



February 9, 2022

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

**Subject: 2021 Annual Compliance Monitoring Report
Bisti Landfarm
NMOCD Rule 711 Permit Number: NM-02-0010
Western Refining Southwest, LLC
San Juan County, New Mexico**

Dear Mr. Jones:

WSP USA Inc. (WSP), on behalf of Western Refining Southwest, LLC (Western), has prepared this report detailing compliance soil sampling completed from January 2021 through December 2021 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 Division (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 (Figure 2). The Crude Cell is further divided into four source zones containing material originating from Pettigrew, East Line, West Line, and Bisti. 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 Rule 711 and provisional requirements of Rule 36.

2020 RELEASE RESPONSE AND SAMPLING

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, WSP (formerly LT Environmental, Inc. [LTE]) submitted a *Notification of Release* (dated April 16, 2020) to the NMOCD summarizing results obtained during the first quarter of 2020 that constituted a "release" as defined by 19.15.36.15 NMAC. A *Release Response Action Plan* (dated June 2020) was subsequently prepared and submitted by WSP addressing proposed changes to the landfarm's operation to prevent further contamination and summarized release re-sampling results obtained in May 2020. Based on the analytical results gathered during the re-sampling event, 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 TPH and chloride based on 19.15.29 NMAC (Part 29).

SITE CHARACTERIZATION AND CLOSURE CRITERIA

Based on the site characterization information presented in the *Site Characterization Report and Variance Request* prepared by WSP (dated October 2020), groundwater was determined to be present at depths greater than 100 feet below ground surface (bgs). Additionally, no sensitive receptors were determined to be present within the radii

WSP USA
848 EAST 2ND AVENUE
DURANGO CO 81301 Tel.: 970-385-1096
wsp.com



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 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.

Several constituents have been detected at the Site during historical sampling events. Of these constituents, the following have historically been detected above the Site background concentrations in vadose zone soil samples: TPH, chloride, sulfate, alkalinity, bicarbonate, carbonate, fluoride, nitrate, arsenic, barium, calcium, copper, iron, magnesium, manganese, potassium, sodium, and zinc. For constituents that exceeded Site background concentrations, detected concentrations were evaluated in the following order to identify constituents of concern (COCs) proposed to be addressed and further delineated in accordance with Part 29:

1. Comparison to NMOCD Table 1 Closure Criteria (19.15.29.12 NMAC);
2. Comparison to NMOCD Reclamation Standards (19.15.29.13 NMAC);
3. Regional Background Concentrations (further described below);
4. Comparison to Table 1 of 40 Code of Federal Regulations (C.F.R) 261.24(b); then
5. Comparison to the Most Conservative (lowest) New Mexico Environment Department (NMED) Soil Screening Levels presented in the *Risk Assessment Guidance for Site Investigations and Remediation Volumes I and II* (NMED, 2017, NMED, 2019).

TPH and chloride were included as COCs based on their detected concentrations compared to the Reclamation Standards of 19.15.29.13 NMAC. Detailed review of Site data suggest concentrations of arsenic, barium, calcium, copper, iron, magnesium, manganese, potassium, sodium, and zinc detected during historical sampling events are within regional background concentrations for soil in the San Juan Basin and northwest New Mexico. The values of these results are either within 10 percent (%) of the established background concentration at the Site or fall within concentration ranges of published regional soil conditions. Because soil treated at the landfarm originated from multiple locations in the San Juan Basin, regional background concentrations established for the San Juan Basin were used to compare soil analytical results. Specifically, United States Geological Survey (USGS) Paper 1134-C, *Geochemical Variability of Natural Soils and Reclaimed Mine-Spoil Soils in the San Juan Basin, New Mexico* (USGS, 1981), was used to compare soil sample concentrations of inorganic constituents to regional background concentrations. Based on a comparison of detected concentrations to regional background concentrations, arsenic, barium, calcium, copper, iron, magnesium, manganese, potassium, sodium, and zinc were eliminated as COCs for the Site.

Additionally, all detected concentrations of fluoride and nitrate were below the NMED soil screening levels for both human health and ecological protection. Lastly, sulfate, alkalinity, bicarbonate, and carbonate are general soil chemistry parameters. There are no soil screening levels established for these parameters by the NMOCD (19.15.29 NMAC), Environmental Protection Agency (EPA, Code of Federal Regulations 261.23[b]), or NMED (NMED, 2017, NMED, 2019). These constituents/parameters were also eliminated as COCs for the Site.

Based on the evaluation of potential COCs, TPH and chloride were considered the only COCs to be addressed under Part 29. TPH and chloride concentrations have exceeded the NMOCD Reclamation Standards in historical samples and were further assessed during the delineation activities described in WSP's October 2020 report.

2020 DELINEATION AND SITE CHARACTERIZATION RESULTS

In an effort to address all historical releases at the Site, Western conducted drilling activities in the summer of 2020 to vertically and laterally delineate TPH and chloride impacts to Site soils. Delineation activities are summarized in the *LTE Site Characterization Report and Variance Request*, dated October 2020. Site characterization activities



were successful in delineating TPH and chloride concentrations based on the Part 29 closure criteria and reclamation standards. Analytical results indicated that there were no exceedances of NMOCD Table 1 Closure Criteria (19.15.29.12[E] NMAC) of TPH or chloride in soils greater than 4 feet bgs. However, TPH 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. 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 (Figures 3 and 4).

COMPLIANCE SAMPLING SCOPE OF WORK AND METHODOLOGY

The scope of work for this report consisted of semi-annual treatment zone and vadose zone soil sampling, as required by Rule 36 for operation of a landfarm, as well as quarterly and annual vadose zone soil 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 vertical migration of contaminants of concern into the vadose zone.

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. All collected samples were placed on ice and sealed in a cooler for delivery to Hall Environmental Analysis Laboratory, Inc. (Hall) in Albuquerque, New Mexico, for analysis.

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 February 9, 2021 and July 12, 2021 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 in 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 collected from within the cell. 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 the following constituents: TPH by EPA Method 418.1, TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH-motor oil range organics (MRO) by EPA Method 8015D, benzene, toluene, ethylbenzene, and total xylenes (BTEX) by EPA Method 8021B, and/or chloride by EPA Method 300.0.

QUARTERLY AND SEMI-ANNUAL VADOSE ZONE MONITORING

Discrete vadose zone samples were collected on February 9, April 28, July 12, and November 16, 2021 from the two active cells (API and Crude Cells) to fulfill requirements for Rule 711 quarterly sampling. Samples were analyzed for BTEX by EPA Method 8021B, TPH-GRO, TPH-DRO, and TPH-MRO by EPA Method 8015M, and/or TPH by EPA Method 418.1. During the February and July 2021 sampling events, vadose zone soil samples were additionally analyzed for chloride by EPA Method 300.0 to fulfill requirements for Rule 36 semi-annual sampling. All vadose zone soil samples were collected from approximately 3 feet below the native ground surface (3 feet below treatment zone soils). Following the collection of discrete soil samples, the boreholes were filled with hydrated bentonite from the borehole terminus to existing ground surface.

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: Pettigrew, East Line, West Line 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 (Pettigrew, East Line, West Line and Bisti). Soil samples were collected on February 9, 2021 and were analyzed for major anions/cations and heavy metals by EPA Methods ASA10-3, 300.0, 6010B, and/or 7471.

COMPLIANCE SAMPLING ANALYTICAL RESULTS

Analytical results from the 2021 sampling events are discussed below.

SEMI-ANNUAL TREATMENT ZONE ANALYTICAL RESULTS

Table 1 presents the analytical results from the 2021 semi-annual treatment zone monitoring events, which are compared with the Treatment Zone Closure Performance Standards defined in Rule 36. Concentrations of TPH-DRO, TPH, and chloride were detected in several treatment zone samples above the laboratory practical quantitation limits (PQL); however, concentrations of TPH and chloride did not exceed Treatment Zone Closure Performance Standards in any of the collected samples. The complete laboratory analytical reports are presented in Enclosure A.

QUARTERLY AND SEMI-ANNUAL VADOSE ZONE ANALYTICAL RESULTS

The analytical results for TPH, BTEX, and chloride from quarterly and semi-annual vadose zone soil samples were compared with the laboratory PQL and/or background sample results established for the Site (presented in Table 2). Concentrations of TPH-GRO, TPH-DRO, TPH-MRO, TPH, and/or BTEX were not detected above the laboratory PQL in any of the vadose-zone samples collected during 2021 sampling events.

Chloride concentrations exceeded the laboratory PQL and associated background results of 50 mg/kg in samples collected from the East Line, Bisti, and Pettigrew source areas of the Crude Cell, as well as the API Cell, during one or more sampling events. Chloride was not detected above the laboratory PQL in the West Line source area during any of the sampling events. Analytical results are presented in Table 3, with complete laboratory analytical reports 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 February 9, 2021 was analyzed for arsenic, barium, cadmium, calcium, chloride, chromium, lead, manganese, mercury, potassium, selenium, silver, sodium, and sulfate. Of these constituents, calcium, potassium, sodium, and sulfate concentrations exceeded their respective background sample results in one or more samples collected from the API Cell and/or Crude Cell. Additionally, chloride exceeded the PQL/background result of 50 mg/kg in one sample collected from the East Line source area of the Crude Cell. All other analytes were below PQL and/or background concentrations. The analytical results are presented in Table 3. The complete laboratory analytical reports are presented in Enclosure A.

CONCLUSIONS

TPH and chloride impacts in treatment-zone soils 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 TPH, BTEX, and chloride were compared with laboratory PQLs and/or background sample results, as indicated on Table 2. Concentrations of TPH and/or BTEX constituents were not detected in any of the vadose zone samples collected in 2021.

Chloride concentrations exceeded the laboratory PQL in samples collected from the API cell and East Line, Bisti, and Pettigrew source areas of the Crude cell during one or more sampling events; however, these chloride exceedances have previously 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 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.

During the February 2021 sampling event, detections of calcium, potassium, sodium, and sulfate concentrations exceeded the Site background concentrations in one or more annual samples collected from the API and/or Crude cells. Additionally, chloride exceeded the PQL/background in one sample collected from the East Line source area of the Crude Cell during this sampling event. As presented in the *LTE Site Characterization Report and Variance Request* report (October 2020), the concentrations of calcium, potassium, sodium, and sulfate detected during the 2021 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.

REFERENCES

NMED. (2017). Risk Assessment Guidance for Site Investigations and Remediation, Volume II Soil Screening Guidance for Ecological Risk Assessments. Santa Fe: New Mexico Environment Department.

NMED. (2019). Risk Assessment Guidance for Site Investigations and Remediation, Volume I, Soil Screening Guidance for Human Health Risk Assessments. Santa Fe: New Mexico Environment Department.

USGS. (1981). Geochemical Variability of Natural Soils and Reclaimed Mine-Spoil Soils in San Juan Basin, New Mexico. Washington: United States Government Printing Office.

WSP appreciates the opportunity to provide this report to you. If you have any questions or comments regarding this report, do not hesitate to contact Mr. Stuart Hyde at (970) 385-1096 or at stuart.hyde@wsp.com, or Ms. Kateri Luka or at kaluka@marathonpetroleum.com.

Kind regards,

Stuart Hyde, L.G.
Senior Geologist

Daniel Moir, P.G.
Sr. Lead Consultant, Geologist

cc: Kateri Luka, Marathon Petroleum Company LP

Attachments:

- Figure 1: Site Location Map
- Figure 2: Site Map
- Figure 3: Historical Vadose Zone Chloride Results
- Figure 4: Chloride Delineation Borings and Results
- Figure 5: Treatment Zone Sample Location Map
- Figure 6: Vadose Zone Sample Location Map

- Table 1: 2021 Semi-Annual Treatment Zone Soil Analytical Results
- Table 2: 2021 Quarterly and Semi-Annual Vadose Zone Soil Analytical Results
- Table 3: 2021 Annual Vadose Zone Soil Analytical Results

FIGURES

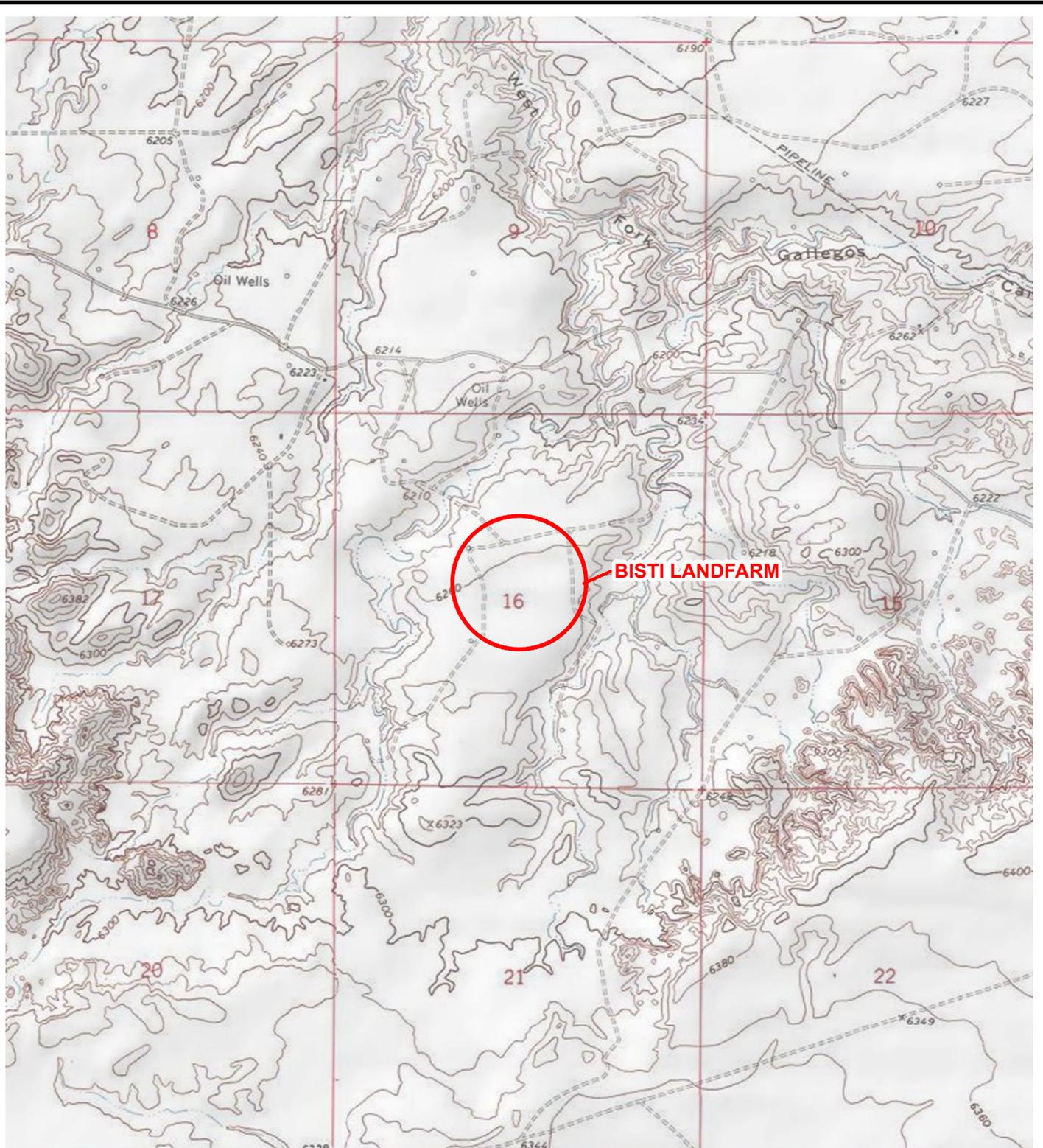


IMAGE COURTESY OF ESRI/USGS

LEGEND

 SITE LOCATION

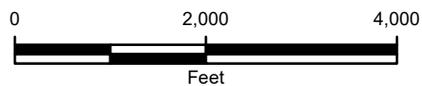
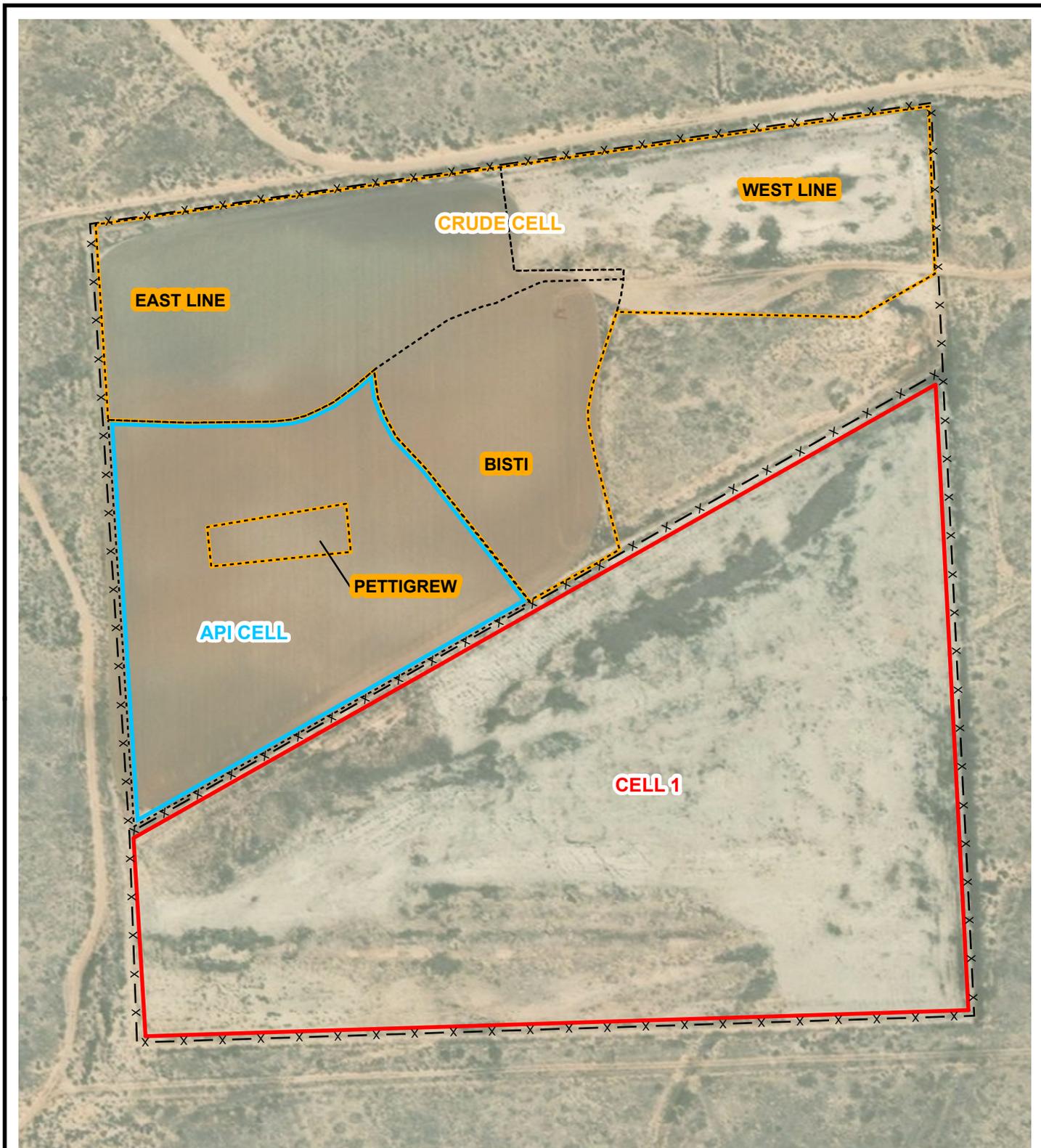


FIGURE 1
SITE LOCATION MAP
BISTI LANDFARM
SEC 16 T25N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.





