District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources Department

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	nAPP2120856974
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Armstrong Energy Corporation	OGRID 1092
Contact Name Kyle Alpers	Contact Telephone 575-625-2222
Contact email kalpers@aecnm.com	Incident # *(assigned by OCD)*
Contact mailing address P.O. Box 1973, Roswell, NM 88202-1973	

Location of Release Source

Latitude 33.8552152 Longitude -103.4096054
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Liza Jane Federal #1	Site Type
Date Release Discovered 7/26/2021	API# *(if applicable)* 30-041-20972

Unit Letter	Section	Township	Range	County
I	19	5S	34E	Roosevelt

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 79	Volume Recovered (bbls) 0
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

****PLEASE SEE ATTACHED****

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2120856974
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? [x] Yes [ ] No	If YES, for what reason(s) does the responsible party consider this a major release? A release greater than 25 bbls. A release that results in a fire or is the result of a fire.

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
Immediate notice was given via email on 7/26/21 to ocd.enviro@state.nm.us from Kalei Jennings.

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

[x] The source of the release has been stopped.
[x] The impacted area has been secured to protect human health and the environment.
[x] Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
[x] All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Kyle Alpers Title: VP Engineering

Signature: Kyle Alpers Date: 7/27/2021

email: kalpers@aecnm.com Telephone: 575-625-2222

OCD Only

Received by: Date:

Form C-141
Page 3

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2120856974
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	> 100 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☒ Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2120856974
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Kyle Alpers Title: VP of Engineering

Signature: Date: 10/4/21

email: kalpers@aecnm.com Telephone: 575-625-2222

OCD Only

Received by: Date:

Form C-141
Page 6

State of New Mexico
Oil Conservation Division

Incident ID	nAPP2120856974
District RP	
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

[X] A scaled site and sampling diagram as described in 19.15.29.11 NMAC

[X] Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

[X] Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

[X] Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Kyle Alpers Title: VP of Engineering

Signature: Date: 10/4/21

email: kalpers@aecnm.com Telephone: 575-625-2222

OCD Only

Received by: Chad Hensley Date: 11/15/2021

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: Chad Hensley Date: 11/15/2021

Printed Name: Chad Hensley Title: Environmental Specialist Advanced

To Whom It May Concern:

Per the request of *rmarcus* on (9/27/2021) attached to the initial C-141 (submission ID: 51807) we are submitting the calculations used and specific justification for the volumes reported on the initial C-141. The lease operator strapped the tank on 07/25/2021 with a tank height of 2'5" the tank is a 500 bbl tank with a multiplier of 2.75 bbl/inch. The equation is as follows:

29 Inches * 2.75 bbl/Inch = 79.75 BBL

Feel free to reach out if you have any other questions or for further clarification.

Jeffery Tew

Operations Engineer
Armstrong Energy Corporation
PO BOX 1973
Roswell, NM 88202
575-623-2999 x 327 (Office)
575-420-7600 (Cell)

WSP USA
3300 North "A" Street
Building 1, Unit 222
Midland, Texas 79705
432.704.5178

October 4, 2021

District 1 - Hobbs
New Mexico Oil Conservation Division
1625 N. French Drive
Hobbs, New Mexico 88240

Re: Closure Request
Liza Jane Federal #1
Incident Number nAPP2120856974
Roosevelt County, New Mexico

To Whom It May Concern:

WSP USA Inc. (WSP) on behalf of Armstrong Energy Corporation (Armstrong), presents the following Closure Request detailing site assessment, excavation, and soil sampling activities at the Liza Jane Federal #1 (Site) in Unit I, Section 19, Township 5 South, Range 34 East, in Roosevelt County, New Mexico (Figure 1). The purpose of the site assessment, excavation, and soil sampling activities was to address impacts to soil following a release of produced water at the Site. Based on the excavation activities and soil sample laboratory analytical results, Armstrong is submitting this Closure Request, describing remediation that has occurred and requesting no further action (NFA) for Incident Number nAPP2120856974.

RELEASE BACKGROUND

On July 26, 2021, a lightning strike at the tank battery resulted in a fire and release of 79 barrels (bbls) of produced water into the lined tank battery containment. No fluids were recovered. Armstrong immediately reported the release to the New Mexico Oil Conservation Division (NMOCD) via email on July 26, 2021. A Release Notification and Corrective Action Form (Form C-141) was submitted on July 27, 2021 and was assigned Incident Number nAPP2120856974.

SITE CHARACTERIZATION

WSP characterized the Site according to Table 1, *Closure Criteria for Soils Impacted by a Release,* of Title 19, Chapter 15, Part 29, Section 12 (19.15.29.12) of the New Mexico Administrative Code (NMAC). Depth to groundwater at the Site is estimated to be greater than 100 feet below ground surface (bgs) based on the nearest groundwater well data. The closest permitted groundwater well with depth to groundwater data is United States Geologic Survey (USGS) well 335158103243001, located approximately 0.77 miles northwest of the Site. The groundwater well has a reported depth to groundwater of 108 feet bgs and a total depth of 500 feet bgs. All wells used for depth to groundwater determination are depicted on Figure 1.

The referenced well records are included in Attachment 1.

The closest continuously flowing water or significant watercourse to the Site is a freshwater pond, located approximately 892 feet northwest of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is not underlain by unstable geology (low potential karst designation area). Site receptors are identified on Figure 1.

CLOSURE CRITERIA

Based on the results of the Site Characterization, the following NMOCD Table 1 Closure Criteria (Closure Criteria) apply:

- Benzene: 10 milligrams per kilogram (mg/kg)
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX): 50 mg/kg
- Total petroleum hydrocarbons (TPH)-gasoline range organics (GRO) and TPH-diesel range organics (DRO): 1,000 mg/kg
- TPH: 2,500 mg/kg
- Chloride: 20,000 mg/kg

DELINEATION SOIL SAMPLING ACTIVITIES AND ANALYTICAL RESULTS

On August 6, 2021, WSP personnel visited the Site to evaluate the release extent based on information provided on the Form C-141 and visual observations. WSP advanced six boreholes (BH01 through BH06) via hand auger within and around the release extent to assess for the presence or absence of impacted soil. The boreholes were advanced to a depth of 1.5 feet bgs. Two delineation soil samples were collected from each borehole from depths of approximately 0.75 feet to 1-foot bgs and 1.25 feet to 1.5 feet bgs. Soil from the boreholes was field screened for volatile aromatic hydrocarbons and chloride utilizing a PID and Hach© chloride QuanTab© test strips, respectively. Field screening results and observations for each borehole were logged on lithologic/soil sampling logs, which are included in Attachment 2. The release extent and delineation soil sample locations were mapped utilizing a handheld Global Positioning System (GPS) unit and are depicted on Figure 2. Photographic documentation was conducted during the Site visit. A photographic log is included in Attachment 3.

The delineation soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, and method of analysis and immediately placed on ice. The soil samples were transported at or below 4 degrees Celsius (°C) under strict chain-of-custody (COC) procedures to Eurofins Laboratories (Eurofins) in Midland, Texas, for analysis of

BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0.

Laboratory analytical results for the delineation soil samples collected from boreholes BH01 through BH06 indicated that benzene, BTEX, TPH-GRO/TPH-DRO, TPH, and chloride concentrations were compliant with the Closure Criteria. However, due to visual staining observed in the release area, excavation activities were recommended.

EXCAVATION ACTIVITIES AND ANALYTICAL RESULTS

On August 31, 2021, Armstrong operations removed the facility and containment in preparation for remediation activities. WSP returned to the Site on September 7, 2021, to oversee excavation activities as indicated by visible staining in the release area. Excavation activities were completed to remove the surficial staining in the areas surrounding delineation boreholes BH01 and BH02. Excavation activities were performed using a rubber-tired backhoe and transport vehicle. To direct excavation activities, WSP screened soil for volatile aromatic hydrocarbons and chloride utilizing a PID and Hach® chloride QuanTab® test strips, respectively. The excavations were completed to depths ranging from 1 foot to 2 feet bgs.

Following removal of impacted soil, WSP collected 5-point composite soil samples every 200 square feet from the sidewalls and floor of the excavations. The 5-point composite samples were collected by placing five equivalent aliquots of soil into a 1- gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Composite soil samples FS01 through FS03 were collected from the floor of the excavations from depths ranging from 1 foot to 2 feet bgs. Composite soil sample SW01 was collected from the sidewalls of the deeper excavation in the area around borehole BH01. Due to the shallow depth of the excavation in the area around borehole BH02, floor sample FS01 was also representative of the excavation sidewalls. The excavation soil samples were collected, handled, and analyzed as described above. The excavation extents and excavation soil sample locations are presented on Figure 3.

The final excavation extents measured approximately 375 square feet in total. A total of approximately 23 cubic yards of impacted soil were removed during excavation activities. The impacted soil was transported and properly disposed of at the Gandy Marley facility located in Roswell, New Mexico. After the completion of confirmation sampling, the excavation was backfilled.

SOIL ANALYTICAL RESULTS

Laboratory analytical results for the delineation soil samples collected from boreholes BH01 through BH06 indicated that benzene, BTEX, TPH-GRO/TPH-DRO, TPH, and chloride concentrations were compliant with the Closure Criteria. Excavation activities were completed

to remove the surficial staining in the release footprint.

Laboratory analytical results for excavation samples FS01, FS02, FS03, and SW01 collected from the final excavation extents, indicated that benzene, BTEX, TPH-GRO/TPH-DRO, TPH, and chloride concentrations were compliant with the Closure Criteria. Additionally, the delineation soil samples collected from boreholes BH03 through BH06 and the excavation sidewall and floor soil samples were compliant with the most stringent Table 1 Closure Criteria. The laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included in Attachment 4.

CLOSURE REQUEST

Site assessment and excavation activities were conducted at the Site to address the July 26, 2021 release of produced water. Laboratory analytical results for the delineation and excavation soil samples indicated that benzene, BTEX, TPH-GRO/TPH-DRO, TPH, and chloride concentrations were compliant with the Site Closure Criteria. Additionally, all final delineation and excavation soil samples were compliant with the most stringent Table 1 Closure Criteria.

Based on the excavation and delineation soil sample analytical results, no further remediation was required. Armstrong backfilled the excavations with material purchased locally and recontoured the Site to match pre-existing site conditions. As such, Armstrong respectfully requests NFA for Incident Number nAPP2120856974.

If you have any questions or comments, please do not hesitate to contact Mr. Daniel R. Moir at (303) 887-2946.

Sincerely,

WSP USA Inc.

Anna Byers
Consultant, Geologist

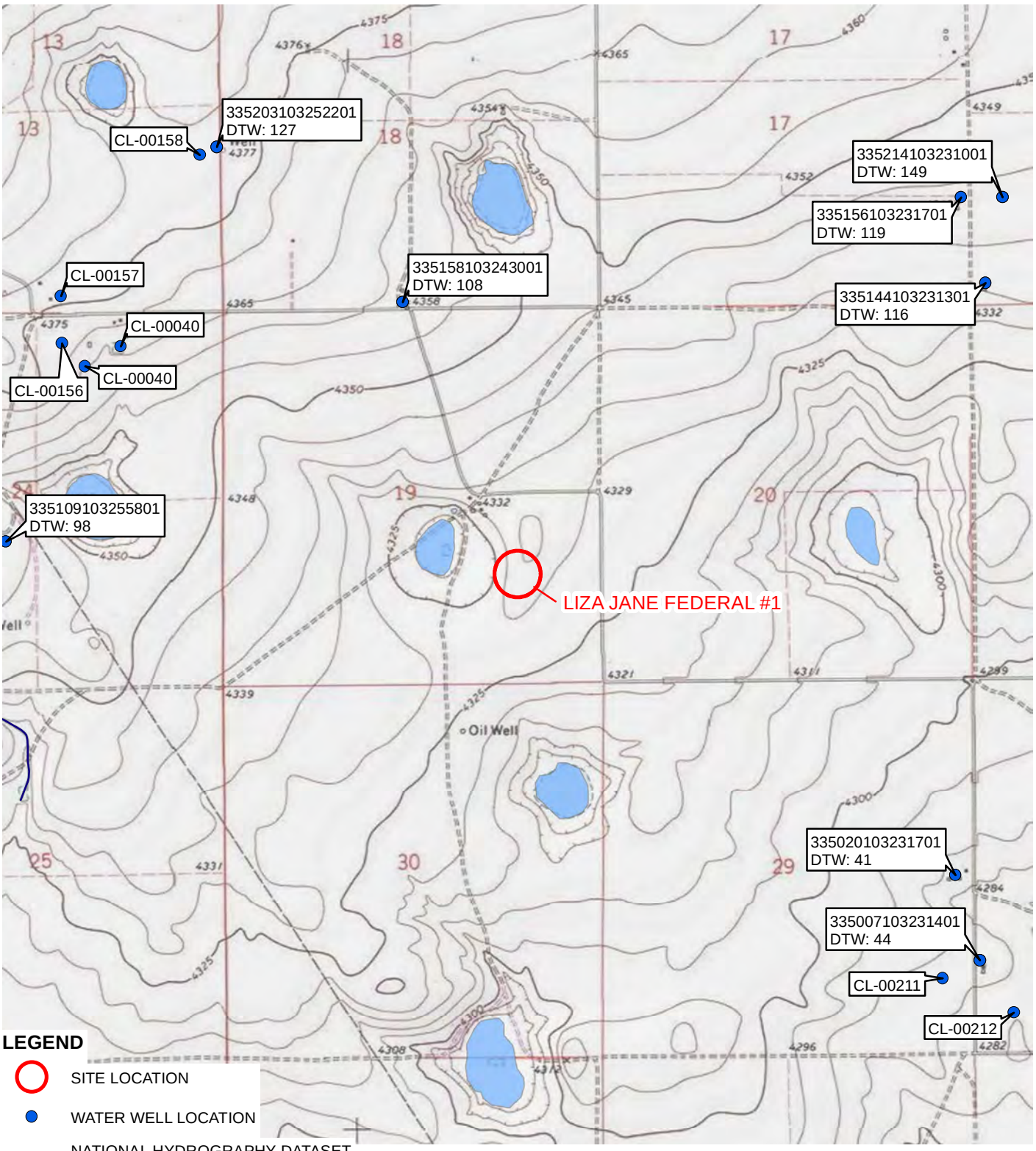
Daniel R. Moir, P.G.
Managing Director, Geologist

cc: Kyle Alpers, Armstrong Energy Corporation

Attachments:

Figure 1 Site Location Map
Figure 2 Delineation Soil Sample Locations

FIGURES



LEGEND

- SITE LOCATION
- WATER WELL LOCATION
- NATIONAL HYDROGRAPHY DATASET SURFACE WATER FEATURE
- NATIONAL WETLANDS INVENTORY SURFACE WATER FEATURE
- LOW KARST
- MEDIUM KARST
- HIGH KARST

NOTE: INCIDENT NUMBER NAPP2120856974
DTW: DEPTH TO WATER IN FEET
BLM: BUREAU OF LAND MANAGEMENT

IMAGE COURTESY OF ESRI/USGS

0 2,000 4,000
Feet

N

FIGURE 1
SITE LOCATION MAP
LIZA JANE FEDERAL #1
UNIT I SEC 19 T5S R34E
ROOSEVELT COUNTY, NEW MEXICO
ARMSTRONG ENERGY CORPORATION

P:\Armstrong Energy Corp\GIS\31403471.001_LIZA JANE FEDERAL #1\MXD\31403471.001_FIG01_SL_RECEPTOR_2021.mxd

LEGEND

- RELEASE LOCATION
- DELINEATION SOIL SAMPLE IN COMPLIANCE WITH APPLICABLE CLOSURE CRITERIA
- RELEASE EXTENT

NOTE: INCIDENT NUMBER NAPP2120856974
SAMPLE ID@DEPTH BELOW GROUND SURFACE (FEET)
TEXT: INDICATES SOIL REPRESENTED BY SAMPLE THAT WAS REMOVED

