 4 feet bgs.

Site characterization activities were successful in delineating chloride and TPH concentrations based on the above Part 29 closure criteria. Analytical results indicated that there were no exceedances of NMOCD Table 1 Closure Criteria (19.15.29.12[E] NMAC) of chloride or TPH in soils greater than 4 feet bgs. However, chloride concentrations exceeded the Reclamation Standard of 600 mg/kg in the top 4 feet of soil in areas within the API Cell and Pettigrew source area of the Crude Cell (Figure 3). TPH also exceeded the Reclamation Standard of 100 mg/kg in the top 4 feet of soil in areas within the East Line and West Line source areas of the Crude Cell (Figure 4).

COMPLIANCE SAMPLING SCOPE OF WORK AND METHODOLOGY

The scope of work for this report consisted of soil sampling that included semi-annual treatment zone and vadose zone sampling, as required by Rule 36 for operation of a landfarm, as well as quarterly and annual vadose zone sampling required by the original Rule 711 permit. Soil sampling was conducted to monitor the natural attenuation of contaminants of concern in the treatment zone and to monitor potential migration of contaminants of concern into the vadose zone.

All samples collected were placed on ice and sealed in a cooler for delivery to Hall Environmental Analysis Laboratory, Inc. (HEAL) in Albuquerque, New Mexico, for analysis. Soil samples were labeled with the date and time of collection, sample name, sample collector's name, and parameters to be analyzed. Strict chain-of-custody protocol was documented, including the date and time sampled, sample number, type of sample, sample collector's name and signature, preservative used, and analyses required. A summary of field activities, laboratory analytical soil sampling results, and conclusions are presented in the subsequent sections of this report.

SEMI-ANNUAL TREATMENT ZONE MONITORING

Semi-annual composite samples were collected on March 9 and July 8, 2020, from treatment zone soils in the API and Crude cells. These sampling events fulfill the semi-annual requirements of Rule 36 for treatment zone sampling. Four soil aliquots from discrete locations within each treatment cell were collected from approximately 6 inches bgs and composited into a 1-gallon plastic bag. The soil within the bag was thoroughly homogenized before filling clean glass sampling jars provided by the laboratory. The API Cell treatment zone samples included four discrete sample aliquots. The Crude Cell treatment zone samples included four discrete aliquots: one sample each from the Pettigrew, Bisti, West Line, and East Line source areas (Figure 5). Treatment zone samples were analyzed for TPH by United States Environmental Protection Agency (EPA) Method 418.1, and for TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO), and chloride by EPA Method 300.0.

QUARTERLY AND SEMI-ANNUAL VADOSE ZONE MONITORING

Discrete vadose zone samples were collected quarterly on March 9, May 5, July 8, and November 16, 2020, from the two active cells (API and Crude Cells) to fulfill requirements for Rule 711 quarterly sampling. Samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Method 8021B, and TPH-GRO and TPH-DRO by EPA Method 8015M. Vadose zone soils from the API and Crude Cells were also sampled in March and July 2020 and analyzed for BTEX by EPA Method 8021B, DRO and GRO as combined fraction (DRO+GRO) by EPA Method 8015M, TPH by EPA Method 418.1, and chloride by EPA Method 300.0 to fulfill requirements for Rule 36 semi-annual sampling. All vadose zone soil samples were collected from 3 to 4 feet below the original ground surface and boreholes were filled with hydrated bentonite from total depth to existing ground surface upon completion.

The number of vadose zone samples collected within each cell was dependent on the size of the cell. Four discrete samples were collected from the API Cell vadose zone soils. In addition, four discrete soil samples were collected



from the Crude Cell, with one discrete sample collected from each source area of the cell: East Line, West Line, Pettigrew, and Bisti source areas. Figure 6 depicts all vadose zone soil sample locations.

ANNUAL VADOSE ZONE MONITORING

To address annual sampling requirements in the original Rule 711 permit, vadose zone soil samples were collected from the API Cell and each source area of the Crude Cell (East Line, West Line, Bisti, and Pettigrew). Samples were collected on March 9, 2020, and were analyzed for major anions/cations (alkalinity, bicarbonate, carbonate, sulfate, chloride, calcium, manganese, potassium, and sodium) by EPA Method 300.0, 6010B, and ASA10-3 and metals (arsenic, barium, cadmium, chromium, lead, mercury, selenium, and silver) by EPA Method 6010B and EPA Method 7471.

COMPLIANCE SAMPLING ANALYTICAL RESULTS

Analytical results from the 2020 sampling events are discussed below.

SEMI-ANNUAL TREATMENT ZONE ANALYTICAL RESULTS

Table 1 presents the analytical results from the treatment zone monitoring events conducted in March and July 2020, which are compared with the Treatment Zone Closure Performance Standards defined in Rule 36. Concentrations of TPH and chloride did not exceed Treatment Zone Closure Performance Standards. The complete laboratory analytical reports are presented in Enclosure A.

QUARTERLY AND SEMI-ANNUAL VADOSE ZONE ANALYTICAL RESULTS

The laboratory analytical results for BTEX, TPH-GRO, and TPH-DRO from quarterly vadose zone soil samples were compared with the laboratory practical quantitation limit (PQL) and/or background sample results are presented in Table 2. TPH-DRO exceeded the PQL in several samples collected from the West Line and East Line source areas of the Crude Cell. TPH-DRO was not detected above the laboratory PQL in any other source areas and/or cells during quarterly monitoring. TPH-GRO and BTEX concentrations were not detected above the laboratory PQL in any quarterly vadose zone monitoring samples.

The laboratory analytical results for BTEX, DRO+GRO, TPH, and chloride from semi-annual vadose zone soil samples compared with the laboratory practical quantitation limit (PQL) and/or background sample results are presented in Table 3. TPH and DRO+GRO as a combined fraction exceeded the PQL in several samples collected from the West Line and East Line source areas of the Crude Cell. These constituents were not detected in any of the other source areas and/or cells during semi-annual monitoring. Chloride exceeded background concentrations and the PQL in four of the API Vadose Zone samples and in the Pettigrew Vadose Zone sample collected on March 9, 2020. Chloride also exceeded the background concentration in one API Vadose Zone sample and in the Pettigrew Vadose Zone sample collected on July 8, 2020. Chloride was not detected above the laboratory PQL in the West Line, East Line, or Bisti source areas. BTEX was not detected above the laboratory PQL in any semi-annual vadose zone monitoring samples.

The complete laboratory analytical reports are presented in Enclosure A.

ANNUAL VADOSE ZONE ANALYTICAL RESULTS

Per the original Rule 711 permit requirement for annual soil sampling, each vadose zone soil sample collected on March 9, 2020, was analyzed for arsenic, barium, cadmium, calcium, chloride, chromium, lead, magnesium, mercury, potassium, selenium, silver, sodium, and sulfate. Of these constituents, arsenic, calcium, chloride, potassium, sodium, and sulfate concentrations exceeded the background and/or PQL concentrations in one or more samples collected from the API and/or Crude cells. All other analytes were below background and/or PQL concentrations. The analytical results are presented in Table 4. The complete laboratory analytical reports are presented in Enclosure A.



CONCLUSIONS

Concentrations of TPH and chloride in the treatment zone have been remediated to below Treatment Zone Closure Performance Standards identified in Rule 36. Western conducted quarterly vadose zone soil sampling in accordance with the original Rule 711 permit and semi-annual vadose zone sampling in accordance with Rule 36. Soil sample results for BTEX, TPH, and chloride were compared with laboratory PQLs and/or background concentrations. TPH, TPH-DRO, and/or DRO+GRO exceeded laboratory PQLs in the West Line and East Line source areas of the Crude cell in one or more sampling events. Additionally, chloride concentrations exceeded the laboratory PQL in samples collected from the API cell and Pettigrew source area of the Crude cell (located within the API cell) during one or more sampling events. However, these petroleum and chloride exceedances have been delineated as part of the release response and site characterization sampling conducted in the summer of 2020. As such, these exceedances should not constitute a new release as defined by Rule 36. Furthermore, these exceedances are being managed in cooperation with the NMOCD as part of a release under Part 29 NMAC and no additional response activities are being conducted at this time to address these exceedances.

Arsenic, calcium, chloride, potassium, sodium, and sulfate concentrations also exceeded the background and/or PQL concentrations in one or more annual samples collected from the API and/or Crude cells. Similar to the above, chloride exceedances were addressed in the release response and delineation sampling performed in the summer of 2020. These chloride exceedances are being addressed through the NMOCD under Part 29. As presented in the *Site Characterization Report and Variance Request* (October 2020) prepared by LT Environmental, Inc., the concentrations of sulfate, arsenic, calcium, potassium, and sodium detected during the 2020 annual sampling event are within the range of regional background concentrations. Detected concentrations of these constituents should not constitute a new release at the Site under Rule 36.

At this time, WSP and Western are continuing to work with the NMOCD to close the release under Part 29. Western will also continue to monitor and maintain the API Cell and the Crude Cell using Rule 711 and provisional requirements of Rule 36 until the landfarm can be closed under Rule 36, which is planned to occur as soon as possible under NMOCD guidance.

WSP appreciates the opportunity to provide these environmental services to Western. Please contact either of the undersigned with any questions at (970) 385-1096.

Kind regards,

A handwritten signature in black ink, appearing to read 'Stuart Hyde'.

Stuart Hyde, L.G.
Environmental Geologist

A handwritten signature in black ink, appearing to read 'Ashley L. Ager'.

Ashley Ager, M.S., P.G.
Senior Geologist

cc: Greg McCartney, Marathon Petroleum Company LP

Attachments:

- Figure 1: Site Location Map
- Figure 2: Site Map
- Figure 3: Area of Chloride Impact
- Figure 4: Area of TPH Impact
- Figure 5: Treatment Zone Sample Location Map
- Figure 6: Vadose Zone Sample Location Map

- Table 1: 2020 Semi-Annual Treatment Zone Soil Analytical Results
- Table 2: 2020 Quarterly Vadose Zone Soil Analytical Results
- Table 3: 2020 Semi-Annual Vadose Zone Soil Analytical Results
- Table 4: 2020 Annual Vadose Zone Soil Analytical Results

FIGURES

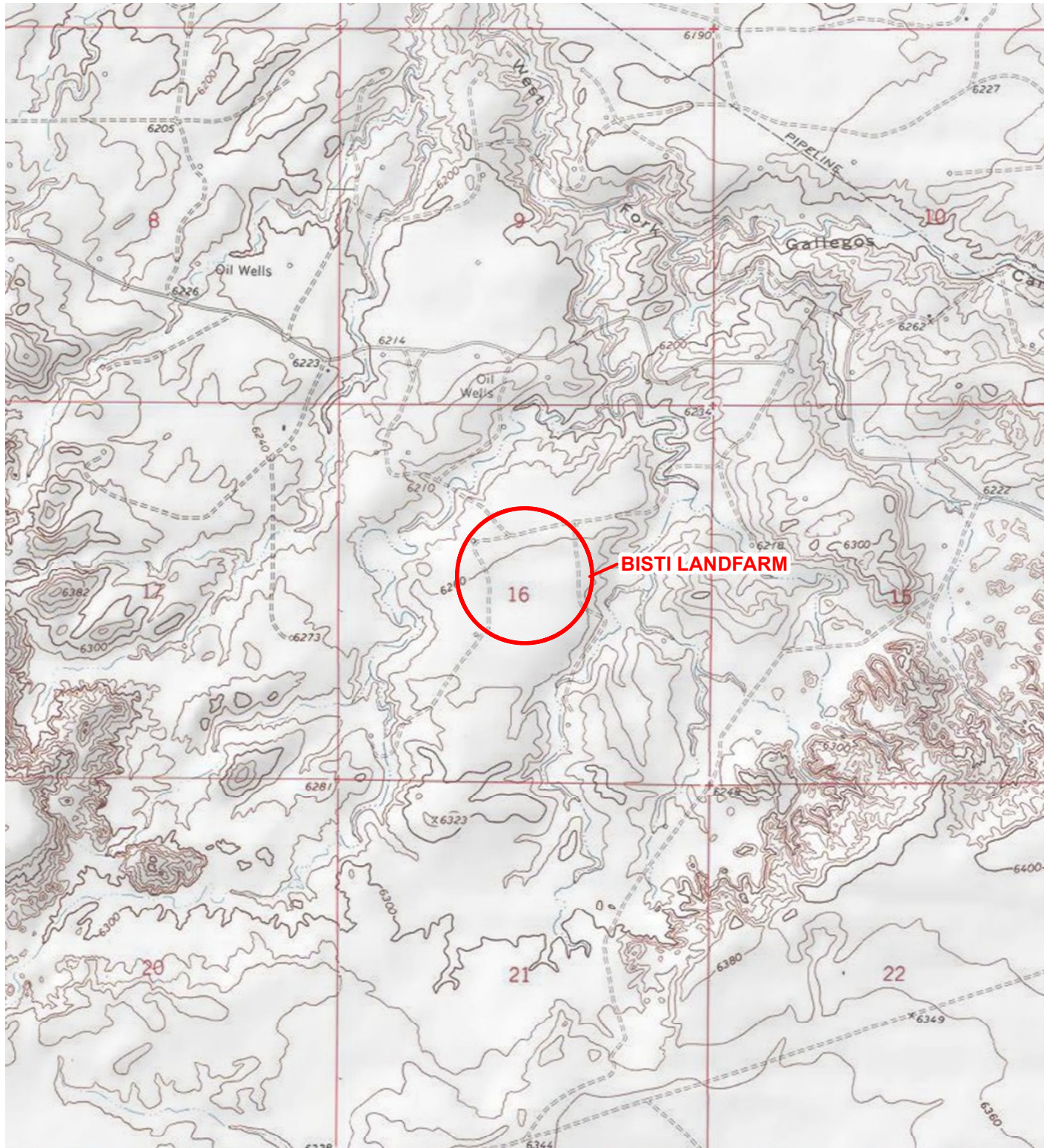


IMAGE COURTESY OF ESRI/USGS

LEGEND

 SITE LOCATION

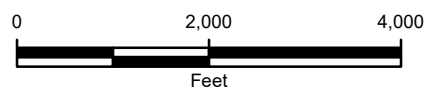
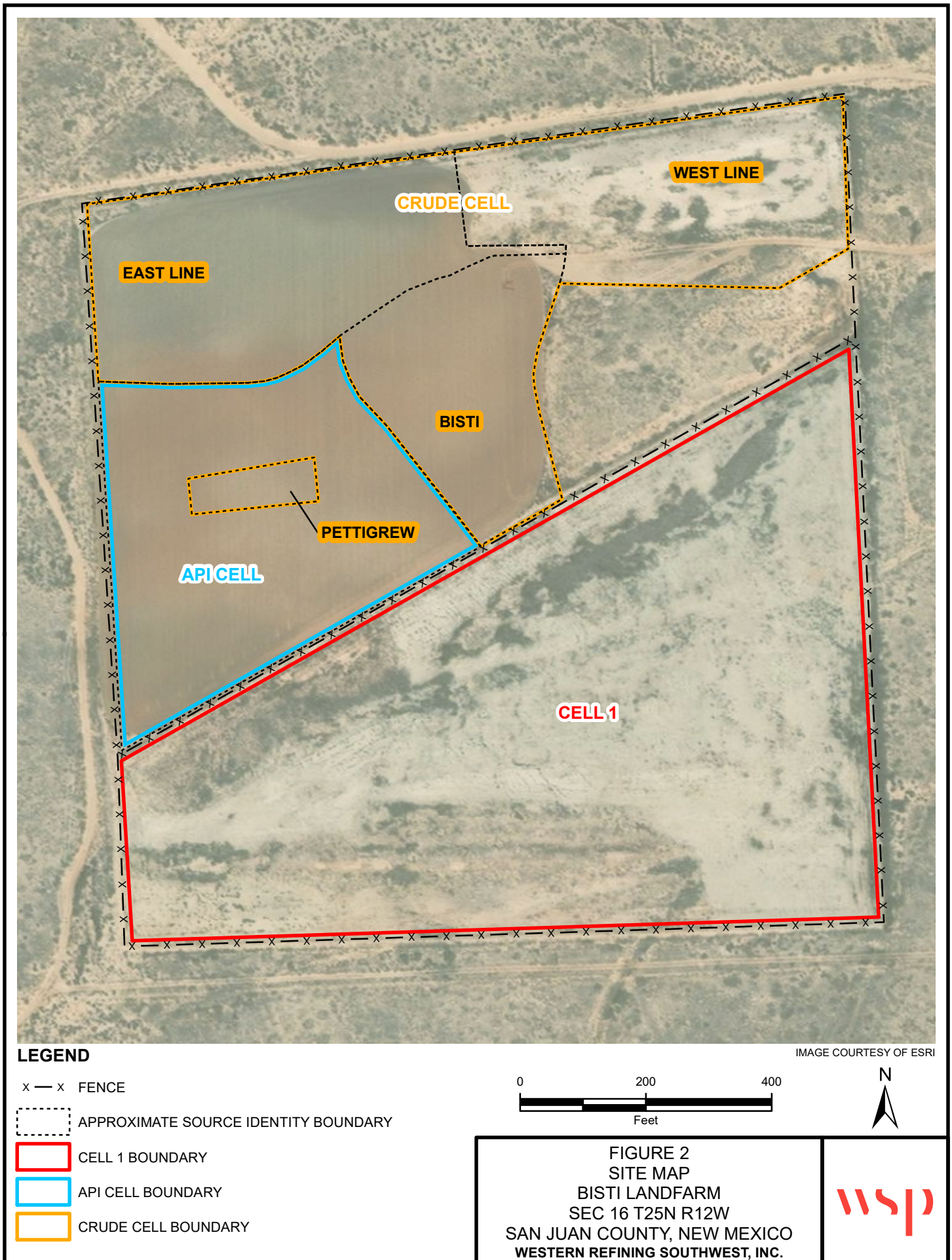
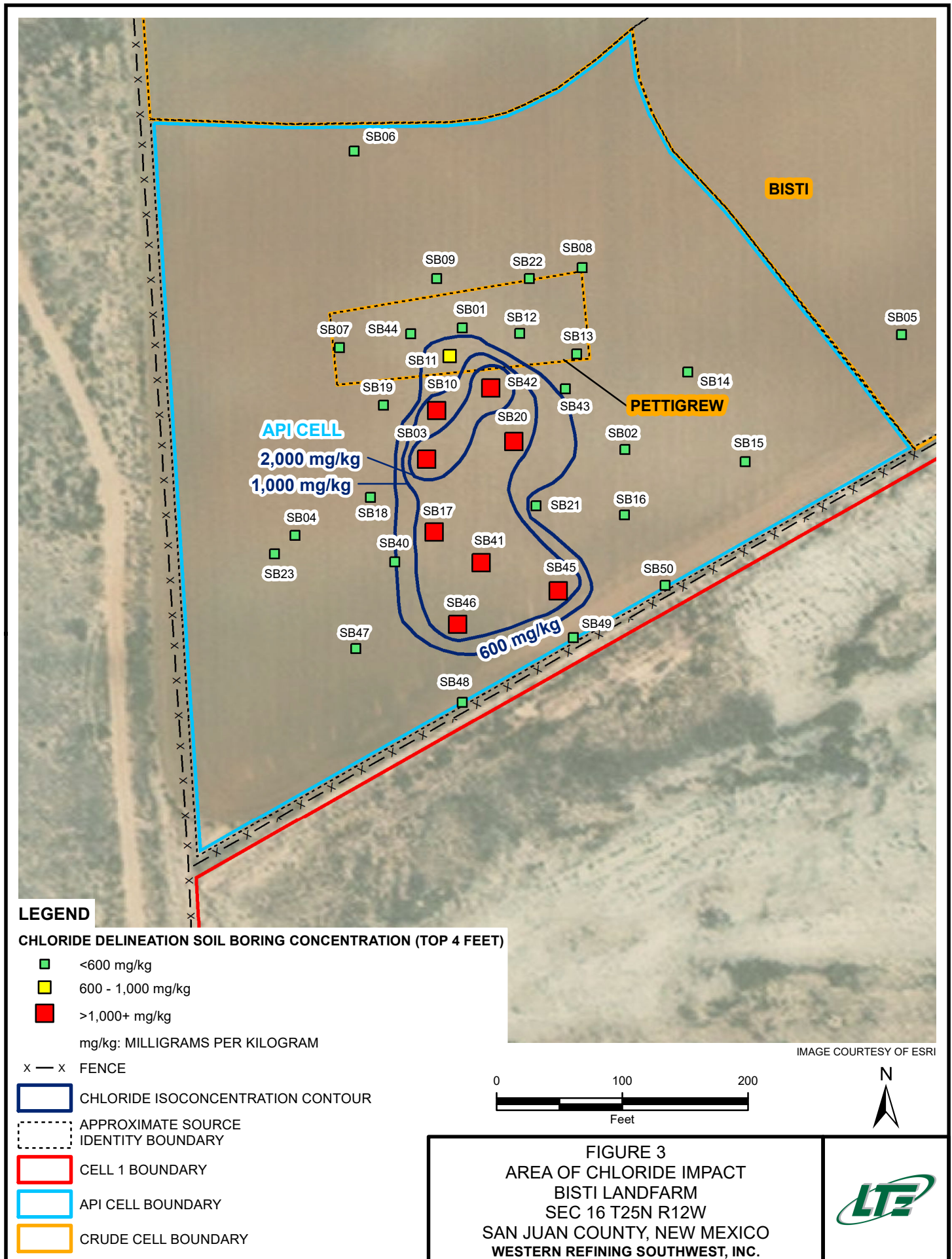