LEGEND

- x — x FENCE
- - - APPROXIMATE SOURCE IDENTITY BOUNDARY
- CELL 1 BOUNDARY
- API CELL BOUNDARY
- CRUDE CELL BOUNDARY

IMAGE COURTESY OF ESRI

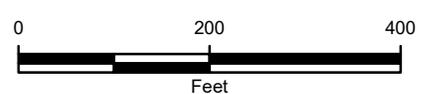
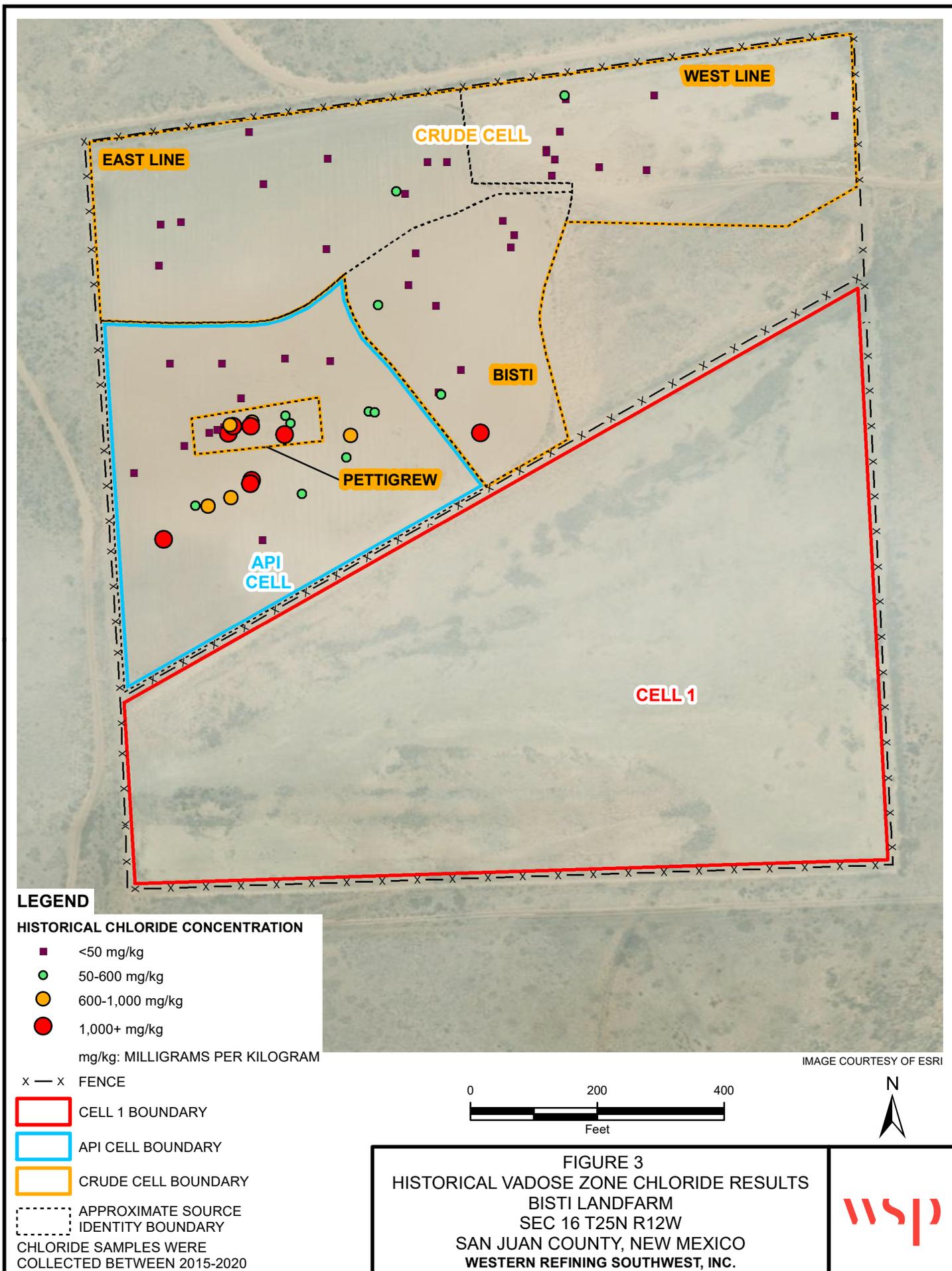


FIGURE 2
SITE MAP
 BISTI LANDFARM
 SEC 16 T25N R12W
 SAN JUAN COUNTY, NEW MEXICO
 WESTERN REFINING SOUTHWEST, INC.



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LEGEND

HISTORICAL CHLORIDE CONCENTRATION

- <50 mg/kg
- 50-600 mg/kg
- 600-1,000 mg/kg
- 1,000+ mg/kg

mg/kg: MILLIGRAMS PER KILOGRAM

- x — x FENCE
- ▭ CELL 1 BOUNDARY
- ▭ API CELL BOUNDARY
- ▭ CRUDE CELL BOUNDARY

- ▭ APPROXIMATE SOURCE IDENTITY BOUNDARY

CHLORIDE SAMPLES WERE COLLECTED BETWEEN 2015-2020

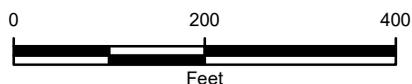
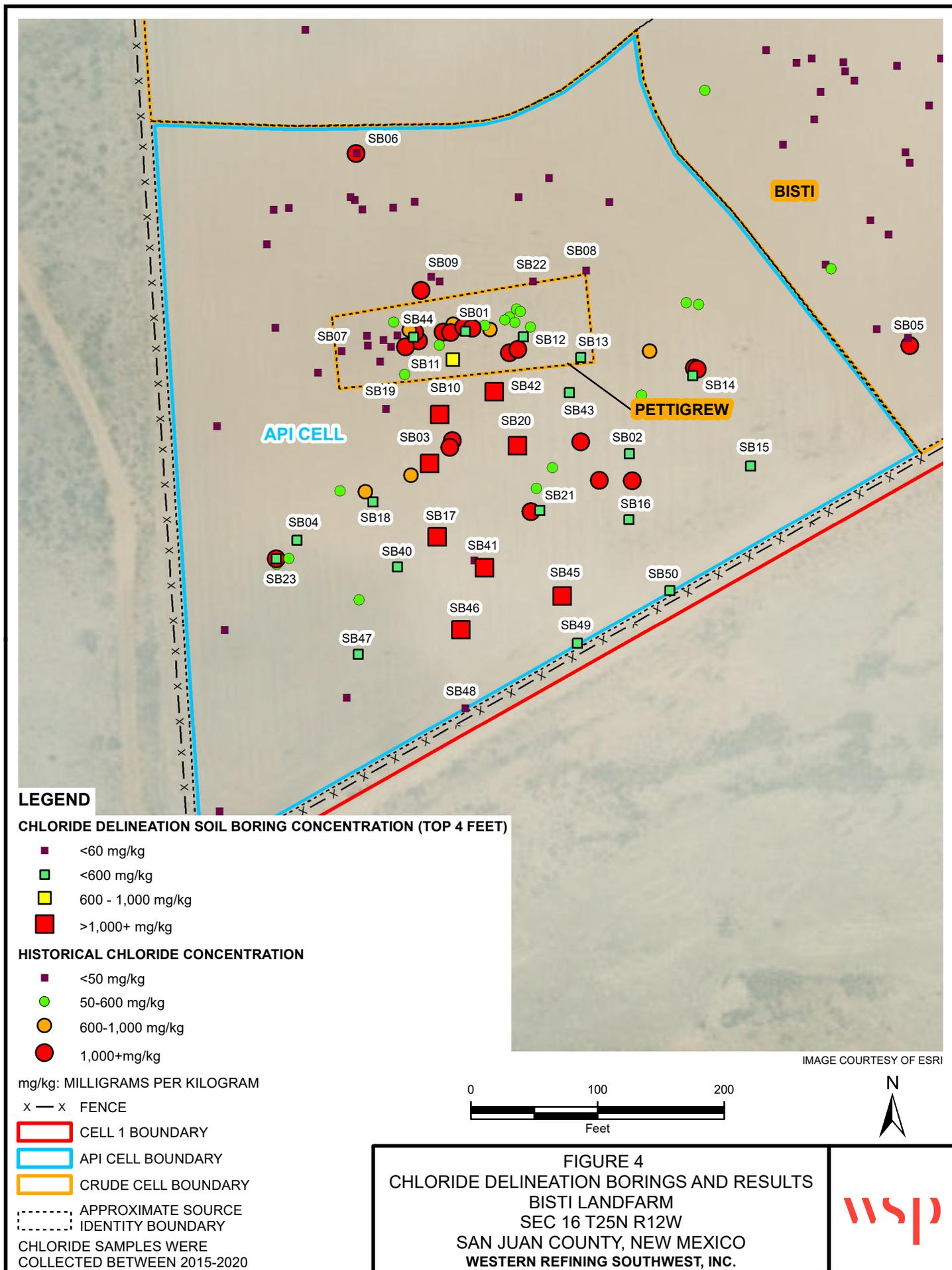


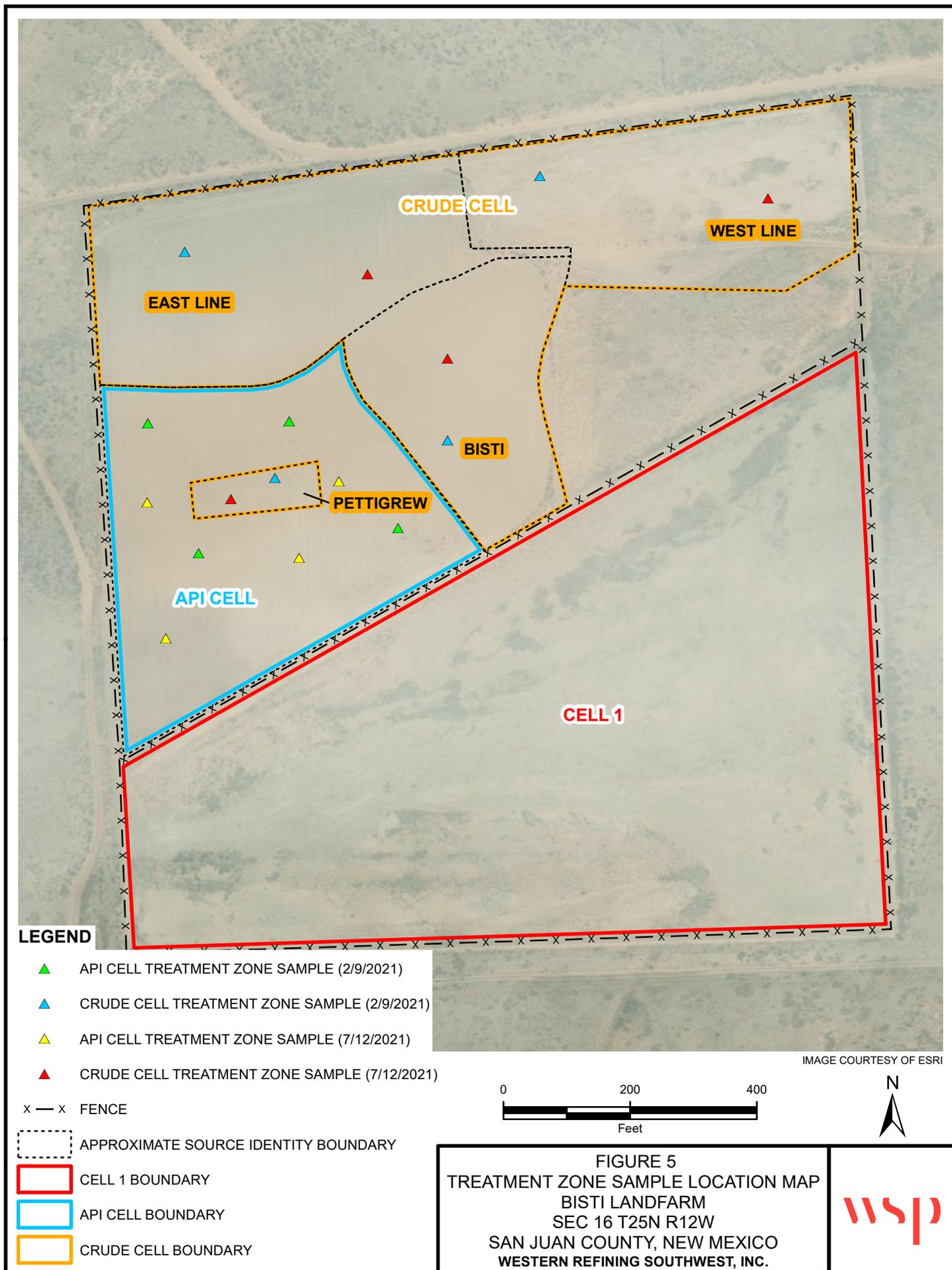
IMAGE COURTESY OF ESRI



FIGURE 3
HISTORICAL VADOSE ZONE CHLORIDE RESULTS
BISTI LANDFARM
SEC 16 T25N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.







LEGEND

- ▲ API CELL TREATMENT ZONE SAMPLE (2/9/2021)
- ▲ CRUDE CELL TREATMENT ZONE SAMPLE (2/9/2021)
- ▲ API CELL TREATMENT ZONE SAMPLE (7/12/2021)
- ▲ CRUDE CELL TREATMENT ZONE SAMPLE (7/12/2021)
- x — x FENCE
- - - - - APPROXIMATE SOURCE IDENTITY BOUNDARY
- CELL 1 BOUNDARY
- API CELL BOUNDARY
- CRUDE CELL BOUNDARY

IMAGE COURTESY OF ESRI

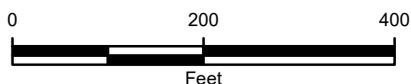
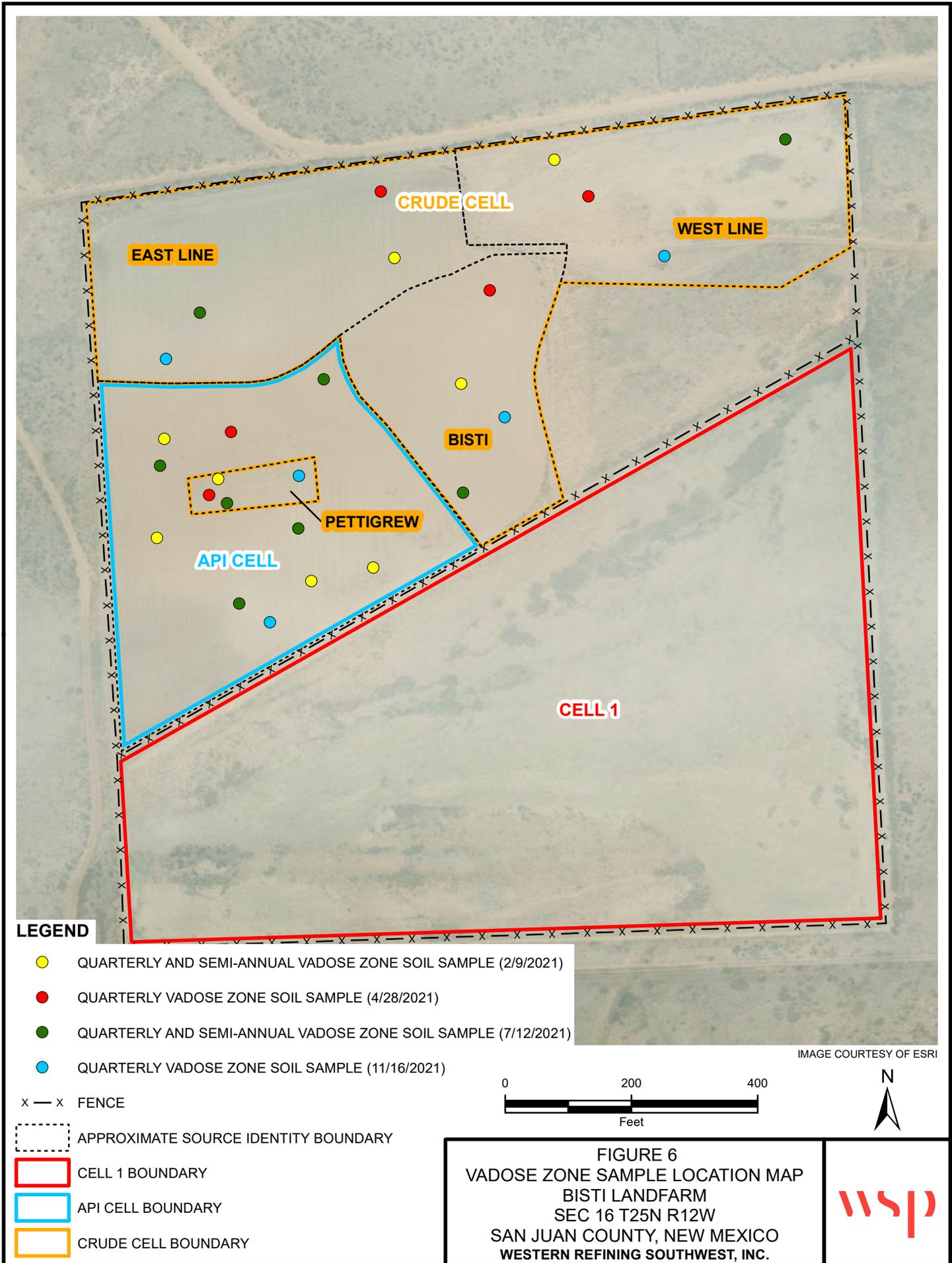


FIGURE 5
TREATMENT ZONE SAMPLE LOCATION MAP
 BISTI LANDFARM
 SEC 16 T25N R12W
 SAN JUAN COUNTY, NEW MEXICO
 WESTERN REFINING SOUTHWEST, INC.