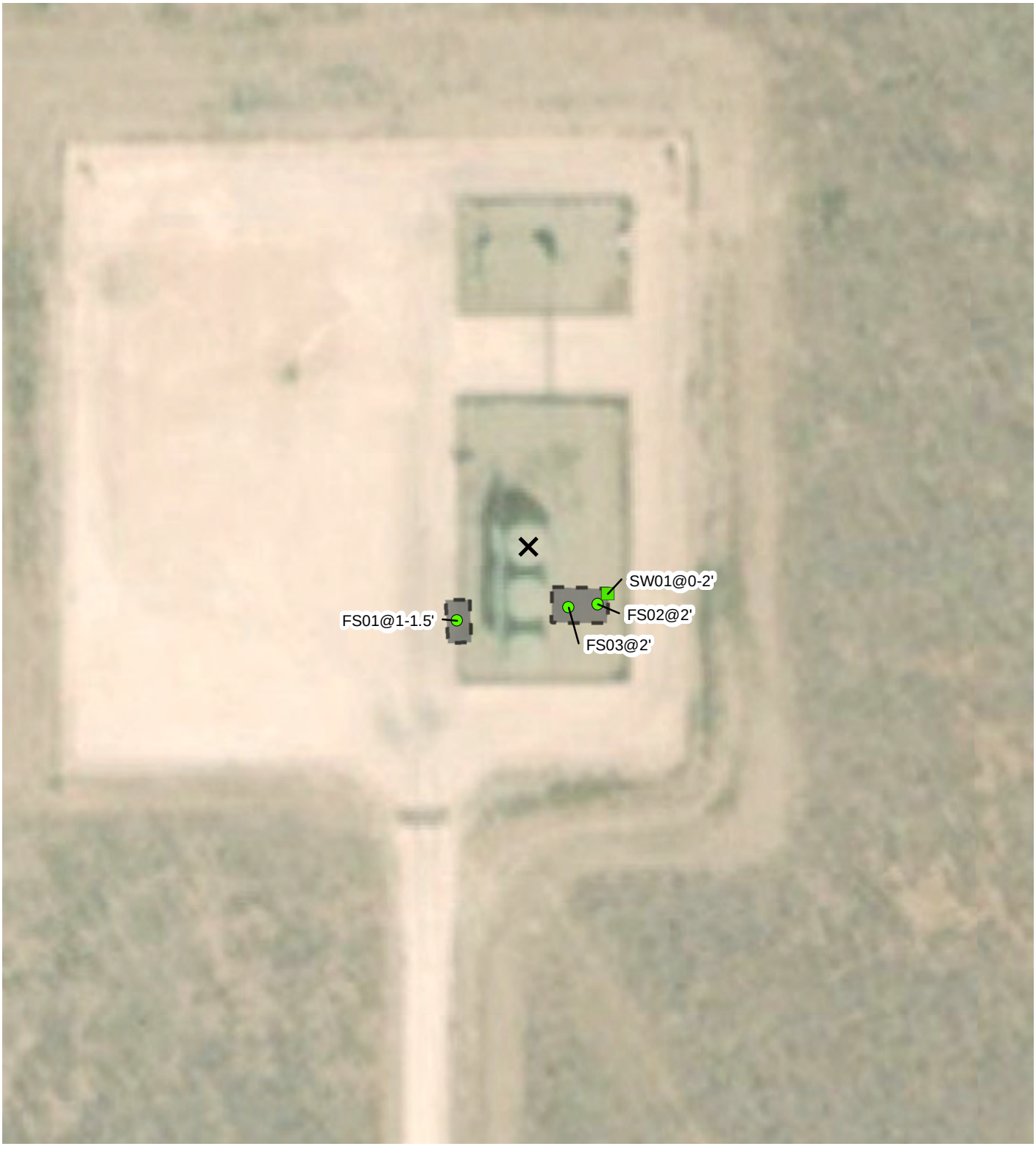
IMAGE COURTESY OF ESRI

0 50 100
Feet

N

FIGURE 2
DELINEATION SOIL SAMPLE LOCATIONS
LIZA JANE FEDERAL #1
UNIT I SEC 19 T5S R34E
ROOSEVELT COUNTY, NEW MEXICO
ARMSTRONG ENERGY CORPORATION

P:\Armstrong Energy Corp\GIS\31403471.001_LIZA JANE FEDERAL #1\MXD\31403471.001_FIG02_DELINEATION_2021.mxd



LEGEND

IMAGE COURTESY OF ESRI

- RELEASE LOCATION
- FLOOR SAMPLE IN COMPLIANCE WITH APPLICABLE CLOSURE CRITERIA
- SIDEWALL SAMPLE IN COMPLIANCE WITH APPLICABLE CLOSURE CRITERIA
- EXCAVATION EXTENT

0 50 100
Feet

N

NOTE: INCIDENT NUMBER NAPP2120856974
SAMPLE ID@DEPTH BELOW GROUND SURFACE (FEET)

FIGURE 3
EXCAVATION SOIL SAMPLE LOCATIONS
LIZA JANE FEDERAL #1
UNIT I SEC 19 T5S R34E
ROOSEVELT COUNTY, NEW MEXICO
ARMSTRONG ENERGY CORPORATION

P:\Armstrong Energy Corp\GIS\31403471.001_LIZA JANE FEDERAL #1\MXD\31403471.001_FIG03_EXCAVATION_2021.mxd

TABLES

Table 1

Soil Analytical Results
Liza Jane Federal #1
Incident Number NAPP2120856974
Armstrong Energy Coporation
Roosevelt County, New Mexico

Sample ID	Sample Date	Sample Depth (ft bgs)	Benzene (mg/kg)	BTEX (mg/kg)	TPH-DRO (mg/kg)	TPH-GRO (mg/kg)	TPH-ORO (mg/kg)	Total DRO+GRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	1,000	2,500	20,000
Delineation Samples										
BH01	08/06/2021	0.75 - 1	<0.00200	<0.00401	78.2	<49.8	<49.8	78.2	78.2	827
BH01	08/06/2021	1.25 - 1.5	<0.00199	<0.00398	157	<49.9	<49.9	157	157	548
BH02	08/06/2021	0.75 - 1	<0.00200	<0.00400	100	<49.8	<49.8	100	100	231
BH02	08/06/2021	1.25 - 1.5	<0.00200	<0.00399	98.2	<50.0	<50.0	98.2	98.2	290
BH03	08/06/2021	0.75 - 1	<0.00198	<0.00396	<49.8	<49.8	<49.8	<49.8	<49.8	91.6
BH03	08/06/2021	1.25 - 1.5	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	133
BH04	08/06/2021	0.75 - 1	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	18.0
BH04	08/06/2021	1.25 - 1.5	<0.00202	<0.00404	<49.8	<49.8	<49.8	<49.8	<49.8	18.9
BH05	08/06/2021	0.75 - 1	<0.00200	<0.00401	<50.0	<50.0	<50.0	<50.0	<50.0	34.2
BH05	08/06/2021	1.25 - 1.5	<0.00200	<0.00401	<50.0	<50.0	<50.0	<50.0	<50.0	30.5
BH06	08/06/2021	0.75 - 1	<0.00202	<0.00403	<49.9	<49.9	<49.9	<49.9	<49.9	150
BH06	08/06/2021	1.25 - 1.5	<0.00200	<0.00399	<49.9	<49.9	<49.9	<49.9	<49.9	176
Excavation Floor Samples										
FS01	09/07/2021	1-1.5	<0.00201	<0.00402	<49.9	<49.9	<49.9	<49.9	<49.9	135
FS02	09/07/2021	2	<0.00200	<0.00399	<49.9	<49.9	<49.9	<49.9	<49.9	115
FS03	09/07/2021	2	<0.00200	<0.00400	<49.7	<49.7	<49.7	<49.7	<49.7	131
Excavation Sidewall Sample										
SW01	09/07/2021	0-2	<0.00200	<0.004001	<49.8	<49.8	<49.8	<49.8	<49.8	264

Notes

ft - feet/foot
mg/kg - milligrams per kilograms
BTEX - benzene, toluene, ethylbenzene, and total xylenes
TPH - total petroleum hydrocarbons
DRO - diesel range organics
GRO - gasoline range organics
ORO - motor oil range organics
NMOCD - New Mexico Oil Conservation Division
NMAC - New Mexico Administrative Code
< - indicates result is less than the stated laboratory method practical quantitation limit
NE - Not Established
BOLD - indicates results exceed the higher of the background sample result or applicable regulatory standard
Text - soil was excavated to remove surficial staining

ATTACHMENT 1: REFERENCED WELL RECORD

Well Site

DESCRIPTION:

Latitude 33°51'56", Longitude 103°24'51" NAD27
Roosevelt County, New Mexico , Hydrologic Unit 12050001
Well depth: 124 feet
Land surface altitude: 4,358.00 feet above NGVD29.
Well completed in "High Plains aquifer" (N100HGHPLN) national aquifer.

AVAILABLE DATA:

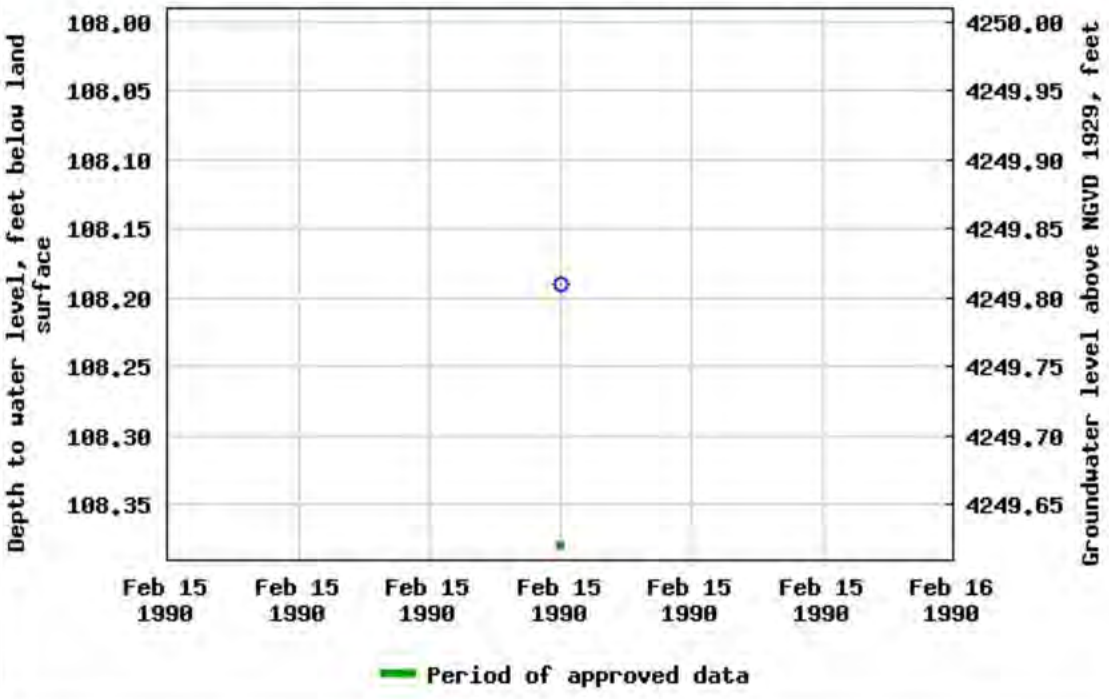
Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1990-02-15	1990-02-15	1
Revisions	Unavailable (site:0) (timeseries:0)		

OPERATION:

Record for this site is maintained by the USGS New Mexico Water Science Center
Email questions about this site to New Mexico Water Science Center Water-Data Inquiries

USGS

USGS 335158103243001 05S.34E.18.34444



New Mexico Office of the State Engineer
Water Right Summary

get image list

WR File Number: CL 00100 **Subbasin:** CL **Cross Reference:** -

Primary Purpose: COM COMMERCIAL

Primary Status: DCL DECLARATION

Total Acres: 0 **Subfile:** - **Header:** -

Total Diversion: 24.2 **Cause/Case:** -

Owner: ROSS FAMILY PARTNERSHIP

Contact: GARY ROSS

Documents on File

	Trn #	Doc	File/Act	Status 1	Status 2	Transaction Desc.	From/ To	Acres	Diversion	Consumptive
get images	564559	DCL	2015-02-04	DCL	PRC	CL-100 AMENDED	T	0	24.2	24.2
get images	357585	DCL	2003-05-30	DCL	PRC	CL 00100	T	0	24.2	24.2

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q 64	Q16	Q4	Sec	Tws	Rng	X	Y	Other Location Desc
CL 00100 POD1			2	2		14	05S	34E	653698	3749861*	E 1/2

***An (*) after northing value indicates UTM location was derived from PLSS - see Help**

Priority Summary

Priority	Status	Acres	Diversion	Pod Number
12/31/1936	DCL	0	24.2	CL 00100 POD1

Place of Use

Q 256	Q 64	Q16	Q4	Sec	Tws	Rng	Acres	Diversion	CU	Use	Priority	Status	Other Location Desc
				14	05S	34E	0	24.2	24.2	COM	12/31/1936	DCL	

Source

Acres	Diversion	CU	Use	Priority	Source	Description
0	24.2	24.2	COM	12/31/1936	GW	SHALLOW

New Mexico Office of the State Engineer

Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

Well Tag	POD Number	Q64	Q16	Q4	Sec	Tws	Rng	X	Y
	CL 00100 POD1	2	2		14	05S	34E	653698	3749861*

Driller License: **Driller Company:**

Driller Name: LEVACY

Drill Start Date: **Drill Finish Date:** 12/31/1936 **Plug Date:**

Log File Date: **PCW Rcv Date:** **Source:**

Pump Type: **Pipe Discharge Size:** **Estimated Yield:** 100 GPM

Casing Size: 8.00 **Depth Well:** 185 feet **Depth Water:** 115 feet

***UTM location was derived from PLSS - see Help**

ATTACHMENT 2: LITHOLOGIC/SAMPLING LOG

WSP USA
508 West Stevens Street
Carlsbad, New Mexico 88220

Sample ID: BH01 (SS03)	Date: 8/6/2021
Site Name: Liza Jane Federal #1	
Incident Number: nAPP2120856974	
WSP Job Number: 31403471.001	

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: Anna Byers	Method: Hand Auger		
Lat/Long: 33.854995, -103.409281	Field Screening: Chloride, PID	Hole Diameter: 2.5 inches	Total Depth: 1.5 feet

Comments: Moisture Content "M" Moist/ "D" - Dry; "BDL" - Below Detection Limit of Low Range HACH Chloride Test Strips (<108 ppm); Chloride values do not include correction factor - field screening performed with 1:4 dilution of soil to water.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		0 - 1 FT BGS: Pad caliche cap, odor, well-compacted 1 - 1.5 FT BGS: Pink-tan CALICHE, moderately consolidated, no odor, poorly sorted granular matrix
M	4,828	1,579	Yes	(SS03)		0.5		
M	676	0.8	No	BH01	0.75-1	1	CCHE	
D	396	0.7	No	BH01	1.25-1.5	1.5	CCHE	
						Total Depth		

WSP USA
508 West Stevens Street
Carlsbad, New Mexico 88220

Sample ID:	Date:
BH02 (SS01)	8/6/2021

Site Name: Liza Jane Federal #1
Incident Number: nAPP2120856974
WSP Job Number: 31403471.001

LITHOLOGIC / SOIL SAMPLING LOG

Logged By:	Method:
Anna Byers	Hand Auger

Lat/Long:	Field Screening:	Hole Diameter:	Total Depth:
33.854986, -103.409411	Chloride, PID	2.5 inches	1.5 feet

Comments: Moisture Content "M" Moist/ "D" - Dry; "BDL" - Below Detection Limit of Low Range HACH Chloride Test Strips (<108 ppm);
Chloride values do not include correction factor - field screening performed with 1:4 dilution of soil to water.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		0 - 1 FT BGS: Pad caliche cap, odor, well-compacted 1 - 1.5 FT BGS: Pink-tan CALICHE, moderately consolidated, no odor, poorly sorted granular matrix
M	396	470.9	Yes	(SS01)		0.5		
M	220	25.9	No	BH02	0.75-1	1	CCHE	
D	284	13.0	No	BH02	1.25-1.5	1.5	CCHE	

Total Depth

WSP USA
508 West Stevens Street
Carlsbad, New Mexico 88220

Sample ID: BH03	Date: 8/6/2021
Site Name: Liza Jane Federal #1	
Incident Number: nAPP2120856974	
WSP Job Number: 31403471.001	

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: Anna Byers	Method: Hand Auger		
Lat/Long: 33.855033, -103.409426	Field Screening: Chloride, PID	Hole Diameter: 2.5 inches	Total Depth: 1.5 feet

Comments: Moisture Content "M" Moist/ "D" - Dry; "BDL" - Below Detection Limit of Low Range HACH Chloride Test Strips (<108 ppm); Chloride values do not include correction factor - field screening performed with 1:4 dilution of soil to water.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		0 - 1 FT BGS: Pad caliche cap, odor, well-compacted 1 - 1.5 FT BGS: Pink-tan CALICHE, moderately consolidated, no odor, poorly sorted granular matrix
						0.5		
D	BDL	1.8	No	BH03	0.75-1	1	CCHE	
D	108	0.6	No	BH03	1.25-1.5	1.5	CCHE	
						Total Depth		

WSP USA
508 West Stevens Street
Carlsbad, New Mexico 88220

Sample ID: BH04	Date: 8/6/2021
Site Name: Liza Jane Federal #1	
Incident Number: nAPP2120856974	
WSP Job Number: 31403471.001	

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: Anna Byers	Method: Hand Auger		
Lat/Long: 33.855190, -103.409325	Field Screening: Chloride, PID	Hole Diameter: 2.5 inches	Total Depth: 1.5 feet

Comments: Moisture Content "M" Moist/ "D" - Dry; "BDL" - Below Detection Limit of Low Range HACH Chloride Test Strips (<108 ppm); Chloride values do not include correction factor - field screening performed with 1:4 dilution of soil to water.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		0 - 1 FT BGS: Pad caliche cap, odor, well-compacted
						0.5		1 - 1.5 FT BGS: Brown poorly-graded CLAYEY SAND (m.), low plasticity, cohesive, no odor
D	BDL	0.7	No	BH04	0.75-1	1	CCHE	
M	BDL	0.6	No	BH04	1.25-1.5	1.5	SC	
						Total Depth		

WSP USA

508 West Stevens Street
Carlsbad, New Mexico 88220

Sample ID:	Date:
BH05	8/6/2021

Site Name: Liza Jane Federal #1

Incident Number: nAPP2120856974

WSP Job Number: 31403471.001

LITHOLOGIC / SOIL SAMPLING LOG

Logged By:	Method:
Anna Byers	Hand Auger

Lat/Long:	Field Screening:	Hole Diameter:	Total Depth:
33.855066, -103.409210	Chloride, PID	2.5 inches	1.5 feet

Comments: Moisture Content "M" Moist/ "D" - Dry; "BDL" - Below Detection Limit of Low Range HACH Chloride Test Strips (<108 ppm);
Chloride values do not include correction factor - field screening performed with 1:4 dilution of soil to water.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		0 - 1 FT BGS: Pad caliche cap, odor, well-compacted 1 - 1.5 FT BGS: Pink-tan CALICHE, moderately consolidated, no odor, poorly sorted granular matrix
						0.5		
D	BDL	0.8	No	BH05	0.75-1	1	CCHE	
D	BDL	1.8	No	BH05	1.25-1.5	1.5	CCHE	

Total Depth

WSP USA
508 West Stevens Street
Carlsbad, New Mexico 88220

Sample ID: BH06	Date: 8/6/2021
Site Name: Liza Jane Federal #1	
Incident Number: nAPP2120856974	
WSP Job Number: 31403471.001	

LITHOLOGIC / SOIL SAMPLING LOG

Logged By: Anna Byers	Method: Hand Auger		
Lat/Long: 33.854904, -103.409319	Field Screening: Chloride, PID	Hole Diameter: 2.5 inches	Total Depth: 1.5 feet

Comments: Moisture Content "M" Moist/ "D" - Dry; "BDL" - Below Detection Limit of Low Range HACH Chloride Test Strips (<108 ppm); Chloride values do not include correction factor - field screening performed with 1:4 dilution of soil to water.

