NM2 - ___10_____

RELEASE RESPONSE REPORT/ ACTION PLAN REVIEW

___Sept. 2015___

State of New Mexico
Energy, Minerals and Natural Resources Department

Susana Martinez
Governor

David Martin
Cabinet Secretary

Brett F. Woods, Ph.D.
Deputy Cabinet Secretary

David R. Catanach, Division Director
Oil Conservation Division

September 10, 2015

Kelly Robinson
Western Refining Southwest, Inc.
111 County Road 4990
Bloomfield, New Mexico 87413

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

The Oil Conservation Division (OCD) has completed the review of Western Refining Southwest, Inc.'s (Western) Release Response Sampling Results and Action Plan, dated July 27, 2015. The review has resulted in some minor issues that must be addressed in order for Western to remain compliant with Permit NM2-010 and 19.15.36 NMAC.

In Section 5.2.2 of the action plan, the general sampling protocol regarding chlorides states "For each sample location, a sample will be collected from three to four feet below native surface, and another sample approximately 2 feet deeper to vertical migration effects at each location." Section 5.3.2 of the action plan, the general sampling protocol regarding TPH states "All new soil samples will be collected between three feet and four feet below the original ground surface, then advancing an additional two feet beyond that to collect another soils sample to assist in vertical delineation of impact." Section 5.4 of the action plan, the general sampling protocol regarding sulfate states "the two samples will be collected from between three feet and four feet below the original ground surface and an additional two feet beyond." OCD agrees that the vertical extent of the release of contaminates in the vadose zone (native soils and monitoring zone) needs to be delineated. However, delineation begins at surface of the native soils, not three to four feet below the native ground surface.

The first sentence of Section 5.5, Sampling Method, of the action plan states "Western proposes to utilize a track-mounted Geoprobe® direct-push grilling rig and/or hand auger to obtain the additional soils samples." Each proposed method is capable of obtaining samples representing six-inch intervals down to a minimum depth of four feet below the native ground surface, which is needed to delineate the vertical extent of the contaminates of concern. The action plan currently proposes to obtain separate samples for chloride, TPH, and sulfate from separate

sample locations. OCD has observed that some of the proposed sample locations for each constituent are the same. OCD recommends Western compare the proposed sampling locations to determine commonalities. If the same location is proposed for each constituent, then the samples obtained should be analyzed for all of the constituents of concern, instead of sampling separate locations and running analyses for each constituent per its sample location, as proposed. OCD also recommends that the sampling method protocol include an additional step that requires the removal of the treatment zone soils (soils to be remediated) from and around the sample location prior to sampling to prevent cross-contamination of the samples obtained from the vadose zone (native soils).

OCD concurs with Western request, in Section 5.6 of the action plan, "to delay the implementation of the Release Response Action Plan until after complete execution and evaluation of the Background Sampling Plan results to allow an opportunity to modify the Release Action Plan..." This will provide Western the opportunity to complete the vadose zone assessment for releases, pursuant to 19.15.36.15.E NMAC, for the additional 39 constituents to determine if additional constituents of concern require delineation under the proposed action plan.

In regards to the proposed sample locations, it seems Western is proposing to sample locations adjacent to historical locations in which contaminants have been detected above the established background or PQL. In OCD's review of Figure 3, regarding proposed borehole locations for chloride analysis, this is not always the case. Within the API Cell, there are three locations, based upon the chloride concentration legend, in which no sampling is proposed where the map legend demonstrates that chloride concentrations were detected between 1,000 – 1,999 mg/kg (green), 2,000 – 2,999 mg/kg (yellow) and 3,000 – 3,999 mg/kg (orange). Specifically, the orange dot north of the area identified as the *Source Boundary*. The nearest proposed sampling location is approximately 50 feet south. The next are the yellow and green dots above *Pettigrew*. Sampling is proposed approximately 50 feet north where chloride was detected between 50 -250 mg/kg, approximately 50 feet northwest where no sampling has occurred or chlorides detected, and approximately 50 feet southeast where no sampling has occurred or chlorides detected. The last is the green dot above *Cell* of *API Cell*. The nearest proposed sampling location is approximately 100 feet east. OCD requires these locations to be delineated. Please modify Figure 3 and submit with the modified Release Action Plan after the facility background is resolved.

In OCD's review of Figure 4, regarding proposed borehole locations for TPH (total petroleum hydrocarbon) analysis, OCD noticed that no sampling is proposed adjacent to the locations in which the highest concentrations of TPH has been detected. Within the Eastline area of the Crude Cell, along the eastern portion, no sampling is proposed adjacent to the two red dots. The southeast location identifies that TPH was detected at 830 mg/kg in June 2011. Sampling is proposed approximately 50 feet north-northwest where no sampling has occurred or TPH detected and approximately 50 feet south-southeast where no sampling has occurred or TPH detected. The northeast location identifies that TPH was detected at 201 mg/kg in September 2010. Sampling is proposed approximately 50 feet north-northeast where no sampling has occurred or TPH detected and approximately 50 feet south-southwest where no sampling has occurred or TPH detected. OCD requires these locations to be delineated. Please modify Figure 4 and submit with the modified Release Action Plan after the facility background is resolved.

Please resubmit the Release Response Sampling Results and Action Plan after completing the execution and evaluation of the Background Sampling Plan and updating the action plan based upon OCD's requested modifications. If there are any questions regarding this matter, please do not hesitate to contact Brad Jones of my staff at (505) 476-3487 or brad.a.jones@state.nm.us.

Sincerely,

Jim Griswold
Environmental Bureau Chief

JG/baj

cc: OCD District III Office, Aztec

Western Refining
LOGISTICS

WNR LISTED NYSE

RECEIVED OCD
2015 JUL 29 P 1:32

July 27, 2015

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

FedEx Tracking #: 7741 4612 0684

RE: Release Response Sampling Results and Action Plan
Bisti Landfarm 711 Permit NM-02-0010
San Juan County, New Mexico

Dear Mr. Jones:

Western Refining Southwest, Inc. (Western) submits the above referenced submittal pursuant to your *May 2014 Release Response Report Review* and *2014 Annual Sampling Report Review* comment letter dated June 3rd and May 29, 2015, respectively. This submittal provides a detailed summary of the release response activities performed in accordance with 19.15.36.15.E of the New Mexico Administrative Code (NMAC). In addition, this submittal includes a Release Response Action Plan to further address the confirmed exceedances of concentrations above the higher background concentration or respective physical quanitiation limit (PQL) in the vadose zone of the Bisti Landfarm (Site; permit number NM-02-0010).

If you have any questions or comments regarding this submittal, please do not hesitate to contact me at (505) 632-4166 or Kelly.Robinson@wnr.com.

Sincerely,

Kelly Robinson

Kelly R. Robinson
Environmental Manager
Western Refining Southwest, Inc.

RELEASE RESPONSE SAMPLING RESULTS AND ACTION PLAN

BISTI LANDFARM 711 PERMIT NM-02-0010
SAN JUAN COUNTY, NEW MEXICO

JULY 2015

Prepared for:

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

Prepared by:

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

FIGURES

TABLES

APPENDICES

1.0 INTRODUCTION

Western Refining Southwest, Inc. ("Western") has prepared this submittal for the purpose of providing a detailed summary of the release response sampling results for activities conducted in May 2015, and to submit a Release Response Action Plan to address the confirmed exceedances of concentrations above the higher background concentration or respective physical quanitiation limit (PQL) in the vadose zone of the Bisti Landfarm (Site; permit number NM-02-0010). The scope of work performed are pursuant to two letters Western received from the New Mexico Oil Conservation Division (NMOCD) dated May 29, 2015 (*2014 Annual Sampling Report Review)* and June 3, 2015 (*May 2014 Release Response Report Review).* In addition, the activities performed as part of the May 2015 field activities are in response to the March 2015 quarterly vadose zone monitoring results, which have been submitted to the NMOCD under a separate cover.

Western contracted LT Environmental, Inc. (LTE) to conduct the release response sampling activities on May 4, 2015. Sampling activities were performed in accordance with 19.15.36.15.E of the New Mexico Administrative Code (NMAC). The results from this release response sampling event are presented in Section 3 and Section 4 of this report. Subsequent release response actions are based on the comparison of the vadose zone soil sampling results to the respective laboratory PQL or respective background sample result, whichever is higher. For analytes where a background concentration has not yet been determined, the vadose zone evaluation will be completed and submitted as an addendum to this report following execution of the Background Sampling Plan that has been submitted to the NMOCD under a separate cover.

In response to the release response sampling results and pursuant to the two letter received from NMOCD dated May 29th and June 3rd, 2015, a Release Response Action Plan ("Action Plan") has been developed and is presented in Section 5 of this report. The Action Plan proposes actions to further delineate the laterial and vertical extent of areas exhibiting concentrations above the respective screening level. The proposed actions also address a secondary condition for delineation specified in a letter from NMOCD dated February 1, 2010.

2.0 SITE DESCRIPTION

The Site occupies approximately 28 acres in the northwest quarter of the southeast quarter of Section 16, Township 25 North, Range 12 West in San Juan County, New Mexico (Figure 1). Giant Industries, Arizona (Giant) and Western disposed of impacted soil at the Bisti Landfarm until 2010, resulting in three cells: API Cell, Crude Cell (containing material originating from Pettigrew, East Line, Bisti, and West Line source areas), and Cell 1 (Figure 2).

3.0 RELEASE RESPONSE SOIL SAMPLING

Four randomly selected, discrete vadose zone soil samples were collected in accordance with paragraph 5 of 19.15.36.15.E NMAC. Samples were collected using a hand auger on May 4, 2015, from between three feet and four feet below the native ground surface in the two active cells (API and Crude Cells) and the inactive cell (Cell 1). The soil sampling locations are depicted on Figure 2.

All samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) by United States Environmental Protection Agency (USEPA) Method 8260B, total petroleum hydrocarbons (TPH)-gasoline range organics (GRO), diesel range organics (DRO), and motor oil range organics (MRO) by USEPA Modified Method 8015, TPH by USEPA method 418.1, and chloride by USEPA Method 300.0. Additionally, the constituents in subsections A and B of 20.6.2.3103 NMAC were analyzed by USEPA Methods 300.0 (anions), 8260B, 8310, 9065, 335.4 (volatiles and semi-volatiles), 6010B, 7471 (metals), 8082 (polychlorinated biphenyls), SM4500-H+B (pH), and 901.1 (radionuclides).

All samples collected were placed on ice and sealed in a cooler for delivery to Hall Environmental Analysis Laboratory, Inc. (HEAL) in Albuquerque, New Mexico, for analysis within required hold times. Soil samples were labeled with the date and time of collection, sample name, sampler's name, and constituents to be analyzed. Strict chain-of-custody procedures were documented including the date and time sampled, sample number, type of sample, sampler's name and signature, preservative used, and analyses required.

4.0 RELEASE RESPONSE SAMPLE RESULTS

In accordance with 19.15.36.15.E NMAC, the laboratory analytical results from vadose zone soil samples are compared to the higher of the PQL or background result. Based on the requirements at the time the landfarm was permitted, the background sample was not analyzed for the same analytes required for release response sampling. A Background Sampling Plan has been submitted under a separate cover to the NMOCD to be able to collect additional background data in order to complete the Bisti Landfarm vadose zone assessement. For this Report, the vadose zone assessment focused on analytes where a background concentration is known. An up-dated assessment will be submitted as an addendum to this Report following executution of an approved Background Sampling Plan.

For the analytes for which a background concentration has been previoiusly reported, the release response sample results indicate that chlorides and sulfates are present in the vadose zone above their respective background concentrations. All other analytes were either below the background concentration, or do not yet have a background concentration available at this time to complete the vadose zone assessment.

A summary of the release response sample results and their known background concentration is presented in Table 1. Complete laboratory analytical reports are included as Attachment 1 to this report.

Chlorides

Chloride was detected above the background concentration limit of 50 milligrams per kilogram (mg/kg) in the following soil samples: Pettigrew Vadose Zone, API Vadose Zone-1, and API Vadose Zone-4. Figure 2 provides a approximate location of where the exceedances were identified.

Previous release response sampling activities conducted in March 2012 showed concentrations of chlorides exceeding the known background concentration within the Crude Cell and API Cell. One sample location identified a chloride concentration of 2,500 mg/kg within the Pettigrew vadose zone. Three other samples located within the API vadose zone identified chloride concentrations ranging between 63 mg/kg and 1,200 mg/kg. Refer to the previous Release Response Report dated May 16, 2014 for additional information regarding the March 2012 sample results.

Sulfates

Sulfate concentrations were detected above the respective background limit of 140 mg/kg at two locations: Eastline Vadose Zone and API Vadose Zone-1. The detected concentrations were

340 mg/kg and 1,000 mg/kg, respectively. Figure 2 provides a approximate location of where the exceedances were identified.

5.0 RELEASE RESPONSE ACTION PLAN

This Action Plan was developed to address the confirmed releases of chlorides and sulfates within the Bisti Landfarm vadose zone based on sampling activities conducted in March 2012 and May 2015. The activities proposed as part of this Plan are intended to be used to delineate the vertical and lateral extent of the releases within the landfarm native soils.

In addition, Western is proposing to further delineate the potential impacts of TPH within Bisti Landfarm vadose zone. The May 2015 release response sample results indicate concentrations of TPH above the respective laboratory detection limit. Although respective background concentrations have not yet been obtained and such values will be available following execution of an approved Background Sampling Plan, Western anticipates further delineation of detected TPH concentrations will be required. With this said, this Plan includes actions to further delineate potential effect of TPH impacts to the vadose zone.

5.1 New Source Potentials

Western has not accepted soil for treatment at the Site since 2010 and will not add new soil for treatment to eliminate possible new sources of impact. Since 2011, soil samples collected from the treatment zone have not had concentrations of DRO, GRO, TPH, or chloride in excess of treatment zone closure standards defined in Subsection F of 19.15.36.15 NMAC.

Western will conduct a comprehensive vadose zone evaluation upon approval and completion of additional background sampling. Laboratory analytical results from the 2012 vadose zone monitoring and release response sampling will be compared to the higher of supplemented background concentrations or the respective PQL.

5.2 Chloride Delineation

5.2.1 Historical Data Summary

Elevated chloride concentrations have been observed in the vadose zone as shown in previous sampling activities. Figure 3 depicts chloride concentrations identified by vadose zone monitoring from 2010 through 2015, and delineation samples collected during release response efforts conducted in 2010. Samples collected during this timeframe were collected in accordance with the sampling protocol specified in 19.15.36.15.E NMAC and during a time frame when no new soil was added to the landfarm. Results are depicted on a sliding scale defined by color and size of the sample location identifier. The distribution identifies where the potential impacted areas are (Pettigrew source area and southeastern portion of the API cell) compared to outliers, while emphasizing the large number of samples collected that contain chloride concentrations below the background limit. The outliers are defined as sample locations outside of the Pettigrew

source area and the southeastern portion of the API cell that contained chloride concentrations exceeding the background result of less than 50 mg/kg. Based on the age of the samples (four or five years) and characteristic mobility of chloride ions in sandy soil, the outlier locations may have naturally attenuated.

5.2.2 Proposed Additional Sampling

To address the elevated chloride concentrations, assess potential natural attenuation, and comply with the NMOCD's secondary condition of approval defined in a letter dated February 1, 2010, for a previous release response, Western proposes to supplement the historical data with additional soil samples identified on Figure 3. The goal of the sampling investigation is to delineate the vertical extent and refine the lateral extent of elevated chloride concentrations. The outliers with lower concentrations will be investigated for the continued presence of elevated chloride. More intensive sampling will be conducted in the areas with less data (Cell 1) and in areas with a greater volume of historically elevated samples. All samples will be submitted to the lab for analysis of chloride using EPA Method 300.0.

Crude Cell Areas

The Crude Cell consists of the East Line Area, Bisti Area, West Line Area, and Pettigrew Area. For the purposes of further delineating chloride impacts within the boundaries of the Crude Cell, Western proposes to collect additional samples in the East Line Area, Bisti Area, and Pettigrew Area (refer to Figure 3 for sample locations). A total of eight sample locations have been selected. For each sample location, a sample will be collected from three to four feet below native ground surface, and another sample approximately 2 feet deeper to evaluate vertical migration effects at each location.

API Cell Area

A total of 10 sample locations have been selected to further delineate the chloride effects within the API Cell vadose zone. For each sample location, a sample will be collected from three to four feet below native ground surface, and another sample approximately 2 feet deeper to evaluate vertical migration effects at each location.

Cell 1 Area

A total of six sample locations have been selected to further delineate the chloride effects within the Cell 1 Area. For each sample location, a sample will be collected from three to four feet below native ground surface, and another sample approximately 2 feet deeper to evaluate vertical migration effects at each location.

5.3 TPH Delineation

5.3.1 Historical Data Summary

Existing locations of samples analyzed for TPH by USEPA Methods 8015 and 418.1 during 2010 through 2015 are depicted on Figure 4. Figure 4 identifies by color the samples that had concentrations of TPH (determined by GRO+DRO+MRO by EPA Method 8015 or TPH by EPA Method 418.1) exceeding the DRO background concentration of less than 50 mg/kg and samples that were either non-detect or less than 50 mg/kg for TPH (determined by GRO+DRO+MRO by EPA Method 8015 or TPH by EPA Method 418.1). The majority of TPH impacted soil occured in the Eastline portion of the Crude Cell with minimal samples idenfied in the other areas of the landfarm. The majority of the concentrations observed are low, with the highest concentration being 830 mg/kg and most resultant concentrations being less than 200 mg/kg.

5.3.2 Proposed Additional Sampling

Western will supplement the historical data by collecting additional samples from 16 proposed sample locations. The proposed sample locations are located within the Crude Cell, API Cell, and Cell 1 (refer to Figure 4). Pending the NMOCD approval of using EPA Modified Method 8015 in lue of EPA Method 418.1 as request in the previous Background Sampling Plan dated July 24, 2015, the additional samples collected for TPH delineation will be submitted to HEAL and analyzed by EPA Method 8015D. All new soil samples will be collected between three feet and four feet below the original ground surface, then advancing an additional two feet beyond that to collect another soil sample to assist in vertical delineation of impact.

Crude Cell

A total of nine sample locations have been selected to collect TPH samples for futher delineation within the Crude Cell. The sample distribution includes two sample locations within the West Line area, six sample locations within the East Line area, and one sample location within the Bisti area.

API Cell

Two sample locations have been selected to collect TPH samples for further delineation within the API Cell. The selected locations are localized within the northwest portionof the API Cell to futher delineate the area.

Cell 1

Five sample locations have been selected to collect TPH samples to futher delineate the concentrations detected in the most recent 2015 release response sampling event. The selected locations will delineate the lateral and vertical depth the TPH concentrations within the area.

5.4 Sulfate Delineation

To constrain the area of elevated sulfate concentrations identified during the release response sampling, Western will define the vertical extent in the locations of the two samples (Eastline Vadose Zone and API Vadose Zone-1) that were previously sampled during the May 2015 sampling event. The cocnetration of sulfates as these locations exceeded the background concentration of 140 mg/kg. The two samples will be collected from between three feet and four feet below the original ground surface and an additional two feet beyond. The samples collected will be submitted to HEAL for analysis by EPA Method 300.0

5.5 Sampling Method

Western proposes to utilize a track-mounted Geoprobe® direct-push drilling rig and/or hand auger to obtain the additional soil samples. A Trimble Global Positioning System (GPS) unit will be used to identify predetermined locations for the new boreholes. All new soil samples will be collected by advancing boreholes to between three feet and four feet below the original ground surface to collect a soil sample, then advancing a minimum of two additional feet beyond that to collect another soil sample to assist in vertical delineation of impacts. Soil samples will be collected and documented by a geologist trained in subsurface investigations. The soil samples will be submitted to HEAL for analysis. The samples will be collected in pre-cleaned glass jars supplied by the laboratory, labeled with location, date, time, sampler, and method of analysis and immediately placed on ice. Strict chain-of-custody procedures will be followed during transport of the samples to the laboratory.

Western will complete all work in accordance with industry-accepted practices. Down-hole Geoprobe® direct-push equipment and/or hand auger equipment will be thoroughly decontaminated prior to each use. Boreholes will be filled with a hydrated bentonite from total depth to ground surface following completion.

5.6 Schedule

To consolidate the Release Action Plan field effort, Western requests approval to delay implementation of the Release Response Action Plan until after complete execution and evaluation of the Background Sampling Plan results to allow an opportunity to modifiy the Release Action Plan if deamed warrented. The results from the background sampling event will provide the data needed to complete the vadose zone assessment, and thus provide the opportunity to ensure the Release Response Plan provides the appropriate actions to address any vadose zone concerns.

Delineation sampling as part of the Plan is estimated to take one week. Laboratory results will take a minimum of three weeks to be received, and tabulation and interpretation of data will take an additional three weeks after receiving the laboratory reports. In the interim, Western will

continue to monitor soil in the treatment zone and vadose zone according to the original permit under Rule 711 and according to Rule 36.