P:\Western Refining\GIS\MXD\029520002_BISTI LANDFARM\TE029521002_BISTI_FIG06_TREATMENT_2021_ANNUAL.mxd



TABLES

TABLE 1
2021 SEMI-ANNUAL TREATMENT ZONE SOIL ANALYTICAL RESULTS

BISTI LANDFARM
WESTERN REFINING SOUTHWEST LLC
SAN JUAN COUNTY, NEW MEXICO

Cell	Sample ID	Sample Date	TPH-GRO 8015 (mg/kg)	TPH-DRO 8015 (mg/kg)	GRO+DRO 8015 (mg/kg)	TPH-MRO 8015 (mg/kg)	TPH - 418.1 (mg/kg)	Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Total Xylenes (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
Crude Cell	Crude Treatment	9-Feb-21	<4.9	43	43	---	<19	---	---	---	---	---	<60
	Crude Treatment	12-Jul-21	<4.7	<8.5	<8.5	<42	43	<0.024	<0.047	<0.047	<0.094	<0.094	<60
API Cell	API Treatment	9-Feb-21	<4.7	<9.7	<9.7	---	<20	---	---	---	---	---	<60
	API Treatment	12-Jul-21	<4.8	<9.7	<9.7	<48	<20	<0.024	<0.048	<0.048	<0.095	<0.095	410
19.15.36.15 Treatment Zone Closure Performance Standards			NE	NE	500	NE	2,500	0.2	NE	NE	NE	50	1,000

Notes:

- DRO - diesel range organics
- GRO - gasoline range organics
- mg/kg - milligrams per kilograms
- MRO - motor oil range organics
- NE - not established
- TPH - total petroleum hydrocarbons
- - sample not analyzed for specified constituent
- < indicates result is less than the stated laboratory practical quantitation limit (PQL)

TABLE 2
2021 QUARTERLY AND SEMI-ANNUAL VADOSE ZONE SOIL ANALYTICAL RESULTS
BISTI LANDFARM
WESTERN REFINING SOUTHWEST LLC
SAN JUAN COUNTY, NEW MEXICO

Cell	Source Area	Sample ID	Sample Date	TPH-GRO 8015 (mg/kg)	TPH-DRO 8015 (mg/kg)	TPH-MRO 8015 (mg/kg)	TPH - 418.1 (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-Feb-21	---	---	---	<17	<0.024	<0.049	<0.049	<0.097	<0.097	<60
		West Line Vadose Zone	28-Apr-21	<4.9	<9.9	<49	---	<0.025	<0.049	<0.049	<0.098	<0.098	---
		West Line Vadose Zone	12-Jul-21	<4.9	<9.6	<48	<19	<0.024	<0.049	<0.049	<0.098	<0.098	<60
		West Line Vadose Zone	16-Nov-21	<4.8	<10	<50	---	<0.024	<0.048	<0.048	<0.096	<0.096	---
	East Line	East Line Vadose Zone	9-Feb-21	---	---	---	<20	<0.025	<0.049	<0.049	<0.098	<0.098	87
		East Line Vadose Zone	28-Apr-21	<4.9	<9.4	<47	---	<0.024	<0.049	<0.049	<0.098	<0.098	---
		East Line Vadose Zone	12-Jul-21	<5.0	<9.3	<47	<17	<0.025	<0.050	<0.050	<0.10	<0.01	<60
		East Line Vadose Zone	16-Nov-21	<4.9	<9.8	<49	---	<0.025	<0.049	<0.049	<0.099	<0.099	---
	Bisti	Bisti Vadose Zone	9-Feb-21	---	---	---	<19	<0.024	<0.047	<0.047	<0.095	<0.095	<60
		Bisti Vadose Zone	28-Apr-21	<4.8	<9.6	<48	---	<0.024	<0.048	<0.048	<0.095	<0.095	---
		Bisti Vadose Zone	12-Jul-21	<4.8	<9.4	<47	<18	<0.024	<0.048	<0.048	<0.096	<0.096	65
		Bisti Vadose Zone	16-Nov-21	<4.8	<9.0	<45	---	<0.024	<0.048	<0.048	<0.095	<0.095	---
	Pettigrew	Pettigrew Vadose Zone	9-Feb-21	---	---	---	<19	<0.024	<0.048	<0.048	<0.095	<0.095	<59
		Pettigrew Vadose Zone	28-Apr-21	<4.8	<9.8	<49	---	<0.024	<0.048	<0.048	<0.096	<0.096	---
		Pettigrew Vadose Zone	12-Jul-21	<4.7	<8.9	<44	<19	<0.024	<0.047	<0.047	<0.095	<0.095	86
		Pettigrew Vadose Zone	16-Nov-21	<5.0	<9.5	<48	---	<0.025	<0.050	<0.050	<0.099	<0.099	---
API Cell	API	API Vadose Zone 1	9-Feb-21	---	---	---	<19	<0.024	<0.047	<0.047	<0.095	<0.095	<60
		API Vadose Zone 2		---	---	---	<20	<0.024	<0.047	<0.047	<0.094	<0.094	<60
		API Vadose Zone 3		---	---	---	<18	<0.024	<0.048	<0.048	<0.096	<0.096	<60
		API Vadose Zone 4		---	---	---	<19	<0.024	<0.047	<0.047	<0.094	<0.094	140
		API Vadose	28-Apr-21	<4.7	<9.9	<50	---	<0.024	<0.047	<0.047	<0.095	<0.095	---
		API 1 Vadose	12-Jul-21	<4.8	<9.2	<46	<18	<0.024	<0.048	<0.048	<0.096	<0.096	650
		API 2 Vadose		<4.7	<8.9	<44	<17	<0.023	<0.047	<0.047	<0.093	<0.093	640
		API 3 Vadose		<4.8	<9.5	<47	<19	<0.024	<0.048	<0.048	<0.095	<0.095	<60
		API 4 Vadose		<5.0	<9.0	<45	<19	<0.025	<0.050	<0.050	<0.099	<0.099	<60
		API Vadose	16-Nov-21	<5.0	<9.5	<48	---	<0.025	<0.050	<0.050	<0.10	<0.10	---
Background Sample Result or Laboratory Practical Quantitation Limit			27-Mar-98 and 1-Sep-15	<5.0	<10	<50	<50	<0.05	<0.05	<0.05	<0.05	<0.05	<50

Notes:
DRO - diesel range organics
GRO - gasoline range organics
mg/kg - milligrams per kilograms
MRO - motor oil range organics
NE - Not Established
TPH- total petroleum hydrocarbons
--- - 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 3
2021 ANNUAL VADOSE ZONE SOIL ANALYTICAL RESULTS
BISTI LANDFARM
WESTERN REFINING SOUTHWEST LLC
SAN JUAN COUNTY, NEW MEXICO

Cell	Source Area	Sample ID	Sample Date	Arsenic (mg/kg)	Barium (mg/kg)	Cadmium (mg/kg)	Calcium (mg/kg)	Chloride (mg/kg)	Chromium (mg/kg)	Lead (mg/kg)	Manganese (mg/kg)	Mercury (mg/kg)	Potassium (mg/kg)	Selenium (mg/kg)	Silver (mg/kg)	Sodium (mg/kg)	Sulfate (mg/kg)
Crude Cell	West Line	West Line Vadose	9-Feb-21	<2.4	84	<0.097	2,300	9.3	2.7	1.8	170	<0.033	1,200	<2.4	<0.24	68	270
	East Line	East Line Vadose	9-Feb-21	<2.5	81	<0.099	1,600	79	2.8	1.9	150	<0.034	1,200	<2.5	<0.25	210	200
	Bisti	Bisti Vadose	9-Feb-21	<2.4	28	<0.097	1,900	7.7	1.7	1.3	91	<0.033	640	<2.4	<0.24	86	38
	Pettigrew	Pettigrew Vadose	9-Feb-21	<2.5	42	<0.10	2,800	24	1.5	1.7	91	<0.034	570	<2.5	<0.25	77	77
API Cell	API	API Vadose	9-Feb-21	<2.5	42	<0.099	1,400	<7.5	1.3	1.4	89	<0.032	530	<2.5	<0.25	52	11
Background Sample Result or Laboratory Practical Quantitation Limit			27-Mar-98 and 1-Sep-15	2.8	180	<1.3	2,500	<50	<5.0	6.8	NE	<0.50	810	<2.5	<1.3	90	140

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: clients.hallenvironmental.com

March 09, 2021

Devin Hencmann

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX:

RE: 2020 Bisti Landfarm Annual Sampling

OrderNo.: 2102533

Dear Devin Hencmann:

Hall Environmental Analysis Laboratory received 5 sample(s) on 2/10/2021 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 white background.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report

Lab Order **2102533**

Date Reported: **3/9/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Pettigrew Vadose

Project: 2020 Bisti Landfarm Annual Sampling

Collection Date: 2/9/2021 12:11:00 PM

Lab ID: 2102533-001

Matrix: SOIL

Received Date: 2/10/2021 7:54:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	24	7.5		mg/Kg	5	2/19/2021 12:47:25 PM	58205
Sulfate	77	7.5		mg/Kg	5	2/19/2021 12:47:25 PM	58205
EPA METHOD 7471: MERCURY							Analyst: ags
Mercury	ND	0.034		mg/Kg	1	2/18/2021 12:16:29 PM	58170
EPA METHOD 6010B: SOIL METALS							Analyst: JLF
Arsenic	ND	2.5		mg/Kg	1	2/17/2021 2:02:44 PM	58145
Barium	42	0.10		mg/Kg	1	2/17/2021 2:02:44 PM	58145
Cadmium	ND	0.10		mg/Kg	1	2/17/2021 2:02:44 PM	58145
Calcium	2800	25		mg/Kg	1	2/17/2021 2:02:44 PM	58145
Chromium	1.5	0.30		mg/Kg	1	2/17/2021 2:02:44 PM	58145
Lead	1.7	0.30		mg/Kg	1	2/17/2021 2:02:44 PM	58145
Manganese	91	0.20		mg/Kg	1	2/17/2021 2:02:44 PM	58145
Potassium	570	50		mg/Kg	1	2/18/2021 11:28:17 AM	58145
Selenium	ND	2.5		mg/Kg	1	2/17/2021 2:02:44 PM	58145
Silver	ND	0.25		mg/Kg	1	2/17/2021 2:02:44 PM	58145
Sodium	77	25		mg/Kg	1	2/18/2021 11:28:17 AM	58145

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 **2102533**

Date Reported: **3/9/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Bisti Vadose

Project: 2020 Bisti Landfarm Annual Sampling

Collection Date: 2/9/2021 12:15:00 PM

Lab ID: 2102533-002

Matrix: SOIL

Received Date: 2/10/2021 7:54:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	7.7	7.5		mg/Kg	5	2/19/2021 1:37:03 PM	58205
Sulfate	38	7.5		mg/Kg	5	2/19/2021 1:37:03 PM	58205
EPA METHOD 7471: MERCURY							Analyst: ags
Mercury	ND	0.033		mg/Kg	1	2/18/2021 12:22:44 PM	58170
EPA METHOD 6010B: SOIL METALS							Analyst: JLF
Arsenic	ND	2.4		mg/Kg	1	2/17/2021 2:04:56 PM	58145
Barium	28	0.097		mg/Kg	1	2/17/2021 2:04:56 PM	58145
Cadmium	ND	0.097		mg/Kg	1	2/17/2021 2:04:56 PM	58145
Calcium	1900	24		mg/Kg	1	2/17/2021 2:04:56 PM	58145
Chromium	1.7	0.29		mg/Kg	1	2/17/2021 2:04:56 PM	58145
Lead	1.3	0.29		mg/Kg	1	2/17/2021 2:04:56 PM	58145
Manganese	91	0.19		mg/Kg	1	2/17/2021 2:04:56 PM	58145
Potassium	640	48		mg/Kg	1	2/18/2021 11:29:27 AM	58145
Selenium	ND	2.4		mg/Kg	1	2/17/2021 2:04:56 PM	58145
Silver	ND	0.24		mg/Kg	1	2/17/2021 2:04:56 PM	58145
Sodium	86	24		mg/Kg	1	2/18/2021 11:29:27 AM	58145

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 **2102533**

Date Reported: **3/9/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: East Line Vadose

Project: 2020 Bisti Landfarm Annual Sampling

Collection Date: 2/9/2021 12:09:00 PM

Lab ID: 2102533-003

Matrix: SOIL

Received Date: 2/10/2021 7:54:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	79	15		mg/Kg	5	2/19/2021 2:01:52 PM	58205
Sulfate	200	15		mg/Kg	5	2/19/2021 2:01:52 PM	58205
EPA METHOD 7471: MERCURY							Analyst: ags
Mercury	ND	0.034		mg/Kg	1	2/18/2021 12:24:51 PM	58170
EPA METHOD 6010B: SOIL METALS							Analyst: JLF
Arsenic	ND	2.5		mg/Kg	1	2/17/2021 2:07:03 PM	58145
Barium	81	0.099		mg/Kg	1	2/17/2021 2:07:03 PM	58145
Cadmium	ND	0.099		mg/Kg	1	2/17/2021 2:07:03 PM	58145
Calcium	1600	49		mg/Kg	2	2/17/2021 12:41:14 PM	58145
Chromium	2.8	0.30		mg/Kg	1	2/17/2021 2:07:03 PM	58145
Lead	1.9	0.30		mg/Kg	1	2/17/2021 2:07:03 PM	58145
Manganese	150	0.20		mg/Kg	1	2/17/2021 2:07:03 PM	58145
Potassium	1200	49		mg/Kg	1	2/18/2021 11:30:43 AM	58145
Selenium	ND	2.5		mg/Kg	1	2/17/2021 2:07:03 PM	58145
Silver	ND	0.25		mg/Kg	1	2/17/2021 2:07:03 PM	58145
Sodium	210	25		mg/Kg	1	2/18/2021 11:30:43 AM	58145

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 **2102533**

Date Reported: **3/9/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: West Line Vadose

Project: 2020 Bisti Landfarm Annual Sampling

Collection Date: 2/9/2021 12:05:00 PM

Lab ID: 2102533-004

Matrix: SOIL

Received Date: 2/10/2021 7:54:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	9.3	7.5		mg/Kg	5	2/19/2021 2:26:41 PM	58205
Sulfate	270	7.5		mg/Kg	5	2/19/2021 2:26:41 PM	58205
EPA METHOD 7471: MERCURY							Analyst: ags
Mercury	ND	0.033		mg/Kg	1	2/18/2021 12:26:58 PM	58170
EPA METHOD 6010B: SOIL METALS							Analyst: JLF
Arsenic	ND	2.4		mg/Kg	1	2/17/2021 2:09:11 PM	58145
Barium	84	0.097		mg/Kg	1	2/17/2021 2:09:11 PM	58145
Cadmium	ND	0.097		mg/Kg	1	2/17/2021 2:09:11 PM	58145
Calcium	2300	24		mg/Kg	1	2/17/2021 2:09:11 PM	58145
Chromium	2.7	0.29		mg/Kg	1	2/17/2021 2:09:11 PM	58145
Lead	1.8	0.29		mg/Kg	1	2/17/2021 2:09:11 PM	58145
Manganese	170	0.19		mg/Kg	1	2/17/2021 2:09:11 PM	58145
Potassium	1200	48		mg/Kg	1	2/18/2021 11:32:07 AM	58145
Selenium	ND	2.4		mg/Kg	1	2/17/2021 2:09:11 PM	58145
Silver	ND	0.24		mg/Kg	1	2/17/2021 2:09:11 PM	58145
Sodium	68	24		mg/Kg	1	2/18/2021 11:32:07 AM	58145

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 **2102533**

Date Reported: **3/9/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API Vadose

Project: 2020 Bisti Landfarm Annual Sampling

Collection Date: 2/9/2021 12:07:00 PM

Lab ID: 2102533-005

Matrix: SOIL

Received Date: 2/10/2021 7:54:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	ND	7.5		mg/Kg	5	2/19/2021 2:51:29 PM	58205
Sulfate	11	7.5		mg/Kg	5	2/19/2021 2:51:29 PM	58205
EPA METHOD 7471: MERCURY							Analyst: ags
Mercury	ND	0.032		mg/Kg	1	2/18/2021 12:29:07 PM	58170
EPA METHOD 6010B: SOIL METALS							Analyst: JLF
Arsenic	ND	2.5		mg/Kg	1	2/17/2021 2:11:21 PM	58145
Barium	42	0.099		mg/Kg	1	2/17/2021 2:11:21 PM	58145
Cadmium	ND	0.099		mg/Kg	1	2/17/2021 2:11:21 PM	58145
Calcium	1400	25		mg/Kg	1	2/17/2021 2:11:21 PM	58145
Chromium	1.3	0.30		mg/Kg	1	2/17/2021 2:11:21 PM	58145
Lead	1.4	0.30		mg/Kg	1	2/17/2021 2:11:21 PM	58145
Manganese	89	0.20		mg/Kg	1	2/17/2021 2:11:21 PM	58145
Potassium	530	50		mg/Kg	1	2/18/2021 11:33:12 AM	58145
Selenium	ND	2.5		mg/Kg	1	2/17/2021 2:11:21 PM	58145
Silver	ND	0.25		mg/Kg	1	2/17/2021 2:11:21 PM	58145
Sodium	52	25		mg/Kg	1	2/18/2021 11:33:12 AM	58145

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 SUMMARY REPORT

March 09, 2021

Hall Environmental

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

Work Order: B21021497 Quote ID: B5636

Project Name: Not Indicated

Energy Laboratories Inc Billings MT received the following 5 samples for Hall Environmental on 2/24/2021 for analysis.