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		0 - 1 FT BGS: Pad caliche cap, odor, well-compacted 1 - 1.5 FT BGS: Pink-tan CALICHE, moderately consolidated, no odor, poorly sorted granular matrix
						0.5		
D	136	1.5	No	BH06	0.75-1	1	CCHE	
M	160	1.6	No	BH06	1.25-1.5	1.5	CCHE	
						Total Depth		

ATTACHMENT 3: PHOTOGRAPHIC LOG

PHOTOGRAPHIC LOG		
Armstrong Energy Corporation	Liza Jane Federal #1 Roosevelt County, New Mexico	31403471.001

Photo No.	Date
1	July 26, 2021

Lightning strike aftermath

Photo No.	Date
2	August 3, 2021

Southwestern view of containment area release extent

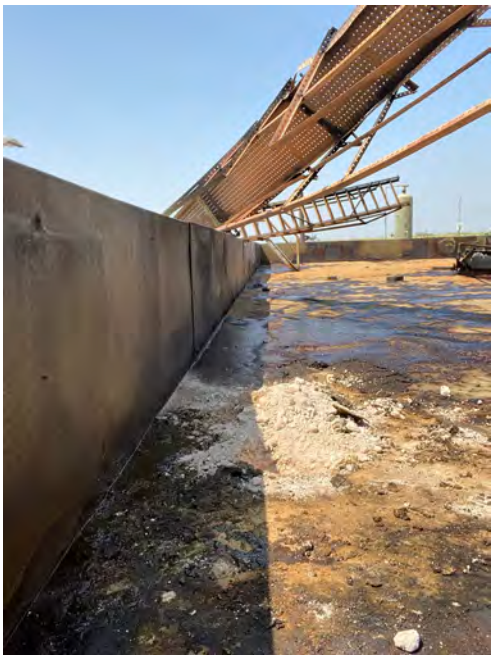
PHOTOGRAPHIC LOG		
Armstrong Energy Corporation	Liza Jane Federal #1 Roosevelt County, New Mexico	31403471.001

Photo No.	Date
3	August 6, 2021

Delineation activities outside the containment

Photo No.	Date
4	August 6, 2021

Delineation activities within the containment



PHOTOGRAPHIC LOG		
Armstrong Energy Corporation	Liza Jane Federal #1 Roosevelt County, New Mexico	31403471.001

Photo No.	Date
5	September 7, 2021

Excavation extent within the containment area, post equipment removal

Photo No.	Date
6	September 7, 2021

Excavation extent within containment area post equipment removal

PHOTOGRAPHIC LOG		
Armstrong Energy Corporation	Liza Jane Federal #1 Roosevelt County, New Mexico	31403471.001

Photo No.	Date
7	September 13, 2021

View of area once backfill was complete.

Photo No.	Date
8	September 13, 2021

View of area once backfill was complete.

ATTACHMENT 4: LABORATORY ANALYTICAL RESULTS

eurofins | Environment Testing America

ANALYTICAL REPORT

Eurofins Xenco, Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-1079-1
Laboratory Sample Delivery Group: Roosevelt County
Client Project/Site: Liza Jane Federal #1
Revision: 1

For:
WSP USA Inc.
2777 N. Stemmons Freeway
Suite 1600
Dallas, Texas 75207

Attn: Kalei Jennings

JKramer

Authorized for release by:
8/19/2021 4:39:12 PM

Jessica Kramer, Project Manager
(432)704-5440
jessica.kramer@eurofinset.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Laboratory Job ID: 890-1079-1
SDG: Roosevelt County

Table of Contents

Definitions/Glossary

Client: WSP USA Inc. Job ID: 890-1079-1
Project/Site: Liza Jane Federal #1 SDG: Roosevelt County

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*1	LCS/LCSD RPD exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Job ID: 890-1079-1

Laboratory: Eurofins Xenco, Carlsbad

Narrative

Job Narrative
890-1079-1

REVISION

The report being provided is a revision of the original report sent on 8/13/2021. The report (revision 0) is being revised due to .

Receipt

The samples were received on 8/9/2021 5:00 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.4°C

GC VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Client Sample ID: BH01
Date Collected: 08/06/21 12:35
Date Received: 08/09/21 17:00
Sample Depth: 0.75 - 1

Lab Sample ID: 890-1079-1
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 00:34	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 00:34	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 00:34	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		08/11/21 09:15	08/12/21 00:34	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 00:34	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		08/11/21 09:15	08/12/21 00:34	1
Total BTEX	<0.00401	U	0.00401		mg/Kg		08/11/21 09:15	08/12/21 00:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*145*	*S1+*	*70 - 130*	*08/11/21 09:15*	*08/12/21 00:34*	*1*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*	*08/11/21 09:15*	*08/12/21 00:34*	*1*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		08/11/21 13:53	08/11/21 23:09	1
Diesel Range Organics (Over C10-C28)	**78.2**		49.8		mg/Kg		08/11/21 13:53	08/11/21 23:09	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		08/11/21 13:53	08/11/21 23:09	1
Total TPH	**78.2**		49.8		mg/Kg		08/11/21 13:53	08/11/21 23:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*97*		*70 - 130*	*08/11/21 13:53*	*08/11/21 23:09*	*1*
o-Terphenyl	*98*		*70 - 130*	*08/11/21 13:53*	*08/11/21 23:09*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**827**		5.04		mg/Kg			08/12/21 18:57	1

Client Sample ID: BH01
Date Collected: 08/06/21 13:05
Date Received: 08/09/21 17:00
Sample Depth: 1.25 - 1.5

Lab Sample ID: 890-1079-2
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		08/11/21 09:15	08/12/21 00:54	1
Toluene	<0.00199	U	0.00199		mg/Kg		08/11/21 09:15	08/12/21 00:54	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		08/11/21 09:15	08/12/21 00:54	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		08/11/21 09:15	08/12/21 00:54	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		08/11/21 09:15	08/12/21 00:54	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		08/11/21 09:15	08/12/21 00:54	1
Total BTEX	<0.00398	U	0.00398		mg/Kg		08/11/21 09:15	08/12/21 00:54	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*128*		*70 - 130*	*08/11/21 09:15*	*08/12/21 00:54*	*1*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*	*08/11/21 09:15*	*08/12/21 00:54*	*1*

Client Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Client Sample ID: BH01

Date Collected: 08/06/21 13:05
Date Received: 08/09/21 17:00
Sample Depth: 1.25 - 1.5

Lab Sample ID: 890-1079-2

Matrix: Solid

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		08/11/21 13:53	08/11/21 23:30	1
Diesel Range Organics (Over C10-C28)	**157**		49.9		mg/Kg		08/11/21 13:53	08/11/21 23:30	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		08/11/21 13:53	08/11/21 23:30	1
Total TPH	**157**		49.9		mg/Kg		08/11/21 13:53	08/11/21 23:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*96*		*70 - 130*	*08/11/21 13:53*	*08/11/21 23:30*	*1*
o-Terphenyl	*99*		*70 - 130*	*08/11/21 13:53*	*08/11/21 23:30*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**548**		4.96		mg/Kg			08/19/21 11:03	1

Client Sample ID: BH02

Date Collected: 08/06/21 13:53
Date Received: 08/09/21 17:00
Sample Depth: 0.75 - 1

Lab Sample ID: 890-1079-3

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 01:15	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 01:15	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 01:15	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		08/11/21 09:15	08/12/21 01:15	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 01:15	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		08/11/21 09:15	08/12/21 01:15	1
Total BTEX	<0.00400	U	0.00400		mg/Kg		08/11/21 09:15	08/12/21 01:15	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*132*	*S1+*	*70 - 130*	*08/11/21 09:15*	*08/12/21 01:15*	*1*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*	*08/11/21 09:15*	*08/12/21 01:15*	*1*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		08/11/21 13:53	08/11/21 23:51	1
Diesel Range Organics (Over C10-C28)	**100**		49.8		mg/Kg		08/11/21 13:53	08/11/21 23:51	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		08/11/21 13:53	08/11/21 23:51	1
Total TPH	**100**		49.8		mg/Kg		08/11/21 13:53	08/11/21 23:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*94*		*70 - 130*	*08/11/21 13:53*	*08/11/21 23:51*	*1*
o-Terphenyl	*98*		*70 - 130*	*08/11/21 13:53*	*08/11/21 23:51*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**231**		4.95		mg/Kg			08/12/21 19:08	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Client Sample ID: BH02

Date Collected: 08/06/21 14:22
Date Received: 08/09/21 17:00
Sample Depth: 1.25 - 1.5

Lab Sample ID: 890-1079-4

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 01:35	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 01:35	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 01:35	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		08/11/21 09:15	08/12/21 01:35	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 01:35	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		08/11/21 09:15	08/12/21 01:35	1
Total BTEX	<0.00399	U	0.00399		mg/Kg		08/11/21 09:15	08/12/21 01:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*115*		*70 - 130*	*08/11/21 09:15*	*08/12/21 01:35*	*1*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*	*08/11/21 09:15*	*08/12/21 01:35*	*1*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U *- *1	50.0		mg/Kg		08/17/21 11:00	08/17/21 19:50	1
Diesel Range Organics (Over C10-C28)	**98.2**	***- *1**	50.0		mg/Kg		08/17/21 11:00	08/17/21 19:50	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		08/17/21 11:00	08/17/21 19:50	1
Total TPH	**98.2**		50.0		mg/Kg		08/17/21 11:00	08/17/21 19:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*102*		*70 - 130*	*08/17/21 11:00*	*08/17/21 19:50*	*1*
o-Terphenyl	*111*		*70 - 130*	*08/17/21 11:00*	*08/17/21 19:50*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**290**		4.97		mg/Kg			08/12/21 19:14	1

Client Sample ID: BH03

Date Collected: 08/06/21 15:05
Date Received: 08/09/21 17:00
Sample Depth: 0.75 - 1

Lab Sample ID: 890-1079-5

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198		mg/Kg		08/11/21 09:15	08/12/21 01:56	1
Toluene	<0.00198	U	0.00198		mg/Kg		08/11/21 09:15	08/12/21 01:56	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		08/11/21 09:15	08/12/21 01:56	1
m-Xylene & p-Xylene	<0.00396	U	0.00396		mg/Kg		08/11/21 09:15	08/12/21 01:56	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		08/11/21 09:15	08/12/21 01:56	1
Xylenes, Total	<0.00396	U	0.00396		mg/Kg		08/11/21 09:15	08/12/21 01:56	1
Total BTEX	<0.00396	U	0.00396		mg/Kg		08/11/21 09:15	08/12/21 01:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*137*	*S1+*	*70 - 130*	*08/11/21 09:15*	*08/12/21 01:56*	*1*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*	*08/11/21 09:15*	*08/12/21 01:56*	*1*

Client Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Client Sample ID: BH03
Date Collected: 08/06/21 15:05
Date Received: 08/09/21 17:00
Sample Depth: 0.75 - 1

Lab Sample ID: 890-1079-5
Matrix: Solid

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		08/11/21 13:53	08/12/21 00:32	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		08/11/21 13:53	08/12/21 00:32	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		08/11/21 13:53	08/12/21 00:32	1
Total TPH	<49.8	U	49.8		mg/Kg		08/11/21 13:53	08/12/21 00:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*94*		*70 - 130*	*08/11/21 13:53*	*08/12/21 00:32*	*1*
o-Terphenyl	*96*		*70 - 130*	*08/11/21 13:53*	*08/12/21 00:32*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**91.6**		5.02		mg/Kg			08/12/21 19:19	1

Client Sample ID: BH03
Date Collected: 08/06/21 15:20
Date Received: 08/09/21 17:00
Sample Depth: 1.25 - 1.5

Lab Sample ID: 890-1079-6
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		08/11/21 09:15	08/12/21 02:16	1
Toluene	<0.00199	U	0.00199		mg/Kg		08/11/21 09:15	08/12/21 02:16	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		08/11/21 09:15	08/12/21 02:16	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		08/11/21 09:15	08/12/21 02:16	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		08/11/21 09:15	08/12/21 02:16	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		08/11/21 09:15	08/12/21 02:16	1
Total BTEX	<0.00398	U	0.00398		mg/Kg		08/11/21 09:15	08/12/21 02:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*129*		*70 - 130*	*08/11/21 09:15*	*08/12/21 02:16*	*1*
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*	*08/11/21 09:15*	*08/12/21 02:16*	*1*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		08/11/21 13:53	08/12/21 00:53	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		08/11/21 13:53	08/12/21 00:53	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		08/11/21 13:53	08/12/21 00:53	1
Total TPH	<49.9	U	49.9		mg/Kg		08/11/21 13:53	08/12/21 00:53	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*89*		*70 - 130*	*08/11/21 13:53*	*08/12/21 00:53*	*1*
o-Terphenyl	*93*		*70 - 130*	*08/11/21 13:53*	*08/12/21 00:53*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**133**		4.98		mg/Kg			08/12/21 19:25	1

Client Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Client Sample ID: BH04
Date Collected: 08/06/21 15:37
Date Received: 08/09/21 17:00
Sample Depth: 0.75 - 1

Lab Sample ID: 890-1079-7
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		08/11/21 09:15	08/12/21 02:36	1
Toluene	<0.00199	U	0.00199		mg/Kg		08/11/21 09:15	08/12/21 02:36	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		08/11/21 09:15	08/12/21 02:36	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		08/11/21 09:15	08/12/21 02:36	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		08/11/21 09:15	08/12/21 02:36	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		08/11/21 09:15	08/12/21 02:36	1
Total BTEX	<0.00398	U	0.00398		mg/Kg		08/11/21 09:15	08/12/21 02:36	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*125*		*70 - 130*	*08/11/21 09:15*	*08/12/21 02:36*	*1*
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*	*08/11/21 09:15*	*08/12/21 02:36*	*1*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		08/11/21 13:53	08/12/21 01:14	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		08/11/21 13:53	08/12/21 01:14	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		08/11/21 13:53	08/12/21 01:14	1
Total TPH	<49.9	U	49.9		mg/Kg		08/11/21 13:53	08/12/21 01:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*114*		*70 - 130*	*08/11/21 13:53*	*08/12/21 01:14*	*1*
o-Terphenyl	*119*		*70 - 130*	*08/11/21 13:53*	*08/12/21 01:14*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**18.0**		5.04		mg/Kg			08/12/21 19:42	1

Client Sample ID: BH04
Date Collected: 08/06/21 15:53
Date Received: 08/09/21 17:00
Sample Depth: 1.25 - 1.5

Lab Sample ID: 890-1079-8
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202		mg/Kg		08/11/21 09:15	08/12/21 02:57	1
Toluene	<0.00202	U	0.00202		mg/Kg		08/11/21 09:15	08/12/21 02:57	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		08/11/21 09:15	08/12/21 02:57	1
m-Xylene & p-Xylene	<0.00404	U	0.00404		mg/Kg		08/11/21 09:15	08/12/21 02:57	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		08/11/21 09:15	08/12/21 02:57	1
Xylenes, Total	<0.00404	U	0.00404		mg/Kg		08/11/21 09:15	08/12/21 02:57	1
Total BTEX	<0.00404	U	0.00404		mg/Kg		08/11/21 09:15	08/12/21 02:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*136*	*S1+*	*70 - 130*	*08/11/21 09:15*	*08/12/21 02:57*	*1*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*	*08/11/21 09:15*	*08/12/21 02:57*	*1*

Client Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Client Sample ID: BH04

Date Collected: 08/06/21 15:53
Date Received: 08/09/21 17:00
Sample Depth: 1.25 - 1.5

Lab Sample ID: 890-1079-8
Matrix: Solid

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		08/11/21 13:53	08/12/21 01:35	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		08/11/21 13:53	08/12/21 01:35	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		08/11/21 13:53	08/12/21 01:35	1
Total TPH	<49.8	U	49.8		mg/Kg		08/11/21 13:53	08/12/21 01:35	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*111*		*70 - 130*	*08/11/21 13:53*	*08/12/21 01:35*	*1*
o-Terphenyl	*114*		*70 - 130*	*08/11/21 13:53*	*08/12/21 01:35*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**18.9**		4.97		mg/Kg			08/12/21 19:47	1

Client Sample ID: BH05

Date Collected: 08/06/21 16:15
Date Received: 08/09/21 17:00
Sample Depth: 0.75 - 1

Lab Sample ID: 890-1079-9
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 04:18	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 04:18	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 04:18	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		08/11/21 09:15	08/12/21 04:18	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 04:18	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		08/11/21 09:15	08/12/21 04:18	1
Total BTEX	<0.00401	U	0.00401		mg/Kg		08/11/21 09:15	08/12/21 04:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*134*	*S1+*	*70 - 130*	*08/11/21 09:15*	*08/12/21 04:18*	*1*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*	*08/11/21 09:15*	*08/12/21 04:18*	*1*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		08/11/21 13:53	08/12/21 02:16	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		08/11/21 13:53	08/12/21 02:16	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		08/11/21 13:53	08/12/21 02:16	1
Total TPH	<50.0	U	50.0		mg/Kg		08/11/21 13:53	08/12/21 02:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*98*		*70 - 130*	*08/11/21 13:53*	*08/12/21 02:16*	*1*
o-Terphenyl	*102*		*70 - 130*	*08/11/21 13:53*	*08/12/21 02:16*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**34.2**		4.95		mg/Kg			08/12/21 20:04	1

Client Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Client Sample ID: BH05

Date Collected: 08/06/21 16:25
Date Received: 08/09/21 17:00
Sample Depth: 1.25 - 1.5