FIGURES

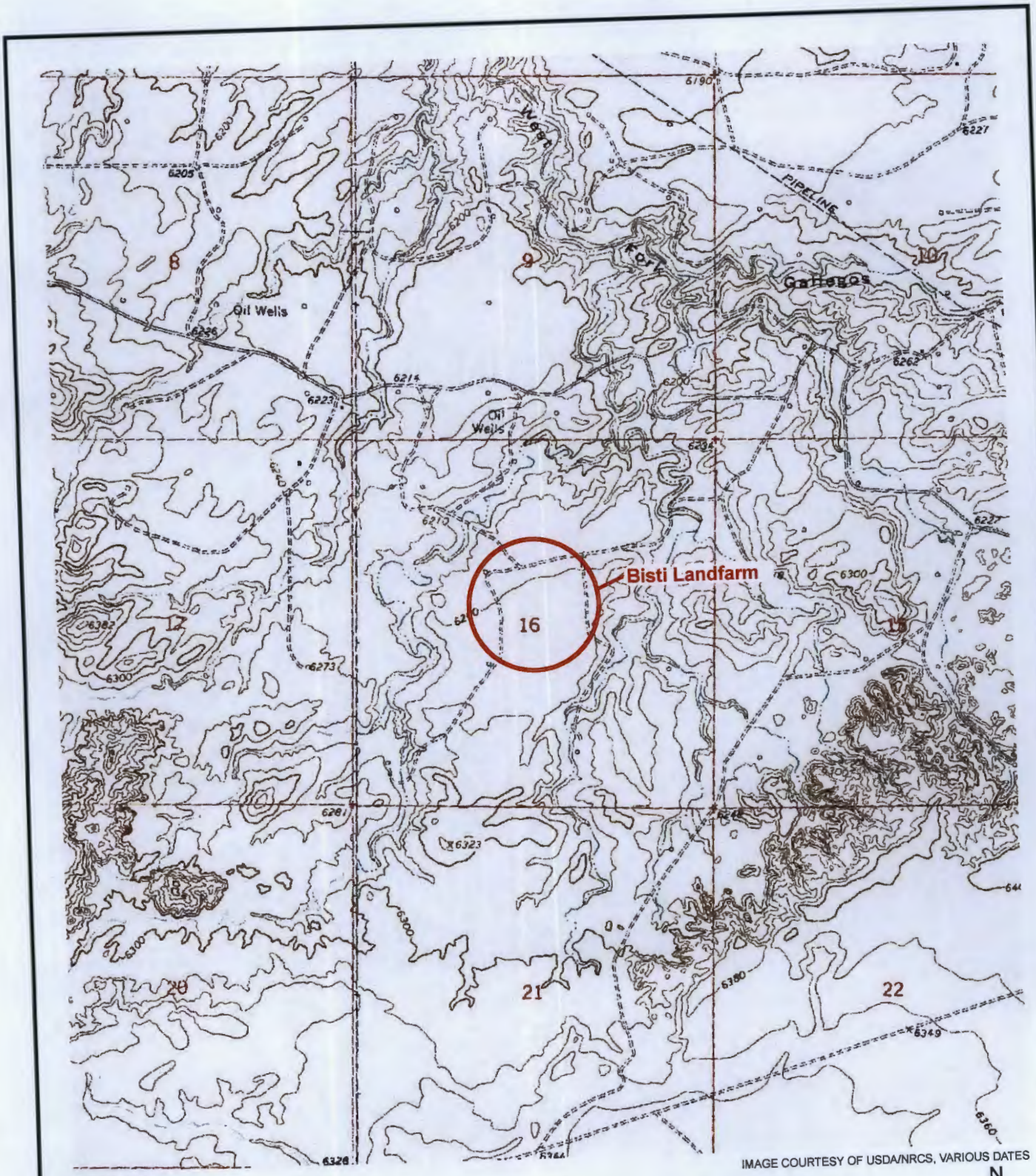

FIGURE 1
SITE LOCATION MAP
BISTI LANDFARM
SEC 16 T25N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

P:\Western Refining\GIS\MXD\WR1005\WR1005_BISTI_LANDFARM_FIG01_SL.mxd

LEGEND

- API CELL SAMPLE (5/4/2015)
- CRUDE CELL SAMPLE (5/4/2015)
- CELL 1 SAMPLE (5/4/2015)
- x — x FENCE
- APPROXIMATE SOURCE IDENTITY BOUNDARY
- CELL 1 BOUNDARY
- API CELL BOUNDARY
- CRUDE CELL BOUNDARY

0 200 400
Feet

N

FIGURE 2
VADOSE ZONE SOIL SAMPLE LOCATIONS
RELEASE RESPONSE - BISTI LANDFARM
SEC 16 T25N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

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LEGEND

- ▲ PROPOSED BOREHOLE (CHLORIDE ANALYSIS)

CHLORIDE CONCENTRATION

- 1-49 mg/kg
- 50 - 250 mg/kg
- 251 - 999 mg/kg
- 1,000 - 1,999 mg/kg
- 2,000 - 2,999 mg/kg
- 3,000 - 3,999 mg/kg
- >4,000 mg/kg

x — x · FENCE

mg/kg: MILLIGRAM PER KILOGRAM

- CELL 1 BOUNDARY
- API CELL BOUNDARY
- CRUDE CELL BOUNDARY
- APPROXIMATE SOURCE IDENTITY BOUNDARY

0 200 400
Feet

IMAGE COURTESY OF ESRI

N

FIGURE 3
VADOSE ZONE MONITORING 2010-2015 (CHLORIDE)
BISTI LANDFARM
SEC 16 T25N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

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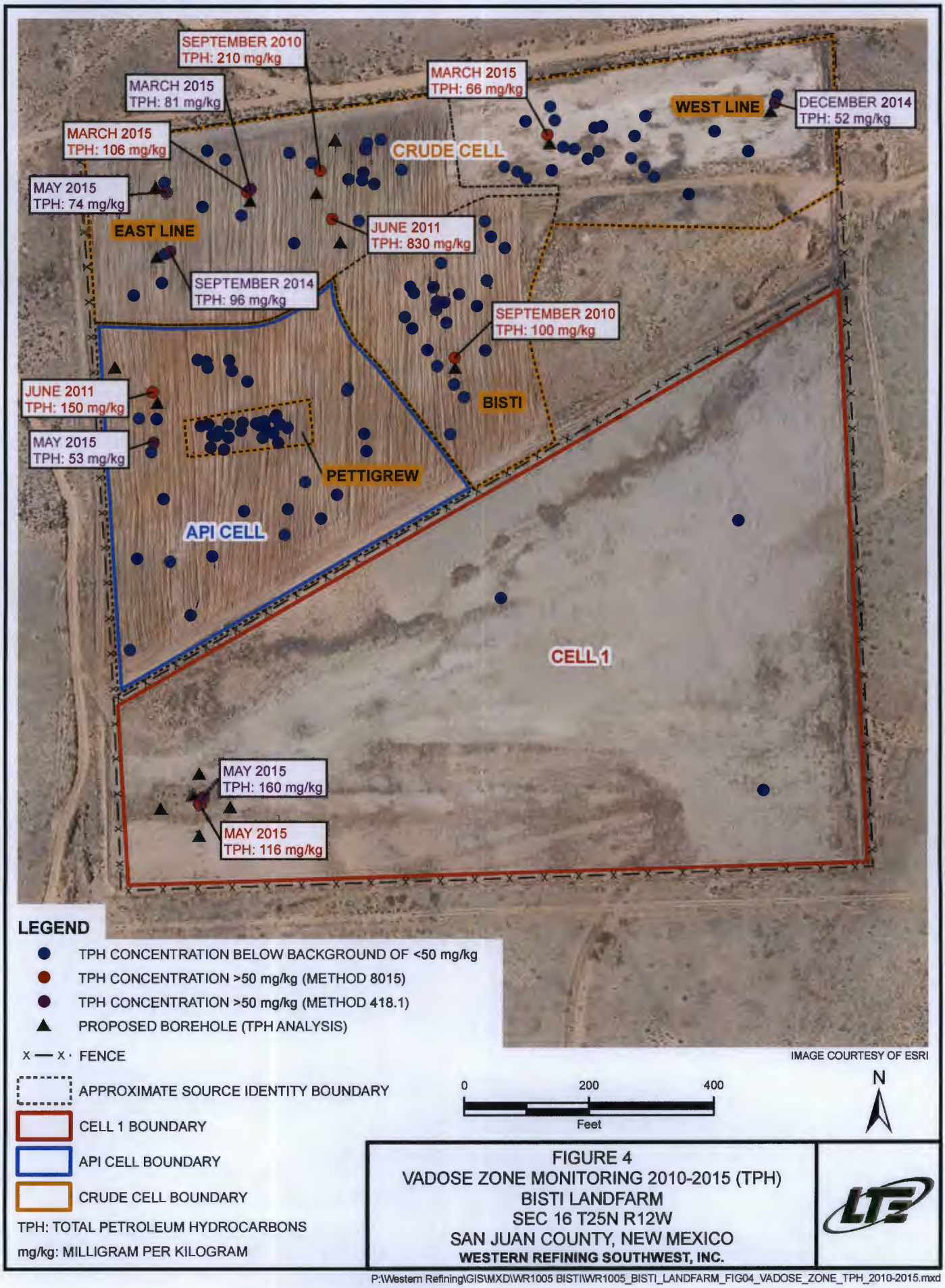

FIGURE 4
VADOSE ZONE MONITORING 2010-2015 (TPH)
BISTI LANDFARM
SEC 16 T25N R12W
SAN JUAN COUNTY, NEW MEXICO
WESTERN REFINING SOUTHWEST, INC.

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TABLE

TABLE 1

RELEASE RESPONSE SOIL LABORATORY ANALYTICAL RESULTS
BISTI LANDFARM
WESTERN REFINING SOUTHWEST, INC.

ANALYTE (from Rule 36 and Subsections A and B of 20.6.2.3103 NMAC)	UNIT	BACKGROUND SAMPLE	CRUDE CELL				API CELL				CELL 1			
			EASTLINE VADOSE ZONE	PETTIGREW VADOSE ZONE	WESTLINE VADOSE ZONE	BISTI VADOSE ZONE	API VADOSE ZONE - 1	API VADOSE ZONE - 2	API VADOSE ZONE - 3	API VADOSE ZONE - 4	CELL 1 VADSOE ZONE-1	CELL 1 VADSOE ZONE-2	CELL 1 VADSOE ZONE-3	CELL 1 VADSOE ZONE-4
		27-Mar-98	4-May-15	4-May-15	4-May-15	4-May-15	4-May-15	4-May-15	4-May-15	4-May-15	4-May-15	4-May-15	4-May-15	4-May-15
Benzene	mg/kg	<0.05	<0.049	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.049	<0.050	<0.050	<0.050	<0.049
Toluene	mg/kg	<0.05	<0.049	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.049	<0.050	<0.050	<0.050	<0.049
Ethylbenzene	mg/kg	<0.05	<0.049	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.049	<0.050	<0.050	<0.050	<0.049
Xylenes, Total	mg/kg	<0.05	<0.098	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.098	<0.10	<0.099	<0.099	<0.098
GRO	mg/kg	–	<4.9	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<4.9	<5.0	<5.0	<5.0	<4.9
DRO	mg/kg	<50	18	<10	<9.9	<9.9	<10	<9.9	<9.9	<10	21	<9.8	<10	<9.6
MRO	mg/kg	–	<49	<50	<49	<50	<50	<50	<50	<51	95	<49	<50	<48
Total Petroleum Hydrocarbons (418.1)	mg/kg	–	74	<20	<20	<20	<20	<20	53	<20	160	<19	<19	<19
Chloride	mg/kg	<50	12	310	<7.5	24	140	<1.5	13	1,800	<1.5	47	18	5.1
Aroclor 1016	mg/kg	–	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Aroclor 1221	mg/kg	–	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Aroclor 1232	mg/kg	–	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Aroclor 1242	mg/kg	–	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Aroclor 1248	mg/kg	–	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Aroclor 1254	mg/kg	–	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Aroclor 1260	mg/kg	–	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Carbon tetrachloride	mg/kg	–	<0.049	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.049	<0.050	<0.050	<0.050	<0.049
1,2-Dichloroethane (EDC)	mg/kg	–	<0.049	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.049	<0.050	<0.050	<0.050	<0.049
1,1-Dichloroethylene (1,1-DCE)	mg/kg	–	<0.049	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.049	<0.050	<0.050	<0.050	<0.049
Tetrachloroethene (PCE)	mg/kg	–	<0.049	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.049	<0.050	<0.050	<0.050	<0.049
Trichloroethylene (TCE)	mg/kg	–	<0.049	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.049	<0.050	<0.050	<0.050	<0.049
Methylene chloride	mg/kg	–	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15	<0.15
Chloroform	mg/kg	–	<0.049	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.049	<0.050	<0.050	<0.050	<0.049
1,1-Dichloroethane	mg/kg	–	<0.049	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.049	<0.050	<0.050	<0.050	<0.049
Ethylene dibromide (EDB)	mg/kg	–	<0.049	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.049	<0.050	<0.050	<0.050	<0.049
1,1,1-Trichloroethane	mg/kg	–	<0.049	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.049	<0.050	<0.050	<0.050	<0.049
1,1,2-Trichloroethane	mg/kg	–	<0.049	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.049	<0.050	<0.050	<0.050	<0.049
1,1,2,2-Tetrachloroethane	mg/kg	–	<0.049	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.049	<0.050	<0.050	<0.050	<0.049
Vinyl chloride	mg/kg	–	<0.049	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.049	<0.050	<0.050	<0.050	<0.049
Naphthalene	mg/kg	–	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
1-Methylnaphthalene	mg/kg	–	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
2-Methylnaphthalene	mg/kg	–	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25
Benzo(a)pyrene	mg/kg	–	<0.0099	<0.010	<0.0099	<0.010	<0.0099	<0.0099	<0.010	<0.010	<0.0099	<0.010	<0.0099	<0.0099
Arsenic	mg/kg	2.8	<2.4	<2.4	<2.4	<2.4	<2.5	<2.4	<2.5	<2.4	<2.5	<2.4	<2.4	<2.4
Barium	mg/kg	180	69	58	180	66	92	44	64	150	71	99	150	90
Cadmium	mg/kg	<1.3	<0.097	<0.098	<0.096	<0.097	<0.099	<0.097	<0.10	<0.097	<0.10	<0.096	<0.097	<0.096
Chromium	mg/kg	<5.0	2.5	1.7	1.9	1.6	1.9	1.9	1.8	2.1	2.5	2.0	1.7	2.1

TABLE 1

RELEASE RESPONSE SOIL LABORATORY ANALYTICAL RESULTS
BISTI LANDFARM
WESTERN REFINING SOUTHWEST, INC.

ANALYTE (from Rule 36 and Subsections A and B of 20.6.2.3103 NMAC)	UNIT	BACKGROUND SAMPLE	CRUDE CELL				API CELL				CELL 1			
			EASTLINE VADOSE ZONE	PETTIGREW VADOSE ZONE	WESTLINE VADOSE ZONE	BISTI VADOSE ZONE	API VADOSE ZONE - 1	API VADOSE ZONE - 2	API VADOSE ZONE - 3	API VADOSE ZONE - 4	CELL 1 VADSOE ZONE-1	CELL 1 VADSOE ZONE-2	CELL 1 VADSOE ZONE-3	CELL 1 VADSOE ZONE-4
		27-Mar-98	4-May-15	4-May-15	4-May-15	4-May-15	4-May-15	4-May-15	4-May-15	4-May-15	4-May-15	4-May-15	4-May-15	4-May-15
Cyanide	mg/kg	–	<0.273	<0.261	<0.257	<0.263	<0.266	<0.26	<0.26	<0.26	<0.256	<0.256	<0.255	<0.252
Fluoride	mg/kg	–	1.6	1.1	2.3	1.5	2.4	1.6	0.81	1.7	2.5	3.6	6.6	1.6
Lead	mg/kg	6.8	3.1	2.0	2.0	1.9	1.9	2.0	2.1	2.1	3.1	2.1	2.0	2.2
Mercury	mg/kg	<0.5	<0.033	<0.031	<0.034	<0.032	<0.034	<0.033	<0.035	<0.032	<0.033	<0.033	<0.033	<0.033
Nitrogen, Nitrate (As N)	mg/kg	–	1.7	15	<1.5	5.7	24	3.8	2.3	3.1	0.43	0.77	0.35	1.2
Selenium	mg/kg	<2.5	<2.4	<2.4	<2.4	<2.4	<2.5	<2.4	<2.5	<2.4	<2.5	<2.4	<2.4	<2.4
Silver	mg/kg	<1.3	<0.24	<0.24	<0.24	<0.24	<0.25	<0.24	<0.25	<0.24	<0.25	<0.24	<0.24	<0.24
Uranium	mg/kg	–	<4.9	<4.9	<4.8	<4.8	<5.0	<4.9	<5.0	<4.8	<5.0	<4.8	<4.9	<4.8
Radium 226	pCi/g	–	0.611 ± 0.175	0.742 ± 0.192	0.612 ± 0.201	0.523 ± 0.181	0.572 ± 0.155	0.539 ± 0.153	0.586 ± 0.138	0.700 ± 0.177	0.798 ± 0.198	0.546 ± 0.165	0.564 ± 0.184	0.767 ± 0.153
Radium 228	pCi/g	–	0.738 ± 0.342	0.877 ± 0.279	0.599 ± 0.376	0.805 ± 0.288	0.852 ± 0.245	0.969 ± 0.326	0.495 ± 0.382	0.430 ± 0.511	0.724 ± 0.319	0.822 ± 0.259	0.376 ± 0.371	0.806 ± 0.288
Copper	mg/kg	–	3.5	2.3	1.7	2.1	2.3	2.3	2.4	2.3	5.3	2.5	2.1	2.3
Iron	mg/kg	–	6,600	4,800	5,700	4,400	5,000	5,100	5,300	5,200	6,900	5,600	5,000	5,200
Manganese	mg/kg	–	130	95	130	110	110	98	110	140	91	140	120	88
Phenol	mg/kg	–	<2.74	<2.625	<2.58	<2.63	<2.655	<2.635	<2.615	<2.62	<2.575	<2.56	<2.565	<2.56
Sulfate	mg/kg	140	340	89	62	25	1,000	9.5	130	130	82	67	49	19
Zinc	mg/kg	–	15	11	11	9.2	11	10	11	11	11	11	9.9	11
pH	S.U.	–	7.95	8.30	8.20	8.78	9.11	8.75	8.53	7.99	8.71	8.82	9.23	9.03

Notes:
BTEX - benzene, toluene, ethylbenzene, total xylenes
mg/kg - milligrams per kilogram
NE - not established
NMAC - New Mexico Administrative Code
NMED - New Mexico Environmental Department
pCi/g - picocuries per gram
S.U. - standard unit
< - indicates result is less than the stated laboratory practical quantitation limit
– Background Sampling Plan to be submitted under separate cover to the NMOCD and background to be updated upon completion of sampling activities.

APPENDIX A

LABORATORY ANALYTICAL REPORTS

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 08, 2015

Brook Herb

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

RE: Release Response Bisti Landfarm OrderNo.: 1505151

Dear Brook Herb:

Hall Environmental Analysis Laboratory received 8 sample(s) on 5/5/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to 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 qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1505151**
Date Reported: **6/8/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505151-001 **Matrix:** SOIL

Client Sample ID: Bisti Vadose zone
Collection Date: 5/4/2015 12:00:00 PM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	5/8/2015 12:00:00 PM	19069
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	1.5	0.30		mg/Kg	1	5/22/2015 11:31:29 AM	19359
Chloride	24	1.5		mg/Kg	1	5/22/2015 11:31:29 AM	19359
Nitrogen, Nitrate (As N)	5.7	0.30		mg/Kg	1	5/22/2015 11:31:29 AM	19359
Sulfate	25	1.5		mg/Kg	1	5/22/2015 11:31:29 AM	19359
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.032		mg/Kg	1	5/8/2015 4:00:29 PM	19112
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.4		mg/Kg	1	5/8/2015 3:57:24 PM	19082
Barium	66	0.097		mg/Kg	1	5/8/2015 3:57:24 PM	19082
Cadmium	ND	0.097		mg/Kg	1	5/8/2015 3:57:24 PM	19082
Chromium	1.6	0.29		mg/Kg	1	5/8/2015 3:57:24 PM	19082
Copper	2.1	0.29		mg/Kg	1	5/8/2015 3:57:24 PM	19082
Iron	4400	240		mg/Kg	100	5/8/2015 1:58:12 PM	19082
Lead	1.9	0.24		mg/Kg	1	5/8/2015 3:57:24 PM	19082
Manganese	110	0.097		mg/Kg	1	5/8/2015 3:57:24 PM	19082
Selenium	ND	2.4		mg/Kg	1	5/8/2015 3:57:24 PM	19082
Silver	ND	0.24		mg/Kg	1	5/8/2015 3:57:24 PM	19082
Uranium	ND	4.8		mg/Kg	1	5/8/2015 3:57:24 PM	19082
Zinc	9.2	2.4		mg/Kg	1	5/8/2015 3:57:24 PM	19082
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.095		µg/Kg	1	5/7/2015 1:08:58 PM	19108
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	0.020		mg/Kg	1	5/8/2015 1:01:50 PM	19086
Aroclor 1221	ND	0.020		mg/Kg	1	5/8/2015 1:01:50 PM	19086
Aroclor 1232	ND	0.020		mg/Kg	1	5/8/2015 1:01:50 PM	19086
Aroclor 1242	ND	0.020		mg/Kg	1	5/8/2015 1:01:50 PM	19086
Aroclor 1248	ND	0.020		mg/Kg	1	5/8/2015 1:01:50 PM	19086
Aroclor 1254	ND	0.020		mg/Kg	1	5/8/2015 1:01:50 PM	19086
Aroclor 1260	ND	0.020		mg/Kg	1	5/8/2015 1:01:50 PM	19086
Surr: Decachlorobiphenyl	101	25.2-134		%REC	1	5/8/2015 1:01:50 PM	19086
Surr: Tetrachloro-m-xylene	105	17.4-148		%REC	1	5/8/2015 1:01:50 PM	19086
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/8/2015 3:53:38 AM	19065
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/8/2015 3:53:38 AM	19065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505151-001 **Matrix:** SOIL