Lab ID	Client Sample ID	Collect Date	Receive Date	Matrix	Test
B21021497-001	2102533-001B Pettigrew Vadose	02/09/21 12:11	02/24/21	Solid	Alkalinity, Water Extractable DI Water Soil Extract ASA10-3
B21021497-002	2102533-002B Bisti Vadose	02/09/21 12:15	02/24/21	Solid	Same As Above
B21021497-003	2102533-003B East Line Vadose	02/09/21 12:09	02/24/21	Solid	Same As Above
B21021497-004	2102533-004B West Line Vadose	02/09/21 12:05	02/24/21	Solid	Same As Above
B21021497-005	2102533-005B API Vadose	02/09/21 12:07	02/24/21	Solid	Same As Above

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

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

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

Report Approved By:



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www.energylab.com

Billings, MT 800.735.4489 • Casper, WY 888.235.0515
Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

LABORATORY ANALYTICAL REPORT

Prepared by Billings, MT Branch

Client: Hall Environmental
Project: Not Indicated

Report Date: 03/09/21

Lab ID: B21021497-001
Client Sample ID: 2102533-001B Pettigrew Vadose

Collection Date: 02/09/21 12:11
DateReceived: 02/24/21
Matrix: Solid

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
----------	--------	-------	------------	----	-------------	--------	--------------------

WATER EXTRACTABLE CONSTITUENTS

Alkalinity, 1:2 56 mg/kg 4 ASA10-3 03/03/21 14:33 / mh

Lab ID: B21021497-002
Client Sample ID: 2102533-002B Bisti Vadose

Collection Date: 02/09/21 12:15
DateReceived: 02/24/21
Matrix: Solid

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
----------	--------	-------	------------	----	-------------	--------	--------------------

WATER EXTRACTABLE CONSTITUENTS

Alkalinity, 1:2 72 mg/kg 4 ASA10-3 03/03/21 14:35 / mh

Lab ID: B21021497-003
Client Sample ID: 2102533-003B East Line Vadose

Collection Date: 02/09/21 12:09
DateReceived: 02/24/21
Matrix: Solid

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
----------	--------	-------	------------	----	-------------	--------	--------------------

WATER EXTRACTABLE CONSTITUENTS

Alkalinity, 1:2 53 mg/kg 4 ASA10-3 03/03/21 14:37 / mh

Lab ID: B21021497-004
Client Sample ID: 2102533-004B West Line Vadose

Collection Date: 02/09/21 12:05
DateReceived: 02/24/21
Matrix: Solid

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
----------	--------	-------	------------	----	-------------	--------	--------------------

WATER EXTRACTABLE CONSTITUENTS

Alkalinity, 1:2 64 mg/kg 4 ASA10-3 03/03/21 14:38 / mh

Lab ID: B21021497-005
Client Sample ID: 2102533-005B API Vadose

Collection Date: 02/09/21 12:07
DateReceived: 02/24/21
Matrix: Solid

Analyses	Result	Units	Qualifiers	RL	MCL/ QCL	Method	Analysis Date / By
----------	--------	-------	------------	----	-------------	--------	--------------------

WATER EXTRACTABLE CONSTITUENTS

Alkalinity, 1:2 69 mg/kg 4 ASA10-3 03/03/21 14:39 / mh

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

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



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Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

QA/QC Summary Report

Prepared by Billings, MT Branch

Client: Hall Environmental

Work Order: B21021497

Report Date: 03/09/21

Analyte	Count	Result	Units	RL	%REC	Low Limit	High Limit	RPD	RPDLimit	Qual
Method: ASA10-3 Batch: 153255										
Lab ID: LCS-153255		Laboratory Control Sample				Run: ORIONVERSASTARPRO_210		03/03/21 14:32		
Alkalinity, 1:2		230	mg/kg	4.0	98	70	130			
Lab ID: B21021497-001A DUP		Sample Duplicate				Run: ORIONVERSASTARPRO_210		03/03/21 14:34		
Alkalinity, 1:2		60.8	mg/kg	4.0				8.8	30	
Lab ID: B21021497-002AMS		Sample Matrix Spike				Run: ORIONVERSASTARPRO_210		03/03/21 14:36		
Alkalinity, 1:2		411	mg/kg	4.0	99	50	150			

Qualifiers:

RL - Analyte Reporting Limit

ND - Not detected at the Reporting Limit (RL)



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Gillette, WY 866.686.7175 • Helena, MT 877.472.0711

Work Order Receipt Checklist

Hall Environmental

B21021497

Login completed by: Taylor K. Burris

Date Received: 2/24/2021

Reviewed by: BL2000\gmccartney

Received by: dac

Reviewed Date: 3/1/2021

Carrier name: FedEx

- Shipping container/cooler in good condition? Yes No Not Present
- Custody seals intact on all shipping container(s)/cooler(s)? Yes No Not Present
- Custody seals intact on all sample bottles? Yes No Not Present
- Chain of custody present? Yes No
- Chain of custody signed when relinquished and received? Yes No
- Chain of custody agrees with sample labels? Yes No
- Samples in proper container/bottle? Yes No
- Sample containers intact? Yes No
- Sufficient sample volume for indicated test? Yes No
- All samples received within holding time?
(Exclude analyses that are considered field parameters such as pH, DO, Res Cl, Sulfite, Ferrous Iron, etc.) Yes No
- Temp Blank received in all shipping container(s)/cooler(s)? Yes No Not Applicable
- Container/Temp Blank temperature: 0.6°C Blue Ice
- Water - VOA vials have zero headspace? Yes No No VOA vials submitted
- Water - pH acceptable upon receipt? Yes No Not Applicable

Standard Reporting Procedures:

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

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

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

Contact and Corrective Action Comments:

None

Hall Environmental Analysis Laboratory
4901 Hawkins Ave
Albuquerque NM 87109
TEL 505-343-3975
FAX 505-343-4107
Website clients.halleenvironmental.com

CHAIN OF CUSTODY RECORD PAGE 1 OF 1



SUB CONTRACTOR **Energy Labs -Billings** COMPANY **Energy Laboratories** PHONE **(406) 869-6253** FAX **(406) 252-6069**

ADDRESS **1120 South 27th Street** ACCOUNT # _____ EMAIL _____

CITY STATE ZIP **Billings, MT 59107**

ITEM	SAMPLE	CLIENT SAMPLE ID	BOTTLE TYPE	MATRIX	COLLECTION DATE	# CONTAINERS	ANALYTICAL COMMENTS
1	2102533-001B	Pettigrew Vadose	4OZGU	Soil	2/9/2021 12:11:00 PM	1	Alkalinity -002
2	2102533-002B	Bish Vadose	4OZGU	Soil	2/9/2021 12:15:00 PM	1	Alkalinity -003
3	2102533-003B	East Line Vadose	4OZGU	Soil	2/9/2021 12:09:00 PM	1	Alkalinity -004
4	2102533-004B	West Line Vadose	4OZGU	Soil	2/9/2021 12:05:00 PM	1	Alkalinity -005
5	2102533-005B	API Vadose	4OZGU	Soil	2/9/2021 12:07:00 PM	1	Alkalinity

SPECIAL INSTRUCTIONS / COMMENTS:

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

Relinquished By	Date 2/10/2021	Time 12:06 PM	Received By Dylan Chivall	Date 2/24/21	Time 12:00
Relinquished By	Date	Time	Received By	Date	Time
Relinquished By	Date	Time	Received By	Date	Time
TAT	Standard X		RUSH	Next BD	2nd BD
REPORT TRANSMITTAL DESIRED			FOR LAB USE ONLY		
HARD COPY EXTRA COST		FAX	EMAIL	ONLINE	
Temp of samples			Attempt to Cool		
Comments					

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102533

09-Mar-21

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

Sample ID: MB-58205	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 58205	RunNo: 75424								
Prep Date: 2/19/2021	Analysis Date: 2/19/2021	SeqNo: 2665213	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-58205	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 58205	RunNo: 75424								
Prep Date: 2/19/2021	Analysis Date: 2/19/2021	SeqNo: 2665214	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.0	90	110			
Sulfate	30	1.5	30.00	0	98.5	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102533

09-Mar-21

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

Sample ID: MB-58170	SampType: MBLK	TestCode: EPA Method 7471: Mercury								
Client ID: PBS	Batch ID: 58170	RunNo: 75383								
Prep Date: 2/17/2021	Analysis Date: 2/18/2021	SeqNo: 2664054	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID: LLLCS-58170	SampType: LCSLL	TestCode: EPA Method 7471: Mercury								
Client ID: BatchQC	Batch ID: 58170	RunNo: 75383								
Prep Date: 2/17/2021	Analysis Date: 2/18/2021	SeqNo: 2664055	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033	0.006660	0	99.0	70	130			

Sample ID: LCS-58170	SampType: LCS	TestCode: EPA Method 7471: Mercury								
Client ID: LCSS	Batch ID: 58170	RunNo: 75383								
Prep Date: 2/17/2021	Analysis Date: 2/18/2021	SeqNo: 2664056	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.17	0.033	0.1667	0	103	80	120			

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#: 2102533

09-Mar-21

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

Sample ID: MB-58145	SampType: MBLK	TestCode: EPA Method 6010B: Soil Metals								
Client ID: PBS	Batch ID: 58145	RunNo: 75353								
Prep Date: 2/16/2021	Analysis Date: 2/17/2021	SeqNo: 2663137	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	ND	2.5								
Barium	ND	0.10								
Cadmium	ND	0.10								
Calcium	ND	25								
Chromium	ND	0.30								
Lead	ND	0.30								
Manganese	ND	0.20								
Selenium	ND	2.5								
Silver	ND	0.25								

Sample ID: LCS-58145	SampType: LCS	TestCode: EPA Method 6010B: Soil Metals								
Client ID: LCSS	Batch ID: 58145	RunNo: 75353								
Prep Date: 2/16/2021	Analysis Date: 2/17/2021	SeqNo: 2663139	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	21	2.5	25.00	0	84.2	80	120			
Barium	23	0.10	25.00	0	93.7	80	120			
Cadmium	22	0.10	25.00	0	90.0	80	120			
Calcium	2500	25	2500	0	98.5	80	120			
Chromium	23	0.30	25.00	0	91.9	80	120			
Lead	23	0.30	25.00	0	91.1	80	120			
Manganese	24	0.20	25.00	0	94.1	80	120			
Selenium	22	2.5	25.00	0	87.1	80	120			
Silver	4.3	0.25	5.000	0	85.3	80	120			

Sample ID: 2102533-005AMS	SampType: MS	TestCode: EPA Method 6010B: Soil Metals								
Client ID: API Vadose	Batch ID: 58145	RunNo: 75353								
Prep Date: 2/16/2021	Analysis Date: 2/17/2021	SeqNo: 2663180	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	21	2.4	24.10	1.779	78.9	75	125			
Barium	140	0.096	24.10	42.05	399	75	125			S
Cadmium	20	0.096	24.10	0	84.0	75	125			
Calcium	3700	24	2410	1372	97.7	75	125			
Chromium	22	0.29	24.10	1.323	85.3	75	125			
Lead	21	0.29	24.10	1.408	82.3	75	125			
Manganese	140	0.19	24.10	88.68	198	75	125			S
Selenium	19	2.4	24.10	0	77.4	75	125			
Silver	2.7	0.24	4.821	0	56.1	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102533

09-Mar-21

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

Sample ID: 2102533-005AMSD	SampType: MSD	TestCode: EPA Method 6010B: Soil Metals								
Client ID: API Vadose	Batch ID: 58145	RunNo: 75353								
Prep Date: 2/16/2021	Analysis Date: 2/17/2021	SeqNo: 2663181	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	20	2.4	24.06	1.779	75.8	75	125	3.79	20	
Barium	87	0.096	24.06	42.05	188	75	125	45.1	20	RS
Cadmium	20	0.096	24.06	0	83.6	75	125	0.653	20	
Calcium	3700	24	2406	1372	95.6	75	125	1.45	20	
Chromium	22	0.29	24.06	1.323	84.4	75	125	1.17	20	
Lead	21	0.29	24.06	1.408	80.9	75	125	1.70	20	
Manganese	120	0.19	24.06	88.68	118	75	125	15.4	20	
Selenium	18	2.4	24.06	0	73.7	75	125	4.98	20	S
Silver	2.9	0.24	4.812	0	59.8	75	125	6.32	20	S

Sample ID: MB-58145	SampType: MBLK	TestCode: EPA Method 6010B: Soil Metals								
Client ID: PBS	Batch ID: 58145	RunNo: 75378								
Prep Date: 2/16/2021	Analysis Date: 2/18/2021	SeqNo: 2663942	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	ND	50								
Sodium	ND	25								

Sample ID: LCS-58145	SampType: LCS	TestCode: EPA Method 6010B: Soil Metals								
Client ID: LCSS	Batch ID: 58145	RunNo: 75378								
Prep Date: 2/16/2021	Analysis Date: 2/18/2021	SeqNo: 2663944	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	2400	50	2500	0	95.8	80	120			
Sodium	2400	25	2500	0	95.2	80	120			

Sample ID: 2102533-005AMS	SampType: MS	TestCode: EPA Method 6010B: Soil Metals								
Client ID: API Vadose	Batch ID: 58145	RunNo: 75378								
Prep Date: 2/16/2021	Analysis Date: 2/18/2021	SeqNo: 2663950	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	2700	48	2410	527.8	89.9	75	125			
Sodium	2100	24	2410	52.44	85.5	75	125			

Sample ID: 2102533-005AMSD	SampType: MSD	TestCode: EPA Method 6010B: Soil Metals								
Client ID: API Vadose	Batch ID: 58145	RunNo: 75378								
Prep Date: 2/16/2021	Analysis Date: 2/18/2021	SeqNo: 2663951	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Potassium	2600	48	2406	527.8	87.8	75	125	2.05	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#: 2102533

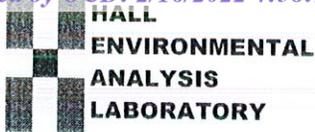
09-Mar-21

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

Sample ID: 2102533-005AMSD	SampType: MSD	TestCode: EPA Method 6010B: Soil Metals								
Client ID: API Vadose	Batch ID: 58145	RunNo: 75378								
Prep Date: 2/16/2021	Analysis Date: 2/18/2021	SeqNo: 2663951	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Sodium	2100	24	2406	52.44	83.4	75	125	2.66	20	

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
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: 2102533 RcptNo: 1

Received By: Cheyenne Cason 2/10/2021 7:54:00 AM

Completed By: Erin Melendrez 2/10/2021 11:33:57 AM

Reviewed By: DAD 2/8-2/10/21
DAD
2/10/21

Chain of Custody

- 1. Is Chain of Custody 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° 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: *Erin Melendrez* 2/10/21

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:

For alkalinity in soil; cut approx. 1oz of soil from provided 4oz soil jar into 4oz soil jar to send to sub lab. Remaining 3oz used to analyze metals and anions in house.-_____

17. Cooler Information Form 004A + 005A for 004B + 005B

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	2.7	Good				

Chain-of-Custody Record

Client: Gregory McCartney
 Mailing Address: Marathon
 Phone #: _____
 email or Fax#: gjmccartney@marathonpetroleum.com
 QA/QC Package: Standard Level 4 (Full Validation)
 Accreditation: Az Compliance Other
 NELAC Other
 EDD (Type) PDF

Turn-Around Time: Standard Rush
 Project Name: Annual Landfarm - Sampling
 Project #: TE029520002
 Project Manager: Devin Henemann
 Sampler: C. McGinnis, T. Short
 On Ice: Yes No
 # of Coolers: _____
 Cooler Temp (including CF): 2.9-0.2 = 2.7 (°C)



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

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.	BTEX / MTBE / TMB's (8021)	TPH:8015D(GRO / DRO / MRO)	8081 Pesticides/8082 PCB's	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCA 8 Metals	Cl, F, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)	Major Cations/Anions	Heavy Metals ↑ (Include Mercury) (7471)	See attached	
2/9/21	1211	Soil	Pettigrew Vadose	4oz jar + bag	cool	2102533														
	1215		Bisti Vadose			-001														
	1209		East Line Vadose			-002														
	1205		West Line Vadose			-003														
	1207		API Vadose			-004														
						-005														

Analysis Request

Received by: [Signature] Date: 2/9/21 Time: 1408
 Relinquished by: Carterly M...
 Received by: [Signature] Date: 2/16/21 Time: 0754
 Relinquished by: [Signature]

Remarks: cc: caitlin.mcginnis@wsp.com
travis.short@wsp.com
devin.henemann@wsp.com
Bill to: 4500183750