Lab Sample ID: 890-1079-10

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 04:39	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 04:39	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 04:39	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		08/11/21 09:15	08/12/21 04:39	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 04:39	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		08/11/21 09:15	08/12/21 04:39	1
Total BTEX	<0.00401	U	0.00401		mg/Kg		08/11/21 09:15	08/12/21 04:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*136*	*S1+*	*70 - 130*	*08/11/21 09:15*	*08/12/21 04:39*	*1*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*	*08/11/21 09:15*	*08/12/21 04:39*	*1*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		08/11/21 13:53	08/12/21 02:37	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		08/11/21 13:53	08/12/21 02:37	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		08/11/21 13:53	08/12/21 02:37	1
Total TPH	<50.0	U	50.0		mg/Kg		08/11/21 13:53	08/12/21 02:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*104*		*70 - 130*	*08/11/21 13:53*	*08/12/21 02:37*	*1*
o-Terphenyl	*110*		*70 - 130*	*08/11/21 13:53*	*08/12/21 02:37*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**30.5**		4.95		mg/Kg			08/12/21 20:10	1

Client Sample ID: BH06

Date Collected: 08/06/21 16:40
Date Received: 08/09/21 17:00
Sample Depth: 0.75 - 1

Lab Sample ID: 890-1079-11

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202		mg/Kg		08/11/21 09:15	08/12/21 04:59	1
Toluene	<0.00202	U	0.00202		mg/Kg		08/11/21 09:15	08/12/21 04:59	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		08/11/21 09:15	08/12/21 04:59	1
m-Xylene & p-Xylene	<0.00403	U	0.00403		mg/Kg		08/11/21 09:15	08/12/21 04:59	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		08/11/21 09:15	08/12/21 04:59	1
Xylenes, Total	<0.00403	U	0.00403		mg/Kg		08/11/21 09:15	08/12/21 04:59	1
Total BTEX	<0.00403	U	0.00403		mg/Kg		08/11/21 09:15	08/12/21 04:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*124*		*70 - 130*	*08/11/21 09:15*	*08/12/21 04:59*	*1*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*	*08/11/21 09:15*	*08/12/21 04:59*	*1*

Client Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Client Sample ID: BH06
Date Collected: 08/06/21 16:40
Date Received: 08/09/21 17:00
Sample Depth: 0.75 - 1

Lab Sample ID: 890-1079-11
Matrix: Solid

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		08/11/21 13:53	08/12/21 02:58	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		08/11/21 13:53	08/12/21 02:58	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		08/11/21 13:53	08/12/21 02:58	1
Total TPH	<49.9	U	49.9		mg/Kg		08/11/21 13:53	08/12/21 02:58	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*96*		*70 - 130*	*08/11/21 13:53*	*08/12/21 02:58*	*1*
o-Terphenyl	*100*		*70 - 130*	*08/11/21 13:53*	*08/12/21 02:58*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**150**		5.00		mg/Kg			08/12/21 20:15	1

Client Sample ID: BH06
Date Collected: 08/06/21 16:58
Date Received: 08/09/21 17:00
Sample Depth: 1.25 - 1.5

Lab Sample ID: 890-1079-12
Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 05:20	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 05:20	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 05:20	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		08/11/21 09:15	08/12/21 05:20	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/12/21 05:20	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		08/11/21 09:15	08/12/21 05:20	1
Total BTEX	<0.00399	U	0.00399		mg/Kg		08/11/21 09:15	08/12/21 05:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*129*		*70 - 130*	*08/11/21 09:15*	*08/12/21 05:20*	*1*
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*	*08/11/21 09:15*	*08/12/21 05:20*	*1*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		08/11/21 13:53	08/12/21 03:19	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		08/11/21 13:53	08/12/21 03:19	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		08/11/21 13:53	08/12/21 03:19	1
Total TPH	<49.9	U	49.9		mg/Kg		08/11/21 13:53	08/12/21 03:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*114*		*70 - 130*	*08/11/21 13:53*	*08/12/21 03:19*	*1*
o-Terphenyl	*118*		*70 - 130*	*08/11/21 13:53*	*08/12/21 03:19*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**176**		5.00		mg/Kg			08/12/21 20:21	1

Surrogate Summary

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
890-1073-A-2-D MS	Matrix Spike	118	109
890-1073-A-2-E MSD	Matrix Spike Duplicate	124	101
890-1079-1	BH01	145 S1+	98
890-1079-2	BH01	128	102
890-1079-3	BH02	132 S1+	105
890-1079-4	BH02	115	105
890-1079-5	BH03	137 S1+	98
890-1079-6	BH03	129	94
890-1079-7	BH04	125	94
890-1079-8	BH04	136 S1+	100
890-1079-9	BH05	134 S1+	98
890-1079-10	BH05	136 S1+	95
890-1079-11	BH06	124	95
890-1079-12	BH06	129	94
LCS 880-6355/1-A	Lab Control Sample	113	106
LCSD 880-6355/2-A	Lab Control Sample Dup	107	104
MB 880-6333/5-A	Method Blank	104	95
MB 880-6355/5-A	Method Blank	93	95

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-5004-A-1-H MS	Matrix Spike	87	78
880-5004-A-1-I MSD	Matrix Spike Duplicate	91	79
890-1079-1	BH01	97	98
890-1079-2	BH01	96	99
890-1079-3	BH02	94	98
890-1079-4	BH02	102	111
890-1079-5	BH03	94	96
890-1079-6	BH03	89	93
890-1079-7	BH04	114	119
890-1079-8	BH04	111	114
890-1079-9	BH05	98	102
890-1079-10	BH05	104	110
890-1079-11	BH06	96	100
890-1079-12	BH06	114	118
890-1111-A-21-F MS	Matrix Spike	92	87
890-1111-A-21-G MSD	Matrix Spike Duplicate	94	90
LCS 880-6405/2-A	Lab Control Sample	97	92
LCS 880-6627/2-A	Lab Control Sample	82	97
LCSD 880-6405/3-A	Lab Control Sample Dup	86	80
LCSD 880-6627/3-A	Lab Control Sample Dup	108	106
MB 880-6405/1-A	Method Blank	86	89

Surrogate Summary

Client: WSP USA Inc. Job ID: 890-1079-1
Project/Site: Liza Jane Federal #1 SDG: Roosevelt County

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
		1CO1	OTPH1								
Lab Sample ID	Client Sample ID	(70-130)	(70-130)								
MB 880-6627/1-A	Method Blank	114	126								

Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

QC Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-6333/5-A
Matrix: Solid
Analysis Batch: 6365

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 6333

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/11/21 10:00	08/11/21 12:40	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/11/21 10:00	08/11/21 12:40	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/11/21 10:00	08/11/21 12:40	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		08/11/21 10:00	08/11/21 12:40	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/11/21 10:00	08/11/21 12:40	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		08/11/21 10:00	08/11/21 12:40	1
Total BTEX	<0.00400	U	0.00400		mg/Kg		08/11/21 10:00	08/11/21 12:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*	*08/11/21 10:00*	*08/11/21 12:40*	*1*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*	*08/11/21 10:00*	*08/11/21 12:40*	*1*

Lab Sample ID: MB 880-6355/5-A
Matrix: Solid
Analysis Batch: 6365

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 6355

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/11/21 23:32	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/11/21 23:32	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/11/21 23:32	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		08/11/21 09:15	08/11/21 23:32	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/11/21 09:15	08/11/21 23:32	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		08/11/21 09:15	08/11/21 23:32	1
Total BTEX	<0.00400	U	0.00400		mg/Kg		08/11/21 09:15	08/11/21 23:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*	*08/11/21 09:15*	*08/11/21 23:32*	*1*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*	*08/11/21 09:15*	*08/11/21 23:32*	*1*

Lab Sample ID: LCS 880-6355/1-A
Matrix: Solid
Analysis Batch: 6365

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 6355

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			0.100	0.1013		mg/Kg		101	70 - 130		
Toluene			0.100	0.09167		mg/Kg		92	70 - 130		
Ethylbenzene			0.100	0.09180		mg/Kg		92	70 - 130		
m-Xylene & p-Xylene			0.200	0.1906		mg/Kg		95	70 - 130		
o-Xylene			0.100	0.09547		mg/Kg		95	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*113*		*70 - 130*
1,4-Difluorobenzene (Surr)	*106*		*70 - 130*

QC Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCSD 880-6355/2-A
Matrix: Solid
Analysis Batch: 6365

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 6355

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.100	0.1025		mg/Kg		102	70 - 130	1	35
Toluene			0.100	0.09444		mg/Kg		94	70 - 130	3	35
Ethylbenzene			0.100	0.09414		mg/Kg		94	70 - 130	3	35
m-Xylene & p-Xylene			0.200	0.1922		mg/Kg		96	70 - 130	1	35
o-Xylene			0.100	0.09627		mg/Kg		96	70 - 130	1	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*

Lab Sample ID: 890-1073-A-2-D MS
Matrix: Solid
Analysis Batch: 6365

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 6355

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.00200	U F1	0.100	0.09317		mg/Kg		93	70 - 130
Toluene	<0.00200	U	0.100	0.07547		mg/Kg		74	70 - 130
Ethylbenzene	0.00272	F1	0.100	0.06384	F1	mg/Kg		61	70 - 130
m-Xylene & p-Xylene	<0.00399	U F1	0.201	0.1343	F1	mg/Kg		66	70 - 130
o-Xylene	0.00523	F1	0.100	0.07599		mg/Kg		70	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*118*		*70 - 130*
1,4-Difluorobenzene (Surr)	*109*		*70 - 130*

Lab Sample ID: 890-1073-A-2-E MSD
Matrix: Solid
Analysis Batch: 6365

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 6355

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.00200	U F1	0.100	0.06656	F1	mg/Kg		67	70 - 130	33	35
Toluene	<0.00200	U	0.100	0.07459		mg/Kg		74	70 - 130	1	35
Ethylbenzene	0.00272	F1	0.100	0.05935	F1	mg/Kg		57	70 - 130	7	35
m-Xylene & p-Xylene	<0.00399	U F1	0.200	0.1406	F1	mg/Kg		69	70 - 130	5	35
o-Xylene	0.00523	F1	0.100	0.07436	F1	mg/Kg		69	70 - 130	2	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*124*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

QC Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-6405/1-A
Matrix: Solid
Analysis Batch: 6366

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 6405

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		08/11/21 13:53	08/11/21 20:41	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		08/11/21 13:53	08/11/21 20:41	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		08/11/21 13:53	08/11/21 20:41	1
Total TPH	<50.0	U	50.0		mg/Kg		08/11/21 13:53	08/11/21 20:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*86*		*70 - 130*	*08/11/21 13:53*	*08/11/21 20:41*	*1*
o-Terphenyl	*89*		*70 - 130*	*08/11/21 13:53*	*08/11/21 20:41*	*1*

Lab Sample ID: LCS 880-6405/2-A
Matrix: Solid
Analysis Batch: 6366

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 6405

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	919.3		mg/Kg		92	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	1009		mg/Kg		101	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*97*		*70 - 130*
o-Terphenyl	*92*		*70 - 130*

Lab Sample ID: LCSD 880-6405/3-A
Matrix: Solid
Analysis Batch: 6366

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 6405

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	846.6		mg/Kg		85	70 - 130	8	20
Diesel Range Organics (Over C10-C28)			1000	888.7		mg/Kg		89	70 - 130	13	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*86*		*70 - 130*
o-Terphenyl	*80*		*70 - 130*

Lab Sample ID: 880-5004-A-1-H MS
Matrix: Solid
Analysis Batch: 6366

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 6405

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	995	987.1		mg/Kg		99	70 - 130		
Diesel Range Organics (Over C10-C28)	<50.0	U	995	1100		mg/Kg		111	70 - 130		

QC Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 880-5004-A-1-H MS
Matrix: Solid
Analysis Batch: 6366

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 6405

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	87		70 - 130
o-Terphenyl	78		70 - 130

Lab Sample ID: 880-5004-A-1-I MSD
Matrix: Solid
Analysis Batch: 6366

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 6405

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	998	1018		mg/Kg		102	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	<50.0	U	998	1140		mg/Kg		114	70 - 130	4	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	91		70 - 130
o-Terphenyl	79		70 - 130

Lab Sample ID: MB 880-6627/1-A
Matrix: Solid
Analysis Batch: 6628

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 6627

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		08/16/21 17:01	08/17/21 11:33	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		08/16/21 17:01	08/17/21 11:33	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		08/16/21 17:01	08/17/21 11:33	1
Total TPH	<50.0	U	50.0		mg/Kg		08/16/21 17:01	08/17/21 11:33	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	114		70 - 130	08/16/21 17:01	08/17/21 11:33	1
o-Terphenyl	126		70 - 130	08/16/21 17:01	08/17/21 11:33	1

Lab Sample ID: LCS 880-6627/2-A
Matrix: Solid
Analysis Batch: 6628

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 6627

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	654.9	*-	mg/Kg		65	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	588.3	*-	mg/Kg		59	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	82		70 - 130
o-Terphenyl	97		70 - 130

QC Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCSD 880-6627/3-A
Matrix: Solid
Analysis Batch: 6628

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 6627

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	1294	*1	mg/Kg		129	70 - 130	66	20
Diesel Range Organics (Over C10-C28)			1000	915.5	*1	mg/Kg		92	70 - 130	44	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*108*		*70 - 130*
o-Terphenyl	*106*		*70 - 130*

Lab Sample ID: 890-1111-A-21-F MS
Matrix: Solid
Analysis Batch: 6628

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 6627

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	<50.0	U *- *1	995	970.5		mg/Kg		98	70 - 130
Diesel Range Organics (Over C10-C28)	182	*- *1	995	988.8		mg/Kg		81	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*92*		*70 - 130*
o-Terphenyl	*87*		*70 - 130*

Lab Sample ID: 890-1111-A-21-G MSD
Matrix: Solid
Analysis Batch: 6628

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 6627

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U *- *1	998	995.1		mg/Kg		100	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	182	*- *1	998	1009		mg/Kg		83	70 - 130	2	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*94*		*70 - 130*
o-Terphenyl	*90*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-6322/1-A
Matrix: Solid
Analysis Batch: 6408

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			08/12/21 17:50	1

QC Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 880-6322/2-A
Matrix: Solid
Analysis Batch: 6408

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			250	256.7		mg/Kg		103	90 - 110		

Lab Sample ID: LCSD 880-6322/3-A
Matrix: Solid
Analysis Batch: 6408

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			250	257.1		mg/Kg		103	90 - 110	0	20

Lab Sample ID: 890-1079-6 MS
Matrix: Solid
Analysis Batch: 6408

Client Sample ID: BH03
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	133		249	392.6		mg/Kg		104	90 - 110		

Lab Sample ID: 890-1079-6 MSD
Matrix: Solid
Analysis Batch: 6408

Client Sample ID: BH03
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	133		249	392.2		mg/Kg		104	90 - 110	0	20

Lab Sample ID: MB 880-6679/1-A
Matrix: Solid
Analysis Batch: 6680

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			08/17/21 15:18	1

Lab Sample ID: LCS 880-6679/2-A
Matrix: Solid
Analysis Batch: 6680

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			250	253.9		mg/Kg		102	90 - 110		

Lab Sample ID: LCSD 880-6679/3-A
Matrix: Solid
Analysis Batch: 6680

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			250	255.0		mg/Kg		102	90 - 110	0	20

Lab Sample ID: 890-1113-A-2-E MS
Matrix: Solid
Analysis Batch: 6680

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	729	F1	250	935.7	F1	mg/Kg		83	90 - 110		

QC Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 890-1113-A-2-F MSD
Matrix: Solid
Analysis Batch: 6680

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	729	F1	250	935.5	F1	mg/Kg		83	90 - 110	0	20

Lab Sample ID: MB 880-6605/1-A
Matrix: Solid
Analysis Batch: 6765

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			08/19/21 08:32	1

Lab Sample ID: LCS 880-6605/2-A
Matrix: Solid
Analysis Batch: 6765

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			250	257.5		mg/Kg		103	90 - 110		

Lab Sample ID: LCSD 880-6605/3-A
Matrix: Solid
Analysis Batch: 6765

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			250	257.6		mg/Kg		103	90 - 110	0	20

Lab Sample ID: 890-1112-A-3-C MS
Matrix: Solid
Analysis Batch: 6765

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	36.6		249	308.1		mg/Kg		109	90 - 110		

Lab Sample ID: 890-1112-A-3-D MSD
Matrix: Solid
Analysis Batch: 6765

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	36.6		249	308.5		mg/Kg		109	90 - 110	0	20

QC Association Summary

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

GC VOA

Prep Batch: 6333

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-6333/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 6355

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1079-1	BH01	Total/NA	Solid	5035	
890-1079-2	BH01	Total/NA	Solid	5035	
890-1079-3	BH02	Total/NA	Solid	5035	
890-1079-4	BH02	Total/NA	Solid	5035	
890-1079-5	BH03	Total/NA	Solid	5035	
890-1079-6	BH03	Total/NA	Solid	5035	
890-1079-7	BH04	Total/NA	Solid	5035	
890-1079-8	BH04	Total/NA	Solid	5035	
890-1079-9	BH05	Total/NA	Solid	5035	
890-1079-10	BH05	Total/NA	Solid	5035	
890-1079-11	BH06	Total/NA	Solid	5035	
890-1079-12	BH06	Total/NA	Solid	5035	
MB 880-6355/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-6355/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-6355/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-1073-A-2-D MS	Matrix Spike	Total/NA	Solid	5035	
890-1073-A-2-E MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 6365