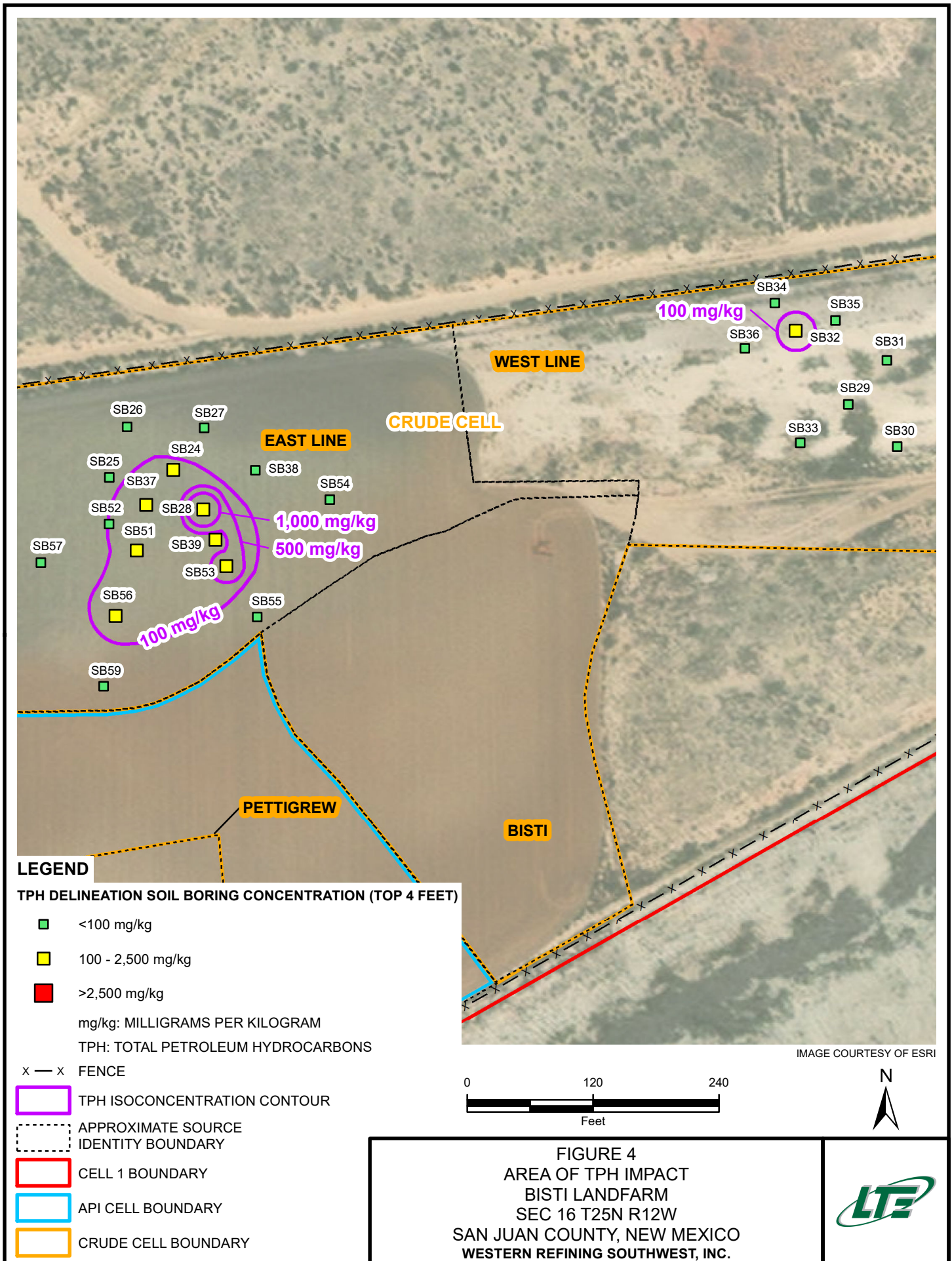
FIGURE 1
SITE LOCATION MAP
BISTI LANDFARM
SEC 16 T25N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

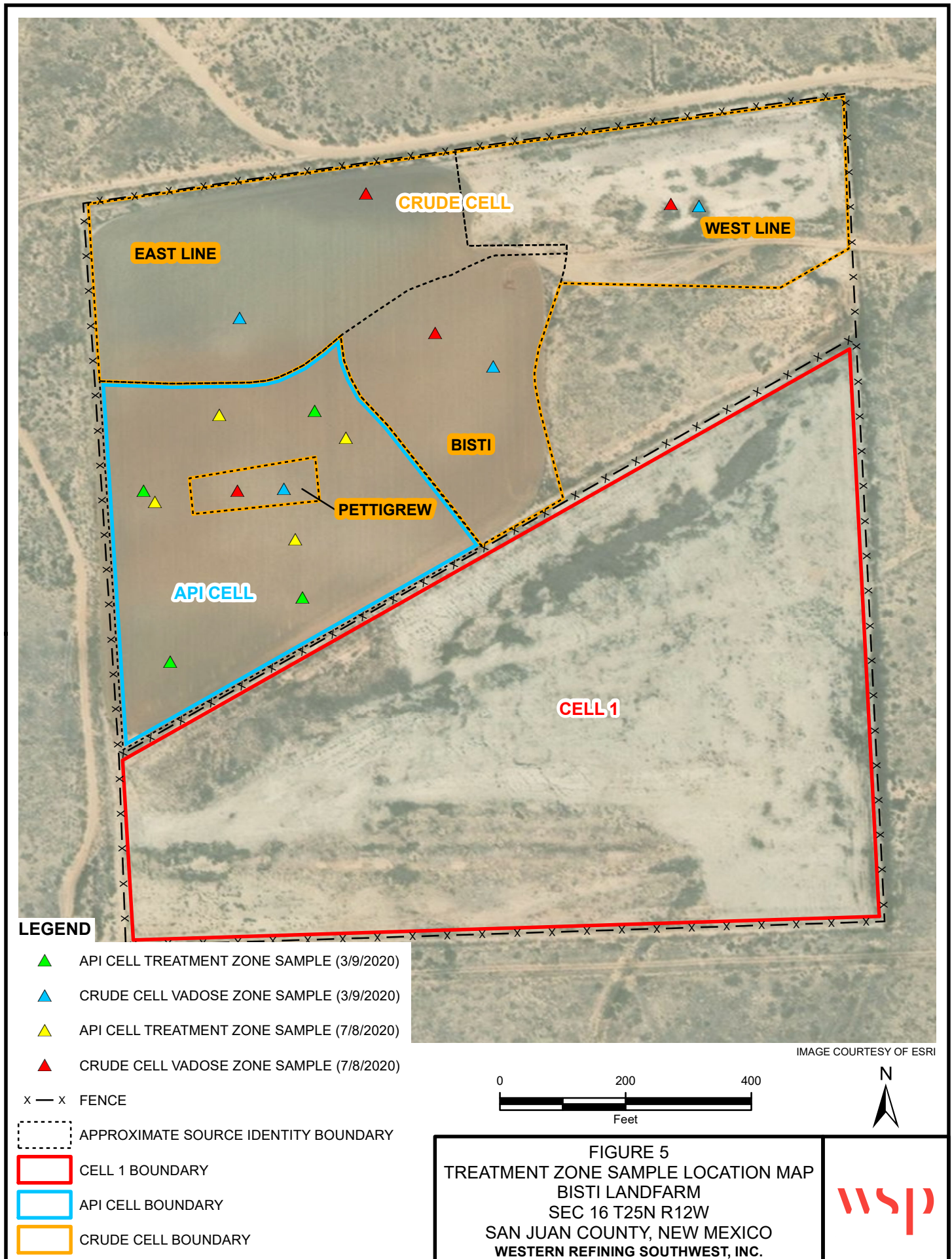


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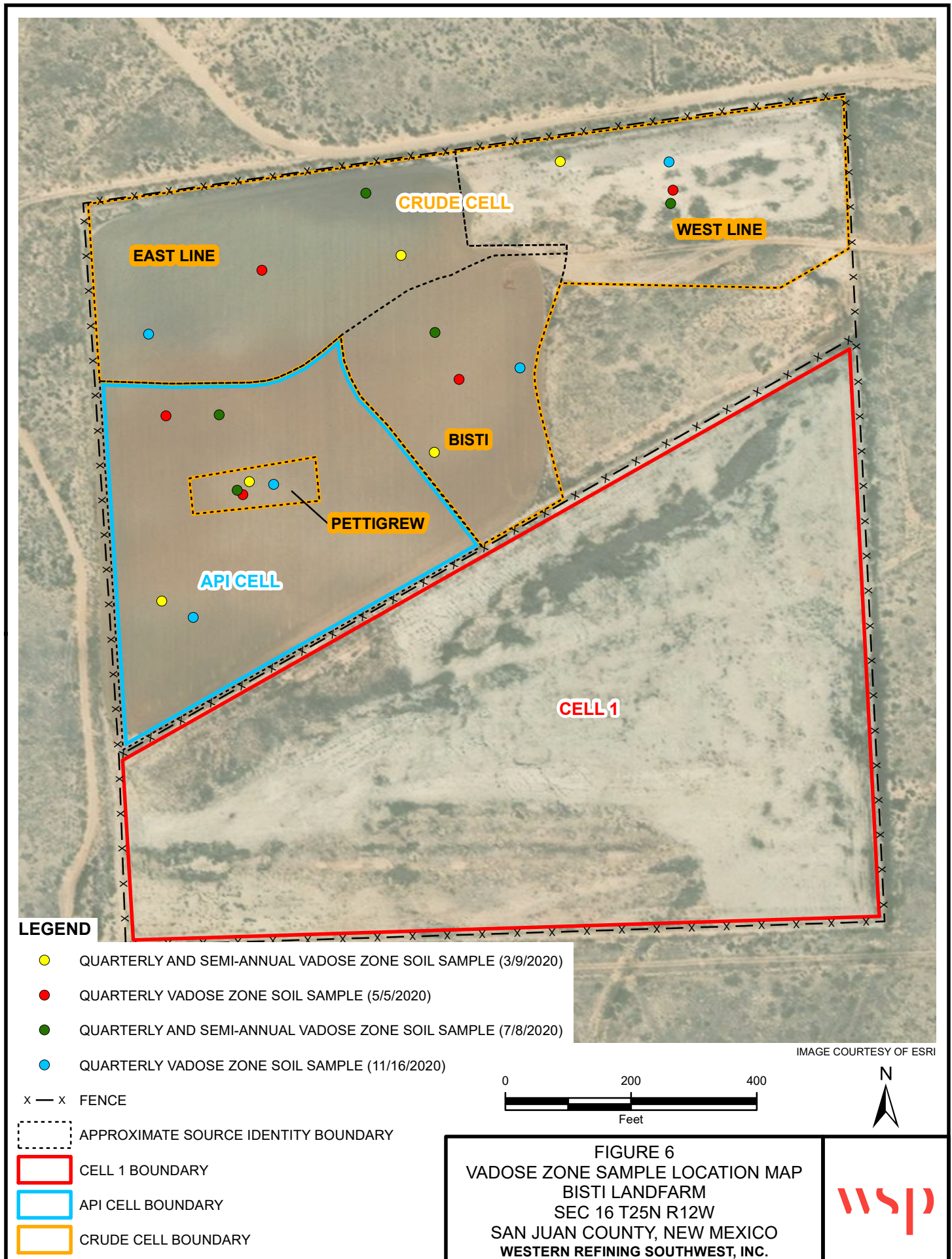








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TABLES

TABLE 1

**2020 SEMI-ANNUAL TREATMENT ZONE SOIL ANALYTICAL RESULTS
BISTI LANDFARM
SAN JUAN COUNTY, NEW MEXICO**

Cell	Sample ID	Sample Date	TPH 418.1 (mg/kg)	Chloride (mg/kg)
Crude Cell	Crude Cell Treatment	9-Mar-20	110	<60
	Crude Cell Treatment	8-Jul-20	190	<60
API Cell	API Cell Treatment	9-Mar-20	36	190
	API Cell Treatment	8-Jul-20	31	<60
19.15.36.15 Treatment Zone Closure Performance Standards			2,500	1,000

Notes:

mg/kg - milligrams per kilograms

TPH - total petroleum hydrocarbons

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

TABLE 2

**2020 QUARTERLY VADOSE ZONE SOIL ANALYTICAL RESULTS
BISTI LANDFARM
SAN JUAN COUNTY, NEW MEXICO**

Cell	Source Area	Sample ID	Sample Date	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)
Crude Cell	West Line	West Line Vadose Zone	9-Mar-20	<4.7	12	<0.024	<0.047	<0.047	<0.094	<0.094
		CRUDE03	5-May-20	<4.7	100	<0.024	<0.047	<0.047	<0.095	<0.095
		West Line Vadose Zone	8-Jul-20	<4.8	21	<0.024	<0.048	<0.048	<0.096	<0.096
		West Line Vadose Zone	16-Nov-20	<4.7	14	<0.024	<0.047	<0.047	<0.095	<0.095
	East Line	East Line Vadose Zone	9-Mar-20	<4.8	<9.8	<0.024	<0.048	<0.048	<0.096	<0.096
		CRUDE04	5-May-20	<5.0	19	<0.025	<0.050	<0.050	<0.099	<0.099
		East Line Vadose Zone	8-Jul-20	<4.8	<9.4	<0.024	<0.048	<0.048	<0.096	<0.096
		East Line Vadose Zone	16-Nov-20	<4.7	<9.4	<0.024	<0.047	<0.047	<0.095	<0.095
	Bisti	Bisti Vadose Zone	9-Mar-20	<5.0	<9.7	<0.025	<0.050	<0.050	<0.099	<0.099
		CRUDE02	5-May-20	<4.7	<9.0	<0.023	<0.047	<0.047	<0.093	<0.093
		Bisti Vadose Zone	8-Jul-20	<4.9	<9.3	<0.025	<0.049	<0.049	<0.099	<0.099
		Bisti Vadose Zone	16-Nov-20	<4.6	<8.5	<0.023	<0.046	<0.046	<0.093	<0.093
	Pettigrew	Pettigrew Vadose Zone	9-Mar-20	<5.0	<9.7	<0.025	<0.050	<0.050	<0.10	<0.10
		CRUDE01	5-May-20	<4.7	<9.8	<0.024	<0.047	<0.047	<0.094	<0.094
		Pettigrew Vadose Zone	8-Jul-20	<4.6	<9.9	<0.023	<0.046	<0.046	<0.092	<0.092
		Pettigrew Vadose Zone	16-Nov-20	<4.9	<9.7	<0.025	<0.049	<0.049	<0.098	<0.098
API Cell	API	API Vadose Zone	9-Mar-20	<4.9	<9.2	<0.025	<0.049	<0.049	<0.098	<0.098
		API 01	5-May-20	<5.0	<9.2	<0.025	<0.050	<0.050	<0.099	<0.099
		API Vadose Zone	8-Jul-20	<4.6	<9.9	<0.023	<0.046	<0.046	<0.091	<0.091
		API Vadose Zone	16-Nov-20	<4.8	<9.4	<0.024	<0.048	<0.048	<0.097	<0.097
Background Sample Result			27-Mar-98 and 1-Sep-15	<4.8	<9.9	<0.048	<0.048	<0.048	<0.095	<0.095