Client Sample ID: Bisti Vadose zone
Collection Date: 5/4/2015 12:00:00 PM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Surr: DNOP	104	57.9-140		%REC	1	5/8/2015 3:53:38 AM	19065
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/7/2015 9:31:49 PM	19059
Surr: BFB	89.5	80-120		%REC	1	5/7/2015 9:31:49 PM	19059
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	0.25		mg/Kg	1	5/12/2015 9:58:33 AM	19110
1-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 9:58:33 AM	19110
2-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 9:58:33 AM	19110
Benzo(a)pyrene	ND	0.010		mg/Kg	1	5/12/2015 9:58:33 AM	19110
Surr: Benzo(e)pyrene	89.7	34.1-117		%REC	1	5/12/2015 9:58:33 AM	19110
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	ND	0.050		mg/Kg	1	5/6/2015 3:42:02 PM	19059
Toluene	ND	0.050		mg/Kg	1	5/6/2015 3:42:02 PM	19059
Ethylbenzene	ND	0.050		mg/Kg	1	5/6/2015 3:42:02 PM	19059
1,2-Dichloroethane (EDC)	ND	0.050		mg/Kg	1	5/6/2015 3:42:02 PM	19059
1,2-Dibromoethane (EDB)	ND	0.050		mg/Kg	1	5/6/2015 3:42:02 PM	19059
Naphthalene	ND	0.10		mg/Kg	1	5/6/2015 3:42:02 PM	19059
1-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 3:42:02 PM	19059
2-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 3:42:02 PM	19059
Carbon tetrachloride	ND	0.050		mg/Kg	1	5/6/2015 3:42:02 PM	19059
Chloroform	ND	0.050		mg/Kg	1	5/6/2015 3:42:02 PM	19059
1,1-Dichloroethane	ND	0.050		mg/Kg	1	5/6/2015 3:42:02 PM	19059
1,1-Dichloroethene	ND	0.050		mg/Kg	1	5/6/2015 3:42:02 PM	19059
Methylene chloride	ND	0.15		mg/Kg	1	5/6/2015 3:42:02 PM	19059
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg	1	5/6/2015 3:42:02 PM	19059
Tetrachloroethene (PCE)	ND	0.050		mg/Kg	1	5/6/2015 3:42:02 PM	19059
1,1,1-Trichloroethane	ND	0.050		mg/Kg	1	5/6/2015 3:42:02 PM	19059
1,1,2-Trichloroethane	ND	0.050		mg/Kg	1	5/6/2015 3:42:02 PM	19059
Trichloroethene (TCE)	ND	0.050		mg/Kg	1	5/6/2015 3:42:02 PM	19059
Vinyl chloride	ND	0.050		mg/Kg	1	5/6/2015 3:42:02 PM	19059
Xylenes, Total	ND	0.10		mg/Kg	1	5/6/2015 3:42:02 PM	19059
Surr: Dibromofluoromethane	99.6	70-130		%REC	1	5/6/2015 3:42:02 PM	19059
Surr: 1,2-Dichloroethane-d4	92.9	70-130		%REC	1	5/6/2015 3:42:02 PM	19059
Surr: Toluene-d8	91.8	70-130		%REC	1	5/6/2015 3:42:02 PM	19059
Surr: 4-Bromofluorobenzene	91.7	70-130		%REC	1	5/6/2015 3:42:02 PM	19059
SM4500-H+B: PH						Analyst: **JRR**	
pH	8.78	1.68		pH Units	1	5/8/2015 2:20:00 PM	R26065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505151-002 **Matrix:** SOIL

Client Sample ID: Pettigrew Vadose Zone
Collection Date: 5/4/2015 12:30:00 PM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	5/8/2015 12:00:00 PM	19069
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	1.1	0.30		mg/Kg	1	5/22/2015 12:21:08 PM	19359
Chloride	310	30		mg/Kg	20	5/22/2015 12:33:33 PM	19359
Nitrogen, Nitrate (As N)	15	0.30		mg/Kg	1	5/22/2015 12:21:08 PM	19359
Sulfate	89	1.5		mg/Kg	1	5/22/2015 12:21:08 PM	19359
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.031		mg/Kg	1	5/8/2015 4:02:21 PM	19112
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.4		mg/Kg	1	5/8/2015 4:00:47 PM	19082
Barium	58	0.098		mg/Kg	1	5/8/2015 4:00:47 PM	19082
Cadmium	ND	0.098		mg/Kg	1	5/8/2015 4:00:47 PM	19082
Chromium	1.7	0.29		mg/Kg	1	5/8/2015 4:00:47 PM	19082
Copper	2.3	0.29		mg/Kg	1	5/8/2015 4:00:47 PM	19082
Iron	4800	240		mg/Kg	100	5/8/2015 2:00:01 PM	19082
Lead	2.0	0.24		mg/Kg	1	5/8/2015 4:00:47 PM	19082
Manganese	95	0.098		mg/Kg	1	5/8/2015 4:00:47 PM	19082
Selenium	ND	2.4		mg/Kg	1	5/8/2015 4:00:47 PM	19082
Silver	ND	0.24		mg/Kg	1	5/8/2015 4:00:47 PM	19082
Uranium	ND	4.9		mg/Kg	1	5/8/2015 4:00:47 PM	19082
Zinc	11	2.4		mg/Kg	1	5/8/2015 4:00:47 PM	19082
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.096		µg/Kg	1	5/7/2015 1:22:41 PM	19108
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	0.020		mg/Kg	1	5/8/2015 1:47:12 PM	19086
Aroclor 1221	ND	0.020		mg/Kg	1	5/8/2015 1:47:12 PM	19086
Aroclor 1232	ND	0.020		mg/Kg	1	5/8/2015 1:47:12 PM	19086
Aroclor 1242	ND	0.020		mg/Kg	1	5/8/2015 1:47:12 PM	19086
Aroclor 1248	ND	0.020		mg/Kg	1	5/8/2015 1:47:12 PM	19086
Aroclor 1254	ND	0.020		mg/Kg	1	5/8/2015 1:47:12 PM	19086
Aroclor 1260	ND	0.020		mg/Kg	1	5/8/2015 1:47:12 PM	19086
Surr: Decachlorobiphenyl	122	25.2-134		%REC	1	5/8/2015 1:47:12 PM	19086
Surr: Tetrachloro-m-xylene	98.0	17.4-148		%REC	1	5/8/2015 1:47:12 PM	19086
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/8/2015 4:20:52 AM	19065
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/8/2015 4:20:52 AM	19065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505151-002 **Matrix:** SOIL

Client Sample ID: Pettigrew Vadose Zone
Collection Date: 5/4/2015 12:30:00 PM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Surr: DNOP	108	57.9-140		%REC	1	5/8/2015 4:20:52 AM	19065
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/7/2015 10:00:31 PM	19059
Surr: BFB	91.1	80-120		%REC	1	5/7/2015 10:00:31 PM	19059
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	0.25		mg/Kg	1	5/12/2015 10:27:47 AM	19110
1-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 10:27:47 AM	19110
2-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 10:27:47 AM	19110
Benzo(a)pyrene	ND	0.010		mg/Kg	1	5/12/2015 10:27:47 AM	19110
Surr: Benzo(e)pyrene	109	34.1-117		%REC	1	5/12/2015 10:27:47 AM	19110
SM4500-H+B: PH						Analyst: **JRR**	
pH	8.30	1.68		pH Units	1	5/8/2015 2:20:00 PM	R26065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505151-003 **Matrix:** SOIL

Client Sample ID: Eastline Vadose Zone
Collection Date: 5/4/2015 11:40:00 AM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	74	19		mg/Kg	1	5/8/2015 12:00:00 PM	19069
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	1.6	0.30		mg/Kg	1	5/22/2015 12:45:57 PM	19359
Chloride	12	1.5		mg/Kg	1	5/22/2015 12:45:57 PM	19359
Nitrogen, Nitrate (As N)	1.7	0.30		mg/Kg	1	5/22/2015 12:45:57 PM	19359
Sulfate	340	30		mg/Kg	20	5/22/2015 12:58:21 PM	19359
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	5/8/2015 4:04:06 PM	19112
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.4		mg/Kg	1	5/8/2015 4:08:42 PM	19082
Barium	69	0.097		mg/Kg	1	5/8/2015 4:08:42 PM	19082
Cadmium	ND	0.097		mg/Kg	1	5/8/2015 4:08:42 PM	19082
Chromium	2.5	0.29		mg/Kg	1	5/8/2015 4:08:42 PM	19082
Copper	3.5	0.29		mg/Kg	1	5/8/2015 4:08:42 PM	19082
Iron	6600	240		mg/Kg	100	5/8/2015 2:01:49 PM	19082
Lead	3.1	0.24		mg/Kg	1	5/8/2015 4:08:42 PM	19082
Manganese	130	0.097		mg/Kg	1	5/8/2015 4:08:42 PM	19082
Selenium	ND	2.4		mg/Kg	1	5/8/2015 4:08:42 PM	19082
Silver	ND	0.24		mg/Kg	1	5/8/2015 4:08:42 PM	19082
Uranium	ND	4.9		mg/Kg	1	5/8/2015 4:08:42 PM	19082
Zinc	15	2.4		mg/Kg	1	5/8/2015 4:08:42 PM	19082
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.091		µg/Kg	1	5/7/2015 1:36:34 PM	19108
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	0.020		mg/Kg	1	5/8/2015 2:32:53 PM	19086
Aroclor 1221	ND	0.020		mg/Kg	1	5/8/2015 2:32:53 PM	19086
Aroclor 1232	ND	0.020		mg/Kg	1	5/8/2015 2:32:53 PM	19086
Aroclor 1242	ND	0.020		mg/Kg	1	5/8/2015 2:32:53 PM	19086
Aroclor 1248	ND	0.020		mg/Kg	1	5/8/2015 2:32:53 PM	19086
Aroclor 1254	ND	0.020		mg/Kg	1	5/8/2015 2:32:53 PM	19086
Aroclor 1260	ND	0.020		mg/Kg	1	5/8/2015 2:32:53 PM	19086
Surr: Decachlorobiphenyl	98.4	25.2-134		%REC	1	5/8/2015 2:32:53 PM	19086
Surr: Tetrachloro-m-xylene	99.6	17.4-148		%REC	1	5/8/2015 2:32:53 PM	19086
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	18	9.7		mg/Kg	1	5/8/2015 4:47:53 AM	19065
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/8/2015 4:47:53 AM	19065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505151-003 **Matrix:** SOIL

Client Sample ID: Eastline Vadose Zone
Collection Date: 5/4/2015 11:40:00 AM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Surr: DNOP	106	57.9-140		%REC	1	5/8/2015 4:47:53 AM	19065
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/7/2015 10:29:08 PM	19059
Surr: BFB	91.8	80-120		%REC	1	5/7/2015 10:29:08 PM	19059
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	0.25		mg/Kg	1	5/12/2015 11:26:10 AM	19110
1-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 11:26:10 AM	19110
2-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 11:26:10 AM	19110
Benzo(a)pyrene	ND	0.0099		mg/Kg	1	5/12/2015 11:26:10 AM	19110
Surr: Benzo(e)pyrene	99.8	34.1-117		%REC	1	5/12/2015 11:26:10 AM	19110
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	ND	0.049		mg/Kg	1	5/6/2015 4:39:41 PM	19059
Toluene	ND	0.049		mg/Kg	1	5/6/2015 4:39:41 PM	19059
Ethylbenzene	ND	0.049		mg/Kg	1	5/6/2015 4:39:41 PM	19059
1,2-Dichloroethane (EDC)	ND	0.049		mg/Kg	1	5/6/2015 4:39:41 PM	19059
1,2-Dibromoethane (EDB)	ND	0.049		mg/Kg	1	5/6/2015 4:39:41 PM	19059
Naphthalene	ND	0.098		mg/Kg	1	5/6/2015 4:39:41 PM	19059
1-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 4:39:41 PM	19059
2-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 4:39:41 PM	19059
Carbon tetrachloride	ND	0.049		mg/Kg	1	5/6/2015 4:39:41 PM	19059
Chloroform	ND	0.049		mg/Kg	1	5/6/2015 4:39:41 PM	19059
1,1-Dichloroethane	ND	0.049		mg/Kg	1	5/6/2015 4:39:41 PM	19059
1,1-Dichloroethene	ND	0.049		mg/Kg	1	5/6/2015 4:39:41 PM	19059
Methylene chloride	ND	0.15		mg/Kg	1	5/6/2015 4:39:41 PM	19059
1,1,2,2-Tetrachloroethane	ND	0.049		mg/Kg	1	5/6/2015 4:39:41 PM	19059
Tetrachloroethene (PCE)	ND	0.049		mg/Kg	1	5/6/2015 4:39:41 PM	19059
1,1,1-Trichloroethane	ND	0.049		mg/Kg	1	5/6/2015 4:39:41 PM	19059
1,1,2-Trichloroethane	ND	0.049		mg/Kg	1	5/6/2015 4:39:41 PM	19059
Trichloroethene (TCE)	ND	0.049		mg/Kg	1	5/6/2015 4:39:41 PM	19059
Vinyl chloride	ND	0.049		mg/Kg	1	5/6/2015 4:39:41 PM	19059
Xylenes, Total	ND	0.098		mg/Kg	1	5/6/2015 4:39:41 PM	19059
Surr: Dibromofluoromethane	106	70-130		%REC	1	5/6/2015 4:39:41 PM	19059
Surr: 1,2-Dichloroethane-d4	100	70-130		%REC	1	5/6/2015 4:39:41 PM	19059
Surr: Toluene-d8	90.7	70-130		%REC	1	5/6/2015 4:39:41 PM	19059
Surr: 4-Bromofluorobenzene	95.4	70-130		%REC	1	5/6/2015 4:39:41 PM	19059
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.95	1.68		pH Units	1	5/8/2015 2:20:00 PM	R26065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505151-004 **Matrix:** SOIL

Client Sample ID: Westline Vadose Zone
Collection Date: 5/4/2015 11:50:00 AM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	5/8/2015 12:00:00 PM	19069
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	2.3	1.5		mg/Kg	5	5/22/2015 1:35:36 PM	19359
Chloride	ND	7.5		mg/Kg	5	5/22/2015 1:35:36 PM	19359
Nitrogen, Nitrate (As N)	ND	1.5		mg/Kg	5	5/22/2015 1:35:36 PM	19359
Sulfate	62	7.5		mg/Kg	5	5/22/2015 1:35:36 PM	19359
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.034		mg/Kg	1	5/8/2015 4:05:51 PM	19112
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.4		mg/Kg	1	5/8/2015 4:12:07 PM	19082
Barium	180	0.096		mg/Kg	1	5/8/2015 4:12:07 PM	19082
Cadmium	ND	0.096		mg/Kg	1	5/8/2015 4:12:07 PM	19082
Chromium	1.9	0.29		mg/Kg	1	5/8/2015 4:12:07 PM	19082
Copper	1.7	0.29		mg/Kg	1	5/8/2015 4:12:07 PM	19082
Iron	5700	240		mg/Kg	100	5/8/2015 2:03:38 PM	19082
Lead	2.0	0.24		mg/Kg	1	5/8/2015 4:12:07 PM	19082
Manganese	130	0.096		mg/Kg	1	5/8/2015 4:12:07 PM	19082
Selenium	ND	2.4		mg/Kg	1	5/8/2015 4:12:07 PM	19082
Silver	ND	0.24		mg/Kg	1	5/8/2015 4:12:07 PM	19082
Uranium	ND	4.8		mg/Kg	1	5/8/2015 4:12:07 PM	19082
Zinc	11	2.4		mg/Kg	1	5/8/2015 4:12:07 PM	19082
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.097		µg/Kg	1	5/7/2015 1:50:25 PM	19108
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	0.020		mg/Kg	1	5/8/2015 5:36:51 PM	19086
Aroclor 1221	ND	0.020		mg/Kg	1	5/8/2015 5:36:51 PM	19086
Aroclor 1232	ND	0.020		mg/Kg	1	5/8/2015 5:36:51 PM	19086
Aroclor 1242	ND	0.020		mg/Kg	1	5/8/2015 5:36:51 PM	19086
Aroclor 1248	ND	0.020		mg/Kg	1	5/8/2015 5:36:51 PM	19086
Aroclor 1254	ND	0.020		mg/Kg	1	5/8/2015 5:36:51 PM	19086
Aroclor 1260	ND	0.020		mg/Kg	1	5/8/2015 5:36:51 PM	19086
Surr: Decachlorobiphenyl	130	25.2-134		%REC	1	5/8/2015 5:36:51 PM	19086
Surr: Tetrachloro-m-xylene	123	17.4-148		%REC	1	5/8/2015 5:36:51 PM	19086
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/8/2015 5:14:41 AM	19065
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/8/2015 5:14:41 AM	19065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505151-004 **Matrix:** SOIL

Client Sample ID: Westline Vadose Zone
Collection Date: 5/4/2015 11:50:00 AM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Surr: DNOP	121	57.9-140		%REC	1	5/8/2015 5:14:41 AM	19065
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/7/2015 10:57:49 PM	19059
Surr: BFB	89.6	80-120		%REC	1	5/7/2015 10:57:49 PM	19059
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	0.25		mg/Kg	1	5/12/2015 11:55:30 AM	19110
1-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 11:55:30 AM	19110
2-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 11:55:30 AM	19110
Benzo(a)pyrene	ND	0.0099		mg/Kg	1	5/12/2015 11:55:30 AM	19110
Surr: Benzo(e)pyrene	109	34.1-117		%REC	1	5/12/2015 11:55:30 AM	19110
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	ND	0.050		mg/Kg	1	5/6/2015 5:08:30 PM	19059
Toluene	ND	0.050		mg/Kg	1	5/6/2015 5:08:30 PM	19059
Ethylbenzene	ND	0.050		mg/Kg	1	5/6/2015 5:08:30 PM	19059
1,2-Dichloroethane (EDC)	ND	0.050		mg/Kg	1	5/6/2015 5:08:30 PM	19059
1,2-Dibromoethane (EDB)	ND	0.050		mg/Kg	1	5/6/2015 5:08:30 PM	19059
Naphthalene	ND	0.10		mg/Kg	1	5/6/2015 5:08:30 PM	19059
1-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 5:08:30 PM	19059
2-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 5:08:30 PM	19059
Carbon tetrachloride	ND	0.050		mg/Kg	1	5/6/2015 5:08:30 PM	19059
Chloroform	ND	0.050		mg/Kg	1	5/6/2015 5:08:30 PM	19059
1,1-Dichloroethane	ND	0.050		mg/Kg	1	5/6/2015 5:08:30 PM	19059
1,1-Dichloroethene	ND	0.050		mg/Kg	1	5/6/2015 5:08:30 PM	19059
Methylene chloride	ND	0.15		mg/Kg	1	5/6/2015 5:08:30 PM	19059
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg	1	5/6/2015 5:08:30 PM	19059
Tetrachloroethene (PCE)	ND	0.050		mg/Kg	1	5/6/2015 5:08:30 PM	19059
1,1,1-Trichloroethane	ND	0.050		mg/Kg	1	5/6/2015 5:08:30 PM	19059
1,1,2-Trichloroethane	ND	0.050		mg/Kg	1	5/6/2015 5:08:30 PM	19059
Trichloroethene (TCE)	ND	0.050		mg/Kg	1	5/6/2015 5:08:30 PM	19059
Vinyl chloride	ND	0.050		mg/Kg	1	5/6/2015 5:08:30 PM	19059
Xylenes, Total	ND	0.10		mg/Kg	1	5/6/2015 5:08:30 PM	19059
Surr: Dibromofluoromethane	98.3	70-130		%REC	1	5/6/2015 5:08:30 PM	19059
Surr: 1,2-Dichloroethane-d4	86.0	70-130		%REC	1	5/6/2015 5:08:30 PM	19059
Surr: Toluene-d8	92.3	70-130		%REC	1	5/6/2015 5:08:30 PM	19059
Surr: 4-Bromofluorobenzene	94.1	70-130		%REC	1	5/6/2015 5:08:30 PM	19059
SM4500-H+B: PH						Analyst: **JRR**	
pH	8.20	1.68		pH Units	1	5/8/2015 2:20:00 PM	R26065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Client Sample ID: API Vadose Zone-1
Project: Release Response Bisti Landfarm
Collection Date: 5/4/2015 12:15:00 PM
Lab ID: 1505151-005 **Matrix:** SOIL
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	5/8/2015 12:00:00 PM	19069
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	2.4	1.5		mg/Kg	5	5/22/2015 2:00:24 PM	19359
Chloride	140	7.5		mg/Kg	5	5/22/2015 2:00:24 PM	19359
Nitrogen, Nitrate (As N)	24	1.5		mg/Kg	5	5/22/2015 2:00:24 PM	19359
Sulfate	1000	30		mg/Kg	20	5/22/2015 2:12:49 PM	19359
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.034		mg/Kg	1	5/8/2015 4:07:36 PM	19112
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.5		mg/Kg	1	5/8/2015 4:15:32 PM	19082
Barium	92	0.099		mg/Kg	1	5/8/2015 4:15:32 PM	19082
Cadmium	ND	0.099		mg/Kg	1	5/8/2015 4:15:32 PM	19082
Chromium	1.9	0.30		mg/Kg	1	5/8/2015 4:15:32 PM	19082
Copper	2.3	0.30		mg/Kg	1	5/8/2015 4:15:32 PM	19082
Iron	5000	250		mg/Kg	100	5/8/2015 2:05:26 PM	19082
Lead	1.9	0.25		mg/Kg	1	5/8/2015 4:15:32 PM	19082
Manganese	110	0.099		mg/Kg	1	5/8/2015 4:15:32 PM	19082
Selenium	ND	2.5		mg/Kg	1	5/8/2015 4:15:32 PM	19082
Silver	ND	0.25		mg/Kg	1	5/8/2015 4:15:32 PM	19082
Uranium	ND	5.0		mg/Kg	1	5/8/2015 4:15:32 PM	19082
Zinc	11	2.5		mg/Kg	1	5/8/2015 4:15:32 PM	19082
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.098		µg/Kg	1	5/7/2015 2:04:21 PM	19108
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	0.020		mg/Kg	1	5/8/2015 6:23:22 PM	19086
Aroclor 1221	ND	0.020		mg/Kg	1	5/8/2015 6:23:22 PM	19086
Aroclor 1232	ND	0.020		mg/Kg	1	5/8/2015 6:23:22 PM	19086
Aroclor 1242	ND	0.020		mg/Kg	1	5/8/2015 6:23:22 PM	19086
Aroclor 1248	ND	0.020		mg/Kg	1	5/8/2015 6:23:22 PM	19086
Aroclor 1254	ND	0.020		mg/Kg	1	5/8/2015 6:23:22 PM	19086
Aroclor 1260	ND	0.020		mg/Kg	1	5/8/2015 6:23:22 PM	19086
Surr: Decachlorobiphenyl	116	25.2-134		%REC	1	5/8/2015 6:23:22 PM	19086
Surr: Tetrachloro-m-xylene	105	17.4-148		%REC	1	5/8/2015 6:23:22 PM	19086
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/8/2015 5:42:00 AM	19065
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/8/2015 5:42:00 AM	19065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505151-005 **Matrix:** SOIL