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1079-1	BH01	Total/NA	Solid	8021B	6355
890-1079-2	BH01	Total/NA	Solid	8021B	6355
890-1079-3	BH02	Total/NA	Solid	8021B	6355
890-1079-4	BH02	Total/NA	Solid	8021B	6355
890-1079-5	BH03	Total/NA	Solid	8021B	6355
890-1079-6	BH03	Total/NA	Solid	8021B	6355
890-1079-7	BH04	Total/NA	Solid	8021B	6355
890-1079-8	BH04	Total/NA	Solid	8021B	6355
890-1079-9	BH05	Total/NA	Solid	8021B	6355
890-1079-10	BH05	Total/NA	Solid	8021B	6355
890-1079-11	BH06	Total/NA	Solid	8021B	6355
890-1079-12	BH06	Total/NA	Solid	8021B	6355
MB 880-6333/5-A	Method Blank	Total/NA	Solid	8021B	6333
MB 880-6355/5-A	Method Blank	Total/NA	Solid	8021B	6355
LCS 880-6355/1-A	Lab Control Sample	Total/NA	Solid	8021B	6355
LCSD 880-6355/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	6355
890-1073-A-2-D MS	Matrix Spike	Total/NA	Solid	8021B	6355
890-1073-A-2-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	6355

GC Semi VOA

Analysis Batch: 6366

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1079-1	BH01	Total/NA	Solid	8015B NM	6405
890-1079-2	BH01	Total/NA	Solid	8015B NM	6405
890-1079-3	BH02	Total/NA	Solid	8015B NM	6405
890-1079-5	BH03	Total/NA	Solid	8015B NM	6405

QC Association Summary

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

GC Semi VOA (Continued)

Analysis Batch: 6366 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1079-6	BH03	Total/NA	Solid	8015B NM	6405
890-1079-7	BH04	Total/NA	Solid	8015B NM	6405
890-1079-8	BH04	Total/NA	Solid	8015B NM	6405
890-1079-9	BH05	Total/NA	Solid	8015B NM	6405
890-1079-10	BH05	Total/NA	Solid	8015B NM	6405
890-1079-11	BH06	Total/NA	Solid	8015B NM	6405
890-1079-12	BH06	Total/NA	Solid	8015B NM	6405
MB 880-6405/1-A	Method Blank	Total/NA	Solid	8015B NM	6405
LCS 880-6405/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	6405
LCSD 880-6405/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	6405
880-5004-A-1-H MS	Matrix Spike	Total/NA	Solid	8015B NM	6405
880-5004-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	6405

Prep Batch: 6405

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1079-1	BH01	Total/NA	Solid	8015NM Prep	
890-1079-2	BH01	Total/NA	Solid	8015NM Prep	
890-1079-3	BH02	Total/NA	Solid	8015NM Prep	
890-1079-5	BH03	Total/NA	Solid	8015NM Prep	
890-1079-6	BH03	Total/NA	Solid	8015NM Prep	
890-1079-7	BH04	Total/NA	Solid	8015NM Prep	
890-1079-8	BH04	Total/NA	Solid	8015NM Prep	
890-1079-9	BH05	Total/NA	Solid	8015NM Prep	
890-1079-10	BH05	Total/NA	Solid	8015NM Prep	
890-1079-11	BH06	Total/NA	Solid	8015NM Prep	
890-1079-12	BH06	Total/NA	Solid	8015NM Prep	
MB 880-6405/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-6405/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-6405/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-5004-A-1-H MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-5004-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Prep Batch: 6627

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1079-4	BH02	Total/NA	Solid	8015NM Prep	
MB 880-6627/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-6627/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-6627/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-1111-A-21-F MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-1111-A-21-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 6628

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1079-4	BH02	Total/NA	Solid	8015B NM	6627
MB 880-6627/1-A	Method Blank	Total/NA	Solid	8015B NM	6627
LCS 880-6627/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	6627
LCSD 880-6627/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	6627
890-1111-A-21-F MS	Matrix Spike	Total/NA	Solid	8015B NM	6627
890-1111-A-21-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	6627

QC Association Summary

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

HPLC/IC

Leach Batch: 6322

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1079-1	BH01	Soluble	Solid	DI Leach	
890-1079-3	BH02	Soluble	Solid	DI Leach	
890-1079-4	BH02	Soluble	Solid	DI Leach	
890-1079-5	BH03	Soluble	Solid	DI Leach	
890-1079-6	BH03	Soluble	Solid	DI Leach	
890-1079-7	BH04	Soluble	Solid	DI Leach	
890-1079-8	BH04	Soluble	Solid	DI Leach	
890-1079-9	BH05	Soluble	Solid	DI Leach	
890-1079-10	BH05	Soluble	Solid	DI Leach	
890-1079-11	BH06	Soluble	Solid	DI Leach	
890-1079-12	BH06	Soluble	Solid	DI Leach	
MB 880-6322/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-6322/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-6322/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-1079-6 MS	BH03	Soluble	Solid	DI Leach	
890-1079-6 MSD	BH03	Soluble	Solid	DI Leach	

Analysis Batch: 6408

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1079-1	BH01	Soluble	Solid	300.0	6322
890-1079-3	BH02	Soluble	Solid	300.0	6322
890-1079-4	BH02	Soluble	Solid	300.0	6322
890-1079-5	BH03	Soluble	Solid	300.0	6322
890-1079-6	BH03	Soluble	Solid	300.0	6322
890-1079-7	BH04	Soluble	Solid	300.0	6322
890-1079-8	BH04	Soluble	Solid	300.0	6322
890-1079-9	BH05	Soluble	Solid	300.0	6322
890-1079-10	BH05	Soluble	Solid	300.0	6322
890-1079-11	BH06	Soluble	Solid	300.0	6322
890-1079-12	BH06	Soluble	Solid	300.0	6322
MB 880-6322/1-A	Method Blank	Soluble	Solid	300.0	6322
LCS 880-6322/2-A	Lab Control Sample	Soluble	Solid	300.0	6322
LCSD 880-6322/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	6322
890-1079-6 MS	BH03	Soluble	Solid	300.0	6322
890-1079-6 MSD	BH03	Soluble	Solid	300.0	6322

Leach Batch: 6605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1079-2	BH01	Soluble	Solid	DI Leach	
MB 880-6605/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-6605/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-6605/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-1112-A-3-C MS	Matrix Spike	Soluble	Solid	DI Leach	
890-1112-A-3-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Leach Batch: 6679

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-6679/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-6679/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-6679/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-1113-A-2-E MS	Matrix Spike	Soluble	Solid	DI Leach	

QC Association Summary

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

HPLC/IC (Continued)

Leach Batch: 6679 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1113-A-2-F MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 6680

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-6679/1-A	Method Blank	Soluble	Solid	300.0	6679
LCS 880-6679/2-A	Lab Control Sample	Soluble	Solid	300.0	6679
LCSD 880-6679/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	6679
890-1113-A-2-E MS	Matrix Spike	Soluble	Solid	300.0	6679
890-1113-A-2-F MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	6679

Analysis Batch: 6765

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1079-2	BH01	Soluble	Solid	300.0	6605
MB 880-6605/1-A	Method Blank	Soluble	Solid	300.0	6605
LCS 880-6605/2-A	Lab Control Sample	Soluble	Solid	300.0	6605
LCSD 880-6605/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	6605
890-1112-A-3-C MS	Matrix Spike	Soluble	Solid	300.0	6605
890-1112-A-3-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	6605

Lab Chronicle

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Client Sample ID: BH01
Date Collected: 08/06/21 12:35
Date Received: 08/09/21 17:00

Lab Sample ID: 890-1079-1
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	6355	08/11/21 09:15	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	6365	08/12/21 00:34	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	6405	08/11/21 13:53	DM	XEN MID
Total/NA	Analysis	8015B NM		1			6366	08/11/21 23:09	AJ	XEN MID
Soluble	Leach	DI Leach			4.96 g	50 mL	6322	08/10/21 11:49	CH	XEN MID
Soluble	Analysis	300.0		1			6408	08/12/21 18:57	CH	XEN MID

Client Sample ID: BH01
Date Collected: 08/06/21 13:05
Date Received: 08/09/21 17:00

Lab Sample ID: 890-1079-2
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	6355	08/11/21 09:15	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	6365	08/12/21 00:54	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	6405	08/11/21 13:53	DM	XEN MID
Total/NA	Analysis	8015B NM		1			6366	08/11/21 23:30	AJ	XEN MID
Soluble	Leach	DI Leach			5.04 g	50 mL	6605	08/16/21 11:22	CH	XEN MID
Soluble	Analysis	300.0		1			6765	08/19/21 11:03	CH	XEN MID

Client Sample ID: BH02
Date Collected: 08/06/21 13:53
Date Received: 08/09/21 17:00

Lab Sample ID: 890-1079-3
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	6355	08/11/21 09:15	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	6365	08/12/21 01:15	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.05 g	10 mL	6405	08/11/21 13:53	DM	XEN MID
Total/NA	Analysis	8015B NM		1			6366	08/11/21 23:51	AJ	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	6322	08/10/21 11:49	CH	XEN MID
Soluble	Analysis	300.0		1			6408	08/12/21 19:08	CH	XEN MID

Client Sample ID: BH02
Date Collected: 08/06/21 14:22
Date Received: 08/09/21 17:00

Lab Sample ID: 890-1079-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	6355	08/11/21 09:15	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	6365	08/12/21 01:35	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	6627	08/17/21 11:00	DM	XEN MID
Total/NA	Analysis	8015B NM		1			6628	08/17/21 19:50	AJ	XEN MID
Soluble	Leach	DI Leach			5.03 g	50 mL	6322	08/10/21 11:49	CH	XEN MID
Soluble	Analysis	300.0		1			6408	08/12/21 19:14	CH	XEN MID

Lab Chronicle

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Client Sample ID: BH03
Date Collected: 08/06/21 15:05
Date Received: 08/09/21 17:00

Lab Sample ID: 890-1079-5
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	6355	08/11/21 09:15	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	6365	08/12/21 01:56	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	6405	08/11/21 13:53	DM	XEN MID
Total/NA	Analysis	8015B NM		1			6366	08/12/21 00:32	AJ	XEN MID
Soluble	Leach	DI Leach			4.98 g	50 mL	6322	08/10/21 11:49	CH	XEN MID
Soluble	Analysis	300.0		1			6408	08/12/21 19:19	CH	XEN MID

Client Sample ID: BH03
Date Collected: 08/06/21 15:20
Date Received: 08/09/21 17:00

Lab Sample ID: 890-1079-6
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	6355	08/11/21 09:15	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	6365	08/12/21 02:16	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	6405	08/11/21 13:53	DM	XEN MID
Total/NA	Analysis	8015B NM		1			6366	08/12/21 00:53	AJ	XEN MID
Soluble	Leach	DI Leach			5.02 g	50 mL	6322	08/10/21 11:49	CH	XEN MID
Soluble	Analysis	300.0		1			6408	08/12/21 19:25	CH	XEN MID

Client Sample ID: BH04
Date Collected: 08/06/21 15:37
Date Received: 08/09/21 17:00

Lab Sample ID: 890-1079-7
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	6355	08/11/21 09:15	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	6365	08/12/21 02:36	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	6405	08/11/21 13:53	DM	XEN MID
Total/NA	Analysis	8015B NM		1			6366	08/12/21 01:14	AJ	XEN MID
Soluble	Leach	DI Leach			4.96 g	50 mL	6322	08/10/21 11:49	CH	XEN MID
Soluble	Analysis	300.0		1			6408	08/12/21 19:42	CH	XEN MID

Client Sample ID: BH04
Date Collected: 08/06/21 15:53
Date Received: 08/09/21 17:00

Lab Sample ID: 890-1079-8
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.95 g	5 mL	6355	08/11/21 09:15	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	6365	08/12/21 02:57	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	6405	08/11/21 13:53	DM	XEN MID
Total/NA	Analysis	8015B NM		1			6366	08/12/21 01:35	AJ	XEN MID
Soluble	Leach	DI Leach			5.03 g	50 mL	6322	08/10/21 11:49	CH	XEN MID
Soluble	Analysis	300.0		1			6408	08/12/21 19:47	CH	XEN MID

Lab Chronicle

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Client Sample ID: BH05
Date Collected: 08/06/21 16:15
Date Received: 08/09/21 17:00

Lab Sample ID: 890-1079-9
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	6355	08/11/21 09:15	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	6365	08/12/21 04:18	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	6405	08/11/21 13:53	DM	XEN MID
Total/NA	Analysis	8015B NM		1			6366	08/12/21 02:16	AJ	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	6322	08/10/21 11:49	CH	XEN MID
Soluble	Analysis	300.0		1			6408	08/12/21 20:04	CH	XEN MID

Client Sample ID: BH05
Date Collected: 08/06/21 16:25
Date Received: 08/09/21 17:00

Lab Sample ID: 890-1079-10
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	6355	08/11/21 09:15	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	6365	08/12/21 04:39	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	6405	08/11/21 13:53	DM	XEN MID
Total/NA	Analysis	8015B NM		1			6366	08/12/21 02:37	AJ	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	6322	08/10/21 11:49	CH	XEN MID
Soluble	Analysis	300.0		1			6408	08/12/21 20:10	CH	XEN MID

Client Sample ID: BH06
Date Collected: 08/06/21 16:40
Date Received: 08/09/21 17:00

Lab Sample ID: 890-1079-11
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	6355	08/11/21 09:15	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	6365	08/12/21 04:59	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	6405	08/11/21 13:53	DM	XEN MID
Total/NA	Analysis	8015B NM		1			6366	08/12/21 02:58	AJ	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	6322	08/10/21 11:49	CH	XEN MID
Soluble	Analysis	300.0		1			6408	08/12/21 20:15	CH	XEN MID

Client Sample ID: BH06
Date Collected: 08/06/21 16:58
Date Received: 08/09/21 17:00

Lab Sample ID: 890-1079-12
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	6355	08/11/21 09:15	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	6365	08/12/21 05:20	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	6405	08/11/21 13:53	DM	XEN MID
Total/NA	Analysis	8015B NM		1			6366	08/12/21 03:19	AJ	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	6322	08/10/21 11:49	CH	XEN MID
Soluble	Analysis	300.0		1			6408	08/12/21 20:21	CH	XEN MID

Laboratory References:
XEN MID = Eurofins Xenco, Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Laboratory: Eurofins Xenco, Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-20-21	06-30-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015B NM	8015NM Prep	Solid	Total TPH
8021B	5035	Solid	Total BTEX

Method Summary

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
5035	Closed System Purge and Trap	SW846	XEN MID
8015NM Prep	Microextraction	SW846	XEN MID
DI Leach	Deionized Water Leaching Procedure	ASTM	XEN MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

XEN MID = Eurofins Xenco, Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1079-1
SDG: Roosevelt County

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-1079-1	BH01	Solid	08/06/21 12:35	08/09/21 17:00	0.75 - 1
890-1079-2	BH01	Solid	08/06/21 13:05	08/09/21 17:00	1.25 - 1.5
890-1079-3	BH02	Solid	08/06/21 13:53	08/09/21 17:00	0.75 - 1
890-1079-4	BH02	Solid	08/06/21 14:22	08/09/21 17:00	1.25 - 1.5
890-1079-5	BH03	Solid	08/06/21 15:05	08/09/21 17:00	0.75 - 1
890-1079-6	BH03	Solid	08/06/21 15:20	08/09/21 17:00	1.25 - 1.5
890-1079-7	BH04	Solid	08/06/21 15:37	08/09/21 17:00	0.75 - 1
890-1079-8	BH04	Solid	08/06/21 15:53	08/09/21 17:00	1.25 - 1.5
890-1079-9	BH05	Solid	08/06/21 16:15	08/09/21 17:00	0.75 - 1
890-1079-10	BH05	Solid	08/06/21 16:25	08/09/21 17:00	1.25 - 1.5
890-1079-11	BH06	Solid	08/06/21 16:40	08/09/21 17:00	0.75 - 1
890-1079-12	BH06	Solid	08/06/21 16:58	08/09/21 17:00	1.25 - 1.5

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Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: _____

www.xenco.com Page 1 of 2

Project Manager:	KALEI JENNINGS	Bill to: (if different)	
Company Name:	WSP USA	Company Name:	
Address:	3300 N A ST	Address:	
City, State ZIP:	MIDLAND, TX 79705	City, State ZIP:	
Phone:	817-683-2503	Email:	anna.byers@wsp.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	LIZA JANE FEDERAL #1	Turn Around	
Project Number:	31403471	☒ Routine ☐ Rush	
Project Location:	ROOSEVELT COUNTY	Due Date:	
Sampler's Name:	ANNA BYERS	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT				
Temp Blank:	Yes No	Wet Ice:	Yes No	
Samples Received Intact:	Yes No	Thermometer ID:	T-NM-007	
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.7	
Sample Custody Seals:	Yes No N/A	Temperature Reading:	0.6	
Total Containers:		Corrected Temperature:	0.4	

Preservative Codes

None: NO | DI Water: H_2O
Cool: Cool | MeOH: Me
HCL: HC | HNO_3: HN
H_2SO_4: H_2 | NaOH: Na
H_3PO_4: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: $NaSO_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters: TPH (EPA 8015 Mod)	BTEX (EPA 8021B)	Chloride (EPA 300.0)	Sample Comments
BH01	S	8/6/21	1235	0.75-1'	Grab	1					
BH01			1305	1.25-1.5'		1					
BH02			1353	0.75-1'		1					
BH02			1422	1.25-1.5'		1					
BH03			1505	0.75-1'		1					
BH03			1520	1.25-1.5'		1					
BH04			1537	0.75-1'		1					
BH04			1553	1.25-1.5'		1					
BH05			1615	0.75-1'		1					
BH05	↓	↓	1625	1.25-1.5'	↓	1					

890-1079 Chain of Custody

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010:** 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Eurofins Xenco. A minimum charge of $85.00 will be applied to each project and a charge of $5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1		8/9/21 4:59	2		
3			4		
5			6		

Revised Date 08/25/2020 Rev 2020 2

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Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: _____

www.xenco.com Page 2 of 2

Project Manager:	KALEI JENNINGS	~~Bill to: (if different)~~	→
Company Name:	WSP USA	~~Company Name:~~	→
Address:	3300 N A ST	~~Address:~~	→
City, State ZIP:	MIDLAND, TX 79705	~~City, State ZIP:~~	→
Phone:	817-683-2503	Email:	anna.byers@wsp.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	LIZA JANE FEDERAL #1	Turn Around	☒ Routine ☐ Rush
Project Number:	31403471.	Due Date:	
Project Location:	ROOSEVELT COUNTY	TAT starts the day received by the lab, if received by 4:30pm	
Sampler's Name:	ANNA BYERS		
PO #:			