Notes:

mg/kg - milligrams per kilograms

DRO - diesel range organics

GRO - gasoline range organics

TPH- total petroleum hydrocarbons

NE - Not Established

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

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

TABLE 3

**2020 SEMI-ANNUAL VADOSE ZONE SOIL ANALYTICAL RESULTS
BISTI LANDFARM
SAN JUAN COUNTY, NEW MEXICO**

Cell	Source Area	Sample ID	Sample Date	TPH 418.1 (mg/kg)	GRO+DRO (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
Crude Cell	West Line	West Line Vadose Zone	9-Mar-20	340	12	<0.025	<0.050	<0.050	<0.10	<0.10	<60
		West Line Vadose Zone	8-Jul-20	180	21	<0.024	<0.048	<0.048	<0.097	<0.097	<60
	East Line	East Line Vadose Zone	9-Mar-20	32	<9.8	<0.025	<0.049	<0.049	<0.099	<0.099	<60
		East Line Vadose Zone	8-Jul-20	<19	<9.4	<0.025	<0.050	<0.050	<0.099	<0.099	<60
	Bisti	Bisti Vadose Zone	9-Mar-20	<20	<9.7	<0.023	<0.047	<0.047	<0.094	<0.094	<60
		Bisti Vadose Zone	8-Jul-20	<19	<9.3	<0.024	<0.048	<0.048	<0.097	<0.097	<60
	Pettigrew	Pettigrew Vadose Zone	9-Mar-20	<20	<9.7	<0.023	<0.047	<0.047	<0.094	<0.094	650
		Pettigrew Vadose Zone	8-Jul-20	<20	<9.9	<0.024	<0.047	<0.047	<0.094	<0.094	2,400
API Cell	API	API Vadose Zone 1	9-Mar-20	<19	<19	<0.024	<0.049	<0.049	<0.098	<0.098	130
		API 1 Vadose	8-Jul-20	<17	<17	<0.024	<0.048	<0.048	<0.096	<0.096	<60
		API Vadose Zone 2	9-Mar-20	<20	<20	<0.024	<0.048	<0.048	<0.096	<0.096	1,900
		API 2 Vadose	8-Jul-20	<16	<16	<0.025	<0.049	<0.049	<0.098	<0.098	<60
		API Vadose Zone 3	9-Mar-20	<20	<20	<0.025	<0.050	<0.050	<0.10	<0.099	540
		API 3 Vadose	8-Jul-20	<20	<20	<0.025	<0.050	<0.050	<0.10	<0.10	310
		API Vadose Zone 4	9-Mar-20	<18	<18	<0.024	<0.047	<0.047	<0.094	<0.094	240
		API 4 Vadose	8-Jul-20	<18	<18	<0.024	<0.048	<0.048	<0.096	<0.096	<60
Background Sample Result			27-Mar-98 and 1-Sep-15	<20	<9.9	<0.048	<0.048	<0.048	<0.095	<0.095	<50

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

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

TABLE 4

2020 ANNUAL VADOSE ZONE SOIL ANALYTICAL RESULTS
BISTI LANDFARM
SAN JUAN COUNTY, NEW MEXICO

Cell	Source Area	Sample ID	Sample Date	Chloride (mg/kg)	Sulfate (mg/kg)	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Calcium (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)	Magnesium (mg/kg)	Potassium (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Sodium (mg/kg)	Mercury (mg/kg)
Crude Cell	West Line	West Line Vadose	9-Mar-20	<7.5	420	<4.8	91	<0.19	3,100	4.2	2.4	2,000	1,700	<4.8	<4.8	150	<0.0032
	East Line	East Line Vadose	9-Mar-20	<7.5	190	<5.0	99	<0.20	1,500	3.8	2.1	1,600	1,600	<5.0	<0.50	150	<0.0031
	Bisti	Bisti Vadose	9-Mar-20	19	73	3.9	120	<0.10	6,300	2.8	1.6	1,500	990	<4.4	<0.29	200	<0.0037
	Pettigrew	Pettigrew Vadose	9-Mar-20	740	630	2.8	91	<0.097	2,900	1.9	1.1	960	750	<4.3	<0.49	1,300	<0.0029
API Cell	API	API Vadose	9-Mar-20	180	200	<2.8	180	<0.099	6,000	2.4	1.9	1,600	790	<4.4	<0.29	880	<0.0032
Background Sample Result			27-Mar-98 and 1-Sep-15	<50	140	2.8	180	<1.3	2,500	<5.0	6.8	NA	810	<2.5	<1.3	90	<0.50

Notes:

mg/kg - milligrams per kilograms

NE - not established

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

BOLD - samples that exceeded background concentrations

ENCLOSURE A – LABORATORY ANALYTICAL REPORTS



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

March 19, 2020

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

RE: 2020 Bisti Landfarm Quarterly Sampling

OrderNo.: 2003471

Dear Gregory J. McCartney:

Hall Environmental Analysis Laboratory received 5 sample(s) on 3/10/2020 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

Analytical Report

Lab Order 2003471

Date Reported: 3/19/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: West Line Vadose

Project: 2020 Bisti Landfarm Quarterly Sampling

Collection Date: 3/9/2020 12:07:00 PM

Lab ID: 2003471-001

Matrix: SOIL

Received Date: 3/10/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/14/2020 3:18:31 PM	51068
Surr: BFB	96.3	70-130		%Rec	1	3/14/2020 3:18:31 PM	51068
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	12	9.8		mg/Kg	1	3/18/2020 2:56:04 PM	51086
Surr: DNOP	89.4	55.1-146		%Rec	1	3/18/2020 2:56:04 PM	51086
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.024		mg/Kg	1	3/14/2020 3:18:31 PM	51068
Toluene	ND	0.047		mg/Kg	1	3/14/2020 3:18:31 PM	51068
Ethylbenzene	ND	0.047		mg/Kg	1	3/14/2020 3:18:31 PM	51068
Xylenes, Total	ND	0.094		mg/Kg	1	3/14/2020 3:18:31 PM	51068
Surr: 1,2-Dichloroethane-d4	75.7	70-130		%Rec	1	3/14/2020 3:18:31 PM	51068
Surr: 4-Bromofluorobenzene	93.8	70-130		%Rec	1	3/14/2020 3:18:31 PM	51068
Surr: Dibromofluoromethane	94.7	70-130		%Rec	1	3/14/2020 3:18:31 PM	51068
Surr: Toluene-d8	101	70-130		%Rec	1	3/14/2020 3:18:31 PM	51068

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		

Page 1 of 8

Analytical Report

Lab Order 2003471

Date Reported: 3/19/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: East Line Vadose

Project: 2020 Bisti Landfarm Quarterly Sampling

Collection Date: 3/9/2020 12:03:00 PM

Lab ID: 2003471-002

Matrix: SOIL

Received Date: 3/10/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/14/2020 3:47:00 PM	51068
Surr: BFB	95.1	70-130		%Rec	1	3/14/2020 3:47:00 PM	51068
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	3/17/2020 1:27:39 AM	51086
Surr: DNOP	101	55.1-146		%Rec	1	3/17/2020 1:27:39 AM	51086
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.024		mg/Kg	1	3/14/2020 3:47:00 PM	51068
Toluene	ND	0.048		mg/Kg	1	3/14/2020 3:47:00 PM	51068
Ethylbenzene	ND	0.048		mg/Kg	1	3/14/2020 3:47:00 PM	51068
Xylenes, Total	ND	0.096		mg/Kg	1	3/14/2020 3:47:00 PM	51068
Surr: 1,2-Dichloroethane-d4	83.7	70-130		%Rec	1	3/14/2020 3:47:00 PM	51068
Surr: 4-Bromofluorobenzene	91.5	70-130		%Rec	1	3/14/2020 3:47:00 PM	51068
Surr: Dibromofluoromethane	97.7	70-130		%Rec	1	3/14/2020 3:47:00 PM	51068
Surr: Toluene-d8	101	70-130		%Rec	1	3/14/2020 3:47:00 PM	51068

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		

Analytical Report

Lab Order 2003471

Date Reported: 3/19/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Bisti Vadose

Project: 2020 Bisti Landfarm Quarterly Sampling

Collection Date: 3/9/2020 12:06:00 PM

Lab ID: 2003471-003

Matrix: SOIL

Received Date: 3/10/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/14/2020 4:15:40 PM	51068
Surr: BFB	94.9	70-130		%Rec	1	3/14/2020 4:15:40 PM	51068
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	3/17/2020 1:51:45 AM	51086
Surr: DNOP	99.5	55.1-146		%Rec	1	3/17/2020 1:51:45 AM	51086
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.025		mg/Kg	1	3/14/2020 4:15:40 PM	51068
Toluene	ND	0.050		mg/Kg	1	3/14/2020 4:15:40 PM	51068
Ethylbenzene	ND	0.050		mg/Kg	1	3/14/2020 4:15:40 PM	51068
Xylenes, Total	ND	0.099		mg/Kg	1	3/14/2020 4:15:40 PM	51068
Surr: 1,2-Dichloroethane-d4	80.9	70-130		%Rec	1	3/14/2020 4:15:40 PM	51068
Surr: 4-Bromofluorobenzene	93.1	70-130		%Rec	1	3/14/2020 4:15:40 PM	51068
Surr: Dibromofluoromethane	96.6	70-130		%Rec	1	3/14/2020 4:15:40 PM	51068
Surr: Toluene-d8	102	70-130		%Rec	1	3/14/2020 4:15:40 PM	51068

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		

Analytical Report

Lab Order 2003471

Date Reported: 3/19/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Pettigrew Vadose

Project: 2020 Bisti Landfarm Quarterly Sampling

Collection Date: 3/9/2020 12:01:00 PM

Lab ID: 2003471-004

Matrix: SOIL

Received Date: 3/10/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/14/2020 4:44:21 PM	51068
Surr: BFB	97.2	70-130		%Rec	1	3/14/2020 4:44:21 PM	51068
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	3/17/2020 2:15:59 AM	51086
Surr: DNOP	99.3	55.1-146		%Rec	1	3/17/2020 2:15:59 AM	51086
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.025		mg/Kg	1	3/14/2020 4:44:21 PM	51068
Toluene	ND	0.050		mg/Kg	1	3/14/2020 4:44:21 PM	51068
Ethylbenzene	ND	0.050		mg/Kg	1	3/14/2020 4:44:21 PM	51068
Xylenes, Total	ND	0.10		mg/Kg	1	3/14/2020 4:44:21 PM	51068
Surr: 1,2-Dichloroethane-d4	85.9	70-130		%Rec	1	3/14/2020 4:44:21 PM	51068
Surr: 4-Bromofluorobenzene	95.4	70-130		%Rec	1	3/14/2020 4:44:21 PM	51068
Surr: Dibromofluoromethane	96.2	70-130		%Rec	1	3/14/2020 4:44:21 PM	51068
Surr: Toluene-d8	99.1	70-130		%Rec	1	3/14/2020 4:44:21 PM	51068

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		

Analytical Report

Lab Order 2003471

Date Reported: 3/19/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API Vadose

Project: 2020 Bisti Landfarm Quarterly Sampling

Collection Date: 3/9/2020 12:09:00 PM

Lab ID: 2003471-005

Matrix: SOIL

Received Date: 3/10/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/14/2020 5:12:46 PM	51068
Surr: BFB	96.6	70-130		%Rec	1	3/14/2020 5:12:46 PM	51068
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	3/17/2020 2:40:07 AM	51086
Surr: DNOP	99.5	55.1-146		%Rec	1	3/17/2020 2:40:07 AM	51086
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.025		mg/Kg	1	3/14/2020 5:12:46 PM	51068
Toluene	ND	0.049		mg/Kg	1	3/14/2020 5:12:46 PM	51068
Ethylbenzene	ND	0.049		mg/Kg	1	3/14/2020 5:12:46 PM	51068
Xylenes, Total	ND	0.098		mg/Kg	1	3/14/2020 5:12:46 PM	51068
Surr: 1,2-Dichloroethane-d4	90.3	70-130		%Rec	1	3/14/2020 5:12:46 PM	51068
Surr: 4-Bromofluorobenzene	92.1	70-130		%Rec	1	3/14/2020 5:12:46 PM	51068
Surr: Dibromofluoromethane	95.1	70-130		%Rec	1	3/14/2020 5:12:46 PM	51068
Surr: Toluene-d8	102	70-130		%Rec	1	3/14/2020 5:12:46 PM	51068

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		

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2003471

19-Mar-20

Client: Western Refining Southwest, Inc.
Project: 2020 Bisti Landfarm Quarterly Sampling

Sample ID: LCS-51086	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 51086	RunNo: 67313								
Prep Date: 3/13/2020	Analysis Date: 3/16/2020	SeqNo: 2320643			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54	10	50.00	0	107	70	130			
Surr: DNOP	5.2		5.000		105	55.1	146			

Sample ID: MB-51086	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 51086	RunNo: 67313								
Prep Date: 3/13/2020	Analysis Date: 3/16/2020	SeqNo: 2320644			Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	11		10.00		109	55.1	146			

Sample ID: LCS-51100	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 51100	RunNo: 67313								
Prep Date: 3/13/2020	Analysis Date: 3/17/2020	SeqNo: 2321410			Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.2		5.000		84.7	55.1	146			

Sample ID: MB-51100	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 51100	RunNo: 67313								
Prep Date: 3/13/2020	Analysis Date: 3/17/2020	SeqNo: 2321412			Units: %Rec					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.0		10.00		90.4	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#: 2003471

19-Mar-20

Client: Western Refining Southwest, Inc.
Project: 2020 Bisti Landfarm Quarterly Sampling

Sample ID: lcs-51068	SampType: LCS	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: LCSS	Batch ID: 51068	RunNo: 67303								
Prep Date: 3/12/2020	Analysis Date: 3/14/2020	SeqNo: 2319874	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	106	70	130			
Toluene	1.0	0.050	1.000	0	104	70	130			
Ethylbenzene	1.1	0.050	1.000	0	108	70	130			
Xylenes, Total	3.2	0.10	3.000	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	0.42		0.5000		84.6	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		91.1	70	130			
Surr: Dibromofluoromethane	0.47		0.5000		93.4	70	130			
Surr: Toluene-d8	0.49		0.5000		97.7	70	130			

Sample ID: mb-51068	SampType: MBLK	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: PBS	Batch ID: 51068	RunNo: 67303								
Prep Date: 3/12/2020	Analysis Date: 3/14/2020	SeqNo: 2319876	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								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		90.5	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.5000		93.6	70	130			
Surr: Dibromofluoromethane	0.48		0.5000		95.6	70	130			
Surr: Toluene-d8	0.51		0.5000		102	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#: 2003471

19-Mar-20

Client: Western Refining Southwest, Inc.**Project:** 2020 Bisti Landfarm Quarterly Sampling

Sample ID: lcs-51068	SampType: LCS			TestCode: EPA Method 8015D Mod: Gasoline Range						
Client ID: LCSS	Batch ID: 51068			RunNo: 67303						
Prep Date: 3/12/2020	Analysis Date: 3/14/2020			SeqNo: 2319913		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.0	70	130			
Surr: BFB	490		500.0		97.8	70	130			

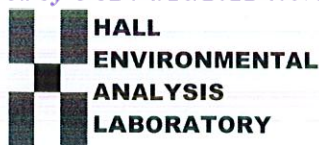
Sample ID: mb-51068	SampType: MBLK			TestCode: EPA Method 8015D Mod: Gasoline Range						
Client ID: PBS	Batch ID: 51068			RunNo: 67303						
Prep Date: 3/12/2020	Analysis Date: 3/14/2020			SeqNo: 2319915		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	480		500.0		96.3	70	130			

Qualifiers:

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

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

Sample Log-In Check List

Client Name: Western Refining Southw

Work Order Number: 2003471

RcptNo: 1

Received By: Yazmine Garduno

3/10/2020 8:15:00 AM

Completed By: Leah Baca

3/11/2020 10:42:47 AM

Reviewed By: ENM

3/11/20

Yazmine Garduno

Leah Baca

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ 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:

(<2 or >12 unless noted)

Adjusted? _____

Checked by: DAD 3/11/20

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 $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.5	Good				
2	2.9	Good				



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

March 25, 2020

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

RE: 2020 Bisti Landfarm Semi Annual

OrderNo.: 2003469

Dear Gregory J. McCartney:

Hall Environmental Analysis Laboratory received 10 sample(s) on 3/10/2020 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 light blue horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 2003469

Date Reported: 3/25/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: West Line Vadose

Project: 2020 Bisti Landfarm Semi Annual

Collection Date: 3/9/2020 12:06:00 PM

Lab ID: 2003469-001

Matrix: SOIL

Received Date: 3/10/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: CFC
Petroleum Hydrocarbons, TR	340	19		mg/Kg	1	3/18/2020	51052
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	ND	60		mg/Kg	20	3/14/2020 3:18:39 PM	51105
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.025		mg/Kg	1	3/14/2020 7:13:00 AM	51068
Toluene	ND	0.050		mg/Kg	1	3/14/2020 7:13:00 AM	51068
Ethylbenzene	ND	0.050		mg/Kg	1	3/14/2020 7:13:00 AM	51068
Xylenes, Total	ND	0.10		mg/Kg	1	3/14/2020 7:13:00 AM	51068
Surr: 1,2-Dichloroethane-d4	82.6	70-130		%Rec	1	3/14/2020 7:13:00 AM	51068
Surr: 4-Bromofluorobenzene	97.6	70-130		%Rec	1	3/14/2020 7:13:00 AM	51068
Surr: Dibromofluoromethane	96.5	70-130		%Rec	1	3/14/2020 7:13:00 AM	51068
Surr: Toluene-d8	101	70-130		%Rec	1	3/14/2020 7:13:00 AM	51068

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		

Analytical Report

Lab Order 2003469

Date Reported: 3/25/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: East Line Vadose

Project: 2020 Bisti Landfarm Semi Annual

Collection Date: 3/9/2020 12:01:00 PM

Lab ID: 2003469-002

Matrix: SOIL

Received Date: 3/10/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: CFC
Petroleum Hydrocarbons, TR	32	19		mg/Kg	1	3/18/2020	51052
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	ND	60		mg/Kg	20	3/14/2020 3:31:04 PM	51105
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.025		mg/Kg	1	3/14/2020 8:38:28 AM	51068
Toluene	ND	0.049		mg/Kg	1	3/14/2020 8:38:28 AM	51068
Ethylbenzene	ND	0.049		mg/Kg	1	3/14/2020 8:38:28 AM	51068
Xylenes, Total	ND	0.099		mg/Kg	1	3/14/2020 8:38:28 AM	51068
Surr: 1,2-Dichloroethane-d4	86.0	70-130		%Rec	1	3/14/2020 8:38:28 AM	51068
Surr: 4-Bromofluorobenzene	95.8	70-130		%Rec	1	3/14/2020 8:38:28 AM	51068
Surr: Dibromofluoromethane	92.2	70-130		%Rec	1	3/14/2020 8:38:28 AM	51068
Surr: Toluene-d8	101	70-130		%Rec	1	3/14/2020 8:38:28 AM	51068

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		

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Analytical Report

Lab Order 2003469

Date Reported: 3/25/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Bisti Vadose