2020 SAMPLING SCHEDULE
 BISTI LANDFARM
 SAN JUAN COUNTY, NEW MEXICO
 WESTERN REFINING SOUTHWEST, INC.

RULE 711

Frequency	Zone	Collection Method	TPH (DRO/GRO USEPA 8015M)	BTEX (USEPA 8021)	Major Cations/ Anions	Heavy Metals (including Mercury 7471)	CURRENT SAMPLING SCHEDULE
Quarterly Sampling	Vadose Zone (2-3 feet below native)	One random discrete sample each source area (West Line, East Line, Bisti, Pettigrew, API)	X	X			January, April, July, October
Annual Sampling	Vadose Zone (2-3 feet below native)	One random discrete sample each source area (West Line, East Line, Bisti, Pettigrew, API)			X	X	January

RULE 36

Frequency	Zone	Collection Method	DRO and GRO as Combined Fraction (USEPA 8015M)	TPH (USEPA 418.1)	BTEX (USEPA 8021B or 8260B)	Chlorides (USEPA 306.0)	Subsection A and B (USEPA Method 6010B including Mercury 7471)	CURRENT SAMPLING SCHEDULE
Semi Annually	Treatment Zone	1 composite from each cell (API = 4 aliquots) (Crude = 4 aliquots)	X	X		X		January, July
Semi Annually	Vadose Zone (3-4 feet below original ground)	4 random discrete samples from each Cell (API = 4 samples) (Crude = 4 samples)		X	X	X		January, July
5 year	Vadose Zone (3-4 feet below original ground)	4 random discrete samples from each Cell (API = 4 samples) (Crude = 4 samples)					X	Last collected June 2017, will collect in June 2022

Analyte Lists

Subsection A&B (by USEPA Method 6010B)	Major Cations/Anions (USEPA Method)	Heavy Metals (USEPA Method)
Antimony	Alkalinity (NSA10-3)	Arsenic (6010B)
Arsenic	Bicarbonate (NSA10-3)	Barium (6010B)
Barium	Carbonate (NSA10-3)	Cadmium (6010B)
Beryllium	Sulfide (6010)	Chromium (6010B)
Calcium	Chloride (300.0)	Lead (6010B)
Chromium	Calcium (6010B)	Mercury (7471)
Copper	Manganese (6010B)	Selenium (6010B)
Iron	Potassium (6010B)	Silver (6010B)
Lead	Sodium (6010B)	
Manganese		
Selenium		
Silver		
Thallium		
Uranium		
Zinc		

Treatment Zone Closure, Rule 36

Analyte	Analytical Method
Benzene	8021B or 8260B
BTEX	8021B or 8260B
GRO+DRO	8015M
TPH	418.1
Chloride	306.1
Subsection A&B Metals	
Antimony	6010/6020
Arsenic	6010/6020
Barium	6010/6020
Beryllium	6010/6020
Cadmium	6010/6020
Chromium	6010/6020
Copper	6010/6020
Iron	6010/6020
Lead	6010/6020
Manganese	6010/6020
Selenium	6010/6020
Silver	6010/6020
Thallium	6010/6020
Uranium	6020
Zinc	6010/6020

Antimony
 Beryllium
 Thallium



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

February 23, 2021

Devin Hencmann

Western Refining Southwest, Inc.

#50 CR 4990

Bloomfield, NM 87413

TEL: (505) 632-4135

FAX:

RE: 2020 Bisti Landfarm - Semi Annual

OrderNo.: 2102500

Dear Devin Hencmann:

Hall Environmental Analysis Laboratory received 10 sample(s) on 2/10/2021 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 white background.

Andy Freeman

Laboratory Manager

4901 Hawkins NE

Albuquerque, NM 87109

Analytical Report

Lab Order **2102500**

Date Reported: 2/23/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: West Line

Project: 2020 Bisti Landfarm - Semi Annual

Collection Date: 2/9/2021 12:04:00 PM

Lab ID: 2102500-001

Matrix: SOIL

Received Date: 2/10/2021 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: mb
Petroleum Hydrocarbons, TR	ND	17		mg/Kg	1	2/11/2021	58038
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	ND	60		mg/Kg	20	2/18/2021 6:41:00 PM	58190
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/16/2021 8:45:52 PM	58040
Toluene	ND	0.049		mg/Kg	1	2/16/2021 8:45:52 PM	58040
Ethylbenzene	ND	0.049		mg/Kg	1	2/16/2021 8:45:52 PM	58040
Xylenes, Total	ND	0.097		mg/Kg	1	2/16/2021 8:45:52 PM	58040
Surr: 4-Bromofluorobenzene	101	80-120		%Rec	1	2/16/2021 8:45:52 PM	58040

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 **2102500**

Date Reported: **2/23/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: East Line

Project: 2020 Bisti Landfarm - Semi Annual

Collection Date: 2/9/2021 12:03:00 PM

Lab ID: 2102500-002

Matrix: SOIL

Received Date: 2/10/2021 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: mb
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	2/11/2021	58038
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	87	60		mg/Kg	20	2/18/2021 6:53:25 PM	58190
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/16/2021 10:20:31 PM	58040
Toluene	ND	0.049		mg/Kg	1	2/16/2021 10:20:31 PM	58040
Ethylbenzene	ND	0.049		mg/Kg	1	2/16/2021 10:20:31 PM	58040
Xylenes, Total	ND	0.098		mg/Kg	1	2/16/2021 10:20:31 PM	58040
Surr: 4-Bromofluorobenzene	96.6	80-120		%Rec	1	2/16/2021 10:20:31 PM	58040

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 **2102500**

Date Reported: **2/23/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Bisti

Project: 2020 Bisti Landfarm - Semi Annual

Collection Date: 2/9/2021 12:14:00 PM

Lab ID: 2102500-003

Matrix: SOIL

Received Date: 2/10/2021 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: mb
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	2/11/2021	58038
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	ND	60		mg/Kg	20	2/18/2021 7:30:38 PM	58190
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/16/2021 10:44:02 PM	58040
Toluene	ND	0.047		mg/Kg	1	2/16/2021 10:44:02 PM	58040
Ethylbenzene	ND	0.047		mg/Kg	1	2/16/2021 10:44:02 PM	58040
Xylenes, Total	ND	0.095		mg/Kg	1	2/16/2021 10:44:02 PM	58040
Surr: 4-Bromofluorobenzene	99.4	80-120		%Rec	1	2/16/2021 10:44:02 PM	58040

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 **2102500**

Date Reported: **2/23/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Pettigrew

Project: 2020 Bisti Landfarm - Semi Annual

Collection Date: 2/9/2021 12:13:00 PM

Lab ID: 2102500-004

Matrix: SOIL

Received Date: 2/10/2021 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: mb
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	2/11/2021	58038
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	ND	59		mg/Kg	20	2/18/2021 8:07:50 PM	58190
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/16/2021 11:07:55 PM	58040
Toluene	ND	0.047		mg/Kg	1	2/16/2021 11:07:55 PM	58040
Ethylbenzene	ND	0.047		mg/Kg	1	2/16/2021 11:07:55 PM	58040
Xylenes, Total	ND	0.095		mg/Kg	1	2/16/2021 11:07:55 PM	58040
Surr: 4-Bromofluorobenzene	96.5	80-120		%Rec	1	2/16/2021 11:07:55 PM	58040

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 **2102500**

Date Reported: **2/23/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API-1

Project: 2020 Bisti Landfarm - Semi Annual

Collection Date: 2/9/2021 12:00:00 PM

Lab ID: 2102500-005

Matrix: SOIL

Received Date: 2/10/2021 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: mb
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	2/11/2021	58038
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	ND	60		mg/Kg	20	2/19/2021 11:32:57 AM	58205
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/16/2021 11:31:26 PM	58040
Toluene	ND	0.047		mg/Kg	1	2/16/2021 11:31:26 PM	58040
Ethylbenzene	ND	0.047		mg/Kg	1	2/16/2021 11:31:26 PM	58040
Xylenes, Total	ND	0.095		mg/Kg	1	2/16/2021 11:31:26 PM	58040
Surr: 4-Bromofluorobenzene	97.9	80-120		%Rec	1	2/16/2021 11:31:26 PM	58040

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 **2102500**

Date Reported: 2/23/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API-2

Project: 2020 Bisti Landfarm - Semi Annual

Collection Date: 2/9/2021 11:57:00 AM

Lab ID: 2102500-006

Matrix: SOIL

Received Date: 2/10/2021 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: mb
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	2/11/2021	58038
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	ND	60		mg/Kg	20	2/19/2021 11:45:22 AM	58205
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/16/2021 11:54:57 PM	58040
Toluene	ND	0.047		mg/Kg	1	2/16/2021 11:54:57 PM	58040
Ethylbenzene	ND	0.047		mg/Kg	1	2/16/2021 11:54:57 PM	58040
Xylenes, Total	ND	0.094		mg/Kg	1	2/16/2021 11:54:57 PM	58040
Surr: 4-Bromofluorobenzene	98.4	80-120		%Rec	1	2/16/2021 11:54:57 PM	58040

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 **2102500**

Date Reported: **2/23/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API-3

Project: 2020 Bisti Landfarm - Semi Annual

Collection Date: 2/9/2021 11:55:00 AM

Lab ID: 2102500-007

Matrix: SOIL

Received Date: 2/10/2021 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: mb
Petroleum Hydrocarbons, TR	ND	18		mg/Kg	1	2/11/2021	58038
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	ND	60		mg/Kg	20	2/19/2021 11:57:47 AM	58205
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/17/2021 12:18:40 AM	58040
Toluene	ND	0.048		mg/Kg	1	2/17/2021 12:18:40 AM	58040
Ethylbenzene	ND	0.048		mg/Kg	1	2/17/2021 12:18:40 AM	58040
Xylenes, Total	ND	0.096		mg/Kg	1	2/17/2021 12:18:40 AM	58040
Surr: 4-Bromofluorobenzene	99.8	80-120		%Rec	1	2/17/2021 12:18:40 AM	58040

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 **2102500**

Date Reported: **2/23/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API-4

Project: 2020 Bisti Landfarm - Semi Annual

Collection Date: 2/9/2021 11:52:00 AM

Lab ID: 2102500-008

Matrix: SOIL

Received Date: 2/10/2021 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: mb
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	2/11/2021	58038
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	140	61		mg/Kg	20	2/19/2021 12:10:11 PM	58205
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/17/2021 12:42:33 AM	58040
Toluene	ND	0.047		mg/Kg	1	2/17/2021 12:42:33 AM	58040
Ethylbenzene	ND	0.047		mg/Kg	1	2/17/2021 12:42:33 AM	58040
Xylenes, Total	ND	0.094		mg/Kg	1	2/17/2021 12:42:33 AM	58040
Surr: 4-Bromofluorobenzene	99.4	80-120		%Rec	1	2/17/2021 12:42:33 AM	58040

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 **2102500**

Date Reported: **2/23/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Crude Treatment

Project: 2020 Bisti Landfarm - Semi Annual

Collection Date: 2/9/2021 11:49:00 AM

Lab ID: 2102500-009

Matrix: SOIL

Received Date: 2/10/2021 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: mb
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	2/11/2021	58038
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	ND	60		mg/Kg	20	2/19/2021 12:22:36 PM	58205
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: TOM
Diesel Range Organics (DRO)	43	9.7		mg/Kg	1	2/12/2021 8:32:54 AM	58044
Surr: DNOP	117	70-130		%Rec	1	2/12/2021 8:32:54 AM	58044
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/17/2021 1:06:02 AM	58040
Surr: BFB	97.8	75.3-105		%Rec	1	2/17/2021 1:06:02 AM	58040

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 **2102500**

Date Reported: **2/23/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API Treatment

Project: 2020 Bisti Landfarm - Semi Annual

Collection Date: 2/9/2021 11:50:00 AM

Lab ID: 2102500-010

Matrix: SOIL

Received Date: 2/10/2021 7:45:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: mb
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	2/11/2021	58038
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	ND	60		mg/Kg	20	2/19/2021 12:35:00 PM	58205
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: mb
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	2/11/2021 4:59:30 PM	58044
Surr: DNOP	131	70-130	S	%Rec	1	2/11/2021 4:59:30 PM	58044
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/17/2021 1:29:37 AM	58040
Surr: BFB	98.5	75.3-105		%Rec	1	2/17/2021 1:29:37 AM	58040

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#: 2102500

23-Feb-21

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

Sample ID: MB-58190	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 58190	RunNo: 75398								
Prep Date: 2/18/2021	Analysis Date: 2/18/2021	SeqNo: 2664555	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-58190	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 58190	RunNo: 75398								
Prep Date: 2/18/2021	Analysis Date: 2/18/2021	SeqNo: 2664556	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.2	90	110			

Sample ID: MB-58205	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 58205	RunNo: 75424								
Prep Date: 2/19/2021	Analysis Date: 2/19/2021	SeqNo: 2665213	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-58205	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 58205	RunNo: 75424								
Prep Date: 2/19/2021	Analysis Date: 2/19/2021	SeqNo: 2665214	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	94.0	90	110			

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#: 2102500

23-Feb-21

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

Sample ID: MB-58038	SampType: MBLK	TestCode: EPA Method 418.1: TPH								
Client ID: PBS	Batch ID: 58038	RunNo: 75230								
Prep Date: 2/10/2021	Analysis Date: 2/11/2021	SeqNo: 2656859	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-58038	SampType: LCS	TestCode: EPA Method 418.1: TPH								
Client ID: LCSS	Batch ID: 58038	RunNo: 75230								
Prep Date: 2/10/2021	Analysis Date: 2/11/2021	SeqNo: 2656860	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	104.0	0	107	63.4	149			

Sample ID: LCSD-58038	SampType: LCSD	TestCode: EPA Method 418.1: TPH								
Client ID: LCSS02	Batch ID: 58038	RunNo: 75230								
Prep Date: 2/10/2021	Analysis Date: 2/11/2021	SeqNo: 2656861	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	104.0	0	110	63.4	149	2.94	20	

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#: 2102500

23-Feb-21

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

Sample ID: MB-58044	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 58044	RunNo: 75227								
Prep Date: 2/10/2021	Analysis Date: 2/11/2021	SeqNo: 2656841	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	14		10.00		144	70	130			S

Sample ID: LCS-58044	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 58044	RunNo: 75223								
Prep Date: 2/10/2021	Analysis Date: 2/11/2021	SeqNo: 2656858	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	10	50.00	0	102	68.9	141			
Surr: DNOP	5.0		5.000		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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2102500

23-Feb-21

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

Sample ID: mb-58040	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 58040	RunNo: 75331								
Prep Date: 2/10/2021	Analysis Date: 2/16/2021	SeqNo: 2662050	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		100	75.3	105			

Sample ID: ics-58040	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 58040	RunNo: 75331								
Prep Date: 2/10/2021	Analysis Date: 2/16/2021	SeqNo: 2662051	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	105	80	120			
Surr: BFB	1100		1000		114	75.3	105			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#: 2102500

23-Feb-21

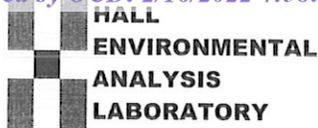
Client: Western Refining Southwest, Inc.
Project: 2020 Bisti Landfarm - Semi Annual

Sample ID: mb-58040	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 58040	RunNo: 75331								
Prep Date: 2/10/2021	Analysis Date: 2/16/2021	SeqNo: 2662083	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: 4-Bromofluorobenzene	0.98		1.000		97.7	80	120			

Sample ID: LCS-58040	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 58040	RunNo: 75331								
Prep Date: 2/10/2021	Analysis Date: 2/16/2021	SeqNo: 2662084	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.96	0.025	1.000	0	96.5	80	120			
Toluene	0.97	0.050	1.000	0	97.1	80	120			
Ethylbenzene	0.97	0.050	1.000	0	97.0	80	120			
Xylenes, Total	2.9	0.10	3.000	0	96.9	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		101	80	120			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix
- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit



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: 2102500 RcptNo: 1
Received By: Cheyenne Cason 2/10/2021 7:45:00 AM
Completed By: Cheyenne Cason 2/10/2021 8:57:13 AM
Reviewed By: IO 2-10-21

Chain of Custody

- 1. Is Chain of Custody complete? Yes [checked] No [] Not Present []
2. How was the sample delivered? Courier

Log In

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

of preserved bottles checked for pH: (<2 or >12 unless noted) Adjusted?
Checked by: SPA 2-10-21

Special Handling (if applicable)

- 15. Was client notified of all discrepancies with this order? Yes [] No [] NA [checked]

Person Notified: [] Date: []
By Whom: [] Via: [] eMail [] Phone [] Fax [] In Person []
Regarding: []
Client Instructions: []

16. Additional remarks:

17. Cooler Information

Table with 7 columns: Cooler No, Temp °C, Condition, Seal Intact, Seal No, Seal Date, Signed By. Row 1: 1, 2.7, Good, Yes, [], [], []



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

May 06, 2021

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

RE: Bisti LF

OrderNo.: 2104C42

Dear Gregory McCartney:

Hall Environmental Analysis Laboratory received 5 sample(s) on 4/29/2021 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 white background.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order **2104C42**

Date Reported: **5/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: West Line Vadose

Project: Bisti LF

Collection Date: 4/28/2021 11:10:00 AM

Lab ID: 2104C42-001

Matrix: SOIL

Received Date: 4/29/2021 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/1/2021 5:02:26 PM	59719
Surr: BFB	92.2	70-130		%Rec	1	5/1/2021 5:02:26 PM	59719
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: SB
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	4/30/2021 6:29:14 PM	59723
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/30/2021 6:29:14 PM	59723
Surr: DNOP	1.66	70-130	S	%Rec	1	4/30/2021 6:29:14 PM	59723
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: BRM
Benzene	ND	0.025		mg/Kg	1	5/1/2021 5:02:26 PM	59719
Toluene	ND	0.049		mg/Kg	1	5/1/2021 5:02:26 PM	59719
Ethylbenzene	ND	0.049		mg/Kg	1	5/1/2021 5:02:26 PM	59719
Xylenes, Total	ND	0.098		mg/Kg	1	5/1/2021 5:02:26 PM	59719
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	1	5/1/2021 5:02:26 PM	59719
Surr: 4-Bromofluorobenzene	99.9	70-130		%Rec	1	5/1/2021 5:02:26 PM	59719
Surr: Dibromofluoromethane	103	70-130		%Rec	1	5/1/2021 5:02:26 PM	59719
Surr: Toluene-d8	99.0	70-130		%Rec	1	5/1/2021 5:02:26 PM	59719