SAMPLE RECEIPT				
Samples Received Intact:	~~Yes~~ ~~No~~	Thermometer ID:		
Cooler Custody Seals:	Yes No N/A	Correction Factor:		
Sample Custody Seals:	Yes No N/A	Temperature Reading:	See 1st page	
Total Containers:		Corrected Temperature:		

Temp Blank: Yes No Wet Ice: Yes No

Preservative Codes

None: NO DI Water: H_2O
Cool: Cool MeOH: Me
HCL: HC HNO_3: HN
H_2SO_4: H_2 NaOH: Na
H_3PO_4: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: $NaSO_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters	Sample Comments
BH06	S	8/6/21	1640	0.75-1'	Grab	1		X X X	
BH06	S	8/6/21	1658	1.25-1.5'	Grab	1		X X X	

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Anna Byers	N. Gallegos	8/9/21 4:59	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

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Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: _____

www.xenco.com Page 1 of 2

Project Manager:	KALEI JENNINGS	Bill to: (if different)	
Company Name:	WSP USA	Company Name:	
Address:	3300 N A ST	Address:	
City, State ZIP:	MIDLAND, TX 79705	City, State ZIP:	
Phone:	817-683-2503	Email:	anna.byers@wsp.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	LIZA JANE FEDERAL #1	Turn Around	
Project Number:	3140341	☒ Routine ☐ Rush	
Project Location:	ROOSEVELT COUNTY	Due Date:	
Sampler's Name:	ANNA BYERS	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT				
Temp Blank:	Yes No	Wet Ice:	Yes No	
Samples Received Intact:	Yes No	Thermometer ID:	T-NM-007	
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.7	
Sample Custody Seals:	Yes No N/A	Temperature Reading:	0.6	
Total Containers:		Corrected Temperature:	0.4	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	TPH (EPA 8015 Mod)	BTEX (EPA 8021B)	Chloride (EPA 300.0)
BH01	S	8/6/21	1235	0.75-1'	Grab	1				
BH01			1305	1.25-1.5'		1				
BH02			1353	0.75-1'		1				
BH02			1422	1.25-1.5'		1				
BH03			1505	0.75-1'		1				
BH03			1520	1.25-1.5'		1				
BH04			1537	0.75-1'		1				
BH04			1553	1.25-1.5'		1				
BH05			1615	0.75-1'		1				
BH05	↓	↓	1625	1.25-1.5'	↓	1				

890-1079 Chain of Custody

Preservative Codes

None: NO | DI Water: H_2O
Cool: Cool | MeOH: Me
HCL: HC | HNO_3: HN
H_2SO_4: H_2 | NaOH: Na
H_3PO_4: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: $NaSO_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Comments

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1 Anna Byers	N. Ortiz	8/9/21 4:59	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020 2

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Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
El Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

Work Order No: _____

www.xenco.com Page 2 of 2

Project Manager:	KALEI JENNINGS	~~Bill to: (if different)~~	→
Company Name:	WSP USA	~~Company Name:~~	→
Address:	3300 N A ST	~~Address:~~	→
City, State ZIP:	MIDLAND, TX 79705	~~City, State ZIP:~~	→
Phone:	817-683-2503	Email:	anna.byers@wsp.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	LIZA JANE FEDERAL #1	Turn Around	
Project Number:	31483471.	☒ Routine ☐ Rush	
Project Location:	ROOSEVELT COUNTY	Due Date:	
Sampler's Name:	ANNA BYERS	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT			
Temp Blank:	Yes No	Wet Ice:	Yes No
Samples Received Intact:	~~Yes~~ No	Thermometer ID:	
Cooler Custody Seals:	Yes No N/A	Correction Factor:	
Sample Custody Seals:	Yes No N/A	Temperature Reading:	See first page
Total Containers:		Corrected Temperature:	

Preservative Codes

None: NO | DI Water: H_2O
Cool: Cool | MeOH: Me
HCL: HC | HNO_3: HN
H_2S0_4: H_2 | NaOH: Na
H_3PO_4: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: $NaSO_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Pres. Code	Parameters	Sample Comments
BH#6	S	8/6/21	1640	0.75-1'	Grab	1		X X X	
BH#6	S	8/6/21	1658	1.25-1.5'	Grab	1		X X X	

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1		8/9/21 4:59	2		
3			4		
5			6		

Revised Date: 08/25/2020 Rev. 2020.2

Eurofins Xenco, Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Phone 575-988-3199 Fax: 575-988-3199

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler	Lab PM: Kramer, Jessica	Carrier Tracking No(s)	COC No: 890-343 1
Client Contact: Shipping/Receiving	Phone:	E-Mail: jessica kramer@eurofinset.com	State of Origin: New Mexico	Page: Page 1 of 2
Company: Eurofins Xenco		Accreditations Required (See note): NELAP - Texas		Job #: 890-1079-1
Address: 1211 W Florida Ave, ,	Due Date Requested: 8/13/2021			
City: Midland	TAT Requested (days):			
State, Zip: TX, 79701				
Phone: 432-704-5440(Tel)	PO #:			
Email:	WO #:			
Project Name: Liza Jane Federal #1	Project #: 89000048			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M Hexane
B NaOH	N - None
C Zn Acetate	O AsNaO2
D Nitric Acid	P Na2O4S
E NaHSO4	Q Na2SO3
F - MeOH	R - Na2S2O3
G - Amchlor	S - H2SO4
H Ascorbic Acid	T TSP Dodecahydrate
I - Ice	U Acetone
J - DI Water	V MCAA
K - EDTA	W pH 4-5
L EDA	Z other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8015MOD_NM/8015NM_S_Prep Full TPH	300_ORGFM_28D/DI_LEACH Chloride	8021B/5035FP_Calc BTEX	Total Number of containers	Special Instructions/Note
			Preservation Code:								
BH01 (890-1079-1)	8/6/21	12 35 Mountain		Solid			X	X	X	1	
BH01 (890-1079-2)	8/6/21	13 05 Mountain		Solid			X	X	X	1	
BH02 (890-1079-3)	8/6/21	13 53 Mountain		Solid			X	X	X	1	
BH02 (890-1079-4)	8/6/21	14 22 Mountain		Solid			X	X	X	1	
BH03 (890-1079-5)	8/6/21	15 05 Mountain		Solid			X	X	X	1	
BH03 (890-1079-6)	8/6/21	15 20 Mountain		Solid			X	X	X	1	
BH04 (890-1079-7)	8/6/21	15 37 Mountain		Solid			X	X	X	1	
BH04 (890-1079-8)	8/6/21	15 53 Mountain		Solid			X	X	X	1	
BH05 (890-1079-9)	8/6/21	16 15 Mountain		Solid			X	X	X	1	

Note: Since laboratory accreditations are subject to change Eurofins Xenco LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Xenco LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Xenco LLC attention immediately If all requested accreditations are current to date return the signed Chain of Custody attesting to said complicance to Eurofins Xenco LLC

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested I, II, III, IV Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements

Empty Kit Relinquished by:	Date	Time	Method of Shipment:

Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company
Cruz Cortez 8.10.21			J KRAMER	8.11.21 1102	
Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company
Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks

Eurofins Xenco, Carlsbad
1089 N Canal St.
Carlsbad NM 88220
Phone 575-988-3199 Fax 575-988-3199

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler	Lab PM: Kramer Jessica	Carrier Tracking No(s)	COC No: 890-343 2
Client Contact: Shipping/Receiving	Phone	E-Mail: jessica kramer@eurofinset.com	State of Origin: New Mexico	Page: Page 2 of 2
Company: Eurofins Xenco		Accreditations Required (See note): NELAP - Texas		Job #: 890-1079-1
Address: 1211 W Florida Ave	Due Date Requested: 8/13/2021			
City: Midland	TAT Requested (days):			
State Zip: TX, 79701				
Phone: 432-704-5440(Tel)	PO #:			
Email	WO #:			
Project Name: Liza Jane Federal #1	Project #: 89000048			
Site	SSOW#:			

Analysis Requested

Preservation Codes.

A	HCL	M	Hexane
B	NaOH	N	None
C	Zn Acetate	O	AsNaO2
D	Nitric Acid	P	Na2O4S
E	NaHSO4	Q	Na2SO3
F	MeOH	R	Na2S2O3
G	Amchlor	S	H2SO4
H	Ascorbic Acid	T	TSP Dodecahydrate
I	Ice	U	Acetone
J	DI Water	V	MCAA
K	EDTA	W	pH 4-5
L	EDA	Z	other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8015MOD_NM/8015NM_S_Prep Full TPH	300_ORGFM_28D/DI_LEACH Chloride	8021B/5035FP_Calc BTEX	Total Number of containers	Special Instructions/Note:
Preservation Code:											
~~BH05 (890-1079-10)~~	~~8/6/21~~	16:25 Mountain		Solid			X	X	X		
BH06 (890-1079-11)	8/6/21	16 40 Mountain		Solid			X	X	X	1	
BH06 (890-1079-12)	8/6/21	16 58 Mountain		Solid			X	X	X	1	

Note Since laboratory accreditations are subject to change, Eurofins Xenco LLC places the ownership of method, analyte & accreditation compliance upon out subcontract laboratories This sample shipment is forwarded under chain-of-custody If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Xenco LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Xenco LLC attention immediately If all requested accreditations are current to date, return the signed Chain of Custody attesting to said complicance to Eurofins Xenco LLC

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested I II III, IV, Other (specify) Primary Deliverable Rank 2	Special Instructions/QC Requirements

Empty Kit Relinquished by:	Date	Time	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Clue Coop 8.10.21			Kramer		
2	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
3	Relinquished by	Date/Time	Company	Received by	Date/Time	Company

Custody Seals Intact: Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks

Login Sample Receipt Checklist

Client: WSP USA Inc.

Job Number: 890-1079-1
SDG Number: Roosevelt County

Login Number: 1079
List Number: 1
Creator: Clifton, Cloe

List Source: Eurofins Xenco, Carlsbad

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: WSP USA Inc.

Job Number: 890-1079-1
SDG Number: Roosevelt County

Login Number: 1079
List Number: 2
Creator: Kramer, Jessica

List Source: Eurofins Xenco, Midland
List Creation: 08/11/21 11:17 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

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ANALYTICAL REPORT

Eurofins Xenco, Carlsbad
1089 N Canal St.
Carlsbad, NM 88220
Tel: (575)988-3199

Laboratory Job ID: 890-1230-1
Laboratory Sample Delivery Group: 31403471.001
Client Project/Site: Liza Jane Federal #1

For:
WSP USA Inc.
2777 N. Stemmons Freeway
Suite 1600
Dallas, Texas 75207

Attn: Kalei Jennings

JKramer

Authorized for release by:
9/16/2021 9:03:33 AM

Jessica Kramer, Project Manager
(432)704-5440
jessica.kramer@eurofinset.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Laboratory Job ID: 890-1230-1
SDG: 31403471.001

Table of Contents

Definitions/Glossary

Client: WSP USA Inc. Job ID: 890-1230-1
Project/Site: Liza Jane Federal #1 SDG: 31403471.001

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: WSP USA Inc. Job ID: 890-1230-1
Project/Site: Liza Jane Federal #1 SDG: 31403471.001

Job ID: 890-1230-1

Laboratory: Eurofins Xenco, Carlsbad

Narrative

Job Narrative
890-1230-1

Receipt
The samples were received on 9/8/2021 8:12 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.2°C

GC VOA
Method 8021B: The matrix spike duplicate (MSD) recoveries for Benzene were outside control limits. Non-homogeneity is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-7729 and analytical batch 880-7728 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC
No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1230-1
SDG: 31403471.001

Client Sample ID: FS01

Lab Sample ID: 890-1230-1
Matrix: Solid
Date Collected: 09/07/21 11:45
Date Received: 09/08/21 08:12
Sample Depth: 1 - 1.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		09/09/21 08:23	09/09/21 13:18	1
Toluene	<0.00201	U	0.00201		mg/Kg		09/09/21 08:23	09/09/21 13:18	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		09/09/21 08:23	09/09/21 13:18	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		09/09/21 08:23	09/09/21 13:18	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		09/09/21 08:23	09/09/21 13:18	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		09/09/21 08:23	09/09/21 13:18	1
Total BTEX	<0.00402	U	0.00402		mg/Kg		09/09/21 08:23	09/09/21 13:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*125*		*70 - 130*	*09/09/21 08:23*	*09/09/21 13:18*	*1*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*	*09/09/21 08:23*	*09/09/21 13:18*	*1*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		09/09/21 10:50	09/09/21 13:50	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		09/09/21 10:50	09/09/21 13:50	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		09/09/21 10:50	09/09/21 13:50	1
Total TPH	<49.9	U	49.9		mg/Kg		09/09/21 10:50	09/09/21 13:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*80*		*70 - 130*	*09/09/21 10:50*	*09/09/21 13:50*	*1*
o-Terphenyl	*87*		*70 - 130*	*09/09/21 10:50*	*09/09/21 13:50*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**135**		4.95		mg/Kg			09/10/21 11:36	1

Client Sample ID: FS02

Lab Sample ID: 890-1230-2
Matrix: Solid
Date Collected: 09/07/21 12:55
Date Received: 09/08/21 08:12
Sample Depth: 2

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/10/21 09:09	09/10/21 17:42	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/10/21 09:09	09/10/21 17:42	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/10/21 09:09	09/10/21 17:42	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		09/10/21 09:09	09/10/21 17:42	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/10/21 09:09	09/10/21 17:42	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		09/10/21 09:09	09/10/21 17:42	1
Total BTEX	<0.00399	U	0.00399		mg/Kg		09/10/21 09:09	09/10/21 17:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*118*		*70 - 130*	*09/10/21 09:09*	*09/10/21 17:42*	*1*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*	*09/10/21 09:09*	*09/10/21 17:42*	*1*

Client Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1230-1
SDG: 31403471.001

Client Sample ID: FS02

Lab Sample ID: 890-1230-2
Matrix: Solid
Date Collected: 09/07/21 12:55
Date Received: 09/08/21 08:12
Sample Depth: 2

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		09/09/21 13:32	09/10/21 03:11	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		09/09/21 13:32	09/10/21 03:11	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		09/09/21 13:32	09/10/21 03:11	1
Total TPH	<49.9	U	49.9		mg/Kg		09/09/21 13:32	09/10/21 03:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*99*		*70 - 130*	*09/09/21 13:32*	*09/10/21 03:11*	*1*
o-Terphenyl	*112*		*70 - 130*	*09/09/21 13:32*	*09/10/21 03:11*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**115**		4.99		mg/Kg			09/10/21 11:42	1

Client Sample ID: FS03

Lab Sample ID: 890-1230-3
Matrix: Solid
Date Collected: 09/07/21 14:30
Date Received: 09/08/21 08:12
Sample Depth: 2

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/09/21 13:47	09/10/21 14:28	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/09/21 13:47	09/10/21 14:28	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/09/21 13:47	09/10/21 14:28	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		09/09/21 13:47	09/10/21 14:28	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/09/21 13:47	09/10/21 14:28	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		09/09/21 13:47	09/10/21 14:28	1
Total BTEX	<0.00400	U	0.00400		mg/Kg		09/09/21 13:47	09/10/21 14:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*126*		*70 - 130*	*09/09/21 13:47*	*09/10/21 14:28*	*1*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*	*09/09/21 13:47*	*09/10/21 14:28*	*1*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.7	U	49.7		mg/Kg		09/09/21 13:32	09/10/21 03:32	1
Diesel Range Organics (Over C10-C28)	<49.7	U	49.7		mg/Kg		09/09/21 13:32	09/10/21 03:32	1
Oil Range Organics (Over C28-C36)	<49.7	U	49.7		mg/Kg		09/09/21 13:32	09/10/21 03:32	1
Total TPH	<49.7	U	49.7		mg/Kg		09/09/21 13:32	09/10/21 03:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*94*		*70 - 130*	*09/09/21 13:32*	*09/10/21 03:32*	*1*
o-Terphenyl	*103*		*70 - 130*	*09/09/21 13:32*	*09/10/21 03:32*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**131**		5.00		mg/Kg			09/10/21 11:47	1

Client Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1230-1
SDG: 31403471.001

Client Sample ID: SW01

Date Collected: 09/07/21 14:35
Date Received: 09/08/21 08:12
Sample Depth: 0 - 2

Lab Sample ID: 890-1230-4

Matrix: Solid

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/09/21 13:47	09/10/21 14:48	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/09/21 13:47	09/10/21 14:48	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/09/21 13:47	09/10/21 14:48	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		09/09/21 13:47	09/10/21 14:48	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/09/21 13:47	09/10/21 14:48	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		09/09/21 13:47	09/10/21 14:48	1
Total BTEX	<0.00401	U	0.00401		mg/Kg		09/09/21 13:47	09/10/21 14:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*113*		*70 - 130*	*09/09/21 13:47*	*09/10/21 14:48*	*1*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*	*09/09/21 13:47*	*09/10/21 14:48*	*1*

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		09/09/21 13:32	09/10/21 03:52	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		09/09/21 13:32	09/10/21 03:52	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		09/09/21 13:32	09/10/21 03:52	1
Total TPH	<49.8	U	49.8		mg/Kg		09/09/21 13:32	09/10/21 03:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*112*		*70 - 130*	*09/09/21 13:32*	*09/10/21 03:52*	*1*
o-Terphenyl	*124*		*70 - 130*	*09/09/21 13:32*	*09/10/21 03:52*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**264**		4.95		mg/Kg			09/15/21 18:02	1

Surrogate Summary

Client: WSP USA Inc. Job ID: 890-1230-1
Project/Site: Liza Jane Federal #1 SDG: 31403471.001