Client Sample ID: API Vadose Zone-1
Collection Date: 5/4/2015 12:15:00 PM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Surr: DNOP	111	57.9-140		%REC	1	5/8/2015 5:42:00 AM	19065
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/7/2015 11:26:24 PM	19059
Surr: BFB	89.0	80-120		%REC	1	5/7/2015 11:26:24 PM	19059
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	0.25		mg/Kg	1	5/12/2015 12:25:04 PM	19110
1-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 12:25:04 PM	19110
2-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 12:25:04 PM	19110
Benzo(a)pyrene	ND	0.0099		mg/Kg	1	5/12/2015 12:25:04 PM	19110
Surr: Benzo(e)pyrene	102	34.1-117		%REC	1	5/12/2015 12:25:04 PM	19110
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	ND	0.050		mg/Kg	1	5/6/2015 5:37:26 PM	19059
Toluene	ND	0.050		mg/Kg	1	5/6/2015 5:37:26 PM	19059
Ethylbenzene	ND	0.050		mg/Kg	1	5/6/2015 5:37:26 PM	19059
1,2-Dichloroethane (EDC)	ND	0.050		mg/Kg	1	5/6/2015 5:37:26 PM	19059
1,2-Dibromoethane (EDB)	ND	0.050		mg/Kg	1	5/6/2015 5:37:26 PM	19059
Naphthalene	ND	0.10		mg/Kg	1	5/6/2015 5:37:26 PM	19059
1-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 5:37:26 PM	19059
2-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 5:37:26 PM	19059
Carbon tetrachloride	ND	0.050		mg/Kg	1	5/6/2015 5:37:26 PM	19059
Chloroform	ND	0.050		mg/Kg	1	5/6/2015 5:37:26 PM	19059
1,1-Dichloroethane	ND	0.050		mg/Kg	1	5/6/2015 5:37:26 PM	19059
1,1-Dichloroethene	ND	0.050		mg/Kg	1	5/6/2015 5:37:26 PM	19059
Methylene chloride	ND	0.15		mg/Kg	1	5/6/2015 5:37:26 PM	19059
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg	1	5/6/2015 5:37:26 PM	19059
Tetrachloroethene (PCE)	ND	0.050		mg/Kg	1	5/6/2015 5:37:26 PM	19059
1,1,1-Trichloroethane	ND	0.050		mg/Kg	1	5/6/2015 5:37:26 PM	19059
1,1,2-Trichloroethane	ND	0.050		mg/Kg	1	5/6/2015 5:37:26 PM	19059
Trichloroethene (TCE)	ND	0.050		mg/Kg	1	5/6/2015 5:37:26 PM	19059
Vinyl chloride	ND	0.050		mg/Kg	1	5/6/2015 5:37:26 PM	19059
Xylenes, Total	ND	0.10		mg/Kg	1	5/6/2015 5:37:26 PM	19059
Surr: Dibromofluoromethane	101	70-130		%REC	1	5/6/2015 5:37:26 PM	19059
Surr: 1,2-Dichloroethane-d4	90.6	70-130		%REC	1	5/6/2015 5:37:26 PM	19059
Surr: Toluene-d8	89.9	70-130		%REC	1	5/6/2015 5:37:26 PM	19059
Surr: 4-Bromofluorobenzene	94.0	70-130		%REC	1	5/6/2015 5:37:26 PM	19059
SM4500-H+B: PH						Analyst: **JRR**	
pH	9.11	1.68		pH Units	1	5/8/2015 2:20:00 PM	R26065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505151-006 **Matrix:** SOIL

Client Sample ID: API Vadose Zone-2
Collection Date: 5/4/2015 12:30:00 PM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	5/8/2015 12:00:00 PM	19069
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	1.6	0.30		mg/Kg	1	5/22/2015 2:25:14 PM	19359
Chloride	ND	1.5		mg/Kg	1	5/22/2015 2:25:14 PM	19359
Nitrogen, Nitrate (As N)	3.8	0.30		mg/Kg	1	5/22/2015 2:25:14 PM	19359
Sulfate	9.5	1.5		mg/Kg	1	5/22/2015 2:25:14 PM	19359
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	5/8/2015 4:09:21 PM	19112
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.4		mg/Kg	1	5/8/2015 4:18:51 PM	19082
Barium	44	0.097		mg/Kg	1	5/8/2015 4:18:51 PM	19082
Cadmium	ND	0.097		mg/Kg	1	5/8/2015 4:18:51 PM	19082
Chromium	1.9	0.29		mg/Kg	1	5/8/2015 4:18:51 PM	19082
Copper	2.3	0.29		mg/Kg	1	5/8/2015 4:18:51 PM	19082
Iron	5100	240		mg/Kg	100	5/8/2015 2:07:16 PM	19082
Lead	2.0	0.24		mg/Kg	1	5/8/2015 4:18:51 PM	19082
Manganese	98	0.097		mg/Kg	1	5/8/2015 4:18:51 PM	19082
Selenium	ND	2.4		mg/Kg	1	5/8/2015 4:18:51 PM	19082
Silver	ND	0.24		mg/Kg	1	5/8/2015 4:18:51 PM	19082
Uranium	ND	4.9		mg/Kg	1	5/8/2015 4:18:51 PM	19082
Zinc	10	2.4		mg/Kg	1	5/8/2015 4:18:51 PM	19082
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.10		µg/Kg	1	5/7/2015 2:18:29 PM	19108
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	0.020		mg/Kg	1	5/8/2015 7:08:49 PM	19086
Aroclor 1221	ND	0.020		mg/Kg	1	5/8/2015 7:08:49 PM	19086
Aroclor 1232	ND	0.020		mg/Kg	1	5/8/2015 7:08:49 PM	19086
Aroclor 1242	ND	0.020		mg/Kg	1	5/8/2015 7:08:49 PM	19086
Aroclor 1248	ND	0.020		mg/Kg	1	5/8/2015 7:08:49 PM	19086
Aroclor 1254	ND	0.020		mg/Kg	1	5/8/2015 7:08:49 PM	19086
Aroclor 1260	ND	0.020		mg/Kg	1	5/8/2015 7:08:49 PM	19086
Surr: Decachlorobiphenyl	125	25.2-134		%REC	1	5/8/2015 7:08:49 PM	19086
Surr: Tetrachloro-m-xylene	131	17.4-148		%REC	1	5/8/2015 7:08:49 PM	19086
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/8/2015 6:09:09 AM	19065
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/8/2015 6:09:09 AM	19065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505151-006 **Matrix:** SOIL

Client Sample ID: API Vadose Zone-2
Collection Date: 5/4/2015 12:30:00 PM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Surr: DNOP	190	57.9-140	S	%REC	1	5/8/2015 6:09:09 AM	19065
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/7/2015 11:55:09 PM	19059
Surr: BFB	88.6	80-120		%REC	1	5/7/2015 11:55:09 PM	19059
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	0.25		mg/Kg	1	5/12/2015 12:54:18 PM	19110
1-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 12:54:18 PM	19110
2-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 12:54:18 PM	19110
Benzo(a)pyrene	ND	0.0099		mg/Kg	1	5/12/2015 12:54:18 PM	19110
Surr: Benzo(e)pyrene	109	34.1-117		%REC	1	5/12/2015 12:54:18 PM	19110
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	ND	0.050		mg/Kg	1	5/6/2015 6:06:19 PM	19059
Toluene	ND	0.050		mg/Kg	1	5/6/2015 6:06:19 PM	19059
Ethylbenzene	ND	0.050		mg/Kg	1	5/6/2015 6:06:19 PM	19059
1,2-Dichloroethane (EDC)	ND	0.050		mg/Kg	1	5/6/2015 6:06:19 PM	19059
1,2-Dibromoethane (EDB)	ND	0.050		mg/Kg	1	5/6/2015 6:06:19 PM	19059
Naphthalene	ND	0.10		mg/Kg	1	5/6/2015 6:06:19 PM	19059
1-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 6:06:19 PM	19059
2-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 6:06:19 PM	19059
Carbon tetrachloride	ND	0.050		mg/Kg	1	5/6/2015 6:06:19 PM	19059
Chloroform	ND	0.050		mg/Kg	1	5/6/2015 6:06:19 PM	19059
1,1-Dichloroethane	ND	0.050		mg/Kg	1	5/6/2015 6:06:19 PM	19059
1,1-Dichloroethene	ND	0.050		mg/Kg	1	5/6/2015 6:06:19 PM	19059
Methylene chloride	ND	0.15		mg/Kg	1	5/6/2015 6:06:19 PM	19059
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg	1	5/6/2015 6:06:19 PM	19059
Tetrachloroethene (PCE)	ND	0.050		mg/Kg	1	5/6/2015 6:06:19 PM	19059
1,1,1-Trichloroethane	ND	0.050		mg/Kg	1	5/6/2015 6:06:19 PM	19059
1,1,2-Trichloroethane	ND	0.050		mg/Kg	1	5/6/2015 6:06:19 PM	19059
Trichloroethene (TCE)	ND	0.050		mg/Kg	1	5/6/2015 6:06:19 PM	19059
Vinyl chloride	ND	0.050		mg/Kg	1	5/6/2015 6:06:19 PM	19059
Xylenes, Total	ND	0.10		mg/Kg	1	5/6/2015 6:06:19 PM	19059
Surr: Dibromofluoromethane	100	70-130		%REC	1	5/6/2015 6:06:19 PM	19059
Surr: 1,2-Dichloroethane-d4	89.8	70-130		%REC	1	5/6/2015 6:06:19 PM	19059
Surr: Toluene-d8	90.9	70-130		%REC	1	5/6/2015 6:06:19 PM	19059
Surr: 4-Bromofluorobenzene	93.7	70-130		%REC	1	5/6/2015 6:06:19 PM	19059
SM4500-H+B: PH						Analyst: **JRR**	
pH	8.75	1.68		pH Units	1	5/8/2015 2:20:00 PM	R26065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Client Sample ID: API Vadose Zone-3
Project: Release Response Bisti Landfarm
Collection Date: 5/4/2015 12:50:00 PM
Lab ID: 1505151-007 **Matrix:** SOIL
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	53	19		mg/Kg	1	5/8/2015 12:00:00 PM	19069
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	0.81	0.30		mg/Kg	1	5/22/2015 2:50:04 PM	19359
Chloride	13	1.5		mg/Kg	1	5/22/2015 2:50:04 PM	19359
Nitrogen, Nitrate (As N)	2.3	0.30		mg/Kg	1	5/22/2015 2:50:04 PM	19359
Sulfate	130	30		mg/Kg	20	5/22/2015 3:02:28 PM	19359
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.035		mg/Kg	1	5/8/2015 4:14:50 PM	19112
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.5		mg/Kg	1	5/8/2015 4:22:09 PM	19082
Barium	64	0.10		mg/Kg	1	5/8/2015 4:22:09 PM	19082
Cadmium	ND	0.10		mg/Kg	1	5/8/2015 4:22:09 PM	19082
Chromium	1.8	0.30		mg/Kg	1	5/8/2015 4:22:09 PM	19082
Copper	2.4	0.30		mg/Kg	1	5/8/2015 4:22:09 PM	19082
Iron	5300	250		mg/Kg	100	5/8/2015 2:09:07 PM	19082
Lead	2.1	0.25		mg/Kg	1	5/8/2015 4:22:09 PM	19082
Manganese	110	0.10		mg/Kg	1	5/8/2015 4:22:09 PM	19082
Selenium	ND	2.5		mg/Kg	1	5/8/2015 4:22:09 PM	19082
Silver	ND	0.25		mg/Kg	1	5/8/2015 4:22:09 PM	19082
Uranium	ND	5.0		mg/Kg	1	5/8/2015 4:22:09 PM	19082
Zinc	11	2.5		mg/Kg	1	5/8/2015 4:22:09 PM	19082
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.094		µg/Kg	1	5/7/2015 2:32:31 PM	19108
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	0.020		mg/Kg	1	5/8/2015 7:54:35 PM	19086
Aroclor 1221	ND	0.020		mg/Kg	1	5/8/2015 7:54:35 PM	19086
Aroclor 1232	ND	0.020		mg/Kg	1	5/8/2015 7:54:35 PM	19086
Aroclor 1242	ND	0.020		mg/Kg	1	5/8/2015 7:54:35 PM	19086
Aroclor 1248	ND	0.020		mg/Kg	1	5/8/2015 7:54:35 PM	19086
Aroclor 1254	ND	0.020		mg/Kg	1	5/8/2015 7:54:35 PM	19086
Aroclor 1260	ND	0.020		mg/Kg	1	5/8/2015 7:54:35 PM	19086
Surr: Decachlorobiphenyl	106	25.2-134		%REC	1	5/8/2015 7:54:35 PM	19086
Surr: Tetrachloro-m-xylene	107	17.4-148		%REC	1	5/8/2015 7:54:35 PM	19086
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	5/8/2015 6:35:54 AM	19065
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/8/2015 6:35:54 AM	19065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505151-007 **Matrix:** SOIL

Client Sample ID: API Vadose Zone-3
Collection Date: 5/4/2015 12:50:00 PM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Surr: DNOP	109	57.9-140		%REC	1	5/8/2015 6:35:54 AM	19065
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/8/2015 12:23:52 AM	19059
Surr: BFB	90.7	80-120		%REC	1	5/8/2015 12:23:52 AM	19059
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	0.25		mg/Kg	1	5/12/2015 1:23:30 PM	19110
1-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 1:23:30 PM	19110
2-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 1:23:30 PM	19110
Benzo(a)pyrene	ND	0.010		mg/Kg	1	5/12/2015 1:23:30 PM	19110
Surr: Benzo(e)pyrene	82.0	34.1-117		%REC	1	5/12/2015 1:23:30 PM	19110
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	ND	0.050		mg/Kg	1	5/6/2015 6:35:06 PM	19059
Toluene	ND	0.050		mg/Kg	1	5/6/2015 6:35:06 PM	19059
Ethylbenzene	ND	0.050		mg/Kg	1	5/6/2015 6:35:06 PM	19059
1,2-Dichloroethane (EDC)	ND	0.050		mg/Kg	1	5/6/2015 6:35:06 PM	19059
1,2-Dibromoethane (EDB)	ND	0.050		mg/Kg	1	5/6/2015 6:35:06 PM	19059
Naphthalene	ND	0.10		mg/Kg	1	5/6/2015 6:35:06 PM	19059
1-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 6:35:06 PM	19059
2-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 6:35:06 PM	19059
Carbon tetrachloride	ND	0.050		mg/Kg	1	5/6/2015 6:35:06 PM	19059
Chloroform	ND	0.050		mg/Kg	1	5/6/2015 6:35:06 PM	19059
1,1-Dichloroethane	ND	0.050		mg/Kg	1	5/6/2015 6:35:06 PM	19059
1,1-Dichloroethene	ND	0.050		mg/Kg	1	5/6/2015 6:35:06 PM	19059
Methylene chloride	ND	0.15		mg/Kg	1	5/6/2015 6:35:06 PM	19059
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg	1	5/6/2015 6:35:06 PM	19059
Tetrachloroethene (PCE)	ND	0.050		mg/Kg	1	5/6/2015 6:35:06 PM	19059
1,1,1-Trichloroethane	ND	0.050		mg/Kg	1	5/6/2015 6:35:06 PM	19059
1,1,2-Trichloroethane	ND	0.050		mg/Kg	1	5/6/2015 6:35:06 PM	19059
Trichloroethene (TCE)	ND	0.050		mg/Kg	1	5/6/2015 6:35:06 PM	19059
Vinyl chloride	ND	0.050		mg/Kg	1	5/6/2015 6:35:06 PM	19059
Xylenes, Total	ND	0.10		mg/Kg	1	5/6/2015 6:35:06 PM	19059
Surr: Dibromofluoromethane	100	70-130		%REC	1	5/6/2015 6:35:06 PM	19059
Surr: 1,2-Dichloroethane-d4	91.0	70-130		%REC	1	5/6/2015 6:35:06 PM	19059
Surr: Toluene-d8	89.8	70-130		%REC	1	5/6/2015 6:35:06 PM	19059
Surr: 4-Bromofluorobenzene	94.0	70-130		%REC	1	5/6/2015 6:35:06 PM	19059
SM4500-H+B: PH						Analyst: **JRR**	
pH	8.53	1.68		pH Units	1	5/8/2015 2:20:00 PM	R26065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505151-008 **Matrix:** SOIL

Client Sample ID: API Vadose Zone-4
Collection Date: 5/4/2015 1:10:00 PM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	ND	20		mg/Kg	1	5/8/2015 12:00:00 PM	19069
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	1.7	0.30		mg/Kg	1	5/22/2015 3:14:53 PM	19359
Chloride	1800	75		mg/Kg	50	5/26/2015 7:14:14 PM	19359
Nitrogen, Nitrate (As N)	3.1	0.30		mg/Kg	1	5/22/2015 3:14:53 PM	19359
Sulfate	130	1.5		mg/Kg	1	5/22/2015 3:14:53 PM	19359
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.032		mg/Kg	1	5/8/2015 4:16:36 PM	19112
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.4		mg/Kg	1	5/8/2015 4:30:10 PM	19082
Barium	150	0.097		mg/Kg	1	5/8/2015 4:30:10 PM	19082
Cadmium	ND	0.097		mg/Kg	1	5/8/2015 4:30:10 PM	19082
Chromium	2.1	0.29		mg/Kg	1	5/8/2015 4:30:10 PM	19082
Copper	2.3	0.29		mg/Kg	1	5/8/2015 4:30:10 PM	19082
Iron	5200	240		mg/Kg	100	5/8/2015 2:10:55 PM	19082
Lead	2.1	0.24		mg/Kg	1	5/8/2015 4:30:10 PM	19082
Manganese	140	0.097		mg/Kg	1	5/8/2015 4:30:10 PM	19082
Selenium	ND	2.4		mg/Kg	1	5/8/2015 4:30:10 PM	19082
Silver	ND	0.24		mg/Kg	1	5/8/2015 4:30:10 PM	19082
Uranium	ND	4.8		mg/Kg	1	5/8/2015 4:30:10 PM	19082
Zinc	11	2.4		mg/Kg	1	5/8/2015 4:30:10 PM	19082
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.098		µg/Kg	1	5/7/2015 2:46:43 PM	19108
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	0.020		mg/Kg	1	5/8/2015 8:40:35 PM	19086
Aroclor 1221	ND	0.020		mg/Kg	1	5/8/2015 8:40:35 PM	19086
Aroclor 1232	ND	0.020		mg/Kg	1	5/8/2015 8:40:35 PM	19086
Aroclor 1242	ND	0.020		mg/Kg	1	5/8/2015 8:40:35 PM	19086
Aroclor 1248	ND	0.020		mg/Kg	1	5/8/2015 8:40:35 PM	19086
Aroclor 1254	ND	0.020		mg/Kg	1	5/8/2015 8:40:35 PM	19086
Aroclor 1260	ND	0.020		mg/Kg	1	5/8/2015 8:40:35 PM	19086
Surr: Decachlorobiphenyl	100	25.2-134		%REC	1	5/8/2015 8:40:35 PM	19086
Surr: Tetrachloro-m-xylene	103	17.4-148		%REC	1	5/8/2015 8:40:35 PM	19086
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/8/2015 7:02:42 AM	19065
Motor Oil Range Organics (MRO)	ND	51		mg/Kg	1	5/8/2015 7:02:42 AM	19065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505151-008 **Matrix:** SOIL

Client Sample ID: API Vadose Zone-4
Collection Date: 5/4/2015 1:10:00 PM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Surr: DNOP	114	57.9-140		%REC	1	5/8/2015 7:02:42 AM	19065
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/8/2015 12:52:30 AM	19059
Surr: BFB	89.8	80-120		%REC	1	5/8/2015 12:52:30 AM	19059
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	0.25		mg/Kg	1	5/12/2015 1:52:48 PM	19110
1-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 1:52:48 PM	19110
2-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 1:52:48 PM	19110
Benzo(a)pyrene	ND	0.010		mg/Kg	1	5/12/2015 1:52:48 PM	19110
Surr: Benzo(e)pyrene	89.9	34.1-117		%REC	1	5/12/2015 1:52:48 PM	19110
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	ND	0.049		mg/Kg	1	5/6/2015 7:03:49 PM	19059
Toluene	ND	0.049		mg/Kg	1	5/6/2015 7:03:49 PM	19059
Ethylbenzene	ND	0.049		mg/Kg	1	5/6/2015 7:03:49 PM	19059
1,2-Dichloroethane (EDC)	ND	0.049		mg/Kg	1	5/6/2015 7:03:49 PM	19059
1,2-Dibromoethane (EDB)	ND	0.049		mg/Kg	1	5/6/2015 7:03:49 PM	19059
Naphthalene	ND	0.098		mg/Kg	1	5/6/2015 7:03:49 PM	19059
1-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 7:03:49 PM	19059
2-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 7:03:49 PM	19059
Carbon tetrachloride	ND	0.049		mg/Kg	1	5/6/2015 7:03:49 PM	19059
Chloroform	ND	0.049		mg/Kg	1	5/6/2015 7:03:49 PM	19059
1,1-Dichloroethane	ND	0.049		mg/Kg	1	5/6/2015 7:03:49 PM	19059
1,1-Dichloroethene	ND	0.049		mg/Kg	1	5/6/2015 7:03:49 PM	19059
Methylene chloride	ND	0.15		mg/Kg	1	5/6/2015 7:03:49 PM	19059
1,1,2,2-Tetrachloroethane	ND	0.049		mg/Kg	1	5/6/2015 7:03:49 PM	19059
Tetrachloroethene (PCE)	ND	0.049		mg/Kg	1	5/6/2015 7:03:49 PM	19059
1,1,1-Trichloroethane	ND	0.049		mg/Kg	1	5/6/2015 7:03:49 PM	19059
1,1,2-Trichloroethane	ND	0.049		mg/Kg	1	5/6/2015 7:03:49 PM	19059
Trichloroethene (TCE)	ND	0.049		mg/Kg	1	5/6/2015 7:03:49 PM	19059
Vinyl chloride	ND	0.049		mg/Kg	1	5/6/2015 7:03:49 PM	19059
Xylenes, Total	ND	0.098		mg/Kg	1	5/6/2015 7:03:49 PM	19059
Surr: Dibromofluoromethane	97.7	70-130		%REC	1	5/6/2015 7:03:49 PM	19059
Surr: 1,2-Dichloroethane-d4	87.1	70-130		%REC	1	5/6/2015 7:03:49 PM	19059
Surr: Toluene-d8	89.9	70-130		%REC	1	5/6/2015 7:03:49 PM	19059
Surr: 4-Bromofluorobenzene	95.6	70-130		%REC	1	5/6/2015 7:03:49 PM	19059
SM4500-H+B: PH						Analyst: **JRR**	
pH	7.99	1.68		pH Units	1	5/8/2015 2:20:00 PM	R26065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