Project: 2020 Bisti Landfarm Semi Annual

Collection Date: 3/9/2020 12:04:00 PM

Lab ID: 2003469-003

Matrix: SOIL

Received Date: 3/10/2020 8:15:00 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	3/18/2020	51052
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	ND	60		mg/Kg	20	3/14/2020 3:43:28 PM	51105
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.023		mg/Kg	1	3/14/2020 9:06:57 AM	51068
Toluene	ND	0.047		mg/Kg	1	3/14/2020 9:06:57 AM	51068
Ethylbenzene	ND	0.047		mg/Kg	1	3/14/2020 9:06:57 AM	51068
Xylenes, Total	ND	0.094		mg/Kg	1	3/14/2020 9:06:57 AM	51068
Surr: 1,2-Dichloroethane-d4	77.7	70-130		%Rec	1	3/14/2020 9:06:57 AM	51068
Surr: 4-Bromofluorobenzene	96.6	70-130		%Rec	1	3/14/2020 9:06:57 AM	51068
Surr: Dibromofluoromethane	97.3	70-130		%Rec	1	3/14/2020 9:06:57 AM	51068
Surr: Toluene-d8	98.6	70-130		%Rec	1	3/14/2020 9:06:57 AM	51068

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		

Analytical Report

Lab Order 2003469

Date Reported: 3/25/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Pettigrew Vadose

Project: 2020 Bisti Landfarm Semi Annual

Collection Date: 3/9/2020 12:00:00 PM

Lab ID: 2003469-004

Matrix: SOIL

Received Date: 3/10/2020 8:15:00 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	3/18/2020	51052
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	650	60		mg/Kg	20	3/14/2020 3:55:52 PM	51105
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.023		mg/Kg	1	3/14/2020 9:35:28 AM	51068
Toluene	ND	0.047		mg/Kg	1	3/14/2020 9:35:28 AM	51068
Ethylbenzene	ND	0.047		mg/Kg	1	3/14/2020 9:35:28 AM	51068
Xylenes, Total	ND	0.094		mg/Kg	1	3/14/2020 9:35:28 AM	51068
Surr: 1,2-Dichloroethane-d4	84.4	70-130		%Rec	1	3/14/2020 9:35:28 AM	51068
Surr: 4-Bromofluorobenzene	94.6	70-130		%Rec	1	3/14/2020 9:35:28 AM	51068
Surr: Dibromofluoromethane	92.0	70-130		%Rec	1	3/14/2020 9:35:28 AM	51068
Surr: Toluene-d8	106	70-130		%Rec	1	3/14/2020 9:35:28 AM	51068

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		

Analytical Report

Lab Order 2003469

Date Reported: 3/25/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API-1 Vadose

Project: 2020 Bisti Landfarm Semi Annual

Collection Date: 3/9/2020 12:07:00 PM

Lab ID: 2003469-005

Matrix: SOIL

Received Date: 3/10/2020 8:15:00 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	3/18/2020	51052
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	130	60		mg/Kg	20	3/14/2020 4:08:16 PM	51105
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.024		mg/Kg	1	3/14/2020 10:03:53 AM	51068
Toluene	ND	0.049		mg/Kg	1	3/14/2020 10:03:53 AM	51068
Ethylbenzene	ND	0.049		mg/Kg	1	3/14/2020 10:03:53 AM	51068
Xylenes, Total	ND	0.098		mg/Kg	1	3/14/2020 10:03:53 AM	51068
Surr: 1,2-Dichloroethane-d4	85.2	70-130		%Rec	1	3/14/2020 10:03:53 AM	51068
Surr: 4-Bromofluorobenzene	95.5	70-130		%Rec	1	3/14/2020 10:03:53 AM	51068
Surr: Dibromofluoromethane	97.9	70-130		%Rec	1	3/14/2020 10:03:53 AM	51068
Surr: Toluene-d8	101	70-130		%Rec	1	3/14/2020 10:03:53 AM	51068

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 **2003469**Date Reported: **3/25/2020****CLIENT:** Western Refining Southwest, Inc.**Client Sample ID:** API-2 Vadose**Project:** 2020 Bisti Landfarm Semi Annual**Collection Date:** 3/9/2020 12:08:00 PM**Lab ID:** 2003469-006**Matrix:** SOIL**Received Date:** 3/10/2020 8:15:00 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	3/18/2020	51052
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	1900	60		mg/Kg	20	3/14/2020 4:20:41 PM	51105
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.024		mg/Kg	1	3/14/2020 10:32:26 AM	51068
Toluene	ND	0.048		mg/Kg	1	3/14/2020 10:32:26 AM	51068
Ethylbenzene	ND	0.048		mg/Kg	1	3/14/2020 10:32:26 AM	51068
Xylenes, Total	ND	0.096		mg/Kg	1	3/14/2020 10:32:26 AM	51068
Surr: 1,2-Dichloroethane-d4	88.9	70-130		%Rec	1	3/14/2020 10:32:26 AM	51068
Surr: 4-Bromofluorobenzene	97.9	70-130		%Rec	1	3/14/2020 10:32:26 AM	51068
Surr: Dibromofluoromethane	98.0	70-130		%Rec	1	3/14/2020 10:32:26 AM	51068
Surr: Toluene-d8	99.6	70-130		%Rec	1	3/14/2020 10:32:26 AM	51068

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		

Analytical Report

Lab Order 2003469

Date Reported: 3/25/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API-3 Vadose

Project: 2020 Bisti Landfarm Semi Annual

Collection Date: 3/9/2020 12:05:00 PM

Lab ID: 2003469-007

Matrix: SOIL

Received Date: 3/10/2020 8:15:00 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	3/18/2020	51052
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	540	60		mg/Kg	20	3/14/2020 4:33:06 PM	51105
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.025		mg/Kg	1	3/14/2020 1:23:59 PM	51068
Toluene	ND	0.050		mg/Kg	1	3/14/2020 1:23:59 PM	51068
Ethylbenzene	ND	0.050		mg/Kg	1	3/14/2020 1:23:59 PM	51068
Xylenes, Total	ND	0.099		mg/Kg	1	3/14/2020 1:23:59 PM	51068
Surr: 1,2-Dichloroethane-d4	84.2	70-130		%Rec	1	3/14/2020 1:23:59 PM	51068
Surr: 4-Bromofluorobenzene	95.4	70-130		%Rec	1	3/14/2020 1:23:59 PM	51068
Surr: Dibromofluoromethane	93.3	70-130		%Rec	1	3/14/2020 1:23:59 PM	51068
Surr: Toluene-d8	100	70-130		%Rec	1	3/14/2020 1:23:59 PM	51068

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		

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Analytical Report

Lab Order 2003469

Date Reported: 3/25/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API-4 Vadose

Project: 2020 Bisti Landfarm Semi Annual

Collection Date: 3/9/2020 12:06:00 PM

Lab ID: 2003469-008

Matrix: SOIL

Received Date: 3/10/2020 8:15:00 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	3/18/2020	51052
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	240	60		mg/Kg	20	3/14/2020 4:45:30 PM	51105
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.024		mg/Kg	1	3/14/2020 1:52:42 PM	51068
Toluene	ND	0.047		mg/Kg	1	3/14/2020 1:52:42 PM	51068
Ethylbenzene	ND	0.047		mg/Kg	1	3/14/2020 1:52:42 PM	51068
Xylenes, Total	ND	0.094		mg/Kg	1	3/14/2020 1:52:42 PM	51068
Surr: 1,2-Dichloroethane-d4	84.0	70-130		%Rec	1	3/14/2020 1:52:42 PM	51068
Surr: 4-Bromofluorobenzene	96.5	70-130		%Rec	1	3/14/2020 1:52:42 PM	51068
Surr: Dibromofluoromethane	93.4	70-130		%Rec	1	3/14/2020 1:52:42 PM	51068
Surr: Toluene-d8	101	70-130		%Rec	1	3/14/2020 1:52:42 PM	51068

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		

Analytical Report

Lab Order 2003469

Date Reported: 3/25/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Crude Cell Treatment

Project: 2020 Bisti Landfarm Semi Annual

Collection Date: 3/9/2020 12:04:00 PM

Lab ID: 2003469-009

Matrix: SOIL

Received Date: 3/10/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: CFC
Petroleum Hydrocarbons, TR	110	18		mg/Kg	1	3/18/2020	51052
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	ND	60		mg/Kg	20	3/14/2020 5:22:45 PM	51105
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	3/14/2020 2:21:22 PM	51068
Surr: BFB	97.6	70-130		%Rec	1	3/14/2020 2:21:22 PM	51068
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	23	9.8		mg/Kg	1	3/18/2020 1:49:56 PM	51086
Surr: DNOP	92.8	55.1-146		%Rec	1	3/18/2020 1:49:56 PM	51086

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		

Analytical Report

Lab Order 2003469

Date Reported: 3/25/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API Cell Treatment

Project: 2020 Bisti Landfarm Semi Annual

Collection Date: 3/9/2020 12:09:00 PM

Lab ID: 2003469-010

Matrix: SOIL

Received Date: 3/10/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: CFC
Petroleum Hydrocarbons, TR	36	19		mg/Kg	1	3/18/2020	51052
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	190	61		mg/Kg	20	3/14/2020 5:35:09 PM	51105
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/14/2020 2:50:02 PM	51068
Surr: BFB	95.4	70-130		%Rec	1	3/14/2020 2:50:02 PM	51068
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	11	9.9		mg/Kg	1	3/18/2020 2:33:55 PM	51086
Surr: DNOP	88.4	55.1-146		%Rec	1	3/18/2020 2:33:55 PM	51086

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		

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2003469

25-Mar-20

Client: Western Refining Southwest, Inc.**Project:** 2020 Bisti Landfarm Semi Annual

Sample ID: MB-51105	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 51105	RunNo: 67316								
Prep Date: 3/13/2020	Analysis Date: 3/14/2020	SeqNo: 2320124	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-51105	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 51105	RunNo: 67316								
Prep Date: 3/13/2020	Analysis Date: 3/14/2020	SeqNo: 2320125	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.7	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

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2003469

25-Mar-20

Client: Western Refining Southwest, Inc.**Project:** 2020 Bisti Landfarm Semi Annual

Sample ID: MB-51052	SampType: MBLK	TestCode: EPA Method 418.1: TPH								
Client ID: PBS	Batch ID: 51052	RunNo: 67391								
Prep Date: 3/13/2020	Analysis Date: 3/18/2020	SeqNo: 2324193 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-51052	SampType: LCS	TestCode: EPA Method 418.1: TPH								
Client ID: LCSS	Batch ID: 51052	RunNo: 67391								
Prep Date: 3/13/2020	Analysis Date: 3/18/2020	SeqNo: 2324194 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	120	20	100.0	0	124	62.5	123			S

Sample ID: LCSD-51052	SampType: LCSD	TestCode: EPA Method 418.1: TPH								
Client ID: LCSS02	Batch ID: 51052	RunNo: 67391								
Prep Date: 3/13/2020	Analysis Date: 3/18/2020	SeqNo: 2324195 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	120	20	100.0	0	125	62.5	123	0.943	20	S

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

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2003469

25-Mar-20

Client: Western Refining Southwest, Inc.**Project:** 2020 Bisti Landfarm Semi Annual

Sample ID: LCS-51086	SampType: LCS			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: LCSS	Batch ID: 51086			RunNo: 67313						
Prep Date: 3/13/2020	Analysis Date: 3/16/2020			SeqNo: 2320643		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	54	10	50.00	0	107	70	130			
Surr: DNOP	5.2		5.000		105	55.1	146			

Sample ID: MB-51086	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: PBS	Batch ID: 51086			RunNo: 67313						
Prep Date: 3/13/2020	Analysis Date: 3/16/2020			SeqNo: 2320644		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	11		10.00		109	55.1	146			

Sample ID: LCS-51100	SampType: LCS			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: LCSS	Batch ID: 51100			RunNo: 67313						
Prep Date: 3/13/2020	Analysis Date: 3/17/2020			SeqNo: 2321410		Units: %Rec				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	4.2		5.000		84.7	55.1	146			

Sample ID: MB-51100	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: PBS	Batch ID: 51100			RunNo: 67313						
Prep Date: 3/13/2020	Analysis Date: 3/17/2020			SeqNo: 2321412		Units: %Rec				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	9.0		10.00		90.4	55.1	146			

Sample ID: LCS-51201	SampType: LCS			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: LCSS	Batch ID: 51201			RunNo: 67313						
Prep Date: 3/18/2020	Analysis Date: 3/20/2020			SeqNo: 2326279		Units: %Rec				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	3.9		5.000		77.7	55.1	146			

Sample ID: MB-51201	SampType: MBLK			TestCode: EPA Method 8015M/D: Diesel Range Organics						
Client ID: PBS	Batch ID: 51201			RunNo: 67313						
Prep Date: 3/18/2020	Analysis Date: 3/20/2020			SeqNo: 2326281		Units: %Rec				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: DNOP	8.6		10.00		86.0	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

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2003469

25-Mar-20

Client: Western Refining Southwest, Inc.**Project:** 2020 Bisti Landfarm Semi Annual

Sample ID: 2003469-001ams		SampType: MS		TestCode: EPA Method 8260B: Volatiles Short List						
Client ID: West Line Vadose		Batch ID: 51068		RunNo: 67303						
Prep Date: 3/12/2020		Analysis Date: 3/14/2020		SeqNo: 2319857		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.023	0.9242	0	116	70	130			
Toluene	1.1	0.046	0.9242	0	114	70	130			
Ethylbenzene	1.1	0.046	0.9242	0	119	70	130			
Xylenes, Total	3.3	0.092	2.773	0	120	70	130			
Surr: 1,2-Dichloroethane-d4	0.40		0.4621		85.6	70	130			
Surr: 4-Bromofluorobenzene	0.45		0.4621		97.0	70	130			
Surr: Dibromofluoromethane	0.44		0.4621		94.3	70	130			
Surr: Toluene-d8	0.47		0.4621		101	70	130			

Sample ID: 2003469-001amsd		SampType: MSD		TestCode: EPA Method 8260B: Volatiles Short List						
Client ID: West Line Vadose		Batch ID: 51068		RunNo: 67303						
Prep Date: 3/12/2020		Analysis Date: 3/14/2020		SeqNo: 2319858		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	0.9843	0	112	70	130	2.76	20	
Toluene	1.1	0.049	0.9843	0	110	70	130	2.24	20	
Ethylbenzene	1.1	0.049	0.9843	0	116	70	130	4.38	0	
Xylenes, Total	3.4	0.098	2.953	0	115	70	130	2.50	0	
Surr: 1,2-Dichloroethane-d4	0.42		0.4921		85.1	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.46		0.4921		94.2	70	130	0	0	
Surr: Dibromofluoromethane	0.47		0.4921		94.9	70	130	0	0	
Surr: Toluene-d8	0.49		0.4921		99.6	70	130	0	0	

Sample ID: lcs-51068		SampType: LCS		TestCode: EPA Method 8260B: Volatiles Short List						
Client ID: LCSS		Batch ID: 51068		RunNo: 67303						
Prep Date: 3/12/2020		Analysis Date: 3/14/2020		SeqNo: 2319874		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	106	70	130			
Toluene	1.0	0.050	1.000	0	104	70	130			
Ethylbenzene	1.1	0.050	1.000	0	108	70	130			
Xylenes, Total	3.2	0.10	3.000	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	0.42		0.5000		84.6	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		91.1	70	130			
Surr: Dibromofluoromethane	0.47		0.5000		93.4	70	130			
Surr: Toluene-d8	0.49		0.5000		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

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2003469

25-Mar-20

Client: Western Refining Southwest, Inc.**Project:** 2020 Bisti Landfarm Semi Annual

Sample ID: mb-51068	SampType: MBLK	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: PBS	Batch ID: 51068	RunNo: 67303								
Prep Date: 3/12/2020	Analysis Date: 3/14/2020	SeqNo: 2319876	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								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.45		0.5000		90.5	70	130			
Surr: 4-Bromofluorobenzene	0.47		0.5000		93.6	70	130			
Surr: Dibromofluoromethane	0.48		0.5000		95.6	70	130			
Surr: Toluene-d8	0.51		0.5000		102	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

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2003469

25-Mar-20

Client: Western Refining Southwest, Inc.**Project:** 2020 Bisti Landfarm Semi Annual

Sample ID: lcs-51068	SampType: LCS			TestCode: EPA Method 8015D Mod: Gasoline Range						
Client ID: LCSS	Batch ID: 51068			RunNo: 67303						
Prep Date: 3/12/2020	Analysis Date: 3/14/2020			SeqNo: 2319913		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	23	5.0	25.00	0	90.0	70	130			
Surr: BFB	490		500.0		97.8	70	130			

Sample ID: mb-51068	SampType: MBLK			TestCode: EPA Method 8015D Mod: Gasoline Range						
Client ID: PBS	Batch ID: 51068			RunNo: 67303						
Prep Date: 3/12/2020	Analysis Date: 3/14/2020			SeqNo: 2319915		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		96.3	70	130			

Qualifiers:

* Value exceeds Maximum Contaminant Level.
D Sample Diluted Due to Matrix
H Holding times for preparation or analysis exceeded
ND Not Detected at the Reporting Limit
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
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: www.hallenvironmental.com

Sample Log-In Check List

Client Name: **Western Refining Southw**Work Order Number: **2003469**

RcptNo: 1

Received By: **Yazmine Garduno**

3/10/2020 8:15:00 AM

*Yazmine Garduno*Completed By: **Leah Baca**

3/11/2020 10:31:22 AM

*Leah Baca*Reviewed By: **ENH**

3/11/20

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ 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:
(<2 or >12 unless noted)
Adjusted? _____
Checked by: **DAD 3/11/20**

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 $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.5	Good				
2	2.9	Good				



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

March 31, 2020

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

RE: 2020 Bisti Landfarm Annual Sampling

OrderNo.: 2003467

Dear Gregory J. McCartney:

Hall Environmental Analysis Laboratory received 5 sample(s) on 3/10/2020 for the analyses presented in the following report.

This report is a revised report and it replaces the original report issued March 30, 2020.