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-5872-A-1-G MS	Matrix Spike	127	98
880-5872-A-1-H MSD	Matrix Spike Duplicate	113	90
880-5918-A-1-A MS	Matrix Spike	213 S1+	149 S1+
880-5918-A-1-B MSD	Matrix Spike Duplicate	119	87
890-1230-1	FS01	125	105
890-1230-2	FS02	118	104
890-1230-2 MS	FS02	126	93
890-1230-2 MSD	FS02	116	108
890-1230-3	FS03	126	100
890-1230-4	SW01	113	101
LCS 880-7677/1-A	Lab Control Sample	109	105
LCS 880-7706/1-A	Lab Control Sample	138 S1+	109
LCS 880-7729/1-A	Lab Control Sample	116	99
LCSD 880-7677/2-A	Lab Control Sample Dup	110	107
LCSD 880-7706/2-A	Lab Control Sample Dup	98	93
MB 880-7677/5-A	Method Blank	109	99
MB 880-7696/5-A	Method Blank	128	100
MB 880-7706/5-A	Method Blank	164 S1+	107
MB 880-7729/5-A	Method Blank	104	98

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID		
LCSD 880-7729/2-A	Lab Control Sample Dup		

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-5872-A-1-E MS	Matrix Spike	77	73
880-5872-A-1-F MSD	Matrix Spike Duplicate	81	79
880-5902-A-22-F MS	Matrix Spike	110	104
880-5902-A-22-G MSD	Matrix Spike Duplicate	111	105
890-1230-1	FS01	80	87
890-1230-2	FS02	99	112
890-1230-3	FS03	94	103
890-1230-4	SW01	112	124
LCS 880-7666/2-A	Lab Control Sample	87	91

Surrogate Summary

Client: WSP USA Inc. Job ID: 890-1230-1
Project/Site: Liza Jane Federal #1 SDG: 31403471.001

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Solid **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)									
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)								
LCS 880-7705/2-A	Lab Control Sample	98	100								
LCSD 880-7666/3-A	Lab Control Sample Dup	88	96								
LCSD 880-7705/3-A	Lab Control Sample Dup	96	104								
MB 880-7666/1-A	Method Blank	81	89								
MB 880-7705/1-A	Method Blank	110	127								

Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

QC Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1230-1
SDG: 31403471.001

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-7677/5-A
Matrix: Solid
Analysis Batch: 7678

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7677

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/09/21 08:23	09/09/21 12:36	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/09/21 08:23	09/09/21 12:36	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/09/21 08:23	09/09/21 12:36	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		09/09/21 08:23	09/09/21 12:36	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/09/21 08:23	09/09/21 12:36	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		09/09/21 08:23	09/09/21 12:36	1
Total BTEX	<0.00400	U	0.00400		mg/Kg		09/09/21 08:23	09/09/21 12:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*	*09/09/21 08:23*	*09/09/21 12:36*	*1*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*	*09/09/21 08:23*	*09/09/21 12:36*	*1*

Lab Sample ID: LCS 880-7677/1-A
Matrix: Solid
Analysis Batch: 7678

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7677

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			0.100	0.09391		mg/Kg		94	70 - 130		
Toluene			0.100	0.08656		mg/Kg		87	70 - 130		
Ethylbenzene			0.100	0.08583		mg/Kg		86	70 - 130		
m-Xylene & p-Xylene			0.200	0.1796		mg/Kg		90	70 - 130		
o-Xylene			0.100	0.08801		mg/Kg		88	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*

Lab Sample ID: LCSD 880-7677/2-A
Matrix: Solid
Analysis Batch: 7678

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 7677

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.100	0.09502		mg/Kg		95	70 - 130	1	35
Toluene			0.100	0.08751		mg/Kg		88	70 - 130	1	35
Ethylbenzene			0.100	0.08673		mg/Kg		87	70 - 130	1	35
m-Xylene & p-Xylene			0.200	0.1794		mg/Kg		90	70 - 130	0	35
o-Xylene			0.100	0.08828		mg/Kg		88	70 - 130	0	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*
1,4-Difluorobenzene (Surr)	*107*		*70 - 130*

Lab Sample ID: 880-5872-A-1-G MS
Matrix: Solid
Analysis Batch: 7678

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 7677

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	<0.00200	U F1	0.0998	0.07280		mg/Kg		73	70 - 130		

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QC Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1230-1
SDG: 31403471.001

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-5872-A-1-G MS
Matrix: Solid
Analysis Batch: 7678

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 7677

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Toluene	<0.00200	U	0.0998	0.07977		mg/Kg		80	70 - 130
Ethylbenzene	<0.00200	U	0.0998	0.08996		mg/Kg		90	70 - 130
m-Xylene & p-Xylene	<0.00399	U	0.200	0.1841		mg/Kg		92	70 - 130
o-Xylene	<0.00200	U	0.0998	0.09066		mg/Kg		91	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*127*		*70 - 130*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*

Lab Sample ID: 880-5872-A-1-H MSD
Matrix: Solid
Analysis Batch: 7678

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 7677

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.00200	U F1	0.0994	0.06534	F1	mg/Kg		66	70 - 130	11	35
Toluene	<0.00200	U	0.0994	0.07044		mg/Kg		71	70 - 130	12	35
Ethylbenzene	<0.00200	U	0.0994	0.07977		mg/Kg		80	70 - 130	12	35
m-Xylene & p-Xylene	<0.00399	U	0.199	0.1562		mg/Kg		79	70 - 130	16	35
o-Xylene	<0.00200	U	0.0994	0.07727		mg/Kg		78	70 - 130	16	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*113*		*70 - 130*
1,4-Difluorobenzene (Surr)	*90*		*70 - 130*

Lab Sample ID: MB 880-7696/5-A
Matrix: Solid
Analysis Batch: 7711

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7696

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		09/09/21 11:55	09/09/21 19:26	1
Toluene	<0.00201	U	0.00201		mg/Kg		09/09/21 11:55	09/09/21 19:26	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		09/09/21 11:55	09/09/21 19:26	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		09/09/21 11:55	09/09/21 19:26	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		09/09/21 11:55	09/09/21 19:26	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		09/09/21 11:55	09/09/21 19:26	1
Total BTEX	<0.00402	U	0.00402		mg/Kg		09/09/21 11:55	09/09/21 19:26	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*128*		*70 - 130*	*09/09/21 11:55*	*09/09/21 19:26*	*1*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*	*09/09/21 11:55*	*09/09/21 19:26*	*1*

Lab Sample ID: MB 880-7706/5-A
Matrix: Solid
Analysis Batch: 7711

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7706

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198		mg/Kg		09/09/21 13:47	09/10/21 07:00	1
Toluene	<0.00198	U	0.00198		mg/Kg		09/09/21 13:47	09/10/21 07:00	1

QC Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1230-1
SDG: 31403471.001

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 880-7706/5-A
Matrix: Solid
Analysis Batch: 7711

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7706

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		09/09/21 13:47	09/10/21 07:00	1
m-Xylene & p-Xylene	<0.00396	U	0.00396		mg/Kg		09/09/21 13:47	09/10/21 07:00	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		09/09/21 13:47	09/10/21 07:00	1
Xylenes, Total	<0.00396	U	0.00396		mg/Kg		09/09/21 13:47	09/10/21 07:00	1
Total BTEX	<0.00396	U	0.00396		mg/Kg		09/09/21 13:47	09/10/21 07:00	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*164*	*S1+*	*70 - 130*	*09/09/21 13:47*	*09/10/21 07:00*	*1*
1,4-Difluorobenzene (Surr)	*107*		*70 - 130*	*09/09/21 13:47*	*09/10/21 07:00*	*1*

Lab Sample ID: LCS 880-7706/1-A
Matrix: Solid
Analysis Batch: 7711

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7706

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			0.100	0.07809		mg/Kg		78	70 - 130		
Toluene			0.100	0.1023		mg/Kg		102	70 - 130		
Ethylbenzene			0.100	0.09775		mg/Kg		98	70 - 130		
m-Xylene & p-Xylene			0.200	0.2004		mg/Kg		100	70 - 130		
o-Xylene			0.100	0.1084		mg/Kg		108	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*138*	*S1+*	*70 - 130*
1,4-Difluorobenzene (Surr)	*109*		*70 - 130*

Lab Sample ID: LCSD 880-7706/2-A
Matrix: Solid
Analysis Batch: 7711

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 7706

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.100	0.08162		mg/Kg		82	70 - 130	4	35
Toluene			0.100	0.09562		mg/Kg		96	70 - 130	7	35
Ethylbenzene			0.100	0.1004		mg/Kg		100	70 - 130	3	35
m-Xylene & p-Xylene			0.200	0.1874		mg/Kg		94	70 - 130	7	35
o-Xylene			0.100	0.09278		mg/Kg		93	70 - 130	15	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*

Lab Sample ID: 880-5918-A-1-A MS
Matrix: Solid
Analysis Batch: 7711

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 7706

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	<0.00200	U F1	0.0998	0.03919	F1	mg/Kg		39	70 - 130		
Toluene	<0.00200	U F1 F2	0.0998	0.07828		mg/Kg		78	70 - 130		
Ethylbenzene	<0.00200	U F1 F2	0.0998	0.09466		mg/Kg		95	70 - 130		

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QC Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1230-1
SDG: 31403471.001

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-5918-A-1-A MS
Matrix: Solid
Analysis Batch: 7711

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 7706

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
m-Xylene & p-Xylene	<0.00401	U F1 F2	0.200	0.1257	F1	mg/Kg		63	70 - 130
o-Xylene	<0.00200	U F1 F2	0.0998	0.06365	F1	mg/Kg		63	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*213*	*S1+*	*70 - 130*
1,4-Difluorobenzene (Surr)	*149*	*S1+*	*70 - 130*

Lab Sample ID: 880-5918-A-1-B MSD
Matrix: Solid
Analysis Batch: 7711

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 7706

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.00200	U F1	0.0996	0.03636	F1	mg/Kg		37	70 - 130	7	35
Toluene	<0.00200	U F1 F2	0.0996	0.04681	F1 F2	mg/Kg		47	70 - 130	50	35
Ethylbenzene	<0.00200	U F1 F2	0.0996	0.05308	F1 F2	mg/Kg		53	70 - 130	56	35
m-Xylene & p-Xylene	<0.00401	U F1 F2	0.199	0.07218	F1 F2	mg/Kg		36	70 - 130	54	35
o-Xylene	<0.00200	U F1 F2	0.0996	0.04038	F1 F2	mg/Kg		40	70 - 130	45	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*119*		*70 - 130*
1,4-Difluorobenzene (Surr)	*87*		*70 - 130*

Lab Sample ID: MB 880-7729/5-A
Matrix: Solid
Analysis Batch: 7728

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7729

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		09/10/21 09:09	09/10/21 17:21	1
Toluene	<0.00200	U	0.00200		mg/Kg		09/10/21 09:09	09/10/21 17:21	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		09/10/21 09:09	09/10/21 17:21	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		09/10/21 09:09	09/10/21 17:21	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		09/10/21 09:09	09/10/21 17:21	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		09/10/21 09:09	09/10/21 17:21	1
Total BTEX	<0.00400	U	0.00400		mg/Kg		09/10/21 09:09	09/10/21 17:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*70 - 130*	*09/10/21 09:09*	*09/10/21 17:21*	*1*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*	*09/10/21 09:09*	*09/10/21 17:21*	*1*

Lab Sample ID: LCS 880-7729/1-A
Matrix: Solid
Analysis Batch: 7728

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7729

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene			0.100	0.08645		mg/Kg		86	70 - 130
Toluene			0.100	0.08777		mg/Kg		88	70 - 130
Ethylbenzene			0.100	0.08937		mg/Kg		89	70 - 130
m-Xylene & p-Xylene			0.200	0.1902		mg/Kg		95	70 - 130

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QC Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1230-1
SDG: 31403471.001

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCS 880-7729/1-A
Matrix: Solid
Analysis Batch: 7728

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7729

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
o-Xylene			0.100	0.09347		mg/Kg		93	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*116*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: LCSD 880-7729/2-A
Matrix: Solid
Analysis Batch: 7728

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 7729

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.100	0.08285		mg/Kg					
Toluene			0.100	0.08121		mg/Kg					
Ethylbenzene			0.100	0.08236		mg/Kg					
m-Xylene & p-Xylene			0.200	0.1748		mg/Kg					
o-Xylene			0.100	0.08603		mg/Kg					

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)			
1,4-Difluorobenzene (Surr)			

Lab Sample ID: 890-1230-2 MS
Matrix: Solid
Analysis Batch: 7728

Client Sample ID: FS02
Prep Type: Total/NA
Prep Batch: 7729

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	<0.00200	U	0.101	0.08146		mg/Kg		81	70 - 130		
Toluene	<0.00200	U	0.101	0.08340		mg/Kg		83	70 - 130		
Ethylbenzene	<0.00200	U	0.101	0.08460		mg/Kg		84	70 - 130		
m-Xylene & p-Xylene	<0.00399	U	0.201	0.1801		mg/Kg		90	70 - 130		
o-Xylene	<0.00200	U	0.101	0.08900		mg/Kg		88	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*126*		*70 - 130*
1,4-Difluorobenzene (Surr)	*93*		*70 - 130*

Lab Sample ID: 890-1230-2 MSD
Matrix: Solid
Analysis Batch: 7728

Client Sample ID: FS02
Prep Type: Total/NA
Prep Batch: 7729

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.0994	0.07990		mg/Kg		80	70 - 130	2	35
Toluene	<0.00200	U	0.0994	0.07221		mg/Kg		73	70 - 130	14	35
Ethylbenzene	<0.00200	U	0.0994	0.07000		mg/Kg		70	70 - 130	19	35
m-Xylene & p-Xylene	<0.00399	U	0.199	0.1465		mg/Kg		74	70 - 130	21	35
o-Xylene	<0.00200	U	0.0994	0.07317		mg/Kg		74	70 - 130	20	35

QC Sample Results

Client: WSP USA Inc. Job ID: 890-1230-1
Project/Site: Liza Jane Federal #1 SDG: 31403471.001

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 890-1230-2 MSD **Client Sample ID: FS02**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 7728 **Prep Batch: 7729**

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	116		70 - 130
1,4-Difluorobenzene (Surr)	108		70 - 130

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-7666/1-A **Client Sample ID: Method Blank**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 7687 **Prep Batch: 7666**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		09/08/21 16:18	09/09/21 11:43	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		09/08/21 16:18	09/09/21 11:43	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		09/08/21 16:18	09/09/21 11:43	1
Total TPH	<50.0	U	50.0		mg/Kg		09/08/21 16:18	09/09/21 11:43	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	81		70 - 130	09/08/21 16:18	09/09/21 11:43	1
o-Terphenyl	89		70 - 130	09/08/21 16:18	09/09/21 11:43	1

Lab Sample ID: LCS 880-7666/2-A **Client Sample ID: Lab Control Sample**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 7687 **Prep Batch: 7666**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	797.7		mg/Kg		80	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	763.2		mg/Kg		76	70 - 130		

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	87		70 - 130
o-Terphenyl	91		70 - 130

Lab Sample ID: LCSD 880-7666/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 7687 **Prep Batch: 7666**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	747.0		mg/Kg		75	70 - 130	7	20
Diesel Range Organics (Over C10-C28)			1000	805.1		mg/Kg		81	70 - 130	5	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	88		70 - 130
o-Terphenyl	96		70 - 130

QC Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1230-1
SDG: 31403471.001

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: 880-5872-A-1-E MS
Matrix: Solid
Analysis Batch: 7687

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 7666

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	995	727.1		mg/Kg		70	70 - 130
Diesel Range Organics (Over C10-C28)	<50.0	U	995	714.1		mg/Kg		72	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*77*		*70 - 130*
o-Terphenyl	*73*		*70 - 130*

Lab Sample ID: 880-5872-A-1-F MSD
Matrix: Solid
Analysis Batch: 7687

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 7666

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	998	752.2		mg/Kg		72	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	<50.0	U	998	773.8		mg/Kg		78	70 - 130	8	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
1-Chlorooctane	*81*		*70 - 130*
o-Terphenyl	*79*		*70 - 130*

Lab Sample ID: MB 880-7705/1-A
Matrix: Solid
Analysis Batch: 7689

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7705

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		09/09/21 13:31	09/09/21 21:14	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		09/09/21 13:31	09/09/21 21:14	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		09/09/21 13:31	09/09/21 21:14	1
Total TPH	<50.0	U	50.0		mg/Kg		09/09/21 13:31	09/09/21 21:14	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*110*		*70 - 130*	*09/09/21 13:31*	*09/09/21 21:14*	*1*
o-Terphenyl	*127*		*70 - 130*	*09/09/21 13:31*	*09/09/21 21:14*	*1*

Lab Sample ID: LCS 880-7705/2-A
Matrix: Solid
Analysis Batch: 7689

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7705

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10			1000	872.0		mg/Kg		87	70 - 130
Diesel Range Organics (Over C10-C28)			1000	1018		mg/Kg		102	70 - 130

QC Sample Results

Client: WSP USA Inc. Job ID: 890-1230-1
Project/Site: Liza Jane Federal #1 SDG: 31403471.001

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 880-7705/2-A **Client Sample ID: Lab Control Sample**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 7689 **Prep Batch: 7705**

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	98		70 - 130
o-Terphenyl	100		70 - 130

Lab Sample ID: LCSD 880-7705/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 7689 **Prep Batch: 7705**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	767.5		mg/Kg		77	70 - 130	13	20
Diesel Range Organics (Over C10-C28)			1000	908.7		mg/Kg		91	70 - 130	11	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	96		70 - 130
o-Terphenyl	104		70 - 130

Lab Sample ID: 880-5902-A-22-F MS **Client Sample ID: Matrix Spike**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 7689 **Prep Batch: 7705**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	<49.7	U	997	944.7		mg/Kg		92	70 - 130
Diesel Range Organics (Over C10-C28)	<49.7	U	997	1149		mg/Kg		114	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	110		70 - 130
o-Terphenyl	104		70 - 130