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504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	150506012
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1505151
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number 150506012-001 **Sampling Date** 5/4/2015 **Date/Time Received** 5/6/2015 11:30 AM
Client Sample ID 1505151-001B / BISTI VADOSE ZONE **Sampling Time** 12:00 PM
Matrix Soil **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.263	5/15/2015	CRW	EPA 335.4	
Phenolics	ND	mg/Kg	2.63	5/11/2015	KJS	EPA9065	
%moisture	5	Percent		5/11/2015	CRW	%moisture	

Sample Number 150506012-002 **Sampling Date** 5/4/2015 **Date/Time Received** 5/6/2015 11:30 AM
Client Sample ID 1505151-002B / PETTIGREW VADOSE ZONE **Sampling Time** 12:30 PM
Matrix Soil **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.261	5/15/2015	CRW	EPA 335.4	
Phenolics	ND	mg/Kg	2.625	5/11/2015	KJS	EPA9065	
%moisture	4.8	Percent		5/11/2015	CRW	%moisture	

Sample Number 150506012-003 **Sampling Date** 5/4/2015 **Date/Time Received** 5/6/2015 11:30 AM
Client Sample ID 1505151-003B / EASTLINE VADOSE ZONE **Sampling Time** 11:40 AM
Matrix Soil **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.273	5/15/2015	CRW	EPA 335.4	
Phenolics	ND	mg/Kg	2.74	5/11/2015	KJS	EPA9065	
%moisture	8.7	Percent		5/11/2015	CRW	%moisture	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013, FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 150506012
Project Name: 1505151

Analytical Results Report

Sample Number 150506012-004 **Sampling Date** 5/4/2015 **Date/Time Received** 5/6/2015 11:30 AM
Client Sample ID 1505151-004B / WESTLINE VADOSE ZONE **Sampling Time** 11:50 AM
Matrix Soil **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.257	5/15/2015	CRW	EPA 335.4	
Phenolics	ND	mg/Kg	2.58	5/11/2015	KJS	EPA9065	
%moisture	3	Percent		5/11/2015	CRW	%moisture	

Sample Number 150506012-005 **Sampling Date** 5/4/2015 **Date/Time Received** 5/6/2015 11:30 AM
Client Sample ID 1505151-005B / API VADOSE ZONE-1 **Sampling Time** 12:15 PM
Matrix Soil **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.266	5/15/2015	CRW	EPA 335.4	
Phenolics	ND	mg/Kg	2.655	5/11/2015	KJS	EPA9065	
%moisture	5.9	Percent		5/11/2015	CRW	%moisture	

Sample Number 150506012-006 **Sampling Date** 5/4/2015 **Date/Time Received** 5/6/2015 11:30 AM
Client Sample ID 1505151-006B / API VADOSE ZONE-2 **Sampling Time** 12:30 PM
Matrix Soil **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.26	5/15/2015	CRW	EPA 335.4	
Phenolics	ND	mg/Kg	2.635	5/11/2015	KJS	EPA9065	
%moisture	5.1	Percent		5/11/2015	CRW	%moisture	

Sample Number 150506012-007 **Sampling Date** 5/4/2015 **Date/Time Received** 5/6/2015 11:30 AM
Client Sample ID 1505151-007B / API VADOSE ZONE-3 **Sampling Time** 12:50 PM
Matrix Soil **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.26	5/15/2015	CRW	EPA 335.4	
Phenolics	ND	mg/Kg	2.615	5/11/2015	KJS	EPA9065	
%moisture	4.4	Percent		5/11/2015	CRW	%moisture	

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	150506012
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1505151
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	150506012-008	**Sampling Date**	5/4/2015	**Date/Time Received**	5/6/2015 11:30 AM
Client Sample ID	1505151-008B / API VADOSE ZONE-4			**Sampling Time**	1:10 PM
Matrix	Soil	**Sample Location**			
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.26	5/15/2015	CRW	EPA 335.4	
Phenolics	4.88	mg/Kg	2.62	5/11/2015	KJS	EPA9065	
%moisture	4.6	Percent		5/11/2015	CRW	%moisture	

Authorized Signature

John Coddington, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 150506012
Project Name: 1505151

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Cyanide	0.501	mg/kg	0.5	100.2	90-110	5/15/2015	5/15/2015
Phenolics	0.489	mg/kg	0.4	122.3	70-130	5/11/2015	5/11/2015

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
150501015-025	Phenolics	3.02	18.1	mg/kg	20.8	72.5	70-130	5/11/2015	5/11/2015
150506012-001	Cyanide	ND	12.4	mg/kg	13.15	94.3	90-110	5/15/2015	5/15/2015

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Phenolics	18.4	mg/kg	20.8	73.9	1.6	0-20	5/11/2015	5/11/2015
Cyanide	13.1	mg/kg	13.15	99.6	5.5	0-25	5/15/2015	5/15/2015

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide	ND	mg/Kg	0.5	5/15/2015	5/15/2015
Phenolics	ND	mg/Kg	0.5	5/11/2015	5/11/2015

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; OR:ID200001-002, WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1505151
Pace Project No.: 30147474

Sample: 1505151-001C Bisti Vadose zone **Lab ID: 30147474001** Collected: 05/04/15 12:00 Received: 05/07/15 10:10 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**0.523 ± 0.181 (0.366) C:NA T:NA**	pCi/g	06/03/15 08:23	13982-63-3	
Radium-228	EPA 901.1	**0.805 ± 0.288 (0.185) C:NA T:NA**	pCi/g	06/03/15 08:23	15262-20-1	

Sample: 1505151-002C Pettigrew Vadose **Lab ID: 30147474002** Collected: 05/04/15 12:30 Received: 05/07/15 10:10 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**0.742 ± 0.192 (0.137) C:NA T:NA**	pCi/g	06/03/15 08:24	13982-63-3	
Radium-228	EPA 901.1	**0.877 ± 0.279 (0.386) C:NA T:NA**	pCi/g	06/03/15 08:24	15262-20-1	

Sample: 1505151-003C Eastline Vadose Z **Lab ID: 30147474003** Collected: 05/04/15 11:40 Received: 05/07/15 10:10 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**0.611 ± 0.175 (0.153) C:NA T:NA**	pCi/g	06/03/15 08:40	13982-63-3	
Radium-228	EPA 901.1	**0.738 ± 0.342 (0.476) C:NA T:NA**	pCi/g	06/03/15 08:40	15262-20-1	

Sample: 1505151-004C Westline Vadose Z **Lab ID: 30147474004** Collected: 05/04/15 11:50 Received: 05/07/15 10:10 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**0.612 ± 0.201 (0.299) C:NA T:NA**	pCi/g	06/03/15 08:41	13982-63-3	
Radium-228	EPA 901.1	**0.599 ± 0.376 (0.490) C:NA T:NA**	pCi/g	06/03/15 08:41	15262-20-1	

Sample: 1505151-005C API Vadose Zone-1 **Lab ID: 30147474005** Collected: 05/04/15 12:15 Received: 05/07/15 10:10 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**0.572 ± 0.155 (0.128) C:NA T:NA**	pCi/g	06/03/15 08:57	13982-63-3	

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1505151
Pace Project No.: 30147474

Sample: 1505151-005C API Vadose Zone-1 Lab ID: **30147474005** Collected: 05/04/15 12:15 Received: 05/07/15 10:10 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-228	EPA 901.1	**0.852 ± 0.245 (0.164) C:NA T:NA**	pCi/g	06/03/15 08:57	15262-20-1	

Sample: 1505151-006C API Vadose Zone-2 Lab ID: **30147474006** Collected: 05/04/15 12:30 Received: 05/07/15 10:10 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**0.539 ± 0.153 (0.191) C:NA T:NA**	pCi/g	06/03/15 08:57	13982-63-3	
Radium-228	EPA 901.1	**0.969 ± 0.326 (0.284) C:NA T:NA**	pCi/g	06/03/15 08:57	15262-20-1	

Sample: 1505151-007C API Vadose Zone-3 Lab ID: **30147474007** Collected: 05/04/15 12:50 Received: 05/07/15 10:10 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**0.586 ± 0.138 (0.113) C:NA T:NA**	pCi/g	06/03/15 09:14	13982-63-3	
Radium-228	EPA 901.1	**0.495 ± 0.382 (0.426) C:NA T:NA**	pCi/g	06/03/15 09:14	15262-20-1	

Sample: 1505151-008C API Vadose Zone-4 Lab ID: **30147474008** Collected: 05/04/15 13:10 Received: 05/07/15 10:10 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**0.700 ± 0.177 (0.152) C:NA T:NA**	pCi/g	06/03/15 09:15	13982-63-3	
Radium-228	EPA 901.1	**0.430 ± 0.511 (0.563) C:NA T:NA**	pCi/g	06/03/15 09:15	15262-20-1	

REPORT OF LABORATORY ANALYSIS

Pace Analytical®
www.pacelabs.com

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL - RADIOCHEMISTRY

Project: 1505151
Pace Project No.: 30147474

QC Batch: RADC/24547 Analysis Method: EPA 901.1
QC Batch Method: EPA 901.1 Analysis Description: 901.1 Gamma Spec Ingrowth
Associated Lab Samples: 30147474001, 30147474002, 30147474003, 30147474004, 30147474005, 30147474006, 30147474007, 30147474008

METHOD BLANK: 896926 Matrix: Solid
Associated Lab Samples: 30147474001, 30147474002, 30147474003, 30147474004, 30147474005, 30147474006, 30147474007, 30147474008

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.065 ± 0.125 (0.244) C:NA T:NA	pCi/g	06/02/15 13:35	
Radium-228	0.028 ± 0.141 (0.289) C:NA T:NA	pCi/g	06/02/15 13:35	

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

REPORT OF LABORATORY ANALYSIS

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505151**

08-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **MB-19359**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **19359**	RunNo: **26390**
Prep Date: **5/22/2015**	Analysis Date: **5/22/2015**	SeqNo: **784203** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								
Nitrogen, Nitrate (As N)	ND	0.30								
Sulfate	ND	1.5								

Sample ID **LCS-19359**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **19359**	RunNo: **26390**
Prep Date: **5/22/2015**	Analysis Date: **5/22/2015**	SeqNo: **784204** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.30	1.500	0	102	90	110			
Chloride	14	1.5	15.00	0	92.4	90	110			
Nitrogen, Nitrate (As N)	7.3	0.30	7.500	0	97.4	90	110			
Sulfate	29	1.5	30.00	0	96.4	90	110			

Sample ID **1505151-001AMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **Bisti Vadose zone**	Batch ID: **19359**	RunNo: **26390**
Prep Date: **5/22/2015**	Analysis Date: **5/22/2015**	SeqNo: **784206** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.4	0.30	1.500	1.487	64.0	13.6	100			
Chloride	38	1.5	15.00	23.57	95.5	64.2	131			
Nitrogen, Nitrate (As N)	13	0.30	7.500	5.719	100	87.6	109			
Sulfate	51	1.5	30.00	24.64	88.1	37.4	146			

Sample ID **1505151-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **Bisti Vadose zone**	Batch ID: **19359**	RunNo: **26390**
Prep Date: **5/22/2015**	Analysis Date: **5/22/2015**	SeqNo: **784207** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.5	0.30	1.500	1.487	65.1	13.6	100	0.677	20	
Chloride	39	1.5	15.00	23.57	105	64.2	131	3.55	20	
Nitrogen, Nitrate (As N)	14	0.30	7.500	5.719	105	87.6	109	2.33	20	
Sulfate	52	1.5	30.00	24.64	91.6	37.4	146	2.06	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505151**

08-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **MB-19069**	SampType: **MBLK**	TestCode: **EPA Method 418.1: TPH**
Client ID: **PBS**	Batch ID: **19069**	RunNo: **26067**
Prep Date: **5/5/2015**	Analysis Date: **5/8/2015**	SeqNo: **772925** 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-19069**	SampType: **LCS**	TestCode: **EPA Method 418.1: TPH**
Client ID: **LCSS**	Batch ID: **19069**	RunNo: **26067**
Prep Date: **5/5/2015**	Analysis Date: **5/8/2015**	SeqNo: **772926** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	100.0	0	105	86.7	126			

Sample ID **LCSD-19069**	SampType: **LCSD**	TestCode: **EPA Method 418.1: TPH**
Client ID: **LCSS02**	Batch ID: **19069**	RunNo: **26067**
Prep Date: **5/5/2015**	Analysis Date: **5/8/2015**	SeqNo: **772927** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	100.0	0	108	86.7	126	2.70	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505151**

08-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **MB-19108**	SampType: **MBLK**	TestCode: **EPA Method 504.1 Modified: EDB**
Client ID: **PBS**	Batch ID: **19108**	RunNo: **26044**
Prep Date: **5/7/2015**	Analysis Date: **5/7/2015**	SeqNo: **772106** Units: **µg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.10								

Sample ID **LCS-19108**	SampType: **LCS**	TestCode: **EPA Method 504.1 Modified: EDB**
Client ID: **LCSS**	Batch ID: **19108**	RunNo: **26044**
Prep Date: **5/7/2015**	Analysis Date: **5/7/2015**	SeqNo: **772107** Units: **µg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	1.3	0.10	1.000	0	132	70	130			S

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505151**

08-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **MB-19065**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **PBS**	Batch ID: **19065**	RunNo: **26027**
Prep Date: **5/5/2015**	Analysis Date: **5/7/2015**	SeqNo: **772488** 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		134	57.9	140			

Sample ID **LCS-19065**	SampType: **LCS**	TestCode: **EPA Method 8015D: Diesel Range Organics**
Client ID: **LCSS**	Batch ID: **19065**	RunNo: **26027**
Prep Date: **5/5/2015**	Analysis Date: **5/7/2015**	SeqNo: **772489** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	62	10	50.00	0	124	67.8	130			
Surr: DNOP	6.4		5.000		128	57.9	140			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505151**

08-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **MB-19059**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **19059**	RunNo: **25998**
Prep Date: **5/5/2015**	Analysis Date: **5/6/2015**	SeqNo: **771179** 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	920		1000		91.6	80	120			

Sample ID **LCS-19059**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **19059**	RunNo: **25998**
Prep Date: **5/5/2015**	Analysis Date: **5/6/2015**	SeqNo: **771180** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	102	64	130			
Surr: BFB	980		1000		97.7	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505151**

08-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **MB-19086**	SampType: **MBLK**	TestCode: **EPA Method 8082: PCB's**
Client ID: **PBS**	Batch ID: **19086**	RunNo: **26048**
Prep Date: **5/6/2015**	Analysis Date: **5/8/2015**	SeqNo: **772159** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.020								
Aroclor 1221	ND	0.020								
Aroclor 1232	ND	0.020								
Aroclor 1242	ND	0.020								
Aroclor 1248	ND	0.020								
Aroclor 1254	ND	0.020								
Aroclor 1260	ND	0.020								
Surr: Decachlorobiphenyl	0.067		0.06250		107	25.2	134			
Surr: Tetrachloro-m-xylene	0.074		0.06250		119	17.4	148			

Sample ID **LCS-19086**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSS**	Batch ID: **19086**	RunNo: **26048**
Prep Date: **5/6/2015**	Analysis Date: **5/8/2015**	SeqNo: **772160** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.14	0.020	0.1250	0	109	17.3	119			
Aroclor 1260	0.16	0.020	0.1250	0	127	10.7	139			
Surr: Decachlorobiphenyl	0.094		0.06250		150	25.2	134			S
Surr: Tetrachloro-m-xylene	0.12		0.06250		188	17.4	148			S

Sample ID **MB-19086**	SampType: **MBLK**	TestCode: **EPA Method 8082: PCB's**
Client ID: **PBS**	Batch ID: **19086**	RunNo: **26142**
Prep Date: **5/6/2015**	Analysis Date: **5/12/2015**	SeqNo: **775450** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.020								
Aroclor 1221	ND	0.020								
Aroclor 1232	ND	0.020								
Aroclor 1242	ND	0.020								
Aroclor 1248	ND	0.020								
Aroclor 1254	ND	0.020								
Aroclor 1260	ND	0.020								
Surr: Decachlorobiphenyl	0.051		0.06250		81.2	25.2	134			
Surr: Tetrachloro-m-xylene	0.041		0.06250		65.2	17.4	148			

Sample ID **LCS-19086**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSS**	Batch ID: **19086**	RunNo: **26142**
Prep Date: **5/6/2015**	Analysis Date: **5/12/2015**	SeqNo: **775451** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505151**

08-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **LCS-19086**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSS**	Batch ID: **19086**	RunNo: **26142**
Prep Date: **5/6/2015**	Analysis Date: **5/12/2015**	SeqNo: **775451** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.079	0.020	0.1250	0	63.3	17.3	119			
Aroclor 1260	0.12	0.020	0.1250	0	96.8	10.7	139			
Surr: Decachlorobiphenyl	0.057		0.06250		91.6	25.2	134			
Surr: Tetrachloro-m-xylene	0.046		0.06250		74.4	17.4	148			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505151**

08-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **mb-19059**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **19059**	RunNo: **26015**
Prep Date: **5/5/2015**	Analysis Date: **5/6/2015**	SeqNo: **771208** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505151**

08-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **mb-19059**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **19059**	RunNo: **26015**
Prep Date: **5/5/2015**	Analysis Date: **5/6/2015**	SeqNo: **771208** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.53		0.5000		107	70	130			
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		93.6	70	130			
Surr: Toluene-d8	0.45		0.5000		90.6	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		95.8	70	130			

Sample ID **lcs-19059**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **19059**	RunNo: **26015**
Prep Date: **5/5/2015**	Analysis Date: **5/6/2015**	SeqNo: **771209** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.050	1.000	0	98.3	70	130			
Toluene	0.88	0.050	1.000	0	88.1	70	130			
Chlorobenzene	0.99	0.050	1.000	0	98.5	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505151**

08-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **lcs-19059**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **19059**	RunNo: **26015**
Prep Date: **5/5/2015**	Analysis Date: **5/6/2015**	SeqNo: **771209** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	1.3	0.050	1.000	0	126	60.6	134			
Trichloroethene (TCE)	0.87	0.050	1.000	0	86.9	70	130			
Surr: Dibromofluoromethane	0.54		0.5000		107	70	130			
Surr: 1,2-Dichloroethane-d4	0.48		0.5000		95.9	70	130			
Surr: Toluene-d8	0.44		0.5000		87.4	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		97.3	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505151**

08-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **MB-19110**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**
Client ID: **PBS**	Batch ID: **19110**	RunNo: **26118**
Prep Date: **5/7/2015**	Analysis Date: **5/12/2015**	SeqNo: **774695** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.25								
1-Methylnaphthalene	ND	0.25								
2-Methylnaphthalene	ND	0.25								
Benzo(a)pyrene	ND	0.010								
Surr: Benzo(e)pyrene	0.51		0.5000		103	34.1	117			

Sample ID **LCS-19110**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSS**	Batch ID: **19110**	RunNo: **26118**
Prep Date: **5/7/2015**	Analysis Date: **5/12/2015**	SeqNo: **774696** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	1.7	0.25	2.000	0	84.2	37.4	94.6			
1-Methylnaphthalene	1.7	0.25	2.000	0	84.1	26.4	90			
2-Methylnaphthalene	1.7	0.25	2.000	0	84.2	18.8	90.1			
Benzo(a)pyrene	0.011	0.010	0.01250	0	88.0	41.9	101			
Surr: Benzo(e)pyrene	0.46		0.5000		92.8	34.1	117			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505151**

08-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **MB-19112**	SampType: **MBLK**	TestCode: **EPA Method 7471: Mercury**
Client ID: **PBS**	Batch ID: **19112**	RunNo: **26073**
Prep Date: **5/7/2015**	Analysis Date: **5/8/2015**	SeqNo: **773113** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID **LCS-19112**	SampType: **LCS**	TestCode: **EPA Method 7471: Mercury**
Client ID: **LCSS**	Batch ID: **19112**	RunNo: **26073**
Prep Date: **5/7/2015**	Analysis Date: **5/8/2015**	SeqNo: **773114** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.16	0.033	0.1667	0	98.3	80	120			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505151**

08-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **MB-19082**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **19082**	RunNo: **26074**
Prep Date: **5/6/2015**	Analysis Date: **5/8/2015**	SeqNo: **773158** 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								
Chromium	ND	0.30								
Copper	ND	0.30								
Iron	ND	2.5								
Lead	ND	0.25								
Manganese	ND	0.10								
Selenium	ND	2.5								
Silver	ND	0.25								
Uranium	ND	5.0								
Zinc	ND	2.5								

Sample ID **LCS-19082**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **19082**	RunNo: **26074**
Prep Date: **5/6/2015**	Analysis Date: **5/8/2015**	SeqNo: **773159** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	26	2.5	25.00	0	103	80	120			
Barium	25	0.10	25.00	0	98.4	80	120			
Cadmium	25	0.10	25.00	0	99.3	80	120			
Chromium	25	0.30	25.00	0	100	80	120			
Copper	26	0.30	25.00	0	103	80	120			
Iron	26	2.5	25.00	0	104	80	120			
Lead	25	0.25	25.00	0	99.6	80	120			
Manganese	25	0.10	25.00	0	99.4	80	120			
Selenium	25	2.5	25.00	0	100	80	120			
Silver	5.3	0.25	5.000	0	106	80	120			
Uranium	26	5.0	25.00	0	103	80	120			
Zinc	25	2.5	25.00	0	100	80	120			

Qualifiers:

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

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Western Refining Southw Work Order Number: 1505151 RcptNo: 1

Received by/date: AT 05/05/15

Logged By: Anne Thorne 5/5/2015 6:50:00 AM Anne Thorne

Completed By: Anne Thorne 5/5/2015 Anne Thorne

Reviewed By: DS 05/05/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Yes			

Chain-of-Custody Record

Client: Western Refining
Kelly Robinson
Mailing Address: 111 CR 4990
Bloomfield, CO
Phone #: (505) 632-8013
email or Fax#: Kelly.Robinson@WNR.com
QA/QC Package:
☑ Standard ☐ Level 4 (Full Validation)
Accreditation
☐ NELAP ☐ Other _____
☐ EDD (Type) _____

Turn-Around Time:
☑ Standard ☐ Rush _____
Project Name:
Release Response - Bisti Landfarm
Project #:
12610957
Project Manager:
Brook Herb
Sampler: Dan Newman / Mike Wicker
On Ice: ☑ Yes ☐ No
Sample Temperature: 1.4

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 Request ID	Container Type and #	Preservative Type	HEAL No. 1505151	BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)		See Attached				Air Bubbles (Y or N)
5/4/15	~~1105~~ 1200	Soil	Bisti Vadose Zone	Various	Cool	-001																	
	1230		Pettigrew Vadose Zone			-002																	
	1140		Eastline Vadose Zone			-003																	
	1150		Westline Vadose Zone			-004																	
	1215		API Vadose Zone-1			-005																	
	1230		API Vadose Zone-2			-006																	
	1250		API Vadose Zone-3			-007																	
	1310		API Vadose Zone-4			-008																	

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/4/15	1640		Brent Wacker	5/4/15	1640
5/4/15	1754	Brent Wacker		05/05/15	0650

Remarks:
Please copy results to BHerb@LTEnv.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.