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

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

Sincerely,

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

Analytical Report

Lab Order 2003467

Date Reported: 3/31/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Westline Vadose

Project: 2020 Bisti Landfarm Annual Sampling

Collection Date: 3/9/2020 12:08:00 PM

Lab ID: 2003467-001

Matrix: SOIL

Received Date: 3/10/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	ND	7.5		mg/Kg	5	3/14/2020 12:24:53 PM	51105
Sulfate	420	7.5		mg/Kg	5	3/14/2020 12:24:53 PM	51105
EPA METHOD 7471: MERCURY							Analyst: JLF
Mercury	ND	0.032		mg/Kg	1	3/17/2020 3:58:20 PM	51155
EPA METHOD 6010B: SOIL METALS							Analyst: ELS
Arsenic	ND	4.8		mg/Kg	2	3/23/2020 12:03:30 PM	51184
Barium	91	0.19		mg/Kg	2	3/23/2020 12:03:30 PM	51184
Cadmium	ND	0.19		mg/Kg	2	3/23/2020 12:03:30 PM	51184
Calcium	3100	48		mg/Kg	2	3/23/2020 12:03:30 PM	51184
Chromium	4.2	0.58		mg/Kg	2	3/23/2020 12:03:30 PM	51184
Lead	2.4	0.58		mg/Kg	2	3/23/2020 1:23:03 PM	51184
Magnesium	2000	48		mg/Kg	2	3/23/2020 12:03:30 PM	51184
Potassium	1700	97		mg/Kg	2	3/23/2020 12:03:30 PM	51184
Selenium	ND	4.8		mg/Kg	2	3/23/2020 1:23:03 PM	51184
Silver	ND	0.48		mg/Kg	2	3/23/2020 12:03:30 PM	51184
Sodium	150	48		mg/Kg	2	3/23/2020 12:03:30 PM	51184

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		

Page 1 of 10

Analytical Report

Lab Order 2003467

Date Reported: 3/31/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: East Line Vadose

Project: 2020 Bisti Landfarm Annual Sampling

Collection Date: 3/9/2020 12:02:00 PM

Lab ID: 2003467-002

Matrix: SOIL

Received Date: 3/10/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	ND	7.5		mg/Kg	5	3/14/2020 1:14:32 PM	51105
Sulfate	190	7.5		mg/Kg	5	3/14/2020 1:14:32 PM	51105
EPA METHOD 7471: MERCURY							Analyst: JLF
Mercury	ND	0.031		mg/Kg	1	3/17/2020 4:05:58 PM	51155
EPA METHOD 6010B: SOIL METALS							Analyst: ELS
Arsenic	ND	5.0		mg/Kg	2	3/23/2020 12:10:48 PM	51184
Barium	99	0.20		mg/Kg	2	3/23/2020 12:10:48 PM	51184
Cadmium	ND	0.20		mg/Kg	2	3/23/2020 12:10:48 PM	51184
Calcium	1500	50		mg/Kg	2	3/23/2020 12:10:48 PM	51184
Chromium	3.8	0.60		mg/Kg	2	3/23/2020 12:10:48 PM	51184
Lead	2.1	0.60		mg/Kg	2	3/23/2020 1:28:03 PM	51184
Magnesium	1600	50		mg/Kg	2	3/23/2020 12:10:48 PM	51184
Potassium	1600	100		mg/Kg	2	3/23/2020 12:10:48 PM	51184
Selenium	ND	5.0		mg/Kg	2	3/23/2020 1:28:03 PM	51184
Silver	ND	0.50		mg/Kg	2	3/23/2020 12:10:48 PM	51184
Sodium	150	50		mg/Kg	2	3/23/2020 12:10:48 PM	51184

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		

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Analytical Report

Lab Order 2003467

Date Reported: 3/31/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Bisti Vadose

Project: 2020 Bisti Landfarm Annual Sampling

Collection Date: 3/9/2020 12:05:00 PM

Lab ID: 2003467-003

Matrix: SOIL

Received Date: 3/10/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	19	7.5		mg/Kg	5	3/14/2020 1:39:21 PM	51105
Sulfate	73	7.5		mg/Kg	5	3/14/2020 1:39:21 PM	51105
EPA METHOD 7471: MERCURY							Analyst: JLF
Mercury	ND	0.032		mg/Kg	1	3/17/2020 4:08:32 PM	51155
EPA METHOD 6010B: SOIL METALS							Analyst: ELS
Arsenic	ND	5.0		mg/Kg	2	3/23/2020 12:18:39 PM	51184
Barium	120	0.20		mg/Kg	2	3/23/2020 12:18:39 PM	51184
Cadmium	ND	0.20		mg/Kg	2	3/23/2020 12:18:39 PM	51184
Calcium	6300	50		mg/Kg	2	3/23/2020 12:18:39 PM	51184
Chromium	2.8	0.60		mg/Kg	2	3/23/2020 12:18:39 PM	51184
Lead	1.6	0.60		mg/Kg	2	3/23/2020 1:33:05 PM	51184
Magnesium	1500	50		mg/Kg	2	3/23/2020 12:18:39 PM	51184
Potassium	990	100		mg/Kg	2	3/23/2020 12:18:39 PM	51184
Selenium	ND	5.0		mg/Kg	2	3/23/2020 12:18:39 PM	51184
Silver	ND	0.50		mg/Kg	2	3/23/2020 12:18:39 PM	51184
Sodium	200	50		mg/Kg	2	3/23/2020 12:18:39 PM	51184

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		

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Analytical Report

Lab Order 2003467

Date Reported: 3/31/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Pettigrew Vadose

Project: 2020 Bisti Landfarm Annual Sampling

Collection Date: 3/9/2020 11:59:00 AM

Lab ID: 2003467-004

Matrix: SOIL

Received Date: 3/10/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	740	30		mg/Kg	20	3/14/2020 2:16:36 PM	51105
Sulfate	630	7.5		mg/Kg	5	3/14/2020 2:04:11 PM	51105
EPA METHOD 7471: MERCURY							Analyst: JLF
Mercury	ND	0.031		mg/Kg	1	3/17/2020 4:11:05 PM	51155
EPA METHOD 6010B: SOIL METALS							Analyst: ELS
Arsenic	ND	4.9		mg/Kg	2	3/23/2020 12:20:28 PM	51184
Barium	91	0.19		mg/Kg	2	3/23/2020 12:20:28 PM	51184
Cadmium	ND	0.19		mg/Kg	2	3/23/2020 12:20:28 PM	51184
Calcium	2900	49		mg/Kg	2	3/23/2020 12:20:28 PM	51184
Chromium	1.9	0.58		mg/Kg	2	3/23/2020 12:20:28 PM	51184
Lead	1.1	0.58		mg/Kg	2	3/23/2020 1:34:20 PM	51184
Magnesium	960	49		mg/Kg	2	3/23/2020 12:20:28 PM	51184
Potassium	750	97		mg/Kg	2	3/23/2020 12:20:28 PM	51184
Selenium	ND	4.9		mg/Kg	2	3/23/2020 12:20:28 PM	51184
Silver	ND	0.49		mg/Kg	2	3/23/2020 12:20:28 PM	51184
Sodium	1300	49		mg/Kg	2	3/23/2020 12:20:28 PM	51184

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		

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Analytical Report

Lab Order 2003467

Date Reported: 3/31/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API Vadose

Project: 2020 Bisti Landfarm Annual Sampling

Collection Date: 3/9/2020 12:10:00 PM

Lab ID: 2003467-005

Matrix: SOIL

Received Date: 3/10/2020 8:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	180	7.5		mg/Kg	5	3/14/2020 2:53:50 PM	51105
Sulfate	200	7.5		mg/Kg	5	3/14/2020 2:53:50 PM	51105
EPA METHOD 7471: MERCURY							Analyst: JLF
Mercury	ND	0.032		mg/Kg	1	3/17/2020 4:13:37 PM	51155
EPA METHOD 6010B: SOIL METALS							Analyst: ELS
Arsenic	ND	5.0		mg/Kg	2	3/23/2020 12:22:16 PM	51184
Barium	180	0.20		mg/Kg	2	3/23/2020 12:22:16 PM	51184
Cadmium	ND	0.20		mg/Kg	2	3/23/2020 12:22:16 PM	51184
Calcium	6000	50		mg/Kg	2	3/23/2020 12:22:16 PM	51184
Chromium	2.4	0.59		mg/Kg	2	3/23/2020 12:22:16 PM	51184
Lead	1.9	0.59		mg/Kg	2	3/23/2020 1:35:34 PM	51184
Magnesium	1600	50		mg/Kg	2	3/23/2020 12:22:16 PM	51184
Potassium	790	99		mg/Kg	2	3/23/2020 12:22:16 PM	51184
Selenium	ND	5.0		mg/Kg	2	3/23/2020 12:22:16 PM	51184
Silver	ND	0.50		mg/Kg	2	3/23/2020 12:22:16 PM	51184
Sodium	880	50		mg/Kg	2	3/23/2020 12:22:16 PM	51184

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		

Page 5 of 10

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2003467

31-Mar-20

Client: Western Refining Southwest, Inc.
Project: 2020 Bisti Landfarm Annual Sampling

Sample ID: MB-51105	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 51105	RunNo: 67316								
Prep Date: 3/13/2020	Analysis Date: 3/14/2020	SeqNo: 2320124 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								
Sulfate	ND	1.5								

Sample ID: LCS-51105	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 51105	RunNo: 67316								
Prep Date: 3/13/2020	Analysis Date: 3/14/2020	SeqNo: 2320125 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.7	90	110			
Sulfate	29	1.5	30.00	0	96.3	90	110			

Sample ID: 2003467-001AMS	SampType: ms	TestCode: EPA Method 300.0: Anions								
Client ID: Westline Vadose	Batch ID: 51105	RunNo: 67316								
Prep Date: 3/13/2020	Analysis Date: 3/14/2020	SeqNo: 2320136 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	18	7.5	15.00	0	117	50.4	161			
Sulfate	600	7.5	30.00	419.8	596	53.8	147			S

Sample ID: 2003467-001AMSD	SampType: msd	TestCode: EPA Method 300.0: Anions								
Client ID: Westline Vadose	Batch ID: 51105	RunNo: 67316								
Prep Date: 3/13/2020	Analysis Date: 3/14/2020	SeqNo: 2320137 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	18	7.5	15.00	0	117	50.4	161	0.116	20	
Sulfate	560	7.5	30.00	419.8	482	53.8	147	5.85	20	S

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

Page 6 of 10

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2003467

31-Mar-20

Client: Western Refining Southwest, Inc.
Project: 2020 Bisti Landfarm Annual Sampling

Sample ID: MB-51155	SampType: MBLK	TestCode: EPA Method 7471: Mercury								
Client ID: PBS	Batch ID: 51155	RunNo: 67360								
Prep Date: 3/17/2020	Analysis Date: 3/17/2020	SeqNo: 2321939	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID: LLCS-51155	SampType: LCSLL	TestCode: EPA Method 7471: Mercury								
Client ID: BatchQC	Batch ID: 51155	RunNo: 67360								
Prep Date: 3/17/2020	Analysis Date: 3/17/2020	SeqNo: 2321940	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033	0.006660	0	76.1	70	130			

Sample ID: LCS-51155	SampType: LCS	TestCode: EPA Method 7471: Mercury								
Client ID: LCSS	Batch ID: 51155	RunNo: 67360								
Prep Date: 3/17/2020	Analysis Date: 3/17/2020	SeqNo: 2321941	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.14	0.033	0.1667	0	83.0	80	120			

Sample ID: 2003467-001AMS	SampType: MS	TestCode: EPA Method 7471: Mercury								
Client ID: Westline Vadose	Batch ID: 51155	RunNo: 67360								
Prep Date: 3/17/2020	Analysis Date: 3/17/2020	SeqNo: 2321954	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.15	0.033	0.1689	0.006593	83.0	80	120			

Sample ID: 2003467-001AMSD	SampType: MSD	TestCode: EPA Method 7471: Mercury								
Client ID: Westline Vadose	Batch ID: 51155	RunNo: 67360								
Prep Date: 3/17/2020	Analysis Date: 3/17/2020	SeqNo: 2321955	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.14	0.032	0.1634	0.006593	82.6	80	120	3.54	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

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2003467

31-Mar-20

Client: Western Refining Southwest, Inc.
Project: 2020 Bisti Landfarm Annual Sampling

Sample ID: MB-51184	SampType: MBLK	TestCode: EPA Method 6010B: Soil Metals								
Client ID: PBS	Batch ID: 51184	RunNo: 67499								
Prep Date: 3/18/2020	Analysis Date: 3/23/2020	SeqNo: 2329484	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								
Barium	ND	0.10								
Cadmium	ND	0.10								
Calcium	ND	25								
Chromium	ND	0.30								
Magnesium	ND	25								
Potassium	ND	50								
Selenium	ND	2.5								
Silver	ND	0.25								
Sodium	ND	25								

Sample ID: LCS-51184	SampType: LCS	TestCode: EPA Method 6010B: Soil Metals								
Client ID: LCSS	Batch ID: 51184	RunNo: 67499								
Prep Date: 3/18/2020	Analysis Date: 3/23/2020	SeqNo: 2329488	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	23	2.5	25.00	0	92.4	80	120			
Barium	24	0.10	25.00	0	96.6	80	120			
Cadmium	24	0.10	25.00	0	95.9	80	120			
Calcium	2500	25	2500	0	102	80	120			
Chromium	24	0.30	25.00	0	95.3	80	120			
Magnesium	2500	25	2500	0	100	80	120			
Potassium	2400	50	2500	0	97.9	80	120			
Selenium	24	2.5	25.00	0	94.4	80	120			
Silver	4.6	0.25	5.000	0	92.2	80	120			
Sodium	2500	25	2500	0	99.0	80	120			

Sample ID: 2003467-001AMS	SampType: MS	TestCode: EPA Method 6010B: Soil Metals								
Client ID: Westline Vadose	Batch ID: 51184	RunNo: 67499								
Prep Date: 3/18/2020	Analysis Date: 3/23/2020	SeqNo: 2329520	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	23	4.9	24.47	0	94.6	75	125			
Barium	130	0.20	24.47	91.37	139	75	125			S
Cadmium	22	0.20	24.47	0	88.8	75	125			
Calcium	4600	49	2447	3096	63.2	75	125			S
Chromium	27	0.59	24.47	4.229	92.4	75	125			
Magnesium	4200	49	2447	1968	92.6	75	125			
Potassium	4100	98	2447	1660	100	75	125			
Silver	2.8	0.49	4.894	0	57.8	75	125			S

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

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2003467

31-Mar-20

Client: Western Refining Southwest, Inc.
Project: 2020 Bisti Landfarm Annual Sampling

Sample ID: 2003467-001AMS	SampType: MS	TestCode: EPA Method 6010B: Soil Metals								
Client ID: Westline Vadose	Batch ID: 51184	RunNo: 67499								
Prep Date: 3/18/2020	Analysis Date: 3/23/2020	SeqNo: 2329520	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	2500	49	2447	150.5	95.0	75	125			

Sample ID: 2003467-001AMSD	SampType: MSD	TestCode: EPA Method 6010B: Soil Metals								
Client ID: Westline Vadose	Batch ID: 51184	RunNo: 67499								
Prep Date: 3/18/2020	Analysis Date: 3/23/2020	SeqNo: 2329521	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	25	5.1	25.48	0	97.2	75	125	6.69	20	
Barium	120	0.20	25.48	91.37	95.7	75	125	8.01	20	
Cadmium	23	0.20	25.48	0	89.4	75	125	4.75	20	
Calcium	5900	51	2548	3096	112	75	125	24.6	20	R
Chromium	28	0.61	25.48	4.229	94.2	75	125	5.03	20	
Magnesium	4400	51	2548	1968	96.9	75	125	4.66	20	
Potassium	4200	100	2548	1660	101	75	125	2.75	20	
Silver	3.0	0.51	5.096	0	58.6	75	125	5.33	20	S
Sodium	2500	51	2548	150.5	93.3	75	125	2.07	20	

Sample ID: MB-51184	SampType: MBLK	TestCode: EPA Method 6010B: Soil Metals								
Client ID: PBS	Batch ID: 51184	RunNo: 67499								
Prep Date: 3/18/2020	Analysis Date: 3/23/2020	SeqNo: 2329545	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	ND	0.30								
Selenium	ND	2.5								

Sample ID: LCS-51184	SampType: LCS	TestCode: EPA Method 6010B: Soil Metals								
Client ID: LCSS	Batch ID: 51184	RunNo: 67499								
Prep Date: 3/18/2020	Analysis Date: 3/23/2020	SeqNo: 2329546	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	25	0.30	25.00	0	100	80	120			
Selenium	24	2.5	25.00	0	97.8	80	120			

Sample ID: 2003467-001AMS	SampType: MS	TestCode: EPA Method 6010B: Soil Metals								
Client ID: Westline Vadose	Batch ID: 51184	RunNo: 67499								
Prep Date: 3/18/2020	Analysis Date: 3/23/2020	SeqNo: 2329560	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	24	0.59	24.47	2.402	86.3	75	125			
Selenium	20	4.9	24.47	0	82.3	75	125			

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

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QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2003467

31-Mar-20

Client: Western Refining Southwest, Inc.
Project: 2020 Bisti Landfarm Annual Sampling

Sample ID: 2003467-001AMSD		SampType: MSD		TestCode: EPA Method 6010B: Soil Metals						
Client ID: Westline Vadose		Batch ID: 51184		RunNo: 67499						
Prep Date: 3/18/2020		Analysis Date: 3/23/2020		SeqNo: 2329561		Units: mg/Kg				
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	24	0.61	25.48	2.402	85.2	75	125	2.50	20	
Selenium	22	5.1	25.48	0	86.2	75	125	8.59	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

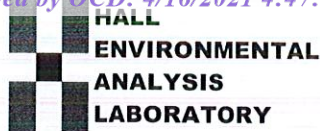
S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank

E Value above quantitation range

J Analyte detected below quantitation limits

P Sample pH Not In Range

RL Reporting Limit



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

Sample Log-In Check List

Client Name: **Western Refining Southw**Work Order Number: **2003467**

RcptNo: 1

Received By: **Yazmine Garduno**

3/10/2020 8:15:00 AM

*Yazmine Garduno*Completed By: **Leah Baca**

3/11/2020 10:21:05 AM

*Leah Baca*Reviewed By: **ENH**

3/11/20

Chain of Custody

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

Log In

3. Was an attempt made to cool the samples? Yes ☒ No ☐ NA ☐
4. Were all samples received at a temperature of $>0^{\circ}\text{C}$ 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:

(<2 or >12 unless noted)

Adjusted? _____

Checked by: **DAD 3/11/20**

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 $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.5	Good				
2	2.9	Good				

Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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

Page 1 of 0

Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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 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
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

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		

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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
1,4-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
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
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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

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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 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
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

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		

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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
1,4-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
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
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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		

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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 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
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

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		

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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
1,4-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
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
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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

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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 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
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

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		

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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
1,4-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
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
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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		

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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 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
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

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		

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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
1,4-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
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
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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		

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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 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
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

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

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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
1,4-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
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
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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

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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 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
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

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		

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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
1,4-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
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
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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

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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 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
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

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		

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Analytical Report

Lab Order 2005203

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

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
1,4-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
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
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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

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

July 14, 2020

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

RE: Bisti Landfarm

OrderNo.: 2007394

Dear Gregory McCartney:

Hall Environmental Analysis Laboratory received 5 sample(s) on 7/9/2020 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 light blue horizontal line.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 2007394

Date Reported: 7/14/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: West Line Vadose