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 **2104C42**

Date Reported: **5/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: East Line Vadose

Project: Bisti LF

Collection Date: 4/28/2021 11:30:00 AM

Lab ID: 2104C42-002

Matrix: SOIL

Received Date: 4/29/2021 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/1/2021 5:29:34 PM	59719
Surr: BFB	94.5	70-130		%Rec	1	5/1/2021 5:29:34 PM	59719
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: SB
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	4/30/2021 6:39:06 PM	59723
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	4/30/2021 6:39:06 PM	59723
Surr: DNOP	2.33	70-130	S	%Rec	1	4/30/2021 6:39:06 PM	59723
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	5/1/2021 5:29:34 PM	59719
Toluene	ND	0.049		mg/Kg	1	5/1/2021 5:29:34 PM	59719
Ethylbenzene	ND	0.049		mg/Kg	1	5/1/2021 5:29:34 PM	59719
Xylenes, Total	ND	0.098		mg/Kg	1	5/1/2021 5:29:34 PM	59719
Surr: 1,2-Dichloroethane-d4	108	70-130		%Rec	1	5/1/2021 5:29:34 PM	59719
Surr: 4-Bromofluorobenzene	98.3	70-130		%Rec	1	5/1/2021 5:29:34 PM	59719
Surr: Dibromofluoromethane	109	70-130		%Rec	1	5/1/2021 5:29:34 PM	59719
Surr: Toluene-d8	101	70-130		%Rec	1	5/1/2021 5:29:34 PM	59719

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 **2104C42**

Date Reported: **5/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Bisti Vadose

Project: Bisti LF

Collection Date: 4/28/2021 11:55:00 AM

Lab ID: 2104C42-003

Matrix: SOIL

Received Date: 4/29/2021 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/1/2021 5:56:53 PM	59719
Surr: BFB	94.2	70-130		%Rec	1	5/1/2021 5:56:53 PM	59719
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: SB
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	4/30/2021 6:48:59 PM	59723
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	4/30/2021 6:48:59 PM	59723
Surr: DNOP	1.46	70-130	S	%Rec	1	4/30/2021 6:48:59 PM	59723
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	5/1/2021 5:56:53 PM	59719
Toluene	ND	0.048		mg/Kg	1	5/1/2021 5:56:53 PM	59719
Ethylbenzene	ND	0.048		mg/Kg	1	5/1/2021 5:56:53 PM	59719
Xylenes, Total	ND	0.095		mg/Kg	1	5/1/2021 5:56:53 PM	59719
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	1	5/1/2021 5:56:53 PM	59719
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	5/1/2021 5:56:53 PM	59719
Surr: Dibromofluoromethane	105	70-130		%Rec	1	5/1/2021 5:56:53 PM	59719
Surr: Toluene-d8	99.7	70-130		%Rec	1	5/1/2021 5:56:53 PM	59719

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 **2104C42**

Date Reported: **5/6/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Pettigrew Vadose

Project: Bisti LF

Collection Date: 4/28/2021 11:45:00 AM

Lab ID: 2104C42-004

Matrix: SOIL

Received Date: 4/29/2021 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	5/1/2021 6:23:57 PM	59719
Surr: BFB	96.0	70-130		%Rec	1	5/1/2021 6:23:57 PM	59719
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: SB
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	4/30/2021 6:58:54 PM	59723
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	4/30/2021 6:58:54 PM	59723
Surr: DNOP	1.86	70-130	S	%Rec	1	4/30/2021 6:58:54 PM	59723
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	5/1/2021 6:23:57 PM	59719
Toluene	ND	0.048		mg/Kg	1	5/1/2021 6:23:57 PM	59719
Ethylbenzene	ND	0.048		mg/Kg	1	5/1/2021 6:23:57 PM	59719
Xylenes, Total	ND	0.096		mg/Kg	1	5/1/2021 6:23:57 PM	59719
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	1	5/1/2021 6:23:57 PM	59719
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	5/1/2021 6:23:57 PM	59719
Surr: Dibromofluoromethane	107	70-130		%Rec	1	5/1/2021 6:23:57 PM	59719
Surr: Toluene-d8	100	70-130		%Rec	1	5/1/2021 6:23:57 PM	59719

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 2104C42

Date Reported: 5/6/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API Vadose

Project: Bisti LF

Collection Date: 4/28/2021 11:35:00 AM

Lab ID: 2104C42-005

Matrix: SOIL

Received Date: 4/29/2021 7:15:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: BRM
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	5/4/2021 6:37:20 PM	59719
Surr: BFB	94.9	70-130		%Rec	1	5/4/2021 6:37:20 PM	59719
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: SB
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	4/30/2021 7:08:51 PM	59723
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	4/30/2021 7:08:51 PM	59723
Surr: DNOP	2.06	70-130	S	%Rec	1	4/30/2021 7:08:51 PM	59723
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: BRM
Benzene	ND	0.024		mg/Kg	1	5/4/2021 6:37:20 PM	59719
Toluene	ND	0.047		mg/Kg	1	5/4/2021 6:37:20 PM	59719
Ethylbenzene	ND	0.047		mg/Kg	1	5/4/2021 6:37:20 PM	59719
Xylenes, Total	ND	0.095		mg/Kg	1	5/4/2021 6:37:20 PM	59719
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	1	5/4/2021 6:37:20 PM	59719
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	5/4/2021 6:37:20 PM	59719
Surr: Dibromofluoromethane	105	70-130		%Rec	1	5/4/2021 6:37:20 PM	59719
Surr: Toluene-d8	105	70-130		%Rec	1	5/4/2021 6:37:20 PM	59719

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#: 2104C42

06-May-21

Client: Western Refining Southwest, Inc.

Project: Bisti LF

Sample ID: MB-59723	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 59723	RunNo: 77092								
Prep Date: 4/29/2021	Analysis Date: 5/3/2021	SeqNo: 2733162	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		113	70	130			

Sample ID: LCS-59723	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 59723	RunNo: 77092								
Prep Date: 4/29/2021	Analysis Date: 5/3/2021	SeqNo: 2733163	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	61	10	50.00	0	122	68.9	141			
Surr: DNOP	5.9		5.000		117	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#: 2104C42

06-May-21

Client: Western Refining Southwest, Inc.

Project: Bisti LF

Sample ID: ics-59719	SampType: LCS		TestCode: EPA Method 8260B: Volatiles Short List							
Client ID: LCSS	Batch ID: 59719		RunNo: 77069							
Prep Date: 4/29/2021	Analysis Date: 5/1/2021		SeqNo: 2732715		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	111	70	130			
Toluene	1.1	0.050	1.000	0	106	70	130			
Surr: 1,2-Dichloroethane-d4	0.54		0.5000		107	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		101	70	130			
Surr: Dibromofluoromethane	0.53		0.5000		107	70	130			
Surr: Toluene-d8	0.52		0.5000		103	70	130			

Sample ID: mb-59719	SampType: MBLK		TestCode: EPA Method 8260B: Volatiles Short List							
Client ID: PBS	Batch ID: 59719		RunNo: 77069							
Prep Date: 4/29/2021	Analysis Date: 5/1/2021		SeqNo: 2732716		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	0.53		0.5000		106	70	130			
Surr: 4-Bromofluorobenzene	0.51		0.5000		101	70	130			
Surr: Dibromofluoromethane	0.53		0.5000		106	70	130			
Surr: Toluene-d8	0.50		0.5000		101	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#: 2104C42

06-May-21

Client: Western Refining Southwest, Inc.

Project: Bisti LF

Sample ID: ics-59719	SampType: LCS	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: LCSS	Batch ID: 59719	RunNo: 77069								
Prep Date: 4/29/2021	Analysis Date: 5/1/2021	SeqNo: 2732700	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	88.4	70	130			
Surr: BFB	470		500.0		93.7	70	130			

Sample ID: mb-59719	SampType: MBLK	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: PBS	Batch ID: 59719	RunNo: 77069								
Prep Date: 4/29/2021	Analysis Date: 5/1/2021	SeqNo: 2732701	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	480		500.0		95.2	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: 2104C42 RcptNo: 1

Received By: Juan Rojas 4/29/2021 7:15:00 AM
Completed By: Sean Livingston 4/29/2021 10:27:19 AM
Reviewed By: ENH 4/29/21

Chain of Custody

- 1. Is Chain of Custody complete? Yes [checked] No [] Not Present []
2. How was the sample delivered? Courier

Log In

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

of preserved bottles checked for pH: (<2 or >12 unless noted)
Adjusted?
Checked by: [signature]

Special Handling (if applicable)

- 15. Was client notified of all discrepancies with this order? Yes [] No [] NA [checked]

Person Notified: [] Date: []
By Whom: [] Via: [] eMail [] Phone [] Fax [] In Person []
Regarding: []
Client Instructions: []

16. Additional remarks:

17. Cooler Information

Table with 7 columns: Cooler No, Temp °C, Condition, Seal Intact, Seal No, Seal Date, Signed By. Contains 2 rows of data.

Chain-of-Custody Record

Client: Marathon Petroleum Company LP
 Mailing Address: Greg McCartney
 Phone #: 419 481 2338
 email or Fax#: gjmccartney@marathonpetroleum.com
 QA/QC Package: Standard Level 4 (Full Validation)
 Accreditation: Az Compliance NELAC Other
 EDD (Type)

Turn-Around Time: Standard Rush
 Project Name: Bisti LF
 Project #: _____
 Project Manager: Stuart Hyde
 Sampler: Stuart Hyde
 On Ice: Yes No
 # of Coolers: 2
 Cooler Temp (including CF): 2.0-0.1 ± 1.9 (°C)

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
4/28	1110	Soil	West Line Vadose	1-4oz jar	-	210444Z
↓	1130	↓	East Line Vadose	↓	↓	001
↓	1155	↓	Bisti Vadose	↓	↓	002
↓	1145	↓	Pettigrew Vadose	↓	↓	003
↓	1135	↓	API Vadose	↓	↓	004
						005

Container Type and #
 Preservative Type
 HEAL No.
 Date: 4/28/21 Time: 1320
 Date: 4/28/21 Time: 1320

Relinquished by: _____
 Relinquished by: _____
 Date: 4/28/21 Time: 1815
 Date: 4/29/21 Time: 7:15



HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Analysis Request

BTEX / MTBE / TMBs (8021)	TPH:8015D (GRO / DRO / MRO)	8081 Pesticides/8082 PCBs	EDB (Method 504.1)	PAHs by 8310 or 8270SIMS	RCRA 8 Metals	Cl, F, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄	8260 (VOA)	8270 (Semi-VOA)	Total Coliform (Present/Absent)
X	X								
X	X								
X	X								
X	X								
X	X								

Remarks: PO 4500256849



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

July 20, 2021

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

RE: Bisti Landfarm

OrderNo.: 2107558

Dear Gregory McCartney:

Hall Environmental Analysis Laboratory received 10 sample(s) on 7/13/2021 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 white background.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order **2107558**

Date Reported: **7/20/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: West Line Vadose

Project: Bisti Landfarm

Collection Date: 7/12/2021 11:25:00 AM

Lab ID: 2107558-001

Matrix: SOIL

Received Date: 7/13/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: JPM
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	7/19/2021 9:30:00 AM	61343
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	ND	60		mg/Kg	20	7/16/2021 11:17:48 AM	61363
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	7/16/2021 3:58:10 PM	61329
Surr: BFB	94.1	70-130		%Rec	1	7/16/2021 3:58:10 PM	61329
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: SB
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	7/16/2021 1:27:24 PM	61352
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/16/2021 1:27:24 PM	61352
Surr: DNOP	136	70-130	S	%Rec	1	7/16/2021 1:27:24 PM	61352
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.024		mg/Kg	1	7/16/2021 3:58:10 PM	61329
Toluene	ND	0.049		mg/Kg	1	7/16/2021 3:58:10 PM	61329
Ethylbenzene	ND	0.049		mg/Kg	1	7/16/2021 3:58:10 PM	61329
Xylenes, Total	ND	0.098		mg/Kg	1	7/16/2021 3:58:10 PM	61329
Surr: 1,2-Dichloroethane-d4	102	70-130		%Rec	1	7/16/2021 3:58:10 PM	61329
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	7/16/2021 3:58:10 PM	61329
Surr: Dibromofluoromethane	103	70-130		%Rec	1	7/16/2021 3:58:10 PM	61329
Surr: Toluene-d8	98.7	70-130		%Rec	1	7/16/2021 3:58:10 PM	61329

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 **2107558**

Date Reported: **7/20/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: East Line Vadose

Project: Bisti Landfarm

Collection Date: 7/12/2021 11:45:00 AM

Lab ID: 2107558-002

Matrix: SOIL

Received Date: 7/13/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: JPM
Petroleum Hydrocarbons, TR	ND	17		mg/Kg	1	7/19/2021 9:30:00 AM	61343
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	ND	60		mg/Kg	20	7/16/2021 11:30:12 AM	61363
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/16/2021 5:24:42 PM	61329
Surr: BFB	95.7	70-130		%Rec	1	7/16/2021 5:24:42 PM	61329
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: SB
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	7/16/2021 2:04:10 PM	61352
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/16/2021 2:04:10 PM	61352
Surr: DNOP	111	70-130		%Rec	1	7/16/2021 2:04:10 PM	61352
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.025		mg/Kg	1	7/16/2021 5:24:42 PM	61329
Toluene	ND	0.050		mg/Kg	1	7/16/2021 5:24:42 PM	61329
Ethylbenzene	ND	0.050		mg/Kg	1	7/16/2021 5:24:42 PM	61329
Xylenes, Total	ND	0.10		mg/Kg	1	7/16/2021 5:24:42 PM	61329
Surr: 1,2-Dichloroethane-d4	108	70-130		%Rec	1	7/16/2021 5:24:42 PM	61329
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	7/16/2021 5:24:42 PM	61329
Surr: Dibromofluoromethane	107	70-130		%Rec	1	7/16/2021 5:24:42 PM	61329
Surr: Toluene-d8	98.9	70-130		%Rec	1	7/16/2021 5:24:42 PM	61329

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 **2107558**

Date Reported: **7/20/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Pettigrew Vadose

Project: Bisti Landfarm

Collection Date: 7/12/2021 11:55:00 AM

Lab ID: 2107558-003

Matrix: SOIL

Received Date: 7/13/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: JPM
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	7/19/2021 9:30:00 AM	61343
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	86	61		mg/Kg	20	7/16/2021 11:42:37 AM	61363
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/16/2021 6:51:10 PM	61329
Surr: BFB	95.4	70-130		%Rec	1	7/16/2021 6:51:10 PM	61329
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: SB
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	7/16/2021 2:16:32 PM	61352
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	7/16/2021 2:16:32 PM	61352
Surr: DNOP	115	70-130		%Rec	1	7/16/2021 2:16:32 PM	61352
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.024		mg/Kg	1	7/16/2021 6:51:10 PM	61329
Toluene	ND	0.047		mg/Kg	1	7/16/2021 6:51:10 PM	61329
Ethylbenzene	ND	0.047		mg/Kg	1	7/16/2021 6:51:10 PM	61329
Xylenes, Total	ND	0.095		mg/Kg	1	7/16/2021 6:51:10 PM	61329
Surr: 1,2-Dichloroethane-d4	99.6	70-130		%Rec	1	7/16/2021 6:51:10 PM	61329
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	7/16/2021 6:51:10 PM	61329
Surr: Dibromofluoromethane	102	70-130		%Rec	1	7/16/2021 6:51:10 PM	61329
Surr: Toluene-d8	98.6	70-130		%Rec	1	7/16/2021 6:51:10 PM	61329

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 **2107558**

Date Reported: **7/20/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Bisti Vadose

Project: Bisti Landfarm

Collection Date: 7/12/2021 12:07:00 PM

Lab ID: 2107558-004

Matrix: SOIL

Received Date: 7/13/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: JPM
Petroleum Hydrocarbons, TR	ND	18		mg/Kg	1	7/19/2021 9:30:00 AM	61343
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	65	60		mg/Kg	20	7/16/2021 11:55:02 AM	61363
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/16/2021 7:20:00 PM	61329
Surr: BFB	98.8	70-130		%Rec	1	7/16/2021 7:20:00 PM	61329
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: SB
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	7/16/2021 2:28:47 PM	61352
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/16/2021 2:28:47 PM	61352
Surr: DNOP	169	70-130	S	%Rec	1	7/16/2021 2:28:47 PM	61352
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.024		mg/Kg	1	7/16/2021 7:20:00 PM	61329
Toluene	ND	0.048		mg/Kg	1	7/16/2021 7:20:00 PM	61329
Ethylbenzene	ND	0.048		mg/Kg	1	7/16/2021 7:20:00 PM	61329
Xylenes, Total	ND	0.096		mg/Kg	1	7/16/2021 7:20:00 PM	61329
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	7/16/2021 7:20:00 PM	61329
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	7/16/2021 7:20:00 PM	61329
Surr: Dibromofluoromethane	99.6	70-130		%Rec	1	7/16/2021 7:20:00 PM	61329
Surr: Toluene-d8	97.0	70-130		%Rec	1	7/16/2021 7:20:00 PM	61329

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 **2107558**

Date Reported: **7/20/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 1 Vadose