Lab Sample ID: 880-5902-A-22-G MSD **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 7689 **Prep Batch: 7705**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.7	U	999	1046		mg/Kg		102	70 - 130	10	20
Diesel Range Organics (Over C10-C28)	<49.7	U	999	1186		mg/Kg		117	70 - 130	3	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	111		70 - 130
o-Terphenyl	105		70 - 130

QC Sample Results

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1230-1
SDG: 31403471.001

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-7693/1-A
Matrix: Solid
Analysis Batch: 7716

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			09/10/21 09:01	1

Lab Sample ID: LCS 880-7693/2-A
Matrix: Solid
Analysis Batch: 7716

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			250	255.2		mg/Kg		102	90 - 110		

Lab Sample ID: LCSD 880-7693/3-A
Matrix: Solid
Analysis Batch: 7716

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			250	255.7		mg/Kg		102	90 - 110	0	20

Lab Sample ID: 890-1228-A-1-B MS
Matrix: Solid
Analysis Batch: 7716

Client Sample ID: Matrix Spike
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	1690	F1	2510	4607	F1	mg/Kg		116	90 - 110		

Lab Sample ID: 890-1228-A-1-C MSD
Matrix: Solid
Analysis Batch: 7716

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	1690	F1	2510	4613	F1	mg/Kg		116	90 - 110	0	20

Lab Sample ID: MB 880-7740/1-A
Matrix: Solid
Analysis Batch: 7838

Client Sample ID: Method Blank
Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			09/15/21 15:54	1

Lab Sample ID: LCS 880-7740/2-A
Matrix: Solid
Analysis Batch: 7838

Client Sample ID: Lab Control Sample
Prep Type: Soluble

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			250	250.4		mg/Kg		100	90 - 110		

Lab Sample ID: LCSD 880-7740/3-A
Matrix: Solid
Analysis Batch: 7838

Client Sample ID: Lab Control Sample Dup
Prep Type: Soluble

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			250	250.8		mg/Kg		100	90 - 110	0	20

QC Sample Results

Client: WSP USA Inc. Job ID: 890-1230-1
Project/Site: Liza Jane Federal #1 SDG: 31403471.001

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 880-5950-A-8-B MS **Client Sample ID: Matrix Spike**
Matrix: Solid **Prep Type: Soluble**
Analysis Batch: 7838

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	1790		1240	3128		mg/Kg		108	90 - 110		

Lab Sample ID: 880-5950-A-8-C MSD **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid **Prep Type: Soluble**
Analysis Batch: 7838

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	1790		1240	3129		mg/Kg		108	90 - 110	0	20

QC Association Summary

Client: WSP USA Inc. Job ID: 890-1230-1
Project/Site: Liza Jane Federal #1 SDG: 31403471.001

GC VOA

Prep Batch: 7677

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1230-1	FS01	Total/NA	Solid	5035	
MB 880-7677/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-7677/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-7677/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-5872-A-1-G MS	Matrix Spike	Total/NA	Solid	5035	
880-5872-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 7678

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1230-1	FS01	Total/NA	Solid	8021B	7677
MB 880-7677/5-A	Method Blank	Total/NA	Solid	8021B	7677
LCS 880-7677/1-A	Lab Control Sample	Total/NA	Solid	8021B	7677
LCSD 880-7677/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	7677
880-5872-A-1-G MS	Matrix Spike	Total/NA	Solid	8021B	7677
880-5872-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	7677

Prep Batch: 7696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-7696/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 7706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1230-3	FS03	Total/NA	Solid	5035	
890-1230-4	SW01	Total/NA	Solid	5035	
MB 880-7706/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-7706/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-7706/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-5918-A-1-A MS	Matrix Spike	Total/NA	Solid	5035	
880-5918-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 7711

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1230-3	FS03	Total/NA	Solid	8021B	7706
890-1230-4	SW01	Total/NA	Solid	8021B	7706
MB 880-7696/5-A	Method Blank	Total/NA	Solid	8021B	7696
MB 880-7706/5-A	Method Blank	Total/NA	Solid	8021B	7706
LCS 880-7706/1-A	Lab Control Sample	Total/NA	Solid	8021B	7706
LCSD 880-7706/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	7706
880-5918-A-1-A MS	Matrix Spike	Total/NA	Solid	8021B	7706
880-5918-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	7706

Analysis Batch: 7728

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1230-2	FS02	Total/NA	Solid	8021B	7729
MB 880-7729/5-A	Method Blank	Total/NA	Solid	8021B	7729
LCS 880-7729/1-A	Lab Control Sample	Total/NA	Solid	8021B	7729
LCSD 880-7729/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	7729
890-1230-2 MS	FS02	Total/NA	Solid	8021B	7729
890-1230-2 MSD	FS02	Total/NA	Solid	8021B	7729

QC Association Summary

Client: WSP USA Inc. Job ID: 890-1230-1
Project/Site: Liza Jane Federal #1 SDG: 31403471.001

GC VOA

Prep Batch: 7729

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1230-2	FS02	Total/NA	Solid	5035	
MB 880-7729/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-7729/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-7729/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-1230-2 MS	FS02	Total/NA	Solid	5035	
890-1230-2 MSD	FS02	Total/NA	Solid	5035	

GC Semi VOA

Prep Batch: 7666

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1230-1	FS01	Total/NA	Solid	8015NM Prep	
MB 880-7666/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-7666/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-7666/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-5872-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-5872-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 7687

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1230-1	FS01	Total/NA	Solid	8015B NM	7666
MB 880-7666/1-A	Method Blank	Total/NA	Solid	8015B NM	7666
LCS 880-7666/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	7666
LCSD 880-7666/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	7666
880-5872-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	7666
880-5872-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	7666

Analysis Batch: 7689

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1230-2	FS02	Total/NA	Solid	8015B NM	7705
890-1230-3	FS03	Total/NA	Solid	8015B NM	7705
890-1230-4	SW01	Total/NA	Solid	8015B NM	7705
MB 880-7705/1-A	Method Blank	Total/NA	Solid	8015B NM	7705
LCS 880-7705/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	7705
LCSD 880-7705/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	7705
880-5902-A-22-F MS	Matrix Spike	Total/NA	Solid	8015B NM	7705
880-5902-A-22-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	7705

Prep Batch: 7705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1230-2	FS02	Total/NA	Solid	8015NM Prep	
890-1230-3	FS03	Total/NA	Solid	8015NM Prep	
890-1230-4	SW01	Total/NA	Solid	8015NM Prep	
MB 880-7705/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-7705/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-7705/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-5902-A-22-F MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-5902-A-22-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

QC Association Summary

Client: WSP USA Inc. Job ID: 890-1230-1
Project/Site: Liza Jane Federal #1 SDG: 31403471.001

HPLC/IC

Leach Batch: 7693

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1230-1	FS01	Soluble	Solid	DI Leach	
890-1230-2	FS02	Soluble	Solid	DI Leach	
890-1230-3	FS03	Soluble	Solid	DI Leach	
MB 880-7693/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-7693/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-7693/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-1228-A-1-B MS	Matrix Spike	Soluble	Solid	DI Leach	
890-1228-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 7716

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1230-1	FS01	Soluble	Solid	300.0	7693
890-1230-2	FS02	Soluble	Solid	300.0	7693
890-1230-3	FS03	Soluble	Solid	300.0	7693
MB 880-7693/1-A	Method Blank	Soluble	Solid	300.0	7693
LCS 880-7693/2-A	Lab Control Sample	Soluble	Solid	300.0	7693
LCSD 880-7693/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	7693
890-1228-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	7693
890-1228-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	7693

Leach Batch: 7740

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1230-4	SW01	Soluble	Solid	DI Leach	
MB 880-7740/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-7740/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-7740/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-5950-A-8-B MS	Matrix Spike	Soluble	Solid	DI Leach	
880-5950-A-8-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 7838

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1230-4	SW01	Soluble	Solid	300.0	7740
MB 880-7740/1-A	Method Blank	Soluble	Solid	300.0	7740
LCS 880-7740/2-A	Lab Control Sample	Soluble	Solid	300.0	7740
LCSD 880-7740/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	7740
880-5950-A-8-B MS	Matrix Spike	Soluble	Solid	300.0	7740
880-5950-A-8-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	7740

Lab Chronicle

Client: WSP USA Inc. Job ID: 890-1230-1
Project/Site: Liza Jane Federal #1 SDG: 31403471.001

Client Sample ID: FS01 Lab Sample ID: 890-1230-1

Date Collected: 09/07/21 11:45 **Matrix: Solid**
Date Received: 09/08/21 08:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	7677	09/09/21 08:23	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	7678	09/09/21 13:18	MR	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	7666	09/09/21 10:50	DM	XEN MID
Total/NA	Analysis	8015B NM		1			7687	09/09/21 13:50	AJ	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	7693	09/09/21 10:38	CH	XEN MID
Soluble	Analysis	300.0		1			7716	09/10/21 11:36	CH	XEN MID

Client Sample ID: FS02 Lab Sample ID: 890-1230-2

Date Collected: 09/07/21 12:55 **Matrix: Solid**
Date Received: 09/08/21 08:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	7729	09/10/21 09:09	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	7728	09/10/21 17:42	MR	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	7705	09/09/21 13:32	DM	XEN MID
Total/NA	Analysis	8015B NM		1			7689	09/10/21 03:11	AJ	XEN MID
Soluble	Leach	DI Leach			5.01 g	50 mL	7693	09/09/21 10:38	CH	XEN MID
Soluble	Analysis	300.0		1			7716	09/10/21 11:42	CH	XEN MID

Client Sample ID: FS03 Lab Sample ID: 890-1230-3

Date Collected: 09/07/21 14:30 **Matrix: Solid**
Date Received: 09/08/21 08:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	7706	09/09/21 13:47	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	7711	09/10/21 14:28	MR	XEN MID
Total/NA	Prep	8015NM Prep			10.06 g	10 mL	7705	09/09/21 13:32	DM	XEN MID
Total/NA	Analysis	8015B NM		1			7689	09/10/21 03:32	AJ	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	7693	09/09/21 10:38	CH	XEN MID
Soluble	Analysis	300.0		1			7716	09/10/21 11:47	CH	XEN MID

Client Sample ID: SW01 Lab Sample ID: 890-1230-4

Date Collected: 09/07/21 14:35 **Matrix: Solid**
Date Received: 09/08/21 08:12

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	7706	09/09/21 13:47	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	7711	09/10/21 14:48	MR	XEN MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	7705	09/09/21 13:32	DM	XEN MID
Total/NA	Analysis	8015B NM		1			7689	09/10/21 03:52	AJ	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	7740	09/13/21 09:42	CH	XEN MID
Soluble	Analysis	300.0		1			7838	09/15/21 18:02	CH	XEN MID

Laboratory References:

XEN MID = Eurofins Xenco, Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Eurofins Xenco, Carlsbad

Accreditation/Certification Summary

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1230-1
SDG: 31403471.001

Laboratory: Eurofins Xenco, Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-21-22	06-30-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015B NM	8015NM Prep	Solid	Total TPH
8021B	5035	Solid	Total BTEX

Method Summary

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1230-1
SDG: 31403471.001

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
5035	Closed System Purge and Trap	SW846	XEN MID
8015NM Prep	Microextraction	SW846	XEN MID
DI Leach	Deionized Water Leaching Procedure	ASTM	XEN MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

XEN MID = Eurofins Xenco, Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Sample Summary

Client: WSP USA Inc.
Project/Site: Liza Jane Federal #1

Job ID: 890-1230-1
SDG: 31403471.001

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-1230-1	FS01	Solid	09/07/21 11:45	09/08/21 08:12	1 - 1.5
890-1230-2	FS02	Solid	09/07/21 12:55	09/08/21 08:12	2
890-1230-3	FS03	Solid	09/07/21 14:30	09/08/21 08:12	2
890-1230-4	SW01	Solid	09/07/21 14:35	09/08/21 08:12	0 - 2

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Chain of Custody

Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300
Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334
EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199

www.xenco.com Page 1 of 1

Work Order No: _____

Project Manager:	Kalei Jennings	Bill to: (if different)	
Company Name:	WSP USA	Company Name:	
Address:	3300 N A St	Address:	
City, State ZIP:	Midland, TX 79705	City, State ZIP:	
Phone:	817-683-2503	Email:	anna.byers@wsp.com

Work Order Comments

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RRC ☐ Superfund ☐
State of Project:
Reporting: Level II ☐ Level III ☐ PST/UST ☐ TRRP ☐ Level IV ☐
Deliverables: EDD ☐ ADaPT ☐ Other:

Project Name:	Liza Jane Federal #1	Turn Around	
Project Number:	31403471.001	☒ Routine Cl- ☒ Rush TPH BTEX	
Project Location:	Roosevelt County	Due Date: see comments	
Sampler's Name:	Anna Byers	TAT starts the day received by the lab, if received by 4:30pm	
PO #:			

SAMPLE RECEIPT				
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No	
Samples Received Intact:	(Yes) No	Thermometer ID:	TM007	
Cooler Custody Seals:	Yes No (N/A)	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No (N/A)	Temperature Reading:	4.4	
Total Containers:		Corrected Temperature:	4.2	

Preservative Codes

None: NO | DI Water: H_2O
Cool: Cool | MeOH: Me
HCL: HC | HNO_3: HN
H_2SO_4: H_2 | NaOH: Na
H_3PO_4: HP
$NaHSO_4$: NABIS
$Na_2S_2O_3$: $NaSO_3$
Zn Acetate+NaOH: Zn
NaOH+Ascorbic Acid: SAPC

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Grab/ Comp	# of Cont	Parameters: TPH (EPA 8015 Mod)	BTEX (EPA 8021B)	Chloride (EPA 300.0)	Sample Comments
FS01	S	9/7/21	1145	1-1.5'	Comp	1	X	X	X	All samples rush (24 HR) TPH + BTEX only. Chloride standard TAT.
FS02			1255	2'		1	X	X	X	
FS03			1430	2'		1	X	X	X	
SW01			1435	0-2'		1	X	X	X	

890-1230 Chain of Custody

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO_2 Na Sr Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Hg: 1631 / 245.1 / 7470 / 7471

	Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
1	Anna Byers		9/4/21 7:00	2		9.8.21 0811
3				4		
5				6		

Revised Date. 08/25/2020 Rev. 2020.2

Eurofins Xenco, Carlsbad
1089 N Canal St.
Carlsbad NM 88220
Phone. 575-988-3199 Fax 575-988-3199

Chain of Custody Record

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Client Information (Sub Contract Lab)	Sampler:	Lab PM: Kramer Jessica	Carrier Tracking No(s):	COC No: 890-398 1
Client Contact: Shipping/Receiving	Phone:	E-Mail: jessica.kramer@eurofinset.com	State of Origin: New Mexico	Page: Page 1 of 1
Company: Eurofins Xenco		Accreditations Required (See note): NELAP - Louisiana, NELAP - Texas		Job #: 890-1230-1
Address: 1211 W Florida Ave	Due Date Requested: 9/9/2021			
City: Midland	TAT Requested (days):			
State, Zip: TX, 79701				
Phone: 432-704-5440(Tel)	PO #:			
Email	WO #:			
Project Name: Liza Jane Federal #1	Project #: 89000048			
Site:	SSOW#:			

Analysis Requested

Preservation Codes

A	HCL	M	Hexane
B	NaOH	N	None
C	Zn Acetate	O	AsNaO2
D	Nitric Acid	P	Na2O4S
E	NaHSO4	Q	Na2SO3
F	MeOH	R	Na2S2O3
G	Amchlor	S	H2SO4
H	Ascorbic Acid	T	TSP Dodecahydrate
I	Ice	U	Acetone
J	DI Water	V	MCAA
K	EDTA	W	pH 4-5
L	EDA	Z	other (specify)

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8015MOD_NM/8015NM_S_Prep Full TPH	300_ORGFM_28D/DI_LEACH Chloride	8021B/5035FP_Calc BTEX	Total Number of containers	Special Instructions/Note
			Preservation Code:								
FS01 (890-1230-1)	9/7/21	11 45 Mountain		Solid			X	X	X	1	
FS02 (890-1230-2)	9/7/21	12 55 Mountain		Solid			X	X	X	1	
FS03 (890-1230-3)	9/7/21	14 30 Mountain		Solid			X	X	X	1	
SW01 (890-1230-4)	9/7/21	14 35 Mountain		Solid			X	X	X	1	

Note: Since laboratory accreditations are subject to change, Eurofins Xenco LLC places the ownership of method analyte & accreditation compliance upon out subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/tests/matrix being analyzed, the samples must be shipped back to the Eurofins Xenco LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Xenco LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Xenco LLC.

Possible Hazard Identification	Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
Unconfirmed	☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months
Deliverable Requested: I II III IV Other (specify) Primary Deliverable Rank: 2	Special Instructions/QC Requirements.

Empty Kit Relinquished by:	Date	Time:	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
	Clue Cap 9.8.21				9-9-21 1113 Dan	
	Relinquished by:	Date/Time	Company	Received by:	Date/Time:	Company
	Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company

Custody Seals Intact. Δ Yes Δ No	Custody Seal No	Cooler Temperature(s) °C and Other Remarks
		2.6, 2.7

Ver 06/08/2021

Login Sample Receipt Checklist

Client: WSP USA Inc.

Job Number: 890-1230-1
SDG Number: 31403471.001

Login Number: 1230
List Number: 1
Creator: Clifton, Cloe

List Source: Eurofins Xenco, Carlsbad

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Login Sample Receipt Checklist

Client: WSP USA Inc.

Job Number: 890-1230-1
SDG Number: 31403471.001

Login Number: 1230
List Number: 2
Creator: Copeland, Tatiana

List Source: Eurofins Xenco, Midland
List Creation: 09/09/21 11:51 AM

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	2.2 / 2.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 54615

CONDITIONS

Operator:	OGRID:
ARMSTRONG ENERGY CORP P.O. Box 1973 Roswell, NM 88202	1092
	Action Number: 54615
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
chensley	None	11/15/2021