Project: Bisti Landfarm

Collection Date: 7/8/2020 11:22:00 AM

Lab ID: 2007394-001

Matrix: SOIL

Received Date: 7/9/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/12/2020 3:02:57 AM	53610
Surr: BFB	102	70-130		%Rec	1	7/12/2020 3:02:57 AM	53610
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	21	9.5		mg/Kg	1	7/13/2020 11:01:44 AM	53631
Motor Oil Range Organics (MRO)	47	47		mg/Kg	1	7/13/2020 11:01:44 AM	53631
Surr: DNOP	80.1	55.1-146		%Rec	1	7/13/2020 11:01:44 AM	53631
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: DJF
Benzene	ND	0.024		mg/Kg	1	7/12/2020 3:02:57 AM	53610
Toluene	ND	0.048		mg/Kg	1	7/12/2020 3:02:57 AM	53610
Ethylbenzene	ND	0.048		mg/Kg	1	7/12/2020 3:02:57 AM	53610
Xylenes, Total	ND	0.096		mg/Kg	1	7/12/2020 3:02:57 AM	53610
Surr: 1,2-Dichloroethane-d4	99.8	70-130		%Rec	1	7/12/2020 3:02:57 AM	53610
Surr: 4-Bromofluorobenzene	92.7	70-130		%Rec	1	7/12/2020 3:02:57 AM	53610
Surr: Dibromofluoromethane	99.8	70-130		%Rec	1	7/12/2020 3:02:57 AM	53610
Surr: Toluene-d8	98.3	70-130		%Rec	1	7/12/2020 3:02:57 AM	53610

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		

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Analytical Report

Lab Order 2007394

Date Reported: 7/14/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: East Line Vadose

Project: Bisti Landfarm

Collection Date: 7/8/2020 11:34:00 AM

Lab ID: 2007394-002

Matrix: SOIL

Received Date: 7/9/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/12/2020 3:32:38 AM	53610
Surr: BFB	103	70-130		%Rec	1	7/12/2020 3:32:38 AM	53610
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	7/12/2020 4:15:34 AM	53631
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/12/2020 4:15:34 AM	53631
Surr: DNOP	98.3	55.1-146		%Rec	1	7/12/2020 4:15:34 AM	53631
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: DJF
Benzene	ND	0.024		mg/Kg	1	7/12/2020 3:32:38 AM	53610
Toluene	ND	0.048		mg/Kg	1	7/12/2020 3:32:38 AM	53610
Ethylbenzene	ND	0.048		mg/Kg	1	7/12/2020 3:32:38 AM	53610
Xylenes, Total	ND	0.096		mg/Kg	1	7/12/2020 3:32:38 AM	53610
Surr: 1,2-Dichloroethane-d4	100	70-130		%Rec	1	7/12/2020 3:32:38 AM	53610
Surr: 4-Bromofluorobenzene	90.7	70-130		%Rec	1	7/12/2020 3:32:38 AM	53610
Surr: Dibromofluoromethane	101	70-130		%Rec	1	7/12/2020 3:32:38 AM	53610
Surr: Toluene-d8	97.9	70-130		%Rec	1	7/12/2020 3:32:38 AM	53610

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		

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Analytical Report

Lab Order 2007394

Date Reported: 7/14/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Bisti Vadose

Project: Bisti Landfarm

Collection Date: 7/8/2020 11:41:00 AM

Lab ID: 2007394-003

Matrix: SOIL

Received Date: 7/9/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/12/2020 4:02:39 AM	53610
Surr: BFB	105	70-130		%Rec	1	7/12/2020 4:02:39 AM	53610
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	7/12/2020 4:39:55 AM	53631
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/12/2020 4:39:55 AM	53631
Surr: DNOP	99.9	55.1-146		%Rec	1	7/12/2020 4:39:55 AM	53631
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: DJF
Benzene	ND	0.025		mg/Kg	1	7/12/2020 4:02:39 AM	53610
Toluene	ND	0.049		mg/Kg	1	7/12/2020 4:02:39 AM	53610
Ethylbenzene	ND	0.049		mg/Kg	1	7/12/2020 4:02:39 AM	53610
Xylenes, Total	ND	0.099		mg/Kg	1	7/12/2020 4:02:39 AM	53610
Surr: 1,2-Dichloroethane-d4	97.9	70-130		%Rec	1	7/12/2020 4:02:39 AM	53610
Surr: 4-Bromofluorobenzene	91.8	70-130		%Rec	1	7/12/2020 4:02:39 AM	53610
Surr: Dibromofluoromethane	103	70-130		%Rec	1	7/12/2020 4:02:39 AM	53610
Surr: Toluene-d8	98.1	70-130		%Rec	1	7/12/2020 4:02:39 AM	53610

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		

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Analytical Report

Lab Order 2007394

Date Reported: 7/14/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Pettigrew Vadose

Project: Bisti Landfarm

Collection Date: 7/8/2020 12:05:00 PM

Lab ID: 2007394-004

Matrix: SOIL

Received Date: 7/9/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	7/12/2020 4:32:33 AM	53610
Surr: BFB	107	70-130		%Rec	1	7/12/2020 4:32:33 AM	53610
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/12/2020 5:04:17 AM	53631
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/12/2020 5:04:17 AM	53631
Surr: DNOP	97.5	55.1-146		%Rec	1	7/12/2020 5:04:17 AM	53631
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: DJF
Benzene	ND	0.023		mg/Kg	1	7/12/2020 4:32:33 AM	53610
Toluene	ND	0.046		mg/Kg	1	7/12/2020 4:32:33 AM	53610
Ethylbenzene	ND	0.046		mg/Kg	1	7/12/2020 4:32:33 AM	53610
Xylenes, Total	ND	0.092		mg/Kg	1	7/12/2020 4:32:33 AM	53610
Surr: 1,2-Dichloroethane-d4	96.0	70-130		%Rec	1	7/12/2020 4:32:33 AM	53610
Surr: 4-Bromofluorobenzene	94.0	70-130		%Rec	1	7/12/2020 4:32:33 AM	53610
Surr: Dibromofluoromethane	99.4	70-130		%Rec	1	7/12/2020 4:32:33 AM	53610
Surr: Toluene-d8	98.0	70-130		%Rec	1	7/12/2020 4:32:33 AM	53610

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		

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Analytical Report

Lab Order 2007394

Date Reported: 7/14/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 1 Vadose

Project: Bisti Landfarm

Collection Date: 7/8/2020 11:50:00 AM

Lab ID: 2007394-005

Matrix: SOIL

Received Date: 7/9/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	7/12/2020 5:01:54 AM	53610
Surr: BFB	104	70-130		%Rec	1	7/12/2020 5:01:54 AM	53610
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/12/2020 5:28:40 AM	53631
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	7/12/2020 5:28:40 AM	53631
Surr: DNOP	96.6	55.1-146		%Rec	1	7/12/2020 5:28:40 AM	53631
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: DJF
Benzene	ND	0.023		mg/Kg	1	7/12/2020 5:01:54 AM	53610
Toluene	ND	0.046		mg/Kg	1	7/12/2020 5:01:54 AM	53610
Ethylbenzene	ND	0.046		mg/Kg	1	7/12/2020 5:01:54 AM	53610
Xylenes, Total	ND	0.091		mg/Kg	1	7/12/2020 5:01:54 AM	53610
Surr: 1,2-Dichloroethane-d4	95.7	70-130		%Rec	1	7/12/2020 5:01:54 AM	53610
Surr: 4-Bromofluorobenzene	92.1	70-130		%Rec	1	7/12/2020 5:01:54 AM	53610
Surr: Dibromofluoromethane	99.0	70-130		%Rec	1	7/12/2020 5:01:54 AM	53610
Surr: Toluene-d8	99.7	70-130		%Rec	1	7/12/2020 5:01:54 AM	53610

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		

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2007394

14-Jul-20

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

Sample ID: MB-53631	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 53631	RunNo: 70238								
Prep Date: 7/10/2020	Analysis Date: 7/11/2020	SeqNo: 2442244	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		107	55.1	146			

Sample ID: LCS-53631	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 53631	RunNo: 70238								
Prep Date: 7/10/2020	Analysis Date: 7/11/2020	SeqNo: 2442245	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	57	10	50.00	0	114	70	130			
Surr: DNOP	5.1		5.000		102	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

Page 6 of 8

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2007394

14-Jul-20

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

Sample ID: mb-53610	SampType: MBLK	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: PBS	Batch ID: 53610	RunNo: 70264								
Prep Date: 7/9/2020	Analysis Date: 7/11/2020	SeqNo: 2441938	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								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		94.1	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		92.2	70	130			
Surr: Dibromofluoromethane	0.49		0.5000		97.8	70	130			
Surr: Toluene-d8	0.50		0.5000		101	70	130			

Sample ID: lcs-53610	SampType: LCS4	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: BatchQC	Batch ID: 53610	RunNo: 70264								
Prep Date: 7/9/2020	Analysis Date: 7/11/2020	SeqNo: 2441939	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	104	80	120			
Toluene	1.1	0.050	1.000	0	111	80	120			
Ethylbenzene	1.1	0.050	1.000	0	112	80	120			
Xylenes, Total	3.4	0.10	3.000	0	113	80	120			
Surr: 1,2-Dichloroethane-d4	0.49		0.5000		97.9	70	130			
Surr: 4-Bromofluorobenzene	0.43		0.5000		86.8	70	130			
Surr: Dibromofluoromethane	0.49		0.5000		98.6	70	130			
Surr: Toluene-d8	0.51		0.5000		103	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

Page 7 of 8

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2007394

14-Jul-20

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

Sample ID: mb-53610	SampType: MBLK	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: PBS	Batch ID: 53610	RunNo: 70264								
Prep Date: 7/9/2020	Analysis Date: 7/11/2020	SeqNo: 2441970	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	530		500.0		106	70	130			

Sample ID: lcs-53610	SampType: LCS	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: LCSS	Batch ID: 53610	RunNo: 70264								
Prep Date: 7/9/2020	Analysis Date: 7/11/2020	SeqNo: 2441971	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	107	70	130			
Surr: BFB	530		500.0		106	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



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

Sample Log-In Check List

Client Name: Western Refining
Southwest, Inc.

Work Order Number: 2007394

RcptNo: 1

Received By: Juan Rojas 7/9/2020 8:00:00 AM

Completed By: Juan Rojas 7/9/2020 8:31:20 AM

Reviewed By: *my* 07/09/20

Chain of Custody

1. Is Chain of Custody 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 $>0^{\circ}\text{C}$ 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: _____
(<2 or >12 unless noted)
Adjusted? _____
Checked by: *JE 7/9/20*

Special Handling (if applicable)

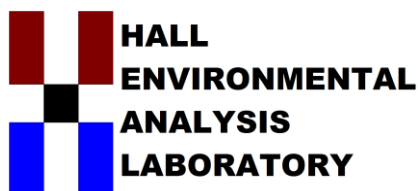
15. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☒

Person Notified: _____ Date: _____
By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person
Regarding: _____
Client Instructions: _____

16. Additional remarks:

17. Cooler Information

Cooler No	Temp $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	0.4	Good				
2	1.4	Good				



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

July 29, 2020

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

RE: Bisti Landfarm

OrderNo.: 2007390

Dear Gregory McCartney:

Hall Environmental Analysis Laboratory received 10 sample(s) on 7/9/2020 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".

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order 2007390

Date Reported: 7/29/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Crude Treatment

Project: Bisti Landfarm

Collection Date: 7/8/2020 12:33:00 PM

Lab ID: 2007390-001

Matrix: SOIL

Received Date: 7/9/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: CFC
Petroleum Hydrocarbons, TR	190	20		mg/Kg	1	7/12/2020	53643
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	ND	60		mg/Kg	20	7/13/2020 8:52:20 AM	53665
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/11/2020 7:02:34 PM	53610
Surr: BFB	106	70-130		%Rec	1	7/11/2020 7:02:34 PM	53610
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	27	9.4		mg/Kg	1	7/13/2020 9:48:35 AM	53631
Surr: DNOP	97.6	55.1-146		%Rec	1	7/13/2020 9:48:35 AM	53631

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		

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Analytical Report

Lab Order 2007390

Date Reported: 7/29/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API Treatment

Project: Bisti Landfarm

Collection Date: 7/8/2020 12:40:00 PM

Lab ID: 2007390-002

Matrix: SOIL

Received Date: 7/9/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: CFC
Petroleum Hydrocarbons, TR	31	19		mg/Kg	1	7/12/2020	53643
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	ND	60		mg/Kg	20	7/13/2020 9:29:33 AM	53665
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/11/2020 8:34:09 PM	53610
Surr: BFB	105	70-130		%Rec	1	7/11/2020 8:34:09 PM	53610
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	7/13/2020 10:13:09 AM	53631
Surr: DNOP	89.6	55.1-146		%Rec	1	7/13/2020 10:13:09 AM	53631

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		

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Analytical Report

Lab Order 2007390

Date Reported: 7/29/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: West Line Vadose

Project: Bisti Landfarm

Collection Date: 7/8/2020 11:22:00 AM

Lab ID: 2007390-003

Matrix: SOIL

Received Date: 7/9/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: CFC
Petroleum Hydrocarbons, TR	180	18		mg/Kg	1	7/12/2020	53643
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	ND	60		mg/Kg	20	7/13/2020 9:41:57 AM	53665
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/11/2020 9:04:21 PM	53610
Surr: BFB	108	70-130		%Rec	1	7/11/2020 9:04:21 PM	53610
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	18	9.6		mg/Kg	1	7/13/2020 10:37:24 AM	53631
Surr: DNOP	66.6	55.1-146		%Rec	1	7/13/2020 10:37:24 AM	53631
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: DJF
Benzene	ND	0.024		mg/Kg	1	7/11/2020 9:04:21 PM	53610
Toluene	ND	0.048		mg/Kg	1	7/11/2020 9:04:21 PM	53610
Ethylbenzene	ND	0.048		mg/Kg	1	7/11/2020 9:04:21 PM	53610
Xylenes, Total	ND	0.097		mg/Kg	1	7/11/2020 9:04:21 PM	53610
Surr: 1,2-Dichloroethane-d4	92.9	70-130		%Rec	1	7/11/2020 9:04:21 PM	53610
Surr: 4-Bromofluorobenzene	96.7	70-130		%Rec	1	7/11/2020 9:04:21 PM	53610
Surr: Dibromofluoromethane	97.3	70-130		%Rec	1	7/11/2020 9:04:21 PM	53610
Surr: Toluene-d8	102	70-130		%Rec	1	7/11/2020 9:04:21 PM	53610

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

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Analytical Report

Lab Order 2007390

Date Reported: 7/29/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: East Line Vadose

Project: Bisti Landfarm

Collection Date: 7/8/2020 11:34:00 AM

Lab ID: 2007390-004

Matrix: SOIL

Received Date: 7/9/2020 8:00:00 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	7/12/2020	53643
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	ND	60		mg/Kg	20	7/13/2020 9:54:22 AM	53665
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/12/2020 12:33:17 PM	53610
Surr: BFB	107	70-130		%Rec	1	7/12/2020 12:33:17 PM	53610
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	7/12/2020 1:00:19 AM	53631
Surr: DNOP	99.4	55.1-146		%Rec	1	7/12/2020 1:00:19 AM	53631
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: DJF
Benzene	ND	0.025		mg/Kg	1	7/12/2020 12:33:17 PM	53610
Toluene	ND	0.050		mg/Kg	1	7/12/2020 12:33:17 PM	53610
Ethylbenzene	ND	0.050		mg/Kg	1	7/12/2020 12:33:17 PM	53610
Xylenes, Total	ND	0.099		mg/Kg	1	7/12/2020 12:33:17 PM	53610
Surr: 1,2-Dichloroethane-d4	97.9	70-130		%Rec	1	7/12/2020 12:33:17 PM	53610
Surr: 4-Bromofluorobenzene	93.3	70-130		%Rec	1	7/12/2020 12:33:17 PM	53610
Surr: Dibromofluoromethane	96.2	70-130		%Rec	1	7/12/2020 12:33:17 PM	53610
Surr: Toluene-d8	99.6	70-130		%Rec	1	7/12/2020 12:33:17 PM	53610

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		

Analytical Report

Lab Order 2007390

Date Reported: 7/29/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Bisti Vadose

Project: Bisti Landfarm

Collection Date: 7/8/2020 11:41:00 AM

Lab ID: 2007390-005

Matrix: SOIL

Received Date: 7/9/2020 8:00:00 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	7/12/2020	53643
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	ND	60		mg/Kg	20	7/13/2020 10:06:46 AM	53665
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/11/2020 10:04:18 PM	53610
Surr: BFB	106	70-130		%Rec	1	7/11/2020 10:04:18 PM	53610
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/12/2020 1:24:44 AM	53631
Surr: DNOP	109	55.1-146		%Rec	1	7/12/2020 1:24:44 AM	53631
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: DJF
Benzene	ND	0.024		mg/Kg	1	7/11/2020 10:04:18 PM	53610
Toluene	ND	0.048		mg/Kg	1	7/11/2020 10:04:18 PM	53610
Ethylbenzene	ND	0.048		mg/Kg	1	7/11/2020 10:04:18 PM	53610
Xylenes, Total	ND	0.097		mg/Kg	1	7/11/2020 10:04:18 PM	53610
Surr: 1,2-Dichloroethane-d4	94.7	70-130		%Rec	1	7/11/2020 10:04:18 PM	53610
Surr: 4-Bromofluorobenzene	92.2	70-130		%Rec	1	7/11/2020 10:04:18 PM	53610
Surr: Dibromofluoromethane	97.5	70-130		%Rec	1	7/11/2020 10:04:18 PM	53610
Surr: Toluene-d8	103	70-130		%Rec	1	7/11/2020 10:04:18 PM	53610

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

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Analytical Report

Lab Order 2007390

Date Reported: 7/29/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Pettigrew Vadose

Project: Bisti Landfarm

Collection Date: 7/8/2020 12:05:00 PM

Lab ID: 2007390-006

Matrix: SOIL

Received Date: 7/9/2020 8:00:00 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	7/12/2020	53643
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	2400	60		mg/Kg	20	7/13/2020 10:19:11 AM	53665
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/12/2020 12:35:24 AM	53610
Surr: BFB	105	70-130		%Rec	1	7/12/2020 12:35:24 AM	53610
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	7/12/2020 1:49:15 AM	53631
Surr: DNOP	84.5	55.1-146		%Rec	1	7/12/2020 1:49:15 AM	53631
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: DJF
Benzene	ND	0.024		mg/Kg	1	7/12/2020 12:35:24 AM	53610
Toluene	ND	0.047		mg/Kg	1	7/12/2020 12:35:24 AM	53610
Ethylbenzene	ND	0.047		mg/Kg	1	7/12/2020 12:35:24 AM	53610
Xylenes, Total	ND	0.094		mg/Kg	1	7/12/2020 12:35:24 AM	53610
Surr: 1,2-Dichloroethane-d4	96.9	70-130		%Rec	1	7/12/2020 12:35:24 AM	53610
Surr: 4-Bromofluorobenzene	93.5	70-130		%Rec	1	7/12/2020 12:35:24 AM	53610
Surr: Dibromofluoromethane	100	70-130		%Rec	1	7/12/2020 12:35:24 AM	53610
Surr: Toluene-d8	102	70-130		%Rec	1	7/12/2020 12:35:24 AM	53610