Project: Bisti Landfarm

Collection Date: 7/12/2021 12:15:00 PM

Lab ID: 2107558-005

Matrix: SOIL

Received Date: 7/13/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: JPM
Petroleum Hydrocarbons, TR	ND	18		mg/Kg	1	7/19/2021 9:30:00 AM	61343
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	650	60		mg/Kg	20	7/16/2021 12:07:27 PM	61363
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/16/2021 7:48:50 PM	61329
Surr: BFB	98.7	70-130		%Rec	1	7/16/2021 7:48:50 PM	61329
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: SB
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	7/16/2021 2:41:15 PM	61352
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	7/16/2021 2:41:15 PM	61352
Surr: DNOP	113	70-130		%Rec	1	7/16/2021 2:41:15 PM	61352
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.024		mg/Kg	1	7/16/2021 7:48:50 PM	61329
Toluene	ND	0.048		mg/Kg	1	7/16/2021 7:48:50 PM	61329
Ethylbenzene	ND	0.048		mg/Kg	1	7/16/2021 7:48:50 PM	61329
Xylenes, Total	ND	0.096		mg/Kg	1	7/16/2021 7:48:50 PM	61329
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	7/16/2021 7:48:50 PM	61329
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	7/16/2021 7:48:50 PM	61329
Surr: Dibromofluoromethane	105	70-130		%Rec	1	7/16/2021 7:48:50 PM	61329
Surr: Toluene-d8	99.7	70-130		%Rec	1	7/16/2021 7:48:50 PM	61329

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 **2107558**

Date Reported: **7/20/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 2 Vadose

Project: Bisti Landfarm

Collection Date: 7/12/2021 12:30:00 PM

Lab ID: 2107558-006

Matrix: SOIL

Received Date: 7/13/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: JPM
Petroleum Hydrocarbons, TR	ND	17		mg/Kg	1	7/19/2021 9:30:00 AM	61343
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	640	61		mg/Kg	20	7/16/2021 12:19:51 PM	61363
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/16/2021 8:17:33 PM	61329
Surr: BFB	101	70-130		%Rec	1	7/16/2021 8:17:33 PM	61329
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: SB
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	7/16/2021 2:53:35 PM	61352
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	7/16/2021 2:53:35 PM	61352
Surr: DNOP	125	70-130		%Rec	1	7/16/2021 2:53:35 PM	61352
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.023		mg/Kg	1	7/16/2021 8:17:33 PM	61329
Toluene	ND	0.047		mg/Kg	1	7/16/2021 8:17:33 PM	61329
Ethylbenzene	ND	0.047		mg/Kg	1	7/16/2021 8:17:33 PM	61329
Xylenes, Total	ND	0.093		mg/Kg	1	7/16/2021 8:17:33 PM	61329
Surr: 1,2-Dichloroethane-d4	107	70-130		%Rec	1	7/16/2021 8:17:33 PM	61329
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	7/16/2021 8:17:33 PM	61329
Surr: Dibromofluoromethane	104	70-130		%Rec	1	7/16/2021 8:17:33 PM	61329
Surr: Toluene-d8	101	70-130		%Rec	1	7/16/2021 8:17:33 PM	61329

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 **2107558**

Date Reported: **7/20/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 3 Vadose

Project: Bisti Landfarm

Collection Date: 7/12/2021 12:40:00 PM

Lab ID: 2107558-007

Matrix: SOIL

Received Date: 7/13/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH Analyst: JPM							
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	7/19/2021 9:30:00 AM	61343
EPA METHOD 300.0: ANIONS Analyst: VP							
Chloride	ND	60		mg/Kg	20	7/16/2021 12:32:16 PM	61363
EPA METHOD 8015D MOD: GASOLINE RANGE Analyst: JMR							
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/16/2021 8:46:17 PM	61329
Surr: BFB	98.8	70-130		%Rec	1	7/16/2021 8:46:17 PM	61329
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS Analyst: SB							
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	7/16/2021 3:06:00 PM	61352
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	7/16/2021 3:06:00 PM	61352
Surr: DNOP	127	70-130		%Rec	1	7/16/2021 3:06:00 PM	61352
EPA METHOD 8260B: VOLATILES SHORT LIST Analyst: JMR							
Benzene	ND	0.024		mg/Kg	1	7/16/2021 8:46:17 PM	61329
Toluene	ND	0.048		mg/Kg	1	7/16/2021 8:46:17 PM	61329
Ethylbenzene	ND	0.048		mg/Kg	1	7/16/2021 8:46:17 PM	61329
Xylenes, Total	ND	0.095		mg/Kg	1	7/16/2021 8:46:17 PM	61329
Surr: 1,2-Dichloroethane-d4	110	70-130		%Rec	1	7/16/2021 8:46:17 PM	61329
Surr: 4-Bromofluorobenzene	101	70-130		%Rec	1	7/16/2021 8:46:17 PM	61329
Surr: Dibromofluoromethane	102	70-130		%Rec	1	7/16/2021 8:46:17 PM	61329
Surr: Toluene-d8	98.4	70-130		%Rec	1	7/16/2021 8:46:17 PM	61329

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 **2107558**

Date Reported: **7/20/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API 4 Vadose

Project: Bisti Landfarm

Collection Date: 7/12/2021 12:50:00 PM

Lab ID: 2107558-008

Matrix: SOIL

Received Date: 7/13/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: JPM
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	7/19/2021 9:30:00 AM	61343
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	ND	60		mg/Kg	20	7/16/2021 12:44:40 PM	61363
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	7/16/2021 9:14:57 PM	61329
Surr: BFB	95.3	70-130		%Rec	1	7/16/2021 9:14:57 PM	61329
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: SB
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	7/16/2021 3:18:32 PM	61352
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	7/16/2021 3:18:32 PM	61352
Surr: DNOP	106	70-130		%Rec	1	7/16/2021 3:18:32 PM	61352
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.025		mg/Kg	1	7/16/2021 9:14:57 PM	61329
Toluene	ND	0.050		mg/Kg	1	7/16/2021 9:14:57 PM	61329
Ethylbenzene	ND	0.050		mg/Kg	1	7/16/2021 9:14:57 PM	61329
Xylenes, Total	ND	0.099		mg/Kg	1	7/16/2021 9:14:57 PM	61329
Surr: 1,2-Dichloroethane-d4	101	70-130		%Rec	1	7/16/2021 9:14:57 PM	61329
Surr: 4-Bromofluorobenzene	98.4	70-130		%Rec	1	7/16/2021 9:14:57 PM	61329
Surr: Dibromofluoromethane	99.5	70-130		%Rec	1	7/16/2021 9:14:57 PM	61329
Surr: Toluene-d8	99.4	70-130		%Rec	1	7/16/2021 9:14:57 PM	61329

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 **2107558**

Date Reported: **7/20/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Crude Treatment

Project: Bisti Landfarm

Collection Date: 7/12/2021 12:00:00 PM

Lab ID: 2107558-009

Matrix: SOIL

Received Date: 7/13/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: JPM
Petroleum Hydrocarbons, TR	43	19		mg/Kg	1	7/19/2021 9:30:00 AM	61343
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	ND	60		mg/Kg	20	7/16/2021 1:21:55 PM	61363
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	7/16/2021 9:43:37 PM	61329
Surr: BFB	97.1	70-130		%Rec	1	7/16/2021 9:43:37 PM	61329
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: SB
Diesel Range Organics (DRO)	ND	8.5		mg/Kg	1	7/16/2021 3:31:04 PM	61352
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	7/16/2021 3:31:04 PM	61352
Surr: DNOP	90.4	70-130		%Rec	1	7/16/2021 3:31:04 PM	61352
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.024		mg/Kg	1	7/16/2021 9:43:37 PM	61329
Toluene	ND	0.047		mg/Kg	1	7/16/2021 9:43:37 PM	61329
Ethylbenzene	ND	0.047		mg/Kg	1	7/16/2021 9:43:37 PM	61329
Xylenes, Total	ND	0.094		mg/Kg	1	7/16/2021 9:43:37 PM	61329
Surr: 1,2-Dichloroethane-d4	105	70-130		%Rec	1	7/16/2021 9:43:37 PM	61329
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	7/16/2021 9:43:37 PM	61329
Surr: Dibromofluoromethane	103	70-130		%Rec	1	7/16/2021 9:43:37 PM	61329
Surr: Toluene-d8	94.6	70-130		%Rec	1	7/16/2021 9:43:37 PM	61329

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 **2107558**

Date Reported: **7/20/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API Treatment

Project: Bisti Landfarm

Collection Date: 7/12/2021 12:45:00 PM

Lab ID: 2107558-010

Matrix: SOIL

Received Date: 7/13/2021 8:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH							Analyst: JPM
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	7/19/2021 9:30:00 AM	61343
EPA METHOD 300.0: ANIONS							Analyst: VP
Chloride	410	59		mg/Kg	20	7/16/2021 1:34:20 PM	61363
EPA METHOD 8015D MOD: GASOLINE RANGE							Analyst: JMR
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	7/16/2021 10:12:17 PM	61329
Surr: BFB	101	70-130		%Rec	1	7/16/2021 10:12:17 PM	61329
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: SB
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	7/16/2021 3:56:00 PM	61352
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	7/16/2021 3:56:00 PM	61352
Surr: DNOP	70.6	70-130		%Rec	1	7/16/2021 3:56:00 PM	61352
EPA METHOD 8260B: VOLATILES SHORT LIST							Analyst: JMR
Benzene	ND	0.024		mg/Kg	1	7/16/2021 10:12:17 PM	61329
Toluene	ND	0.048		mg/Kg	1	7/16/2021 10:12:17 PM	61329
Ethylbenzene	ND	0.048		mg/Kg	1	7/16/2021 10:12:17 PM	61329
Xylenes, Total	ND	0.095		mg/Kg	1	7/16/2021 10:12:17 PM	61329
Surr: 1,2-Dichloroethane-d4	106	70-130		%Rec	1	7/16/2021 10:12:17 PM	61329
Surr: 4-Bromofluorobenzene	103	70-130		%Rec	1	7/16/2021 10:12:17 PM	61329
Surr: Dibromofluoromethane	106	70-130		%Rec	1	7/16/2021 10:12:17 PM	61329
Surr: Toluene-d8	99.2	70-130		%Rec	1	7/16/2021 10:12:17 PM	61329

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#: 2107558

20-Jul-21

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

Sample ID: MB-61363	SampType: MBLK	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 61363	RunNo: 79843								
Prep Date: 7/16/2021	Analysis Date: 7/16/2021	SeqNo: 2809981	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-61363	SampType: LCS	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 61363	RunNo: 79843								
Prep Date: 7/16/2021	Analysis Date: 7/16/2021	SeqNo: 2809982	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	96.1	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2107558

20-Jul-21

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm

Sample ID: MB-61343	SampType: MBLK	TestCode: EPA Method 418.1: TPH								
Client ID: PBS	Batch ID: 61343	RunNo: 79880								
Prep Date: 7/15/2021	Analysis Date: 7/19/2021	SeqNo: 2810396	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-61343	SampType: LCS	TestCode: EPA Method 418.1: TPH								
Client ID: LCSS	Batch ID: 61343	RunNo: 79880								
Prep Date: 7/15/2021	Analysis Date: 7/19/2021	SeqNo: 2810397	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	120	20	99.48	0	118	63.4	149			

Sample ID: LCSD-61343	SampType: LCSD	TestCode: EPA Method 418.1: TPH								
Client ID: LCSS02	Batch ID: 61343	RunNo: 79880								
Prep Date: 7/15/2021	Analysis Date: 7/19/2021	SeqNo: 2810398	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	130	20	99.48	0	126	63.4	149	6.67	20	

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#: 2107558

20-Jul-21

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm

Sample ID: MB-61352	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 61352	RunNo: 79858								
Prep Date: 7/15/2021	Analysis Date: 7/16/2021	SeqNo: 2809430	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	13		10.00		126	70	130			

Sample ID: LCS-61352	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 61352	RunNo: 79858								
Prep Date: 7/15/2021	Analysis Date: 7/16/2021	SeqNo: 2809432	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	92.6	68.9	141			
Surr: DNOP	5.5		5.000		109	70	130			

Sample ID: 2107558-001AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: West Line Vadose	Batch ID: 61352	RunNo: 79858								
Prep Date: 7/15/2021	Analysis Date: 7/16/2021	SeqNo: 2809447	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	40	9.2	46.04	0	86.4	15	184			
Surr: DNOP	4.4		4.604		96.4	70	130			

Sample ID: 2107558-001AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: West Line Vadose	Batch ID: 61352	RunNo: 79858								
Prep Date: 7/15/2021	Analysis Date: 7/16/2021	SeqNo: 2809455	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	47	8.8	44.09	0	107	15	184	16.6	23.9	
Surr: DNOP	5.9		4.409		133	70	130	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#: 2107558

20-Jul-21

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm

Sample ID: ics-61329	SampType: LCS	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: LCSS	Batch ID: 61329	RunNo: 79856								
Prep Date: 7/15/2021	Analysis Date: 7/16/2021	SeqNo: 2810422	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	70	130			
Toluene	0.99	0.050	1.000	0	99.2	70	130			
Surr: 1,2-Dichloroethane-d4	0.55		0.5000		110	70	130			
Surr: 4-Bromofluorobenzene	0.51		0.5000		101	70	130			
Surr: Dibromofluoromethane	0.53		0.5000		106	70	130			
Surr: Toluene-d8	0.50		0.5000		101	70	130			

Sample ID: mb-61329	SampType: MBLK	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: PBS	Batch ID: 61329	RunNo: 79856								
Prep Date: 7/15/2021	Analysis Date: 7/16/2021	SeqNo: 2810423	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	0.54		0.5000		108	70	130			
Surr: 4-Bromofluorobenzene	0.50		0.5000		99.7	70	130			
Surr: Dibromofluoromethane	0.52		0.5000		103	70	130			
Surr: Toluene-d8	0.49		0.5000		97.0	70	130			

Sample ID: 2107558-002ams	SampType: MS	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: East Line Vadose	Batch ID: 61329	RunNo: 79856								
Prep Date: 7/15/2021	Analysis Date: 7/16/2021	SeqNo: 2810426	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.0	0.024	0.9690	0	107	70	130			
Toluene	0.91	0.048	0.9690	0	94.3	70	130			
Surr: 1,2-Dichloroethane-d4	0.54		0.4845		111	70	130			
Surr: 4-Bromofluorobenzene	0.51		0.4845		105	70	130			
Surr: Dibromofluoromethane	0.50		0.4845		103	70	130			
Surr: Toluene-d8	0.47		0.4845		97.7	70	130			

Sample ID: 2107558-002amsd	SampType: MSD	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: East Line Vadose	Batch ID: 61329	RunNo: 79856								
Prep Date: 7/15/2021	Analysis Date: 7/16/2021	SeqNo: 2810427	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.94	0.023	0.9328	0	101	70	130	9.75	20	
Toluene	0.93	0.047	0.9328	0	99.2	70	130	1.27	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#: 2107558

20-Jul-21

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm

Sample ID: 2107558-002amsd	SampType: MSD	TestCode: EPA Method 8260B: Volatiles Short List								
Client ID: East Line Vadose	Batch ID: 61329	RunNo: 79856								
Prep Date: 7/15/2021	Analysis Date: 7/16/2021	SeqNo: 2810427 Units: mg/Kg								
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Surr: 1,2-Dichloroethane-d4	0.47		0.4664		102	70	130	0	0	
Surr: 4-Bromofluorobenzene	0.47		0.4664		101	70	130	0	0	
Surr: Dibromofluoromethane	0.45		0.4664		95.5	70	130	0	0	
Surr: Toluene-d8	0.46		0.4664		99.2	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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2107558

20-Jul-21

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm

Sample ID: ics-61329	SampType: LCS	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: LCSS	Batch ID: 61329	RunNo: 79856								
Prep Date: 7/15/2021	Analysis Date: 7/16/2021	SeqNo: 2809408	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	5.0	25.00	0	97.4	70	130			
Surr: BFB	480		500.0		96.0	70	130			

Sample ID: mb-61329	SampType: MBLK	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: PBS	Batch ID: 61329	RunNo: 79856								
Prep Date: 7/15/2021	Analysis Date: 7/16/2021	SeqNo: 2809409	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			

Sample ID: 2107558-001ams	SampType: MS	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: West Line Vadose	Batch ID: 61329	RunNo: 79856								
Prep Date: 7/15/2021	Analysis Date: 7/16/2021	SeqNo: 2810469	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	4.9	24.53	0	109	64.4	124			
Surr: BFB	500		490.7		102	70	130			

Sample ID: 2107558-001amsd	SampType: MSD	TestCode: EPA Method 8015D Mod: Gasoline Range								
Client ID: West Line Vadose	Batch ID: 61329	RunNo: 79856								
Prep Date: 7/15/2021	Analysis Date: 7/16/2021	SeqNo: 2810470	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	4.8	24.13	0	102	64.4	124	7.46	20	
Surr: BFB	480		482.6		100	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: 2107558 RcptNo: 1

Received By: Scott Anderson 7/13/2021 8:50:00 AM

Completed By: Sean Livingston 7/13/2021 9:47:50 AM

Reviewed By: JR 7/13/21

Handwritten signatures: SPL, Sean Livingston

Chain of Custody

- 1. Is Chain of Custody complete? Yes [checked] No [] Not Present []
2. How was the sample delivered? Courier

Log In

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

of preserved bottles checked for pH: (<2 or >12 unless noted) Adjusted? Checked by: KPG 7/13/21

Special Handling (if applicable)

- 15. Was client notified of all discrepancies with this order? Yes [] No [] NA [checked]

Person Notified: [] Date: []
By Whom: [] Via: [] eMail [] Phone [] Fax [] In Person []
Regarding: []
Client Instructions: []

16. Additional remarks:

17. Cooler Information

Table with 7 columns: Cooler No, Temp °C, Condition, Seal Intact, Seal No, Seal Date, Signed By. Row 1: 1, 0.3, Good, [], [], []

Chain-of-Custody Record

Client: Western Refining
 Mailing Address: Greg McCarney
 Phone #: PO 4500256849
 email or Fax#: Stuart Hyde - WSP

QA/QC Package: Level 4 (Full Validation)
 Standard Az Compliance Other
 Accreditation: NELAC Other
 EDD (Type) PDF