ATTACHMENT TO COC

Site: **Date:**

Please analyze samples for the following:

TPH 418.1
TPH 8015
~~BTEX 8021~~ As per lists
Chlorides
Subsection A and B of 20.6.2.3103 NMAC:
Arsenic (As)
Barium (Ba)
Cadmium (Cd)
Chromium (Cr)
Cyanide (Cn)
Fluoride (F)
Lead (Pb)
Total Mercury (Hg)
Nitrate (NO_3 as N)
Selenium (Se)
Silver (Ag)
Uranium (U)
Radioactivity: Combined Radium-226 & Radium-228
Benzene
Polychlorinated biphenyls (PCB's)
Toluene
Carbon Tetrachloride
1,2-dichloroethane (EDC)
1,1-dichloroethylene (1,1-DCE)
1,1,2,2-tetrachloroethylene (PCE)
1,1,2-trichloroethylene (TCE)
ethylbenzene
otal xylenes
methylene chloride
chloroform
1,1-dichloroethane
ethylene dibromide (EDB)
1,1,1-trichloroethane
1,1,2-trichloroethane
1,1,2,2-tetrachloroethane
vinyl chloride
PAHs: total naphthalene plus monomethylnaphthalenes
benzo-a-pyrene
Chloride (Cl)
Copper (Cu)
Iron (Fe)
Manganese (Mn)
Phenols
Sulfate (SO_4)
~~Total Dissolved Solids (TDS)~~ As per lists
Zinc (Zn)
pH

HALL ENVIRONMENTAL ANALYSIS LABORATORY

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

June 04, 2015

Brook Herb

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

RE: Release Response Bisti Landfarm OrderNo.: 1505143

Dear Brook Herb:

Hall Environmental Analysis Laboratory received 4 sample(s) on 5/5/2015 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to 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 qualifers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

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

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0190

Sincerely,

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report
Lab Order **1505143**
Date Reported: **6/4/2015**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505143-001 **Matrix:** SOIL

Client Sample ID: Cell 1 Vadose Zone-1
Collection Date: 5/4/2015 2:40:00 PM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	160	19		mg/Kg	1	5/8/2015 12:00:00 PM	19069
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	2.5	0.30		mg/Kg	1	5/6/2015 11:33:12 AM	19085
Chloride	ND	1.5		mg/Kg	1	5/6/2015 11:33:12 AM	19085
Nitrogen, Nitrate (As N)	0.43	0.30		mg/Kg	1	5/6/2015 11:33:12 AM	19085
Sulfate	82	1.5		mg/Kg	1	5/6/2015 11:33:12 AM	19085
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	5/8/2015 3:45:44 PM	19112
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.5		mg/Kg	1	5/8/2015 3:32:25 PM	19082
Barium	71	0.10		mg/Kg	1	5/9/2015 10:24:41 AM	19082
Cadmium	ND	0.10		mg/Kg	1	5/8/2015 3:32:25 PM	19082
Chromium	2.5	0.30		mg/Kg	1	5/8/2015 3:32:25 PM	19082
Copper	5.3	0.30		mg/Kg	1	5/8/2015 3:32:25 PM	19082
Iron	6900	250		mg/Kg	100	5/8/2015 1:45:23 PM	19082
Lead	3.1	0.25		mg/Kg	1	5/8/2015 3:32:25 PM	19082
Manganese	91	0.10		mg/Kg	1	5/9/2015 10:24:41 AM	19082
Selenium	ND	2.5		mg/Kg	1	5/8/2015 3:32:25 PM	19082
Silver	ND	0.25		mg/Kg	1	5/8/2015 3:32:25 PM	19082
Uranium	ND	5.0		mg/Kg	1	5/8/2015 3:32:25 PM	19082
Zinc	11	2.5		mg/Kg	1	5/8/2015 3:32:25 PM	19082
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.10		µg/Kg	1	5/7/2015 11:32:42 AM	19108
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	0.020		mg/Kg	1	5/8/2015 9:58:08 AM	19086
Aroclor 1221	ND	0.020		mg/Kg	1	5/8/2015 9:58:08 AM	19086
Aroclor 1232	ND	0.020		mg/Kg	1	5/8/2015 9:58:08 AM	19086
Aroclor 1242	ND	0.020		mg/Kg	1	5/8/2015 9:58:08 AM	19086
Aroclor 1248	ND	0.020		mg/Kg	1	5/8/2015 9:58:08 AM	19086
Aroclor 1254	ND	0.020		mg/Kg	1	5/8/2015 9:58:08 AM	19086
Aroclor 1260	ND	0.020		mg/Kg	1	5/8/2015 9:58:08 AM	19086
Surr: Decachlorobiphenyl	86.8	25.2-134		%REC	1	5/8/2015 9:58:08 AM	19086
Surr: Tetrachloro-m-xylene	92.4	17.4-148		%REC	1	5/8/2015 9:58:08 AM	19086
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	21	9.7		mg/Kg	1	5/8/2015 4:26:08 PM	19065
Motor Oil Range Organics (MRO)	95	48		mg/Kg	1	5/8/2015 4:26:08 PM	19065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505143-001 **Matrix:** SOIL

Client Sample ID: Cell 1 Vadose Zone-1
Collection Date: 5/4/2015 2:40:00 PM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Surr: DNOP	110	57.9-140		%REC	1	5/8/2015 4:26:08 PM	19065
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/7/2015 2:06:46 AM	19059
Surr: BFB	93.4	80-120		%REC	1	5/7/2015 2:06:46 AM	19059
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	0.25		mg/Kg	1	5/12/2015 8:01:29 AM	19110
1-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 8:01:29 AM	19110
2-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 8:01:29 AM	19110
Benzo(a)pyrene	ND	0.0099		mg/Kg	1	5/12/2015 8:01:29 AM	19110
Surr: Benzo(e)pyrene	74.4	34.1-117		%REC	1	5/12/2015 8:01:29 AM	19110
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	ND	0.050		mg/Kg	1	5/6/2015 1:46:25 PM	19059
Toluene	ND	0.050		mg/Kg	1	5/6/2015 1:46:25 PM	19059
Ethylbenzene	ND	0.050		mg/Kg	1	5/6/2015 1:46:25 PM	19059
1,2-Dichloroethane (EDC)	ND	0.050		mg/Kg	1	5/6/2015 1:46:25 PM	19059
1,2-Dibromoethane (EDB)	ND	0.050		mg/Kg	1	5/6/2015 1:46:25 PM	19059
Naphthalene	ND	0.10		mg/Kg	1	5/6/2015 1:46:25 PM	19059
1-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 1:46:25 PM	19059
2-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 1:46:25 PM	19059
Carbon tetrachloride	ND	0.050		mg/Kg	1	5/6/2015 1:46:25 PM	19059
Chloroform	ND	0.050		mg/Kg	1	5/6/2015 1:46:25 PM	19059
1,1-Dichloroethane	ND	0.050		mg/Kg	1	5/6/2015 1:46:25 PM	19059
1,1-Dichloroethene	ND	0.050		mg/Kg	1	5/6/2015 1:46:25 PM	19059
Methylene chloride	ND	0.15		mg/Kg	1	5/6/2015 1:46:25 PM	19059
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg	1	5/6/2015 1:46:25 PM	19059
Tetrachloroethene (PCE)	ND	0.050		mg/Kg	1	5/6/2015 1:46:25 PM	19059
1,1,1-Trichloroethane	ND	0.050		mg/Kg	1	5/6/2015 1:46:25 PM	19059
1,1,2-Trichloroethane	ND	0.050		mg/Kg	1	5/6/2015 1:46:25 PM	19059
Trichloroethene (TCE)	ND	0.050		mg/Kg	1	5/6/2015 1:46:25 PM	19059
Vinyl chloride	ND	0.050		mg/Kg	1	5/6/2015 1:46:25 PM	19059
Xylenes, Total	ND	0.10		mg/Kg	1	5/6/2015 1:46:25 PM	19059
Surr: Dibromofluoromethane	101	70-130		%REC	1	5/6/2015 1:46:25 PM	19059
Surr: 1,2-Dichloroethane-d4	88.4	70-130		%REC	1	5/6/2015 1:46:25 PM	19059
Surr: Toluene-d8	89.8	70-130		%REC	1	5/6/2015 1:46:25 PM	19059
Surr: 4-Bromofluorobenzene	93.8	70-130		%REC	1	5/6/2015 1:46:25 PM	19059
SM4500-H+B: PH						Analyst: **JRR**	
pH	8.71	1.68		pH Units	1	5/8/2015 2:20:00 PM	R26065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505143-002 **Matrix:** SOIL

Client Sample ID: Cell 1 Vadoe Zone-2
Collection Date: 5/4/2015 3:00:00 PM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	5/8/2015 12:00:00 PM	19069
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	3.6	0.30		mg/Kg	1	5/6/2015 11:58:01 AM	19085
Chloride	47	1.5		mg/Kg	1	5/6/2015 11:58:01 AM	19085
Nitrogen, Nitrate (As N)	0.77	0.30		mg/Kg	1	5/6/2015 11:58:01 AM	19085
Sulfate	67	1.5		mg/Kg	1	5/6/2015 11:58:01 AM	19085
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	5/8/2015 3:54:57 PM	19112
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.4		mg/Kg	1	5/8/2015 3:47:11 PM	19082
Barium	99	0.096		mg/Kg	1	5/8/2015 3:47:11 PM	19082
Cadmium	ND	0.096		mg/Kg	1	5/8/2015 3:47:11 PM	19082
Chromium	2.0	0.29		mg/Kg	1	5/8/2015 3:47:11 PM	19082
Copper	2.5	0.29		mg/Kg	1	5/8/2015 3:47:11 PM	19082
Iron	5600	240		mg/Kg	100	5/8/2015 1:47:14 PM	19082
Lead	2.1	0.24		mg/Kg	1	5/8/2015 3:47:11 PM	19082
Manganese	140	0.096		mg/Kg	1	5/8/2015 3:47:11 PM	19082
Selenium	ND	2.4		mg/Kg	1	5/8/2015 3:47:11 PM	19082
Silver	ND	0.24		mg/Kg	1	5/8/2015 3:47:11 PM	19082
Uranium	ND	4.8		mg/Kg	1	5/8/2015 3:47:11 PM	19082
Zinc	11	2.4		mg/Kg	1	5/8/2015 3:47:11 PM	19082
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.099		µg/Kg	1	5/7/2015 12:13:55 PM	19108
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	0.020		mg/Kg	1	5/8/2015 10:43:49 AM	19086
Aroclor 1221	ND	0.020		mg/Kg	1	5/8/2015 10:43:49 AM	19086
Aroclor 1232	ND	0.020		mg/Kg	1	5/8/2015 10:43:49 AM	19086
Aroclor 1242	ND	0.020		mg/Kg	1	5/8/2015 10:43:49 AM	19086
Aroclor 1248	ND	0.020		mg/Kg	1	5/8/2015 10:43:49 AM	19086
Aroclor 1254	ND	0.020		mg/Kg	1	5/8/2015 10:43:49 AM	19086
Aroclor 1260	ND	0.020		mg/Kg	1	5/8/2015 10:43:49 AM	19086
Surr: Decachlorobiphenyl	81.2	25.2-134		%REC	1	5/8/2015 10:43:49 AM	19086
Surr: Tetrachloro-m-xylene	83.6	17.4-148		%REC	1	5/8/2015 10:43:49 AM	19086
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	5/8/2015 4:52:42 PM	19065
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	5/8/2015 4:52:42 PM	19065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505143-002 **Matrix:** SOIL

Client Sample ID: Cell 1 Vadoe Zone-2
Collection Date: 5/4/2015 3:00:00 PM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Surr: DNOP	108	57.9-140		%REC	1	5/8/2015 4:52:42 PM	19065
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/7/2015 6:11:03 PM	19059
Surr: BFB	89.6	80-120		%REC	1	5/7/2015 6:11:03 PM	19059
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	0.25		mg/Kg	1	5/12/2015 8:30:45 AM	19110
1-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 8:30:45 AM	19110
2-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 8:30:45 AM	19110
Benzo(a)pyrene	ND	0.010		mg/Kg	1	5/12/2015 8:30:45 AM	19110
Surr: Benzo(e)pyrene	98.0	34.1-117		%REC	1	5/12/2015 8:30:45 AM	19110
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	ND	0.050		mg/Kg	1	5/6/2015 2:15:15 PM	19059
Toluene	ND	0.050		mg/Kg	1	5/6/2015 2:15:15 PM	19059
Ethylbenzene	ND	0.050		mg/Kg	1	5/6/2015 2:15:15 PM	19059
1,2-Dichloroethane (EDC)	ND	0.050		mg/Kg	1	5/6/2015 2:15:15 PM	19059
1,2-Dibromoethane (EDB)	ND	0.050		mg/Kg	1	5/6/2015 2:15:15 PM	19059
Naphthalene	ND	0.099		mg/Kg	1	5/6/2015 2:15:15 PM	19059
1-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 2:15:15 PM	19059
2-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 2:15:15 PM	19059
Carbon tetrachloride	ND	0.050		mg/Kg	1	5/6/2015 2:15:15 PM	19059
Chloroform	ND	0.050		mg/Kg	1	5/6/2015 2:15:15 PM	19059
1,1-Dichloroethane	ND	0.050		mg/Kg	1	5/6/2015 2:15:15 PM	19059
1,1-Dichloroethene	ND	0.050		mg/Kg	1	5/6/2015 2:15:15 PM	19059
Methylene chloride	ND	0.15		mg/Kg	1	5/6/2015 2:15:15 PM	19059
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg	1	5/6/2015 2:15:15 PM	19059
Tetrachloroethene (PCE)	ND	0.050		mg/Kg	1	5/6/2015 2:15:15 PM	19059
1,1,1-Trichloroethane	ND	0.050		mg/Kg	1	5/6/2015 2:15:15 PM	19059
1,1,2-Trichloroethane	ND	0.050		mg/Kg	1	5/6/2015 2:15:15 PM	19059
Trichloroethene (TCE)	ND	0.050		mg/Kg	1	5/6/2015 2:15:15 PM	19059
Vinyl chloride	ND	0.050		mg/Kg	1	5/6/2015 2:15:15 PM	19059
Xylenes, Total	ND	0.099		mg/Kg	1	5/6/2015 2:15:15 PM	19059
Surr: Dibromofluoromethane	105	70-130		%REC	1	5/6/2015 2:15:15 PM	19059
Surr: 1,2-Dichloroethane-d4	94.5	70-130		%REC	1	5/6/2015 2:15:15 PM	19059
Surr: Toluene-d8	94.1	70-130		%REC	1	5/6/2015 2:15:15 PM	19059
Surr: 4-Bromofluorobenzene	97.2	70-130		%REC	1	5/6/2015 2:15:15 PM	19059
SM4500-H+B: PH						Analyst: **JRR**	
pH	8.82	1.68		pH Units	1	5/8/2015 2:20:00 PM	R26065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505143-003 **Matrix:** SOIL

Client Sample ID: Cell 1 Vadose Zone 3
Collection Date: 5/4/2015 3:15:00 PM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	5/8/2015 12:00:00 PM	19069
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	6.6	0.30		mg/Kg	1	5/6/2015 12:47:39 PM	19085
Chloride	18	1.5		mg/Kg	1	5/6/2015 12:47:39 PM	19085
Nitrogen, Nitrate (As N)	0.35	0.30		mg/Kg	1	5/6/2015 12:47:39 PM	19085
Sulfate	49	1.5		mg/Kg	1	5/6/2015 12:47:39 PM	19085
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	5/8/2015 3:56:47 PM	19112
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.4		mg/Kg	1	5/8/2015 3:50:37 PM	19082
Barium	150	0.097		mg/Kg	1	5/8/2015 3:50:37 PM	19082
Cadmium	ND	0.097		mg/Kg	1	5/8/2015 3:50:37 PM	19082
Chromium	1.7	0.29		mg/Kg	1	5/8/2015 3:50:37 PM	19082
Copper	2.1	0.29		mg/Kg	1	5/8/2015 3:50:37 PM	19082
Iron	5000	240		mg/Kg	100	5/8/2015 1:54:36 PM	19082
Lead	2.0	0.24		mg/Kg	1	5/8/2015 3:50:37 PM	19082
Manganese	120	0.097		mg/Kg	1	5/8/2015 3:50:37 PM	19082
Selenium	ND	2.4		mg/Kg	1	5/8/2015 3:50:37 PM	19082
Silver	ND	0.24		mg/Kg	1	5/8/2015 3:50:37 PM	19082
Uranium	ND	4.9		mg/Kg	1	5/8/2015 3:50:37 PM	19082
Zinc	9.9	2.4		mg/Kg	1	5/8/2015 3:50:37 PM	19082
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.096		µg/Kg	1	5/7/2015 12:27:36 PM	19108
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	0.020		mg/Kg	1	5/8/2015 11:29:28 AM	19086
Aroclor 1221	ND	0.020		mg/Kg	1	5/8/2015 11:29:28 AM	19086
Aroclor 1232	ND	0.020		mg/Kg	1	5/8/2015 11:29:28 AM	19086
Aroclor 1242	ND	0.020		mg/Kg	1	5/8/2015 11:29:28 AM	19086
Aroclor 1248	ND	0.020		mg/Kg	1	5/8/2015 11:29:28 AM	19086
Aroclor 1254	ND	0.020		mg/Kg	1	5/8/2015 11:29:28 AM	19086
Aroclor 1260	ND	0.020		mg/Kg	1	5/8/2015 11:29:28 AM	19086
Surr: Decachlorobiphenyl	100	25.2-134		%REC	1	5/8/2015 11:29:28 AM	19086
Surr: Tetrachloro-m-xylene	101	17.4-148		%REC	1	5/8/2015 11:29:28 AM	19086
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	5/8/2015 5:19:50 PM	19065
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	5/8/2015 5:19:50 PM	19065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505143-003 **Matrix:** SOIL

Client Sample ID: Cell 1 Vadose Zone 3
Collection Date: 5/4/2015 3:15:00 PM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Surr: DNOP	121	57.9-140		%REC	1	5/8/2015 5:19:50 PM	19065
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	5/7/2015 6:39:39 PM	19059
Surr: BFB	89.5	80-120		%REC	1	5/7/2015 6:39:39 PM	19059
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	0.25		mg/Kg	1	5/12/2015 9:00:00 AM	19110
1-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 9:00:00 AM	19110
2-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 9:00:00 AM	19110
Benzo(a)pyrene	ND	0.0099		mg/Kg	1	5/12/2015 9:00:00 AM	19110
Surr: Benzo(e)pyrene	85.2	34.1-117		%REC	1	5/12/2015 9:00:00 AM	19110
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	ND	0.050		mg/Kg	1	5/6/2015 2:44:11 PM	19059
Toluene	ND	0.050		mg/Kg	1	5/6/2015 2:44:11 PM	19059
Ethylbenzene	ND	0.050		mg/Kg	1	5/6/2015 2:44:11 PM	19059
1,2-Dichloroethane (EDC)	ND	0.050		mg/Kg	1	5/6/2015 2:44:11 PM	19059
1,2-Dibromoethane (EDB)	ND	0.050		mg/Kg	1	5/6/2015 2:44:11 PM	19059
Naphthalene	ND	0.099		mg/Kg	1	5/6/2015 2:44:11 PM	19059
1-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 2:44:11 PM	19059
2-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 2:44:11 PM	19059
Carbon tetrachloride	ND	0.050		mg/Kg	1	5/6/2015 2:44:11 PM	19059
Chloroform	ND	0.050		mg/Kg	1	5/6/2015 2:44:11 PM	19059
1,1-Dichloroethane	ND	0.050		mg/Kg	1	5/6/2015 2:44:11 PM	19059
1,1-Dichloroethene	ND	0.050		mg/Kg	1	5/6/2015 2:44:11 PM	19059
Methylene chloride	ND	0.15		mg/Kg	1	5/6/2015 2:44:11 PM	19059
1,1,2,2-Tetrachloroethane	ND	0.050		mg/Kg	1	5/6/2015 2:44:11 PM	19059
Tetrachloroethene (PCE)	ND	0.050		mg/Kg	1	5/6/2015 2:44:11 PM	19059
1,1,1-Trichloroethane	ND	0.050		mg/Kg	1	5/6/2015 2:44:11 PM	19059
1,1,2-Trichloroethane	ND	0.050		mg/Kg	1	5/6/2015 2:44:11 PM	19059
Trichloroethene (TCE)	ND	0.050		mg/Kg	1	5/6/2015 2:44:11 PM	19059
Vinyl chloride	ND	0.050		mg/Kg	1	5/6/2015 2:44:11 PM	19059
Xylenes, Total	ND	0.099		mg/Kg	1	5/6/2015 2:44:11 PM	19059
Surr: Dibromofluoromethane	100	70-130		%REC	1	5/6/2015 2:44:11 PM	19059
Surr: 1,2-Dichloroethane-d4	91.2	70-130		%REC	1	5/6/2015 2:44:11 PM	19059
Surr: Toluene-d8	93.3	70-130		%REC	1	5/6/2015 2:44:11 PM	19059
Surr: 4-Bromofluorobenzene	92.9	70-130		%REC	1	5/6/2015 2:44:11 PM	19059
SM4500-H+B: PH						Analyst: **JRR**	
pH	9.23	1.68		pH Units	1	5/8/2015 2:20:00 PM	R26065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505143-004 **Matrix:** SOIL