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

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Analytical Report

Lab Order 2007390

Date Reported: 7/29/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API-1 Vadose

Project: Bisti Landfarm

Collection Date: 7/8/2020 11:50:00 AM

Lab ID: 2007390-007

Matrix: SOIL

Received Date: 7/9/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: CFC
Petroleum Hydrocarbons, TR	ND	17		mg/Kg	1	7/12/2020	53643
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	ND	60		mg/Kg	20	7/13/2020 10:56:24 AM	53665
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/12/2020 1:05:08 AM	53610
Surr: BFB	106	70-130		%Rec	1	7/12/2020 1:05:08 AM	53610
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	7/12/2020 2:13:38 AM	53631
Surr: DNOP	99.6	55.1-146		%Rec	1	7/12/2020 2:13:38 AM	53631
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: DJF
Benzene	ND	0.024		mg/Kg	1	7/12/2020 1:05:08 AM	53610
Toluene	ND	0.048		mg/Kg	1	7/12/2020 1:05:08 AM	53610
Ethylbenzene	ND	0.048		mg/Kg	1	7/12/2020 1:05:08 AM	53610
Xylenes, Total	ND	0.096		mg/Kg	1	7/12/2020 1:05:08 AM	53610
Surr: 1,2-Dichloroethane-d4	92.6	70-130		%Rec	1	7/12/2020 1:05:08 AM	53610
Surr: 4-Bromofluorobenzene	93.3	70-130		%Rec	1	7/12/2020 1:05:08 AM	53610
Surr: Dibromofluoromethane	94.2	70-130		%Rec	1	7/12/2020 1:05:08 AM	53610
Surr: Toluene-d8	99.5	70-130		%Rec	1	7/12/2020 1:05:08 AM	53610

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

Page 7 of 15

Analytical Report

Lab Order 2007390

Date Reported: 7/29/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 2 Vadose

Project: Bisti Landfarm

Collection Date: 7/8/2020 11:58:00 AM

Lab ID: 2007390-008

Matrix: SOIL

Received Date: 7/9/2020 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: CFC
Petroleum Hydrocarbons, TR	ND	16		mg/Kg	1	7/12/2020	53643
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	ND	60		mg/Kg	20	7/13/2020 11:08:49 AM	53665
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/12/2020 1:34:40 AM	53610
Surr: BFB	105	70-130		%Rec	1	7/12/2020 1:34:40 AM	53610
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	7/12/2020 2:38:03 AM	53631
Surr: DNOP	96.5	55.1-146		%Rec	1	7/12/2020 2:38:03 AM	53631
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: DJF
Benzene	ND	0.025		mg/Kg	1	7/12/2020 1:34:40 AM	53610
Toluene	ND	0.049		mg/Kg	1	7/12/2020 1:34:40 AM	53610
Ethylbenzene	ND	0.049		mg/Kg	1	7/12/2020 1:34:40 AM	53610
Xylenes, Total	ND	0.098		mg/Kg	1	7/12/2020 1:34:40 AM	53610
Surr: 1,2-Dichloroethane-d4	96.6	70-130		%Rec	1	7/12/2020 1:34:40 AM	53610
Surr: 4-Bromofluorobenzene	92.2	70-130		%Rec	1	7/12/2020 1:34:40 AM	53610
Surr: Dibromofluoromethane	98.1	70-130		%Rec	1	7/12/2020 1:34:40 AM	53610
Surr: Toluene-d8	95.9	70-130		%Rec	1	7/12/2020 1:34:40 AM	53610

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

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Analytical Report

Lab Order 2007390

Date Reported: 7/29/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 3 Vadose

Project: Bisti Landfarm

Collection Date: 7/8/2020 12:12:00 PM

Lab ID: 2007390-009

Matrix: SOIL

Received Date: 7/9/2020 8:00:00 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	7/12/2020	53643
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	310	60		mg/Kg	20	7/13/2020 11:21:14 AM	53665
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/12/2020 2:04:08 AM	53610
Surr: BFB	105	70-130		%Rec	1	7/12/2020 2:04:08 AM	53610
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	7/12/2020 3:02:24 AM	53631
Surr: DNOP	96.2	55.1-146		%Rec	1	7/12/2020 3:02:24 AM	53631
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: DJF
Benzene	ND	0.025		mg/Kg	1	7/12/2020 2:04:08 AM	53610
Toluene	ND	0.050		mg/Kg	1	7/12/2020 2:04:08 AM	53610
Ethylbenzene	ND	0.050		mg/Kg	1	7/12/2020 2:04:08 AM	53610
Xylenes, Total	ND	0.10		mg/Kg	1	7/12/2020 2:04:08 AM	53610
Surr: 1,2-Dichloroethane-d4	97.0	70-130		%Rec	1	7/12/2020 2:04:08 AM	53610
Surr: 4-Bromofluorobenzene	94.0	70-130		%Rec	1	7/12/2020 2:04:08 AM	53610
Surr: Dibromofluoromethane	98.8	70-130		%Rec	1	7/12/2020 2:04:08 AM	53610
Surr: Toluene-d8	97.1	70-130		%Rec	1	7/12/2020 2:04:08 AM	53610

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

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Analytical Report

Lab Order 2007390

Date Reported: 7/29/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 4 Vadose

Project: Bisti Landfarm

Collection Date: 7/8/2020 12:19:00 PM

Lab ID: 2007390-010

Matrix: SOIL

Received Date: 7/9/2020 8:00:00 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	7/12/2020	53643
EPA METHOD 300.0: ANIONS							Analyst: JMT
Chloride	ND	60		mg/Kg	20	7/13/2020 11:33:38 AM	53665
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: DJF
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/12/2020 2:33:31 AM	53610
Surr: BFB	104	70-130		%Rec	1	7/12/2020 2:33:31 AM	53610
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: BRM
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	7/12/2020 3:26:49 AM	53631
Surr: DNOP	96.0	55.1-146		%Rec	1	7/12/2020 3:26:49 AM	53631
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: DJF
Benzene	ND	0.024		mg/Kg	1	7/12/2020 2:33:31 AM	53610
Toluene	ND	0.048		mg/Kg	1	7/12/2020 2:33:31 AM	53610
Ethylbenzene	ND	0.048		mg/Kg	1	7/12/2020 2:33:31 AM	53610
Xylenes, Total	ND	0.096		mg/Kg	1	7/12/2020 2:33:31 AM	53610
Surr: 1,2-Dichloroethane-d4	96.8	70-130		%Rec	1	7/12/2020 2:33:31 AM	53610
Surr: 4-Bromofluorobenzene	92.1	70-130		%Rec	1	7/12/2020 2:33:31 AM	53610
Surr: Dibromofluoromethane	99.3	70-130		%Rec	1	7/12/2020 2:33:31 AM	53610
Surr: Toluene-d8	99.6	70-130		%Rec	1	7/12/2020 2:33:31 AM	53610

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

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2007390

29-Jul-20

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

Sample ID: MB-53665	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 53665	RunNo: 70304								
Prep Date: 7/13/2020	Analysis Date: 7/13/2020	SeqNo: 2443770		Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-53665	SampType: lcs	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 53665	RunNo: 70304								
Prep Date: 7/13/2020	Analysis Date: 7/13/2020	SeqNo: 2443771		Units: mg/Kg						
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.1	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

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QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2007390

29-Jul-20

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

Sample ID: MB-53643	SampType: MBLK	TestCode: EPA Method 418.1: TPH								
Client ID: PBS	Batch ID: 53643	RunNo: 70268								
Prep Date: 7/11/2020	Analysis Date: 7/12/2020	SeqNo: 2442397	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-53643	SampType: LCS	TestCode: EPA Method 418.1: TPH								
Client ID: LCSS	Batch ID: 53643	RunNo: 70268								
Prep Date: 7/11/2020	Analysis Date: 7/12/2020	SeqNo: 2442398	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	134.0	0	81.9	62.5	123			

Sample ID: LCSD-53643	SampType: LCSD	TestCode: EPA Method 418.1: TPH								
Client ID: LCSS02	Batch ID: 53643	RunNo: 70268								
Prep Date: 7/11/2020	Analysis Date: 7/12/2020	SeqNo: 2442399	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	134.0	0	82.9	62.5	123	1.23	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#: 2007390

29-Jul-20

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

Sample ID: MB-53631	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 53631	RunNo: 70238								
Prep Date: 7/10/2020	Analysis Date: 7/11/2020	SeqNo: 2442244 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Surr: DNOP	11		10.00		107	55.1	146			

Sample ID: LCS-53631	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 53631	RunNo: 70238								
Prep Date: 7/10/2020	Analysis Date: 7/11/2020	SeqNo: 2442245 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	57	10	50.00	0	114	70	130			
Surr: DNOP	5.1		5.000		102	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#: 2007390

29-Jul-20

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

Sample ID: mb-53610	SampType: MBLK	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: PBS	Batch ID: 53610	RunNo: 70264								
Prep Date: 7/9/2020	Analysis Date: 7/11/2020	SeqNo: 2441938	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								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		94.1	70	130			
Surr: 4-Bromofluorobenzene	0.46		0.5000		92.2	70	130			
Surr: Dibromofluoromethane	0.49		0.5000		97.8	70	130			
Surr: Toluene-d8	0.50		0.5000		101	70	130			

Sample ID: lcs-53610	SampType: LCS4	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: BatchQC	Batch ID: 53610	RunNo: 70264								
Prep Date: 7/9/2020	Analysis Date: 7/11/2020	SeqNo: 2441939	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.025	1.000	0	104	80	120			
Toluene	1.1	0.050	1.000	0	111	80	120			
Ethylbenzene	1.1	0.050	1.000	0	112	80	120			
Xylenes, Total	3.4	0.10	3.000	0	113	80	120			
Surr: 1,2-Dichloroethane-d4	0.49		0.5000		97.9	70	130			
Surr: 4-Bromofluorobenzene	0.43		0.5000		86.8	70	130			
Surr: Dibromofluoromethane	0.49		0.5000		98.6	70	130			
Surr: Toluene-d8	0.51		0.5000		103	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#: 2007390

29-Jul-20

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

Sample ID: mb-53610	SampType: MBLK	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: PBS	Batch ID: 53610	RunNo: 70264								
Prep Date: 7/9/2020	Analysis Date: 7/11/2020	SeqNo: 2441970 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	530		500.0		106	70	130			

Sample ID: lcs-53610	SampType: LCS	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: LCSS	Batch ID: 53610	RunNo: 70264								
Prep Date: 7/9/2020	Analysis Date: 7/11/2020	SeqNo: 2441971 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	107	70	130			
Surr: BFB	530		500.0		106	70	130			

Sample ID: 2007390-001ams	SampType: MS	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: Crude Treatment	Batch ID: 53610	RunNo: 70264								
Prep Date: 7/9/2020	Analysis Date: 7/11/2020	SeqNo: 2441981 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	24.75	0	99.0	70	130			
Surr: BFB	530		495.0		106	70	130			

Sample ID: 2007390-001amsd	SampType: MSD	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: Crude Treatment	Batch ID: 53610	RunNo: 70264								
Prep Date: 7/9/2020	Analysis Date: 7/11/2020	SeqNo: 2441982 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	4.9	24.61	0	104	70	130	4.72	20	
Surr: BFB	520		492.1		106	70	130	0	0	

Qualifiers:

* Value exceeds Maximum Contaminant Level.
 D Sample Diluted Due to Matrix
 H Holding times for preparation or analysis exceeded
 ND Not Detected at the Reporting Limit
 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
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: Western Refining
Southwest, Inc.

Work Order Number: 2007390

RcptNo: 1

Received By: Juan Rojas 7/9/2020 8:00:00 AM

Completed By: Juan Rojas 7/9/2020 8:19:19 AM

Reviewed By: *mg* 07/09/20

Chain of Custody

1. Is Chain of Custody 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 $>0^{\circ}\text{C}$ 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: _____
(<2 or >12 unless noted)
Adjusted? _____
Checked by: *JR 7/9/20*

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 $^{\circ}\text{C}$	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good				
2	0.4	Good				



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

November 24, 2020

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

RE: Bisti Landfarm

OrderNo.: 2011812

Dear Gregory J. McCartney:

Hall Environmental Analysis Laboratory received 5 sample(s) on 11/17/2020 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

Analytical Report

Lab Order 2011812

Date Reported: 11/24/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: West Line Vadose

Project: Bisti Landfarm

Collection Date: 11/16/2020 11:10:00 AM

Lab ID: 2011812-001

Matrix: SOIL

Received Date: 11/17/2020 8:48:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	11/18/2020 6:33:17 PM	56511
Surr: BFB	104	70-130		%Rec	1	11/18/2020 6:33:17 PM	56511
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: mb
Diesel Range Organics (DRO)	14	9.4		mg/Kg	1	11/19/2020 9:21:50 AM	56519
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/19/2020 9:21:50 AM	56519
Surr: DNOP	109	30.4-154		%Rec	1	11/19/2020 9:21:50 AM	56519
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.024		mg/Kg	1	11/18/2020 6:33:17 PM	56511
Toluene	ND	0.047		mg/Kg	1	11/18/2020 6:33:17 PM	56511
Ethylbenzene	ND	0.047		mg/Kg	1	11/18/2020 6:33:17 PM	56511
Xylenes, Total	ND	0.095		mg/Kg	1	11/18/2020 6:33:17 PM	56511
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	11/18/2020 6:33:17 PM	56511
Surr: 4-Bromofluorobenzene	99.3	70-130		%Rec	1	11/18/2020 6:33:17 PM	56511
Surr: Dibromofluoromethane	108	70-130		%Rec	1	11/18/2020 6:33:17 PM	56511
Surr: Toluene-d8	99.3	70-130		%Rec	1	11/18/2020 6:33:17 PM	56511

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		

Analytical Report

Lab Order 2011812

Date Reported: 11/24/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: East Line Vadose

Project: Bisti Landfarm

Collection Date: 11/16/2020 11:23:00 AM

Lab ID: 2011812-002

Matrix: SOIL

Received Date: 11/17/2020 8:48:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	11/18/2020 7:01:49 PM	56511
Surr: BFB	104	70-130		%Rec	1	11/18/2020 7:01:49 PM	56511
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: mb
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	11/19/2020 9:50:23 AM	56519
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/19/2020 9:50:23 AM	56519
Surr: DNOP	100	30.4-154		%Rec	1	11/19/2020 9:50:23 AM	56519
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.024		mg/Kg	1	11/18/2020 7:01:49 PM	56511
Toluene	ND	0.047		mg/Kg	1	11/18/2020 7:01:49 PM	56511
Ethylbenzene	ND	0.047		mg/Kg	1	11/18/2020 7:01:49 PM	56511
Xylenes, Total	ND	0.095		mg/Kg	1	11/18/2020 7:01:49 PM	56511
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	11/18/2020 7:01:49 PM	56511
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	11/18/2020 7:01:49 PM	56511
Surr: Dibromofluoromethane	106	70-130		%Rec	1	11/18/2020 7:01:49 PM	56511
Surr: Toluene-d8	99.8	70-130		%Rec	1	11/18/2020 7:01:49 PM	56511

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		

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Analytical Report

Lab Order 2011812

Date Reported: 11/24/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Pettigrew Vadose

Project: Bisti Landfarm

Collection Date: 11/16/2020 11:32:00 AM

Lab ID: 2011812-003

Matrix: SOIL

Received Date: 11/17/2020 8:48:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/18/2020 7:30:10 PM	56511
Surr: BFB	103	70-130		%Rec	1	11/18/2020 7:30:10 PM	56511
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: mb
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	11/19/2020 10:00:01 AM	56519
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/19/2020 10:00:01 AM	56519
Surr: DNOP	99.7	30.4-154		%Rec	1	11/19/2020 10:00:01 AM	56519
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.025		mg/Kg	1	11/18/2020 7:30:10 PM	56511
Toluene	ND	0.049		mg/Kg	1	11/18/2020 7:30:10 PM	56511
Ethylbenzene	ND	0.049		mg/Kg	1	11/18/2020 7:30:10 PM	56511
Xylenes, Total	ND	0.098		mg/Kg	1	11/18/2020 7:30:10 PM	56511
Surr: 1,2-Dichloroethane-d4	108	70-130		%Rec	1	11/18/2020 7:30:10 PM	56511
Surr: 4-Bromofluorobenzene	99.4	70-130		%Rec	1	11/18/2020 7:30:10 PM	56511
Surr: Dibromofluoromethane	116	70-130		%Rec	1	11/18/2020 7:30:10 PM	56511
Surr: Toluene-d8	96.9	70-130		%Rec	1	11/18/2020 7:30:10 PM	56511

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		

Analytical Report

Lab Order 2011812

Date Reported: 11/24/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API Vadose

Project: Bisti Landfarm

Collection Date: 11/16/2020 11:40:00 AM

Lab ID: 2011812-004

Matrix: SOIL

Received Date: 11/17/2020 8:48:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/18/2020 7:58:41 PM	56511
Surr: BFB	102	70-130		%Rec	1	11/18/2020 7:58:41 PM	56511
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: mb
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	11/19/2020 10:09:40 AM	56519
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	11/19/2020 10:09:40 AM	56519
Surr: DNOP	102	30.4-154		%Rec	1	11/19/2020 10:09:40 AM	56519
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.024		mg/Kg	1	11/18/2020 7:58:41 PM	56511
Toluene	ND	0.048		mg/Kg	1	11/18/2020 7:58:41 PM	56511
Ethylbenzene	ND	0.048		mg/Kg	1	11/18/2020 7:58:41 PM	56511
Xylenes, Total	ND	0.097		mg/Kg	1	11/18/2020 7:58:41 PM	56511
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	11/18/2020 7:58:41 PM	56511
Surr: 4-Bromofluorobenzene	98.6	70-130		%Rec	1	11/18/2020 7:58:41 PM	56511
Surr: Dibromofluoromethane	111	70-130		%Rec	1	11/18/2020 7:58:41 PM	56511
Surr: Toluene-d8	98.7	70-130		%Rec	1	11/18/2020 7:58:41 PM	56511