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
7/12	11:25	Soil	west line vadose	2 4 ^{oz}	Cool	2107558 001
	11:45		Eose line vadose	2 4 ^{oz}		002
	11:55		Pebbirew vadose	2 4 ^{oz}		003
	12:07		Bisti vadose	2 4 ^{oz}		004
	12:15		API 1 vadose	2 4 ^{oz}		005
	12:30		API 2 vadose	2 4 ^{oz}		006
	12:40		API 3 vadose	2 4 ^{oz}		007
	12:50		API 4 vadose	2 4 ^{oz}		008
	12:00		Crude Treatment	1 4 ^{oz}		009
	12:45		API Treatment	1 4 ^{oz}		010

Relinquished by: Eric Carrol Date: 7/12/21 Time: 1420
 Relinquished by: Stuart Hyde Date: 7/12/21 Time: 1420
 Relinquished by: SPA Carrier Date: 7.13.21 Time: 8:50



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

Analysis Request	
<input checked="" type="checkbox"/> BTEX / MTBE / TMBs (8021)	<input type="checkbox"/>
TPH:8015D(GRO / DRO / MRO)	<input type="checkbox"/>
8081 Pesticides/8082 PCB's	<input type="checkbox"/>
EDB (Method 504.1)	<input type="checkbox"/>
PAHs by 8310 or 8270SIMS	<input type="checkbox"/>
RCRA 8 Metals	<input type="checkbox"/>
Cl, F, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄	<input type="checkbox"/>
8260 (VOA)	<input type="checkbox"/>
8270 (Semi-VOA)	<input type="checkbox"/>
Total Coliform (Present/Absent)	<input type="checkbox"/>
DRO + GRO combined (805)	<input checked="" type="checkbox"/>
TPH (416.1) <u>Chloride</u>	<input checked="" type="checkbox"/>

Remarks: Please include coc w/ invoice
cc: eric.carroll@wsp.com

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



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

December 01, 2021

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

RE: Bisti Landfarm

OrderNo.: 2111811

Dear Gregory McCartney:

Hall Environmental Analysis Laboratory received 5 sample(s) on 11/17/2021 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 **2111811**

Date Reported: **12/1/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: West Line Vadose

Project: Bisti Landfarm

Collection Date: 11/16/2021 12:00:00 PM

Lab ID: 2111811-001

Matrix: SOIL

Received Date: 11/17/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: SB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	11/19/2021 6:25:24 PM	64024
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	11/19/2021 6:25:24 PM	64024
Surr: DNOP	91.5	70-130		%Rec	1	11/19/2021 6:25:24 PM	64024
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/18/2021 8:07:16 PM	63995
Surr: BFB	100	70-130		%Rec	1	11/18/2021 8:07:16 PM	63995
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	11/18/2021 8:07:16 PM	63995
Toluene	ND	0.048		mg/Kg	1	11/18/2021 8:07:16 PM	63995
Ethylbenzene	ND	0.048		mg/Kg	1	11/18/2021 8:07:16 PM	63995
Xylenes, Total	ND	0.096		mg/Kg	1	11/18/2021 8:07:16 PM	63995
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	11/18/2021 8:07:16 PM	63995

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 interference		

Analytical Report

Lab Order 2111811

Date Reported: 12/1/2021

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: East Line Vadose

Project: Bisti Landfarm

Collection Date: 11/16/2021 12:20:00 PM

Lab ID: 2111811-002

Matrix: SOIL

Received Date: 11/17/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: SB
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	11/19/2021 6:37:01 PM	64024
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	11/19/2021 6:37:01 PM	64024
Surr: DNOP	85.9	70-130		%Rec	1	11/19/2021 6:37:01 PM	64024
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	11/18/2021 8:30:40 PM	63995
Surr: BFB	102	70-130		%Rec	1	11/18/2021 8:30:40 PM	63995
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	11/18/2021 8:30:40 PM	63995
Toluene	ND	0.049		mg/Kg	1	11/18/2021 8:30:40 PM	63995
Ethylbenzene	ND	0.049		mg/Kg	1	11/18/2021 8:30:40 PM	63995
Xylenes, Total	ND	0.099		mg/Kg	1	11/18/2021 8:30:40 PM	63995
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	11/18/2021 8:30:40 PM	63995

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 interference		

Analytical Report

Lab Order **2111811**

Date Reported: **12/1/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Bisti Vadose

Project: Bisti Landfarm

Collection Date: 11/16/2021 1:15:00 PM

Lab ID: 2111811-003

Matrix: SOIL

Received Date: 11/17/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: SB
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	11/19/2021 6:48:40 PM	64024
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	11/19/2021 6:48:40 PM	64024
Surr: DNOP	74.6	70-130		%Rec	1	11/19/2021 6:48:40 PM	64024
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	11/18/2021 8:54:04 PM	63995
Surr: BFB	104	70-130		%Rec	1	11/18/2021 8:54:04 PM	63995
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	11/18/2021 8:54:04 PM	63995
Toluene	ND	0.048		mg/Kg	1	11/18/2021 8:54:04 PM	63995
Ethylbenzene	ND	0.048		mg/Kg	1	11/18/2021 8:54:04 PM	63995
Xylenes, Total	ND	0.095		mg/Kg	1	11/18/2021 8:54:04 PM	63995
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	11/18/2021 8:54:04 PM	63995

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 interference		

Analytical Report

Lab Order **2111811**

Date Reported: **12/1/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: Pettigrew Vadose

Project: Bisti Landfarm

Collection Date: 11/16/2021 12:35:00 PM

Lab ID: 2111811-004

Matrix: SOIL

Received Date: 11/17/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: SB
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	11/19/2021 7:00:13 PM	64024
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/19/2021 7:00:13 PM	64024
Surr: DNOP	92.1	70-130		%Rec	1	11/19/2021 7:00:13 PM	64024
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/18/2021 9:17:28 PM	63995
Surr: BFB	104	70-130		%Rec	1	11/18/2021 9:17:28 PM	63995
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	11/18/2021 9:17:28 PM	63995
Toluene	ND	0.050		mg/Kg	1	11/18/2021 9:17:28 PM	63995
Ethylbenzene	ND	0.050		mg/Kg	1	11/18/2021 9:17:28 PM	63995
Xylenes, Total	ND	0.099		mg/Kg	1	11/18/2021 9:17:28 PM	63995
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	11/18/2021 9:17:28 PM	63995

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 interference		

Analytical Report

Lab Order **2111811**

Date Reported: **12/1/2021**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.

Client Sample ID: API Vadose

Project: Bisti Landfarm

Collection Date: 11/16/2021 12:50:00 PM

Lab ID: 2111811-005

Matrix: SOIL

Received Date: 11/17/2021 8:00:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS							Analyst: SB
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	11/19/2021 7:11:44 PM	64024
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	11/19/2021 7:11:44 PM	64024
Surr: DNOP	88.8	70-130		%Rec	1	11/19/2021 7:11:44 PM	64024
EPA METHOD 8015D: GASOLINE RANGE							Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	11/18/2021 9:40:53 PM	63995
Surr: BFB	102	70-130		%Rec	1	11/18/2021 9:40:53 PM	63995
EPA METHOD 8021B: VOLATILES							Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	11/18/2021 9:40:53 PM	63995
Toluene	ND	0.050		mg/Kg	1	11/18/2021 9:40:53 PM	63995
Ethylbenzene	ND	0.050		mg/Kg	1	11/18/2021 9:40:53 PM	63995
Xylenes, Total	ND	0.10		mg/Kg	1	11/18/2021 9:40:53 PM	63995
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	11/18/2021 9:40:53 PM	63995

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 interference		

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2111811

01-Dec-21

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm

Sample ID: MB-64024	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 64024	RunNo: 82976								
Prep Date: 11/18/2021	Analysis Date: 11/19/2021	SeqNo: 2948754	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	8.9		10.00		89.0	70	130			

Sample ID: LCS-64024	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 64024	RunNo: 82976								
Prep Date: 11/18/2021	Analysis Date: 11/19/2021	SeqNo: 2948757	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	10	50.00	0	91.1	68.9	135			
Surr: DNOP	4.7		5.000		93.2	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 interference
- 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#: 2111811

01-Dec-21

Client: Western Refining Southwest, Inc.

Project: Bisti Landfarm

Sample ID: mb-63995	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 63995	RunNo: 82965								
Prep Date: 11/17/2021	Analysis Date: 11/18/2021	SeqNo: 2945650	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		101	70	130			

Sample ID: ics-63995	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 63995	RunNo: 82965								
Prep Date: 11/17/2021	Analysis Date: 11/18/2021	SeqNo: 2945651	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	89.8	78.6	131			
Surr: BFB	1100		1000		111	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 interference
- 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#: 2111811

01-Dec-21

Client: Western Refining Southwest, Inc.

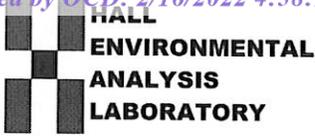
Project: Bisti Landfarm

Sample ID: mb-63995	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 63995	RunNo: 82965								
Prep Date: 11/17/2021	Analysis Date: 11/18/2021	SeqNo: 2945717	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: 4-Bromofluorobenzene	1.0		1.000		105	70	130			

Sample ID: LCS-63995	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 63995	RunNo: 82965								
Prep Date: 11/17/2021	Analysis Date: 11/18/2021	SeqNo: 2945718	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.88	0.025	1.000	0	88.4	80	120			
Toluene	0.91	0.050	1.000	0	90.5	80	120			
Ethylbenzene	0.92	0.050	1.000	0	91.9	80	120			
Xylenes, Total	2.7	0.10	3.000	0	90.9	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		105	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 interference
- 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: 2111811 RcptNo: 1

Received By: Sean Livingston 11/17/2021 8:00:00 AM
Completed By: Sean Livingston 11/17/2021 8:44:58 AM
Reviewed By: [Signature] 11/17/21

Chain of Custody

- 1. Is Chain of Custody complete? Yes [checked] No [] Not Present []
2. How was the sample delivered? Courier

Log In

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

of preserved bottles checked for pH: (<2 or >12 unless noted)
Adjusted?
Checked by: [Signature] 11/17/21

Special Handling (if applicable)

- 15. Was client notified of all discrepancies with this order? Yes [] No [] NA [checked]

Person Notified: [] Date: []
By Whom: [] Via: [] eMail [] Phone [] Fax [] In Person []
Regarding: []
Client Instructions: []

16. Additional remarks:

17. Cooler Information

Table with 7 columns: Cooler No, Temp °C, Condition, Seal Intact, Seal No, Seal Date, Signed By. Row 1: 1, 1.3, Good, [], [], []

Chain-of-Custody Record

Client: Western Refining
 Mailing Address: Creg McCartney
 Phone #: _____

email or Fax#: greg.mccartney@westernrefining.com
 QAVQC Package: Standard Level 4 (Full Validation)
 Accreditation: Az Compliance
 NELAC Other
 EDD (Type) _____

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
11-16	12:00	Soil	West line vadose	1402	Cool	001
	12:20		East line vadose			002
	12:25	13:15	Bisti vadose			003
	12:15	12:35	Pettigrew vadose			004
	12:50		API vadose			005

Relinquished by: Eric Carroll
 Date: 11/16/21 Time: 1415
 Relinquished by: Stuart Hyde
 Date: 11/16/21 Time: 1811

Turn-Around Time: Standard Rush
 Project Name: Bisti LF
 Project #: 4500256849

Project Manager: Stuart Hyde
 Sampler: Eric Carroll
 On Ice: Yes No
 # of Coolers: 1

Container Type and # 1402
 Preservative Type Cool
 HEAL No. 2111911
 Cooler Temp (including CF): 1.3 ± 0 = 1.3 (°C)

Received by: Stuart Hyde Date: 11/16/21 Time: 1415
 Received by: See courier Date: 11/17/21 Time: 8:00



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

Analysis Request

Analysis Request	Response
BTEX / MTBE / TMBs (8021)	X
TPH:8015D(GRO / DRO / MRO)	X
8081 Pesticides/8082 PCB's	
EDB (Method 504.1)	
PAHs by 8310 or 8270SIMS	
RCRA 8 Metals	
Cl, F, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄	
8260 (VOA)	
8270 (Semi-VOA)	
Total Coliform (Present/Absent)	

Remarks: Include COC with invoice
 CC: eric.carroll@wsp.com

Jones, Brad A., EMNRD

From: Jones, Brad A., EMNRD
Sent: Thursday, May 5, 2022 3:31 PM
To: KALuka@Marathonpetroleum.com
Cc: Hyde, Stuart
Subject: Bisti Landfarm 2021 Annual Compliance Monitoring Report OCD review
Attachments: 2022 0505 NM2-010 Western Refining Company LP 2021 Annual Monitoring Report Review.pdf

Kateri and Stuart,

Please see the attached. OCD has completed the review of the 2021 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
1220 S. Saint Francis Drive | Santa Fe, New Mexico 87505
(505) 469-7486 | brad.a.jones@state.nm.us
www.emnrd.nm.gov

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



May 5, 2022

Ms. Kateri Luka
Western Refining Company LP
111 County Road 4990
Bloomfield, New Mexico 87413
kaluka@marathonpetroleum.com

**RE: Bisti Landfarm 2021 Annual Compliance Monitoring Report
Western Refining Company LP – OGRID # 264727
Permit Number: NM2-10
NW/4 SE/4 of Section 16, Township 25 North, Range 12 West, NMPM,
San Juan County, New Mexico**

Ms. Luka:

The Oil Conservation Division (OCD) has completed its review of Western Refining Company LP's (Western) 2021 Annual Compliance Monitoring Report, dated February 9, 2022, for the Bisti Landfarm under permit NM2-10. OCD's review of the annual report has resulted in the discovery of over sampling and analysis of the vadose zone and non-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 February 2, 2022 OCD emailed Western a letter regarding the review of the Bisti Landfarm 2020 Annual Compliance Monitoring Report. The letter informed Western/WSP on how the transitional provisions of 19.15.36.20 NMAC should be applied to the existing permit conditions to prevent over sampling and analysis of the vadose zone. Since the review letter was emailed after the 2021 sampling occurred, several of the same issues recognized in the 2020 Annual Compliance Monitoring Report are also present in the 2021 Annual Compliance Monitoring Report. Please review the February 2, 2022 letter located in the administrative record through the following hyperlink:
https://ocdimage.emnrd.nm.gov/Imaging/FileStore/santafe/ff/20220222/feem0112332383_02_22_2022_09_51_59.pdf.

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, located in the administrative record directly through the following hyperlink:
https://ocdimage.emnrd.nm.gov/Imaging/FileStore/santafeadmin/ao/209732/peem0112359690_10_ao.pdf. Keep in mind that the regulatory language of 19.15.36.20 NMAC was amended on June 30, 2016

Western Refining Company LP
NM2-10
May 5, 2022
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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 total xylene reporting/detection limits from 0.093 to 0.1 mg/kg, when the OCD approved background is <0.05 mg/kg, is not a proper assessment for a release of chlorides or total xylene in the vadose zone.

Based upon the existing permit conditions of NM2-10, the June 30, 2011 letter regarding the transitional provision of 19.15.36.20.A NMAC, and the August 2015 OCD approval of use of the sum of gasoline range organics (GRO), diesel range organics (DRO), and motor oil range organics (MRO) determined by EPA method 8015 for the vadose zone monitoring in lieu of EPA method 418.1 for TPH, 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. The second 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. 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. 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.

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 *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.

Compliance to the requirements of 19.15.36.15.E(5) NMAC is not demonstrated in the 2021 Annual Compliance Monitoring Report. OCD did not receive the notice of the releases of Chlorides detected in the East Line and API 4 samples during the February 9, 2021 sampling event, at 87 mg/kg and 140 mg/kg respectively. OCD also did not receive the notice of the releases of Chlorides detected in the Bisti, Pettigrew, API 1, and API 2 samples during the July 12 2021 sampling event, at 65 mg/kg, 86 mg/kg, 650mg/kg, and 640 mg/kg respectively. 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. In the future, if compliance with the additional sampling required of

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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, areas in which the additional investigation of 19.15.36.15.E(5) NMAC is required or is being performed, and/or areas that have been or are being assessed pursuant to 19.15.29 NMAC.

Regarding the proposed conclusion, Western states "chloride exceedances have previously been delineated as part of the release response and site characterization sampling conducted in the summer of 2020," but did not provide any iso-concentration maps illustrating the extent of the Chloride and/or TPH contamination, as were provided in the 2020 Annual Compliance Monitoring Report. Since only a small portion of each landfarm cell was delineated pursuant to 19.15.29 NMAC, OCD recommends not sampling the vadose zone in the delineated areas illustrated on Figures 3 and 4, in the 2020 Annual Compliance Monitoring Report, where Chlorides and TPH has been delineated and demonstrated to exceed 600 mg/kg and 100 mg/kg, respectively. When performing the routine quarterly vadose zone monitoring *in the remaining areas of each landfarm cell* in the future, Western/WSP should compare the results the facility background and PQLs OCD approved on June 15, 2020. If a release is detected, then the release response requirements of 19.15.36.15.E(5) NMAC should be initiated and implemented.

Figure 4 illustrates "<60 mg/kg Chloride Delineation Soil Boring Concentration (Top 4 Feet)" and "<50 mg/kg Historical Chloride Concentration" sample detection locations using the same small purple square box symbol. Please do not use the same symbol to illustrate and represent two different data groups on the figure.

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,



Brad A. Jones
Environmental Specialist

Cc: Stuart Hyde, WSP USA Inc., stuart.hyde@wsp.com

District I
 1625 N. French Dr., Hobbs, NM 88240
 Phone:(575) 393-6161 Fax:(575) 393-0720

District II
 811 S. First St., Artesia, NM 88210
 Phone:(575) 748-1283 Fax:(575) 748-9720

District III
 1000 Rio Brazos Rd., Aztec, NM 87410
 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV
 1220 S. St Francis Dr., Santa Fe, NM 87505
 Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 82217

CONDITIONS

Operator: Western Refining Southwest LLC 539 South Main Street Findlay, OH 45840	OGRID: 267595
	Action Number: 82217
	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 2021 Annual Compliance Monitoring Report is attached to the submittal as OCD's Response.	5/5/2022