Client Sample ID: Cell 1 Vadose Zone-4
Collection Date: 5/4/2015 3:40:00 PM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 418.1: TPH						Analyst: **JME**	
Petroleum Hydrocarbons, TR	ND	19		mg/Kg	1	5/8/2015 12:00:00 PM	19069
EPA METHOD 300.0: ANIONS						Analyst: **LGT**	
Fluoride	1.6	0.30		mg/Kg	1	5/6/2015 1:12:28 PM	19085
Chloride	5.1	1.5		mg/Kg	1	5/6/2015 1:12:28 PM	19085
Nitrogen, Nitrate (As N)	1.2	0.30		mg/Kg	1	5/6/2015 1:12:28 PM	19085
Sulfate	19	1.5		mg/Kg	1	5/6/2015 1:12:28 PM	19085
EPA METHOD 7471: MERCURY						Analyst: **JLF**	
Mercury	ND	0.033		mg/Kg	1	5/8/2015 3:58:38 PM	19112
EPA METHOD 6010B: SOIL METALS						Analyst: **ELS**	
Arsenic	ND	2.4		mg/Kg	1	5/8/2015 3:54:06 PM	19082
Barium	90	0.096		mg/Kg	1	5/8/2015 3:54:06 PM	19082
Cadmium	ND	0.096		mg/Kg	1	5/8/2015 3:54:06 PM	19082
Chromium	2.1	0.29		mg/Kg	1	5/8/2015 3:54:06 PM	19082
Copper	2.3	0.29		mg/Kg	1	5/8/2015 3:54:06 PM	19082
Iron	5200	240		mg/Kg	100	5/8/2015 1:56:24 PM	19082
Lead	2.2	0.24		mg/Kg	1	5/8/2015 3:54:06 PM	19082
Manganese	88	0.096		mg/Kg	1	5/8/2015 3:54:06 PM	19082
Selenium	ND	2.4		mg/Kg	1	5/8/2015 3:54:06 PM	19082
Silver	ND	0.24		mg/Kg	1	5/8/2015 3:54:06 PM	19082
Uranium	ND	4.8		mg/Kg	1	5/8/2015 3:54:06 PM	19082
Zinc	11	2.4		mg/Kg	1	5/8/2015 3:54:06 PM	19082
EPA METHOD 504.1 MODIFIED: EDB						Analyst: **JME**	
1,2-Dibromoethane	ND	0.097		µg/Kg	1	5/7/2015 12:41:23 PM	19108
EPA METHOD 8082: PCB'S						Analyst: **SCC**	
Aroclor 1016	ND	0.020		mg/Kg	1	5/8/2015 12:15:49 PM	19086
Aroclor 1221	ND	0.020		mg/Kg	1	5/8/2015 12:15:49 PM	19086
Aroclor 1232	ND	0.020		mg/Kg	1	5/8/2015 12:15:49 PM	19086
Aroclor 1242	ND	0.020		mg/Kg	1	5/8/2015 12:15:49 PM	19086
Aroclor 1248	ND	0.020		mg/Kg	1	5/8/2015 12:15:49 PM	19086
Aroclor 1254	ND	0.020		mg/Kg	1	5/8/2015 12:15:49 PM	19086
Aroclor 1260	ND	0.020		mg/Kg	1	5/8/2015 12:15:49 PM	19086
Surr: Decachlorobiphenyl	98.0	25.2-134		%REC	1	5/8/2015 12:15:49 PM	19086
Surr: Tetrachloro-m-xylene	92.4	17.4-148		%REC	1	5/8/2015 12:15:49 PM	19086
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	5/8/2015 2:59:33 AM	19065
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	5/8/2015 2:59:33 AM	19065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Western Refining Southwest, Inc.
Project: Release Response Bisti Landfarm
Lab ID: 1505143-004 **Matrix:** SOIL

Client Sample ID: Cell 1 Vadose Zone-4
Collection Date: 5/4/2015 3:40:00 PM
Received Date: 5/5/2015 6:50:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed	Batch
EPA METHOD 8015D: DIESEL RANGE ORGANICS						Analyst: **KJH**	
Surr: DNOP	101	57.9-140		%REC	1	5/8/2015 2:59:33 AM	19065
EPA METHOD 8015D: GASOLINE RANGE						Analyst: **NSB**	
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	5/7/2015 7:08:19 PM	19059
Surr: BFB	89.7	80-120		%REC	1	5/7/2015 7:08:19 PM	19059
EPA METHOD 8310: PAHS						Analyst: **SCC**	
Naphthalene	ND	0.25		mg/Kg	1	5/12/2015 9:29:14 AM	19110
1-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 9:29:14 AM	19110
2-Methylnaphthalene	ND	0.25		mg/Kg	1	5/12/2015 9:29:14 AM	19110
Benzo(a)pyrene	ND	0.0099		mg/Kg	1	5/12/2015 9:29:14 AM	19110
Surr: Benzo(e)pyrene	98.0	34.1-117		%REC	1	5/12/2015 9:29:14 AM	19110
EPA METHOD 8260B: VOLATILES						Analyst: **cadg**	
Benzene	ND	0.049		mg/Kg	1	5/6/2015 3:13:09 PM	19059
Toluene	ND	0.049		mg/Kg	1	5/6/2015 3:13:09 PM	19059
Ethylbenzene	ND	0.049		mg/Kg	1	5/6/2015 3:13:09 PM	19059
1,2-Dichloroethane (EDC)	ND	0.049		mg/Kg	1	5/6/2015 3:13:09 PM	19059
1,2-Dibromoethane (EDB)	ND	0.049		mg/Kg	1	5/6/2015 3:13:09 PM	19059
Naphthalene	ND	0.098		mg/Kg	1	5/6/2015 3:13:09 PM	19059
1-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 3:13:09 PM	19059
2-Methylnaphthalene	ND	0.20		mg/Kg	1	5/6/2015 3:13:09 PM	19059
Carbon tetrachloride	ND	0.049		mg/Kg	1	5/6/2015 3:13:09 PM	19059
Chloroform	ND	0.049		mg/Kg	1	5/6/2015 3:13:09 PM	19059
1,1-Dichloroethane	ND	0.049		mg/Kg	1	5/6/2015 3:13:09 PM	19059
1,1-Dichloroethene	ND	0.049		mg/Kg	1	5/6/2015 3:13:09 PM	19059
Methylene chloride	ND	0.15		mg/Kg	1	5/6/2015 3:13:09 PM	19059
1,1,2,2-Tetrachloroethane	ND	0.049		mg/Kg	1	5/6/2015 3:13:09 PM	19059
Tetrachloroethene (PCE)	ND	0.049		mg/Kg	1	5/6/2015 3:13:09 PM	19059
1,1,1-Trichloroethane	ND	0.049		mg/Kg	1	5/6/2015 3:13:09 PM	19059
1,1,2-Trichloroethane	ND	0.049		mg/Kg	1	5/6/2015 3:13:09 PM	19059
Trichloroethene (TCE)	ND	0.049		mg/Kg	1	5/6/2015 3:13:09 PM	19059
Vinyl chloride	ND	0.049		mg/Kg	1	5/6/2015 3:13:09 PM	19059
Xylenes, Total	ND	0.098		mg/Kg	1	5/6/2015 3:13:09 PM	19059
Surr: Dibromofluoromethane	101	70-130		%REC	1	5/6/2015 3:13:09 PM	19059
Surr: 1,2-Dichloroethane-d4	92.3	70-130		%REC	1	5/6/2015 3:13:09 PM	19059
Surr: Toluene-d8	90.4	70-130		%REC	1	5/6/2015 3:13:09 PM	19059
Surr: 4-Bromofluorobenzene	96.3	70-130		%REC	1	5/6/2015 3:13:09 PM	19059
SM4500-H+B: PH						Analyst: **JRR**	
pH	9.03	1.68		pH Units	1	5/8/2015 2:20:00 PM	R26065

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
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
O	RSD is greater than RSDlimit	P	Sample pH Not In Range
R	RPD outside accepted recovery limits	RL	Reporting Detection Limit
S	Spike Recovery outside accepted recovery limits		

Anatek Labs, Inc.

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504 E Sprague Ste. D • Spokane WA 99202 • (509) 838-3999 • Fax (509) 838-4433 • email spokane@anateklabs.com

Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 150506014
Project Name: 1505143

Analytical Results Report

Sample Number 150506014-001 **Sampling Date** 5/4/2015 **Date/Time Received** 5/6/2015 11:30 AM
Client Sample ID 1505143-001B / CELL 1 VADOSE ZONE-1 **Sampling Time** 2:40 PM
Matrix Soil **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.256	5/15/2015	CRW	EPA 335.4	
Phenolics	ND	mg/Kg	2.575	5/11/2015	KJS	EPA9065	
%moisture	2.9	Percent		5/11/2015	CRW	%moisture	

Sample Number 150506014-002 **Sampling Date** 5/4/2015 **Date/Time Received** 5/6/2015 11:30 AM
Client Sample ID 1505143-002B / CELL 1 VADOSE ZONE-2 **Sampling Time** 3:00 PM
Matrix Soil **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.256	5/15/2015	CRW	EPA 335.4	
Phenolics	ND	mg/Kg	2.56	5/11/2015	KJS	EPA9065	
%moisture	2.3	Percent		5/11/2015	CRW	%moisture	

Sample Number 150506014-003 **Sampling Date** 5/4/2015 **Date/Time Received** 5/6/2015 11:30 AM
Client Sample ID 1505143-003B / CELL VADOSE ZONE 3 **Sampling Time** 3:15 PM
Matrix Soil **Sample Location**
Comments

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.255	5/15/2015	CRW	EPA 335.4	
Phenolics	ND	mg/Kg	2.565	5/11/2015	KJS	EPA9065	
%moisture	2.5	Percent		5/11/2015	CRW	%moisture	

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

Anatek Labs, Inc.

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Client:	HALL ENVIRONMENTAL ANALYSIS LAB	**Batch #:**	150506014
Address:	4901 HAWKINS NE SUITE D ALBUQUERQUE, NM 87109	**Project Name:**	1505143
Attn:	ANDY FREEMAN		

Analytical Results Report

Sample Number	150506014-004	**Sampling Date**	5/4/2015	**Date/Time Received**	5/6/2015 11:30 AM
Client Sample ID	1505143-004B / CELL 1 VADOSE ZONE-4			**Sampling Time**	3:40 PM
Matrix	Soil	**Sample Location**			
Comments					

Parameter	Result	Units	PQL	Analysis Date	Analyst	Method	Qualifier
Cyanide	ND	mg/Kg	0.252	5/15/2015	CRW	EPA 335.4	
Phenolics	ND	mg/Kg	2.56	5/11/2015	KJS	EPA9065	
%moisture	2.4	Percent		5/11/2015	CRW	%moisture	

Authorized Signature

John Coddington, Lab Manager

MCL EPA's Maximum Contaminant Level
ND Not Detected
PQL Practical Quantitation Limit

This report shall not be reproduced except in full, without the written approval of the laboratory.
The results reported relate only to the samples indicated.
Soil/solid results are reported on a dry-weight basis unless otherwise noted.

Anatek Labs, Inc.

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Client: HALL ENVIRONMENTAL ANALYSIS LAB
Address: 4901 HAWKINS NE SUITE D
ALBUQUERQUE, NM 87109
Attn: ANDY FREEMAN

Batch #: 150506014
Project Name: 1505143

Analytical Results Report

Quality Control Data

Lab Control Sample

Parameter	LCS Result	Units	LCS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
Cyanide	0.501	mg/kg	0.5	100.2	90-110	5/15/2015	5/15/2015
Phenolics	0.489	mg/kg	0.4	122.3	70-130	5/11/2015	5/11/2015

Matrix Spike

Sample Number	Parameter	Sample Result	MS Result	Units	MS Spike	%Rec	AR %Rec	Prep Date	Analysis Date
150501015-025	Phenolics	3.02	18.1	mg/kg	20.8	72.5	70-130	5/11/2015	5/11/2015
150506012-001	Cyanide	ND	12.4	mg/kg	13.15	94.3	90-110	5/15/2015	5/15/2015

Matrix Spike Duplicate

Parameter	MSD Result	Units	MSD Spike	%Rec	%RPD	AR %RPD	Prep Date	Analysis Date
Phenolics	18.4	mg/kg	20.8	73.9	1.6	0-20	5/11/2015	5/11/2015
Cyanide	13.1	mg/kg	13.15	99.6	5.5	0-25	5/15/2015	5/15/2015

Method Blank

Parameter	Result	Units	PQL	Prep Date	Analysis Date
Cyanide	ND	mg/Kg	0.5	5/15/2015	5/15/2015
Phenolics	ND	mg/Kg	0.5	5/11/2015	5/11/2015

AR	Acceptable Range
ND	Not Detected
PQL	Practical Quantitation Limit
RPD	Relative Percentage Difference

Comments:

Certifications held by Anatek Labs ID: EPA:ID00013; AZ:0701; CO:ID00013; FL(NELAP):E87893; ID:ID00013; MT:CERT0028; NM: ID00013; OR:ID200001-002; WA:C595
Certifications held by Anatek Labs WA: EPA:WA00169; ID:WA00169; WA:C585; MT:Cert0095; FL(NELAP): E871099

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1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 16601
(724)850-5600

ANALYTICAL RESULTS - RADIOCHEMISTRY

Project: 1505143
Pace Project No.: 30147472

Sample: 1505143-001C Cell 1 Vadose Zon **Lab ID: 30147472001** Collected: 05/04/15 14:40 Received: 05/07/15 10:10 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**0.798 ± 0.198 (0.163) C:NA T:NA**	pCi/g	06/03/15 07:48	13982-63-3	
Radium-228	EPA 901.1	**0.724 ± 0.319 (0.347) C:NA T:NA**	pCi/g	06/03/15 07:48	15262-20-1	

Sample: 1505143-002C Cell 1 Vadoe Zone **Lab ID: 30147472002** Collected: 05/04/15 15:00 Received: 05/07/15 10:10 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**0.546 ± 0.165 (0.246) C:NA T:NA**	pCi/g	06/03/15 07:49	13982-63-3	
Radium-228	EPA 901.1	**0.822 ± 0.259 (0.259) C:NA T:NA**	pCi/g	06/03/15 07:49	15262-20-1	

Sample: 1505143-003C Cell Vadose Zone **Lab ID: 30147472003** Collected: 05/04/15 15:15 Received: 05/07/15 10:10 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**0.564 ± 0.184 (0.142) C:NA T:NA**	pCi/g	06/03/15 08:05	13982-63-3	
Radium-228	EPA 901.1	**0.376 ± 0.371 (0.389) C:NA T:NA**	pCi/g	06/03/15 08:05	15262-20-1	

Sample: 1505143-004C Cell 1 Vadose Zon **Lab ID: 30147472004** Collected: 05/04/15 15:40 Received: 05/07/15 10:10 Matrix: Solid
PWS: Site ID: Sample Type:

Results reported on a "dry-weight" basis

Parameters	Method	Act ± Unc (MDC) Carr Trac	Units	Analyzed	CAS No.	Qual
Radium-226	EPA 901.1	**0.767 ± 0.153 (0.194) C:NA T:NA**	pCi/g	06/03/15 08:06	13982-63-3	
Radium-228	EPA 901.1	**0.806 ± 0.288 (0.516) C:NA T:NA**	pCi/g	06/03/15 08:06	15262-20-1	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL - RADIOCHEMISTRY

Project: 1505143
Pace Project No.: 30147472

QC Batch: RADC/24547 Analysis Method: EPA 901.1
QC Batch Method: EPA 901.1 Analysis Description: 901.1 Gamma Spec Ingrowth
Associated Lab Samples: 30147472001, 30147472002, 30147472003, 30147472004

METHOD BLANK: 896926 Matrix: Solid
Associated Lab Samples: 30147472001, 30147472002, 30147472003, 30147472004

Parameter	Act ± Unc (MDC) Carr Trac	Units	Analyzed	Qualifiers
Radium-226	0.065 ± 0.125 (0.244) C:NA T:NA	pCi/g	06/02/15 13:35	
Radium-228	0.028 ± 0.141 (0.289) C:NA T:NA	pCi/g	06/02/15 13:35	

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

REPORT OF LABORATORY ANALYSIS

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505143**

04-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **MB-19085**	SampType: **MBLK**	TestCode: **EPA Method 300.0: Anions**
Client ID: **PBS**	Batch ID: **19085**	RunNo: **26026**
Prep Date: **5/6/2015**	Analysis Date: **5/6/2015**	SeqNo: **771552** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	ND	0.30								
Chloride	ND	1.5								
Nitrogen, Nitrate (As N)	ND	0.30								
Sulfate	ND	1.5								

Sample ID **LCS-19085**	SampType: **LCS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **LCSS**	Batch ID: **19085**	RunNo: **26026**
Prep Date: **5/6/2015**	Analysis Date: **5/6/2015**	SeqNo: **771553** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	1.5	0.30	1.500	0	103	90	110			
Chloride	14	1.5	15.00	0	93.1	90	110			
Nitrogen, Nitrate (As N)	7.4	0.30	7.500	0	98.1	90	110			
Sulfate	29	1.5	30.00	0	95.3	90	110			

Sample ID **1505143-004AMS**	SampType: **MS**	TestCode: **EPA Method 300.0: Anions**
Client ID: **Cell 1 Vadose Zone-**	Batch ID: **19085**	RunNo: **26026**
Prep Date: **5/6/2015**	Analysis Date: **5/6/2015**	SeqNo: **771567** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.6	0.30	1.500	1.590	68.9	13.6	100			
Chloride	20	1.5	15.00	5.121	96.0	71.6	122			
Nitrogen, Nitrate (As N)	8.7	0.30	7.500	1.175	101	85.3	110			
Sulfate	52	1.5	30.00	18.92	110	57.7	142			

Sample ID **1505143-004AMSD**	SampType: **MSD**	TestCode: **EPA Method 300.0: Anions**
Client ID: **Cell 1 Vadose Zone-**	Batch ID: **19085**	RunNo: **26026**
Prep Date: **5/6/2015**	Analysis Date: **5/6/2015**	SeqNo: **771568** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Fluoride	2.6	0.30	1.500	1.590	65.8	13.6	100	1.79	20	
Chloride	20	1.5	15.00	5.121	102	71.6	122	4.41	20	
Nitrogen, Nitrate (As N)	9.0	0.30	7.500	1.175	104	85.3	110	2.72	20	
Sulfate	58	1.5	30.00	18.92	129	57.7	142	10.6	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505143**

04-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **MB-19069**	SampType: **MBLK**	TestCode: **EPA Method 418.1: TPH**
Client ID: **PBS**	Batch ID: **19069**	RunNo: **26067**
Prep Date: **5/5/2015**	Analysis Date: **5/8/2015**	SeqNo: **772925** 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-19069**	SampType: **LCS**	TestCode: **EPA Method 418.1: TPH**
Client ID: **LCSS**	Batch ID: **19069**	RunNo: **26067**
Prep Date: **5/5/2015**	Analysis Date: **5/8/2015**	SeqNo: **772926** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	100.0	0	105	86.7	126			

Sample ID **LCSD-19069**	SampType: **LCSD**	TestCode: **EPA Method 418.1: TPH**
Client ID: **LCSS02**	Batch ID: **19069**	RunNo: **26067**
Prep Date: **5/5/2015**	Analysis Date: **5/8/2015**	SeqNo: **772927** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Petroleum Hydrocarbons, TR	110	20	100.0	0	108	86.7	126	2.70	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505143**

04-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **MB-19108**	SampType: **MBLK**	TestCode: **EPA Method 504.1 Modified: EDB**
Client ID: **PBS**	Batch ID: **19108**	RunNo: **26044**
Prep Date: **5/7/2015**	Analysis Date: **5/7/2015**	SeqNo: **772106** Units: **µg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	ND	0.10								

Sample ID **LCS-19108**	SampType: **LCS**	TestCode: **EPA Method 504.1 Modified: EDB**
Client ID: **LCSS**	Batch ID: **19108**	RunNo: **26044**
Prep Date: **5/7/2015**	Analysis Date: **5/7/2015**	SeqNo: **772107** Units: **µg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	1.3	0.10	1.000	0	132	70	130			S

Sample ID **1505143-001AMS**	SampType: **MS**	TestCode: **EPA Method 504.1 Modified: EDB**
Client ID: **Cell 1 Vadose Zone-**	Batch ID: **19108**	RunNo: **26044**
Prep Date: **5/7/2015**	Analysis Date: **5/7/2015**	SeqNo: **772109** Units: **µg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	1.3	0.10	0.9972	0	132	58.3	151			

Sample ID **1505143-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 504.1 Modified: EDB**
Client ID: **Cell 1 Vadose Zone-**	Batch ID: **19108**	RunNo: **26044**
Prep Date: **5/7/2015**	Analysis Date: **5/7/2015**	SeqNo: **772110** Units: **µg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,2-Dibromoethane	1.2	0.10	1.000	0	125	58.3	151	5.70	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505143**