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		

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Analytical Report

Lab Order 2011812

Date Reported: 11/24/2020

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Bisti Vadose

Project: Bisti Landfarm

Collection Date: 11/16/2020 12:00:00 PM

Lab ID: 2011812-005

Matrix: SOIL

Received Date: 11/17/2020 8:48:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	11/18/2020 8:27:14 PM	56511
Surr: BFB	101	70-130		%Rec	1	11/18/2020 8:27:14 PM	56511
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: mb
Diesel Range Organics (DRO)	ND	8.5		mg/Kg	1	11/19/2020 10:19:22 AM	56519
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	11/19/2020 10:19:22 AM	56519
Surr: DNOP	102	30.4-154		%Rec	1	11/19/2020 10:19:22 AM	56519
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.023		mg/Kg	1	11/18/2020 8:27:14 PM	56511
Toluene	ND	0.046		mg/Kg	1	11/18/2020 8:27:14 PM	56511
Ethylbenzene	ND	0.046		mg/Kg	1	11/18/2020 8:27:14 PM	56511
Xylenes, Total	ND	0.093		mg/Kg	1	11/18/2020 8:27:14 PM	56511
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	1	11/18/2020 8:27:14 PM	56511
Surr: 4-Bromofluorobenzene	99.5	70-130		%Rec	1	11/18/2020 8:27:14 PM	56511
Surr: Dibromofluoromethane	113	70-130		%Rec	1	11/18/2020 8:27:14 PM	56511
Surr: Toluene-d8	96.2	70-130		%Rec	1	11/18/2020 8:27:14 PM	56511

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		

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2011812

24-Nov-20

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

Sample ID: MB-56519	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 56519	RunNo: 73476								
Prep Date: 11/18/2020	Analysis Date: 11/19/2020	SeqNo: 2587585 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		109	30.4	154			

Sample ID: LCS-56519	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 56519	RunNo: 73476								
Prep Date: 11/18/2020	Analysis Date: 11/19/2020	SeqNo: 2587587 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	55	10	50.00	0	109	70	130			
Surr: DNOP	5.2		5.000		105	30.4	154			

Sample ID: 2011812-001AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: West Line Vadose	Batch ID: 56519	RunNo: 73476								
Prep Date: 11/18/2020	Analysis Date: 11/19/2020	SeqNo: 2587592 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	65	9.9	49.60	14.49	102	15	184			
Surr: DNOP	6.5		4.960		131	30.4	154			

Sample ID: 2011812-001AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: West Line Vadose	Batch ID: 56519	RunNo: 73476								
Prep Date: 11/18/2020	Analysis Date: 11/19/2020	SeqNo: 2587593 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	69	9.4	46.99	14.49	117	15	184	6.37	23.9	
Surr: DNOP	8.1		4.699		172	30.4	154	0	0	S

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#: 2011812

24-Nov-20

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

Sample ID: Ics-56511	SampType: LCS4	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: BatchQC	Batch ID: 56511	RunNo: 73474								
Prep Date: 11/17/2020	Analysis Date: 11/18/2020	SeqNo: 2587718	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	106	80	120			
Toluene	1.0	0.050	1.000	0	100	80	120			
Ethylbenzene	1.0	0.050	1.000	0	101	80	120			
Xylenes, Total	3.2	0.10	3.000	0	108	80	120			
Surr: 1,2-Dichloroethane-d4	0.52		0.5000		103	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		96.7	70	130			
Surr: Dibromofluoromethane	0.53		0.5000		107	70	130			
Surr: Toluene-d8	0.48		0.5000		95.4	70	130			

Sample ID: mb-56511	SampType: MBLK	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: PBS	Batch ID: 56511	RunNo: 73474								
Prep Date: 11/17/2020	Analysis Date: 11/18/2020	SeqNo: 2587719	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								
Xylenes, Total	ND	0.10								
Surr: 1,2-Dichloroethane-d4	0.52		0.5000		104	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		97.9	70	130			
Surr: Dibromofluoromethane	0.54		0.5000		108	70	130			
Surr: Toluene-d8	0.49		0.5000		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

QC SUMMARY REPORT**Hall Environmental Analysis Laboratory, Inc.**

WO#: 2011812

24-Nov-20

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

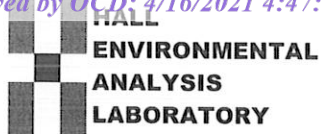
Sample ID: lcs-56511	SampType: LCS	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: LCSS	Batch ID: 56511	RunNo: 73474								
Prep Date: 11/17/2020	Analysis Date: 11/18/2020	SeqNo: 2587744	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	22	5.0	25.00	0	89.3	70	130			
Surr: BFB	530		500.0		106	70	130			

Sample ID: mb-56511	SampType: MBLK	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: PBS	Batch ID: 56511	RunNo: 73474								
Prep Date: 11/17/2020	Analysis Date: 11/18/2020	SeqNo: 2587745	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	500		500.0		100	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
Southwest, Inc.**

Work Order Number: **2011812**

RcptNo: **1**

Received By: **Sean Livingston**

11/17/2020 8:48:00 AM

Completed By: **Desiree Dominguez**

11/17/2020 9:05:45 AM

Reviewed By: **SGC 11/17/20**

Sean Livingston
DD

Chain of Custody

1. Is Chain of Custody 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 $>0^{\circ}\text{C}$ 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:

(<2 or >12 unless noted)

Adjusted? _____

Checked by: *JR 11/17/20*

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	1.9	Good	Yes			

www.hallenvironmental.com

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

Analysis Request

Chain-of-Custody Record									
Client: <u>Western Refining</u>		<input checked="" type="checkbox"/> Standard <input type="checkbox"/> Rush		Turn-Around Time: _____					
Mailing Address: <u>Greg McCartney</u>		Project Name: <u>Bisti Landfarm</u>							
Phone #: <u>419-481-2338</u>		Project #: <u>4500183750</u>							
email or Fax#: <u>gjmccartney@marathonpetroleum.com</u>		Project Manager: <u>Stuart Hyde USP</u>							
QA/QC Package: <input checked="" type="checkbox"/> Standard <input type="checkbox"/> Level 4 (Full Validation)		Sampler: <u>SH/EC</u>							
Accreditation: <input type="checkbox"/> Az Compliance <input type="checkbox"/> NELAC <input type="checkbox"/> Other _____		On Ice: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No							
<input type="checkbox"/> EDD (Type) _____		# of Coolers: <u>1</u>		Cooler Temp (including CF): <u>1.9</u> \pm <u>0.1</u> (°C)					
Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.			
<u>11/16</u>	<u>1110</u>	<u>Soil</u>	<u>West line vadose</u>	<u>1402</u>	<u>cool</u>	<u>2011812</u>			
<u>1123</u>			<u>East line vadose</u>			<u>-001</u>			
<u>1133</u>			<u>Pettigrew Vadose</u>			<u>-002</u>			
<u>1140</u>			<u>API Vadose</u>			<u>-003</u>			
<u>1140</u>			<u>Bisti Vadose</u>			<u>-004</u>			
						<u>-005</u>			
Date: <u>11/16/20</u>		Time: <u>1300</u>		Relinquished by: <u>[Signature]</u>		Via: <u>[Signature]</u>		Date: <u>11/16/20</u>	Time: <u>1300</u>
Date: <u>11/16/20</u>		Time: <u>1804</u>		Relinquished by: <u>[Signature]</u>		Via: <u>CSL</u>		Date: <u>11/17/20</u>	Time: <u>8:48</u>

If necessary, samples submitted to Hail 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.

Jones, Brad A., EMNRD

From: Jones, Brad A., EMNRD
Sent: Tuesday, February 22, 2022 9:28 AM
To: gjmccartney@marathonpetroleum.com; Robinson, Kelly
Cc: Hyde, Stuart
Subject: Bisti Landfarm 2020 Annual Compliance Monitoring Report OCD review
Attachments: 2022 0222 NM2-010 Western Refining Company LP 2020 Annual Monitoring Report review.pdf

Greg, Kelly, and Stuart,

Please see the attached. OCD has completed the review of the 2020 Annual Compliance Monitoring Report. If you have any questions regarding this matter, please do not hesitate to contact me.

Sincerely,

Brad Jones

Brad A. Jones • Environmental Scientist Specialist - Advanced
Environmental Bureau
EMNRD - Oil Conservation Division
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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
Director, Oil Conservation Division



February 22, 2022

Mr. Greg McCartney
Western Refining Company LP
111 County Road 4990
Bloomfield, New Mexico 87413

**RE: Bisti Landfarm 2020 Annual Compliance Monitoring Report
Western Refining Company LP – OGRID # 264727
Permit Number: NM2-010
NW/4 SE/4 of Section 16, Township 25 North, Range 12 West, NMPM,
San Juan County, New Mexico**

Mr. McCartney:

The Oil Conservation Division (OCD) has completed its review of Western Refining Company LP's (Western) 2020 Annual Compliance Monitoring Report, dated April 8, 2021, for the Bisti Landfarm under permit NM2-010. OCD's review of the annual report has resulted in the discovery of over sampling and analysis of the vadose zone and partial compliance to the requirements of 19.15.36 NMAC when a release has been detected in the vadose zone from the required routine quarterly monitoring.

On June 30, 2011 OCD sent a letter to each landfarm operator informing them how the transitional provisions of 19.15.36.20 NMAC should be applied to the existing permit conditions. This letter can be located in the administrative record directly through the following hyperlink:
https://ocdimage.emnrd.nm.gov/Imaging/FileStore/santafeadmin/ao/209732/peem0112359690_10_a_o.pdf.

On August 18, 2015, OCD approved the sum of gasoline range organics (GRO), diesel range organics (DRO), and motor oil range organics (MRO) determined by EPA method 8015 as a valid method for assessing total petroleum hydrocarbon (TPH) concentration in the vadose zone in lieu of EPA method 418.1 in the Supplement Facility Background Sampling Plan approval:
https://ocdimage.emnrd.nm.gov/Imaging/FileStore/santafeenvironmental/ao/20150819/peem0112359690%20_08_19_2015_10_05_13.pdf.

The laboratory analytical results, Enclosure A, provided in the 2020 Annual Compliance Monitoring Report demonstrate that three separate vadose zone samples were obtained and submitted for analysis from the March 9, 2020 sampling event. Two of the samples were analyzed for BTEX and chlorides.

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One of the samples was analyzed for GRO and DRO, which is not required. OCD was unable to locate a figure in the report that identifies and illustrates the sample locations of the chloride exceedances for API 1-4. Only one sample location is identified in the API cell on Figure 6 for the March 9, 2020 vadose zone monitoring event. Based upon the existing permit conditions of NM2-010, the June 30, 2011 letter, and the August 2015 approval, the first quarterly vadose zone sampling event should have resulted in one vadose zone sample obtained at two (2) to three (3) feet below the native ground surface of each landfarm cell and analyzed for TPH by EPA method 418.1 or EPA method 8015 for the sum of GRO, DRO, and MRO (only one TPH test method is required), BTEX, major cations/anions (which includes chlorides) and heavy metals.

Compliance to the requirements of 19.15.36.15.E(5) NMAC is not recognized in the 2020 Annual Compliance Monitoring Report but is somewhat demonstrated. The 2020 Annual Compliance Monitoring Report identified the May 5, 2020 vadose zone sampling as a routine quarterly event and only recognized the results for GRO, DRO, and BTEX on Table 2, demonstrating the results of one sample obtained from each of the following cells: West Line, East Line, Bisti, Pettigrew and API contrary to the requirements of 19.15.36.15.E(5) NMAC. Based upon the sampling results provided on Table 2 and the sample locations illustrated on Figure 6, Western/WSP did not collect 4 additional vadose zone samples from each location that was reported to exceed the higher of the PQL or the background soil concentrations for TPH, BTEX, and chloride from the March 9, 2020 sampling event. OCD also noticed that Table 2 of the report identifies the Pettigrew cell as part of the Crude landfarm cell, when Figures 2-6 clearly illustrates it being in the center of the API landfarm cell. Logistically the Pettigrew cell cannot be considered part of the Crude cell. Based upon the existing permit conditions of NM2-010, June 30, 2011 letter, and the August 2015 approval, the second quarterly vadose zone sampling event should have resulted in one vadose zone sample obtained at two (2) to three (3) feet below the native ground surface of each landfarm cell and analyzed for TPH by EPA method 418.1 or EPA method 8015 for the sum of GRO, DRO, and MRO (only one TPH test method is required) and BTEX. In the future, if compliance with the additional sampling required of 19.15.36.15.E(5) NMAC coincides with a routine vadose zone sampling event, please perform each sampling event separately. The next routine vadose zone sampling event should not be performed in the same vicinity in which releases were detected from the previous routine sampling event and the additional investigation of 19.15.36.15.E(5) NMAC is required.

The laboratory analytical results demonstrate that two separate vadose zone samples were obtained and submitted for analysis from the July 8, 2020 sampling event. The chain of custody for each laboratory report demonstrates that one sample was analyzed for GRO, DRO, MRO, and BTEX. The second vadose zone sample from July 8, 2020 was analyzed for TPH by EPA method 418.1, GRO, DRO, BTEX and chlorides. OCD was unable to locate a figure in the report that identifies and illustrates the sample locations for API 1-4 to determine where the chloride exceedances of API 3 occurred. Only one sample location is identified in the API cell on Figure 6 for the July 8, 2020 vadose zone monitoring event. Based upon the existing permit conditions of NM2-010, June 30, 2011 letter, and the August 2015 approval, the third quarterly vadose zone sampling event should have resulted in one vadose zone sample obtained at two (2) to three (3) feet below the native ground surface of each landfarm cell and analyzed for TPH by EPA method 418.1 or EPA method 8015 for the sum of GRO, DRO, and MRO (only one TPH test method is required), BTEX, and chlorides. OCD did not receive the notice of the releases of TPH, DRO, MRO, and chlorides detected during the July 8, 2020 sampling event and Western did not initiate or complete the additional sampling and/or submit a release response action plan to OCD to address the newly detected releases, as required of 19.15.36.15.E(5) NMAC.

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The laboratory analytical results demonstrate that the vadose zone samples were analyzed for GRO, DRO, MRO, and BTEX. for the fourth quarter sampling event on November 16, 2020. Based upon the existing permit conditions of NM2-010, June 30, 2011 letter, and the August 2015 approval, the fourth quarterly vadose zone sampling event was performed correctly since it resulted in one vadose zone sample obtained at two (2) to three (3) feet below the native ground surface of each landfarm cell and analyzed for TPH by EPA method 418.1 or EPA method 8015 for the sum of GRO, DRO, and MRO (only one TPH test method is required) and BTEX. OCD did not receive the notice of the release of DRO detected during the November 16, 2020 sampling event and Western did not initiate or complete the additional sampling or submit a release response action plan to OCD to address the newly detected release.as required of 19.15.36.15.E(5) NMAC.

In accordance with 19.15.36.15.E(5) NMAC, if vadose zone sampling results show that the concentrations of TPH, BTEX or chlorides exceed the higher of the PQL or the background soil concentrations, then the operator shall notify the division's environmental bureau of the exceedance and shall immediately collect and analyze a minimum of four randomly selected, independent samples for TPH, BTEX, chlorides and the constituents listed in Subsections A and B of 20.6.2.3103 NMAC. The operator shall submit the results of the re-sampling event and a response action plan for the division's approval within 45 days of the initial notification. The response action plan shall address changes in the landfarm's operation to prevent further contamination and, if necessary, a plan for remediating existing contamination. OCD wishes to clarify that the regulatory language of 19.15.36.15.E(5) NMAC *does not limit* the additional 4 samples per landfarm cell in which a release and exceedance is detected, as it was applied by Western/WSP during 2020. The *additional 4 samples should be taken randomly around the location of each detected vadose zone release and demonstrated exceedance* to investigate and determine if additional constituents are associated with the detected release locations of TPH, BTEX and/or chloride from the routine quarterly vadose zone monitoring. The notice to OCD, additional sampling, and the submittal of the release response action plan of 19.15.36.15.E(5) NMAC is required after each quarterly routine vadose sampling event if TPH, BTEX, and/or chloride exceed the higher of the PQL or the background soil concentrations.

Please review the June 30, 2011 letter from OCD regarding how to apply the transitional provisions of 19.15.36.20 NMAC to the conditions of an existing permitted surface waste management facility landfarm. Keep in mind that the regulatory language of 19.15.36.20 NMAC was amended on June 30, 2016 and the approach discussed in the June 2011 letter should be applied to the additional considerations identified in 19.15.36.20.A NMAC. Also, please ensure that vadose zone constituents are analyzed at a detection/reporting limit that is at or below the facility background limit or PQL OCD approved on June 15, 2020. Analyzing chloride with a reporting/detection limit of 60 mg/kg, as identified on Table 2 and the lab results in Enclosure A, when the OCD approved background is <50 mg/kg or selenium with reporting/detection limits from 4.3 to 5.1 mg/kg, as identified on Table 3 and the lab results, when the OCD approved background is <2.5 mg/kg, is not a proper assessment for a release of chlorides or selenium in the vadose zone.

Regarding the proposed conclusions, OCD recommends reviewing the OCD's April 21, 2021 policy on *How to address a release to the vadose zone at a Part 36 landfarm pursuant to Part 29* at the following hyperlink: <https://www.emnrd.nm.gov/ocd/wp-content/uploads/sites/6/2021-0421-How-to-address-a-release-to-the-vadose-zone-at-a-Part-36-landfarm-pursuant-to-Part-29.pdf>. Since the October 2020 Site Characterization Report and Variance Request (under Incident ID NRM201955881) has not been approved, OCD recommends not sampling the vadose zone in the delineated areas illustrated on Figures 3 and 4 where chlorides and TPH has been demonstrated to exceed 600 mg/kg and 100 mg/kg, respectively until OCD responds to the request. When performing the routine quarterly vadose zone monitoring in the remaining area, Western should compared the

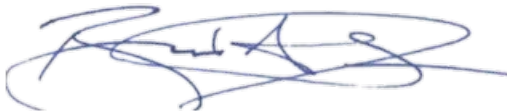
Western Refining Company LP
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results the facility background and PQLs OCD approved on June 15, 2020. If a release is detected, then the release requirements of 19.15.36.15.E(5) NMAC should be initiated and implemented.

Please note that Western must comply with the closure conditions of the existing permit and demonstrate compliance to 19.15.36.18 NMAC by providing notice and submitting a closure/post-closure plan and schedule to OCD for review and approval prior to implementing any closure and/or post-closure activities.

If there are any questions, please do not hesitate to contact me at (505) 469-7486 or brad.a.jones@state.nm.us.

Respectfully,

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

Brad A. Jones
Environmental Specialist

Cc: Stuart Hyde, WSP USA Inc.

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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Action 24383

CONDITIONS

Operator: Western Refining Southwest LLC 539 South Main Street Findlay, OH 45840	OGRID: 267595
	Action Number: 24383
	Action Type: [C-137] Non-Fee SWMF Submittal (SWMF NON-FEE SUBMITTAL)

CONDITIONS

Created By	Condition	Condition Date
bjones	OCD's review of the Bisti Landfarm 2020 Annual Compliance Monitoring Report is attached to the submittal as OCD's Response.	2/22/2022