04-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **MB-19065**	SampType: **MBLK**			TestCode: **EPA Method 8015D: Diesel Range Organics**					
Client ID: **PBS**	Batch ID: **19065**			RunNo: **26027**					
Prep Date: **5/5/2015**	Analysis Date: **5/7/2015**			SeqNo: **772488**		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		134	57.9	140			

Sample ID **LCS-19065**	SampType: **LCS**			TestCode: **EPA Method 8015D: Diesel Range Organics**					
Client ID: **LCSS**	Batch ID: **19065**			RunNo: **26027**					
Prep Date: **5/5/2015**	Analysis Date: **5/7/2015**			SeqNo: **772489**		Units: **mg/Kg**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	62	10	50.00	0	124	67.8	130			
Surr: DNOP	6.4		5.000		128	57.9	140			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505143**

04-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **MB-19059**	SampType: **MBLK**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **PBS**	Batch ID: **19059**	RunNo: **25998**
Prep Date: **5/5/2015**	Analysis Date: **5/6/2015**	SeqNo: **771179** 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	920		1000		91.6	80	120			

Sample ID **LCS-19059**	SampType: **LCS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **LCSS**	Batch ID: **19059**	RunNo: **25998**
Prep Date: **5/5/2015**	Analysis Date: **5/6/2015**	SeqNo: **771180** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	25.00	0	102	64	130			
Surr: BFB	980		1000		97.7	80	120			

Sample ID **1505143-001AMS**	SampType: **MS**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **Cell 1 Vadose Zone-**	Batch ID: **19059**	RunNo: **25998**
Prep Date: **5/5/2015**	Analysis Date: **5/6/2015**	SeqNo: **771186** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	5.0	25.08	0	110	47.9	144			
Surr: BFB	990		1003		98.5	80	120			

Sample ID **1505143-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 8015D: Gasoline Range**
Client ID: **Cell 1 Vadose Zone-**	Batch ID: **19059**	RunNo: **25998**
Prep Date: **5/5/2015**	Analysis Date: **5/6/2015**	SeqNo: **771187** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	5.0	24.90	0	117	47.9	144	5.24	29.9	
Surr: BFB	1000		996.0		101	80	120	0	0	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505143**

04-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **MB-19086**	SampType: **MBLK**	TestCode: **EPA Method 8082: PCB's**
Client ID: **PBS**	Batch ID: **19086**	RunNo: **26048**
Prep Date: **5/6/2015**	Analysis Date: **5/8/2015**	SeqNo: **772159** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.020								
Aroclor 1221	ND	0.020								
Aroclor 1232	ND	0.020								
Aroclor 1242	ND	0.020								
Aroclor 1248	ND	0.020								
Aroclor 1254	ND	0.020								
Aroclor 1260	ND	0.020								
Surr: Decachlorobiphenyl	0.067		0.06250		107	25.2	134			
Surr: Tetrachloro-m-xylene	0.074		0.06250		119	17.4	148			

Sample ID **LCS-19086**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSS**	Batch ID: **19086**	RunNo: **26048**
Prep Date: **5/6/2015**	Analysis Date: **5/8/2015**	SeqNo: **772160** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.14	0.020	0.1250	0	109	17.3	119			
Aroclor 1260	0.16	0.020	0.1250	0	127	10.7	139			
Surr: Decachlorobiphenyl	0.094		0.06250		150	25.2	134			S
Surr: Tetrachloro-m-xylene	0.12		0.06250		188	17.4	148			S

Sample ID **MB-19086**	SampType: **MBLK**	TestCode: **EPA Method 8082: PCB's**
Client ID: **PBS**	Batch ID: **19086**	RunNo: **26142**
Prep Date: **5/6/2015**	Analysis Date: **5/12/2015**	SeqNo: **775450** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	ND	0.020								
Aroclor 1221	ND	0.020								
Aroclor 1232	ND	0.020								
Aroclor 1242	ND	0.020								
Aroclor 1248	ND	0.020								
Aroclor 1254	ND	0.020								
Aroclor 1260	ND	0.020								
Surr: Decachlorobiphenyl	0.051		0.06250		81.2	25.2	134			
Surr: Tetrachloro-m-xylene	0.041		0.06250		65.2	17.4	148			

Sample ID **LCS-19086**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSS**	Batch ID: **19086**	RunNo: **26142**
Prep Date: **5/6/2015**	Analysis Date: **5/12/2015**	SeqNo: **775451** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505143**

04-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **LCS-19086**	SampType: **LCS**	TestCode: **EPA Method 8082: PCB's**
Client ID: **LCSS**	Batch ID: **19086**	RunNo: **26142**
Prep Date: **5/6/2015**	Analysis Date: **5/12/2015**	SeqNo: **775451** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Aroclor 1016	0.079	0.020	0.1250	0	63.3	17.3	119			
Aroclor 1260	0.12	0.020	0.1250	0	96.8	10.7	139			
Surr: Decachlorobiphenyl	0.057		0.06250		91.6	25.2	134			
Surr: Tetrachloro-m-xylene	0.046		0.06250		74.4	17.4	148			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505143**

04-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **mb-19059**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **19059**	RunNo: **26015**
Prep Date: **5/5/2015**	Analysis Date: **5/6/2015**	SeqNo: **771208** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.050								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Methyl tert-butyl ether (MTBE)	ND	0.050								
1,2,4-Trimethylbenzene	ND	0.050								
1,3,5-Trimethylbenzene	ND	0.050								
1,2-Dichloroethane (EDC)	ND	0.050								
1,2-Dibromoethane (EDB)	ND	0.050								
Naphthalene	ND	0.10								
1-Methylnaphthalene	ND	0.20								
2-Methylnaphthalene	ND	0.20								
Acetone	ND	0.75								
Bromobenzene	ND	0.050								
Bromodichloromethane	ND	0.050								
Bromoform	ND	0.050								
Bromomethane	ND	0.15								
2-Butanone	ND	0.50								
Carbon disulfide	ND	0.50								
Carbon tetrachloride	ND	0.050								
Chlorobenzene	ND	0.050								
Chloroethane	ND	0.10								
Chloroform	ND	0.050								
Chloromethane	ND	0.15								
2-Chlorotoluene	ND	0.050								
4-Chlorotoluene	ND	0.050								
cis-1,2-DCE	ND	0.050								
cis-1,3-Dichloropropene	ND	0.050								
1,2-Dibromo-3-chloropropane	ND	0.10								
Dibromochloromethane	ND	0.050								
Dibromomethane	ND	0.050								
1,2-Dichlorobenzene	ND	0.050								
1,3-Dichlorobenzene	ND	0.050								
1,4-Dichlorobenzene	ND	0.050								
Dichlorodifluoromethane	ND	0.050								
1,1-Dichloroethane	ND	0.050								
1,1-Dichloroethene	ND	0.050								
1,2-Dichloropropane	ND	0.050								
1,3-Dichloropropane	ND	0.050								
2,2-Dichloropropane	ND	0.10								

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505143**

04-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **mb-19059**	SampType: **MBLK**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **PBS**	Batch ID: **19059**	RunNo: **26015**
Prep Date: **5/5/2015**	Analysis Date: **5/6/2015**	SeqNo: **771208** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloropropene	ND	0.10								
Hexachlorobutadiene	ND	0.10								
2-Hexanone	ND	0.50								
Isopropylbenzene	ND	0.050								
4-Isopropyltoluene	ND	0.050								
4-Methyl-2-pentanone	ND	0.50								
Methylene chloride	ND	0.15								
n-Butylbenzene	ND	0.15								
n-Propylbenzene	ND	0.050								
sec-Butylbenzene	ND	0.050								
Styrene	ND	0.050								
tert-Butylbenzene	ND	0.050								
1,1,1,2-Tetrachloroethane	ND	0.050								
1,1,2,2-Tetrachloroethane	ND	0.050								
Tetrachloroethene (PCE)	ND	0.050								
trans-1,2-DCE	ND	0.050								
trans-1,3-Dichloropropene	ND	0.050								
1,2,3-Trichlorobenzene	ND	0.10								
1,2,4-Trichlorobenzene	ND	0.050								
1,1,1-Trichloroethane	ND	0.050								
1,1,2-Trichloroethane	ND	0.050								
Trichloroethene (TCE)	ND	0.050								
Trichlorofluoromethane	ND	0.050								
1,2,3-Trichloropropane	ND	0.10								
Vinyl chloride	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: Dibromofluoromethane	0.53		0.5000		107	70	130			
Surr: 1,2-Dichloroethane-d4	0.47		0.5000		93.6	70	130			
Surr: Toluene-d8	0.45		0.5000		90.6	70	130			
Surr: 4-Bromofluorobenzene	0.48		0.5000		95.8	70	130			

Sample ID **lcs-19059**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **19059**	RunNo: **26015**
Prep Date: **5/5/2015**	Analysis Date: **5/6/2015**	SeqNo: **771209** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.98	0.050	1.000	0	98.3	70	130			
Toluene	0.88	0.050	1.000	0	88.1	70	130			
Chlorobenzene	0.99	0.050	1.000	0	98.5	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505143**

04-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **lcs-19059**	SampType: **LCS**	TestCode: **EPA Method 8260B: Volatiles**
Client ID: **LCSS**	Batch ID: **19059**	RunNo: **26015**
Prep Date: **5/5/2015**	Analysis Date: **5/6/2015**	SeqNo: **771209** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
1,1-Dichloroethene	1.3	0.050	1.000	0	126	60.6	134			
Trichloroethene (TCE)	0.87	0.050	1.000	0	86.9	70	130			
Surr: Dibromofluoromethane	0.54		0.5000		107	70	130			
Surr: 1,2-Dichloroethane-d4	0.48		0.5000		95.9	70	130			
Surr: Toluene-d8	0.44		0.5000		87.4	70	130			
Surr: 4-Bromofluorobenzene	0.49		0.5000		97.3	70	130			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505143**

04-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **MB-19110**	SampType: **MBLK**	TestCode: **EPA Method 8310: PAHs**
Client ID: **PBS**	Batch ID: **19110**	RunNo: **26118**
Prep Date: **5/7/2015**	Analysis Date: **5/12/2015**	SeqNo: **774695** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	ND	0.25								
1-Methylnaphthalene	ND	0.25								
2-Methylnaphthalene	ND	0.25								
Benzo(a)pyrene	ND	0.010								
Surr: Benzo(e)pyrene	0.51		0.5000		103	34.1	117			

Sample ID **LCS-19110**	SampType: **LCS**	TestCode: **EPA Method 8310: PAHs**
Client ID: **LCSS**	Batch ID: **19110**	RunNo: **26118**
Prep Date: **5/7/2015**	Analysis Date: **5/12/2015**	SeqNo: **774696** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Naphthalene	1.7	0.25	2.000	0	84.2	37.4	94.6			
1-Methylnaphthalene	1.7	0.25	2.000	0	84.1	26.4	90			
2-Methylnaphthalene	1.7	0.25	2.000	0	84.2	18.8	90.1			
Benzo(a)pyrene	0.011	0.010	0.01250	0	88.0	41.9	101			
Surr: Benzo(e)pyrene	0.46		0.5000		92.8	34.1	117			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505143**

04-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **MB-19112**	SampType: **MBLK**	TestCode: **EPA Method 7471: Mercury**
Client ID: **PBS**	Batch ID: **19112**	RunNo: **26073**
Prep Date: **5/7/2015**	Analysis Date: **5/8/2015**	SeqNo: **773113** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	ND	0.033								

Sample ID **LCS-19112**	SampType: **LCS**	TestCode: **EPA Method 7471: Mercury**
Client ID: **LCSS**	Batch ID: **19112**	RunNo: **26073**
Prep Date: **5/7/2015**	Analysis Date: **5/8/2015**	SeqNo: **773114** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.16	0.033	0.1667	0	98.3	80	120			

Sample ID **1505143-001AMS**	SampType: **MS**	TestCode: **EPA Method 7471: Mercury**
Client ID: **Cell 1 Vadose Zone-**	Batch ID: **19112**	RunNo: **26073**
Prep Date: **5/7/2015**	Analysis Date: **5/8/2015**	SeqNo: **773116** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.20	0.033	0.1684	0.02387	104	75	125			

Sample ID **1505143-001AMSD**	SampType: **MSD**	TestCode: **EPA Method 7471: Mercury**
Client ID: **Cell 1 Vadose Zone-**	Batch ID: **19112**	RunNo: **26073**
Prep Date: **5/7/2015**	Analysis Date: **5/8/2015**	SeqNo: **773119** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Mercury	0.18	0.032	0.1617	0.02387	98.8	75	125	7.69	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505143**

04-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **MB-19082**	SampType: **MBLK**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **PBS**	Batch ID: **19082**	RunNo: **26074**
Prep Date: **5/6/2015**	Analysis Date: **5/8/2015**	SeqNo: **773158** 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								
Chromium	ND	0.30								
Copper	ND	0.30								
Iron	ND	2.5								
Lead	ND	0.25								
Manganese	ND	0.10								
Selenium	ND	2.5								
Silver	ND	0.25								
Uranium	ND	5.0								
Zinc	ND	2.5								

Sample ID **LCS-19082**	SampType: **LCS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **LCSS**	Batch ID: **19082**	RunNo: **26074**
Prep Date: **5/6/2015**	Analysis Date: **5/8/2015**	SeqNo: **773159** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	26	2.5	25.00	0	103	80	120			
Barium	25	0.10	25.00	0	98.4	80	120			
Cadmium	25	0.10	25.00	0	99.3	80	120			
Chromium	25	0.30	25.00	0	100	80	120			
Copper	26	0.30	25.00	0	103	80	120			
Iron	26	2.5	25.00	0	104	80	120			
Lead	25	0.25	25.00	0	99.6	80	120			
Manganese	25	0.10	25.00	0	99.4	80	120			
Selenium	25	2.5	25.00	0	100	80	120			
Silver	5.3	0.25	5.000	0	106	80	120			
Uranium	26	5.0	25.00	0	103	80	120			
Zinc	25	2.5	25.00	0	100	80	120			

Sample ID **1505143-001AMS**	SampType: **MS**	TestCode: **EPA Method 6010B: Soil Metals**
Client ID: **Cell 1 Vadose Zone-**	Batch ID: **19082**	RunNo: **26074**
Prep Date: **5/6/2015**	Analysis Date: **5/8/2015**	SeqNo: **773235** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	24	2.4	24.37	2.111	89.1	75	125			
Cadmium	22	0.097	24.37	0	91.1	75	125			
Chromium	25	0.29	24.37	2.477	91.5	75	125			
Copper	28	0.29	24.37	5.306	91.9	75	125			

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505143**

04-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID **1505143-001AMS** SampType: **MS** TestCode: **EPA Method 6010B: Soil Metals**

Client ID: **Cell 1 Vadose Zone-** Batch ID: **19082** RunNo: **26074**

Prep Date: **5/6/2015** Analysis Date: **5/8/2015** SeqNo: **773235** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Lead	24	0.24	24.37	3.058	84.9	75	125			
Selenium	21	2.4	24.37	0	88.2	75	125			
Silver	4.8	0.24	4.875	0	98.0	75	125			
Uranium	25	4.9	24.37	1.406	97.0	75	125			
Zinc	33	2.4	24.37	11.45	90.0	75	125			

Sample ID **1505143-001AMSD** SampType: **MSD** TestCode: **EPA Method 6010B: Soil Metals**

Client ID: **Cell 1 Vadose Zone-** Batch ID: **19082** RunNo: **26074**

Prep Date: **5/6/2015** Analysis Date: **5/8/2015** SeqNo: **773236** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Arsenic	24	2.4	24.00	2.111	90.4	75	125	0.0944	20	
Cadmium	22	0.096	24.00	0	90.7	75	125	1.90	20	
Chromium	24	0.29	24.00	2.477	90.1	75	125	2.79	20	
Copper	26	0.29	24.00	5.306	88.0	75	125	4.71	20	
Lead	24	0.24	24.00	3.058	86.3	75	125	0.0316	20	
Selenium	21	2.4	24.00	0	86.2	75	125	3.84	20	
Silver	4.6	0.24	4.800	0	95.9	75	125	3.72	20	
Uranium	23	4.8	24.00	1.406	90.0	75	125	8.43	20	
Zinc	33	2.4	24.00	11.45	90.5	75	125	0.661	20	

Sample ID **1505143-001AMS** SampType: **MS** TestCode: **EPA Method 6010B: Soil Metals**

Client ID: **Cell 1 Vadose Zone-** Batch ID: **19082** RunNo: **26075**

Prep Date: **5/6/2015** Analysis Date: **5/9/2015** SeqNo: **773299** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	120	0.097	24.37	70.77	184	75	125			S
Manganese	100	0.097	24.37	90.64	38.9	75	125			S

Sample ID **1505143-001AMSD** SampType: **MSD** TestCode: **EPA Method 6010B: Soil Metals**

Client ID: **Cell 1 Vadose Zone-** Batch ID: **19082** RunNo: **26075**

Prep Date: **5/6/2015** Analysis Date: **5/9/2015** SeqNo: **773300** Units: **mg/Kg**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Barium	110	0.096	24.00	70.77	159	75	125	5.95	20	S
Manganese	110	0.096	24.00	90.64	98.0	75	125	13.1	20	

Qualifiers:

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

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: **1505143**

04-Jun-15

Client: Western Refining Southwest, Inc.

Project: Release Response Bisti Landfarm

Sample ID	**1505143-001ADUP**	SampType:	**DUP**		TestCode:	**SM4500-H+B: pH**					
Client ID:	**Cell 1 Vadose Zone-**	Batch ID:	**R26065**		RunNo:	**26065**					
Prep Date:		Analysis Date:	**5/8/2015**		SeqNo:	**772842**	Units:	**pH Units**			
Analyte		Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
pH		8.75	1.68								

Qualifiers:

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

ENVIRONMENTAL ANALYSIS LABORATORY

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

Sample Log-In Check List

Client Name: Western Refining Southw Work Order Number: 1505143 RcptNo: 1

Received by/date: AT 05/05/15

Logged By: Anne Thorne 5/5/2015 6:50:00 AM Anne Thorne

Completed By: Anne Thorne 5/5/2015 Anne Thorne

Reviewed By: CS 05/05/15

Chain of Custody

1. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
2. Is Chain of Custody complete?	Yes ☑	No ☐	Not Present ☐
3. How was the sample delivered?	Courier		

Log In

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

# of preserved bottles checked for pH: _____ (<2 or >12 unless noted)

Adjusted? _____

Checked by: _____

Special Handling (if applicable)

16. Was client notified of all discrepancies with this order? Yes ☐ No ☐ NA ☑

Person Notified: _____ Date _____

By Whom: _____ Via: ☐ eMail ☐ Phone ☐ Fax ☐ In Person

Regarding: _____

Client Instructions: _____

17. Additional remarks:

18. Cooler Information

Cooler No	Temp °C	Condition	Seal Intact	Seal No	Seal Date	Signed By
1	1.4	Good	Yes			

Chain-of-Custody Record

HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

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

Client:	Western Refining Kelly Robinson
Mailing Address:	111 CR 4990 Bloomfield, NM
Phone #:	(505) 632-8013
email or Fax#:	Kelly.Robinson@WNR.com
QA/QC Package:	☑ Standard ☐ Level 4 (Full Validation)
Accreditation	☐ NELAP ☐ Other _____
☐ EDD (Type)	_____

Turn-Around Time:	☑ Standard ☐ Rush _____
Project Name:	Release Response - Bisti Landfarm
Project #:	12610957
Project Manager:	Brook Herb
Sampler:	Dan Newman / Mike Wicker
On Ice:	☑ Yes ☐ No
Sample Temperature:	2.4

Date	Time	Matrix	Sample Request ID	Container Type and #	Preservative Type	HEAL No. 1505143
5/4/15	1440	Soil	Cell 1 Vadose Zone-1	Various	Cool	-001
	1500		Cell 1 Vadose Zone-2			-002
	1515		Cell 1 Vadose Zone-3			-003
	1540		Cell 1 Vadose Zone-4			-004

Analysis Request

BTEX + MTBE + TMB's (8021)	BTEX + MTBE + TPH (Gas only)	TPH 8015B (GRO / DRO / MRO)	TPH (Method 418.1)	EDB (Method 504.1)	PAH's (8310 or 8270 SIMS)	RCRA 8 Metals	Anions (F,Cl,NO_3,NO_2,PO_4,SO_4)	8081 Pesticides / 8082 PCB's	8260B (VOA)	8270 (Semi-VOA)		See Attachment			Air Bubbles (Y or N)
												↓			

Date:	Time:	Relinquished by:	Received by:	Date	Time
5/4/15	1640		Chet Walte	5/4/15	1640
5/4/15	1751	Chester Walte		5/5/15	0850

Remarks: Please copy results to BHerb@LTEnv.co

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.

ATTACHMENT TO COC

Site: **Date:**

Please analyze samples for the following:
TPH 418.1
TPH 8015
~~BTEX 8021~~ As of 10/5/15
Chlorides
Subsection A and B of 20.6.2.3103 NMAC:
Arsenic (As)
Barium (Ba)
Cadmium (Cd)
Chromium (Cr)
Cyanide (Cn)
Fluoride (F)
Lead (Pb)
Total Mercury (Hg)
Nitrate (NO_3 as N)
Selenium (Se)
Silver (Ag)
Uranium (U)
Radioactivity: Combined Radium-226 & Radium-228
Benzene
Polychlorinated biphenyls (PCB's)
Toluene
Carbon Tetrachloride
1,2-dichloroethane (EDC)
1,1-dichloroethylene (1,1-DCE)
1,1,2,2-tetrachloroethylene (PCE)
1,1,2-trichloroethylene (TCE)
ethylbenzene
otal xylenes
methylene chloride
chloroform
1,1-dichloroethane
ethylene dibromide (EDB)
1,1,1-trichloroethane
1,1,2-trichloroethane
1,1,2,2-tetrachloroethane
vinyl chloride
PAHs: total naphthalene plus monomethylnaphthalenes
benzo-a-pyrene
Chloride (Cl)
Copper (Cu)
Iron (Fe)
Manganese (Mn)
Phenols
Sulfate (SO_4)
~~Total Dissolved Solids (TDS)~~ As of 10/5/15
Zinc (Zn)
pH