

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	NRM2016460654
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party XTO Energy	OGRID 5380
Contact Name Kyle Littrell	Contact Telephone 432-221-7331
Contact email Kyle_Littrell@xtoenergy.com	Incident # (assigned by OCD)
Contact mailing address 522 W. Mermod, Carlsbad, NM 88220	

Location of Release Source

Latitude 32.139843 Longitude -103.926390
(NAD 83 in decimal degrees to 5 decimal places)

Site Name Row 4 Wolverine SWD Riser	Site Type Flow Line
Date Release Discovered 06/01/2020	API# (if applicable)

Unit Letter	Section	Township	Range	County
M	7	25S	30E	Eddy

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)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 672.72	Volume Recovered (bbls) 15
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	<input type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release A 2" welded olet on the bottom of a riser malfunctioned. Leak was isolated immediately and vacuum trucks dispatched for fluid recovery. A third-party contractor has been retained for remediation activities.

Form C-141

State of New Mexico
Oil Conservation Division


Page 2

Incident ID	NRM2016460654
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	If YES, for what reason(s) does the responsible party consider this a major release? An unauthorized release of a volume, excluding gases, of 25 or more barrels.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Yes, by Adrian Baker via email to Bratcher, Mike, EMNRD; 'Griswold, Jim, EMNRD'; 'Hamlet, Robert, EMNRD'; Mann, Ryan; Venegas, Victoria, EMNRD on Monday, June 1, 2020 3:03 PM.	

Initial Response

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

<input checked="" type="checkbox"/> The source of the release has been stopped. <input checked="" type="checkbox"/> The impacted area has been secured to protect human health and the environment. <input checked="" type="checkbox"/> Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. <input checked="" type="checkbox"/> All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why: N/A	
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: <u>Kyle Littrell</u> Signature:  email: <u>Kyle_Littrell@xtbenergy.com</u>	Title: <u>SH&E Supervisor</u> Date: <u>6-12-20</u> Telephone: <u>432-221-7331</u>
<u>OCD Only</u> Received by: <u>Ramona Marcus</u> Date: <u>6/12/2020</u>	

NRM2016460654

Location:	Row 4 Wolverine SWD Riser	
Spill Date:	6/1/2020	
Area 1		
Approximate Area =	56803.50	sq. ft.
Average Saturation (or depth) of spill =	4.00	inches
Average Porosity Factor =	0.15	
VOLUME OF LEAK		
Total Produced Water =	520.84	bbls
Area 2		
Approximate Area =	441.00	sq. ft.
Average Saturation (or depth) of spill =	12.00	inches
Average Porosity Factor =	0.15	
VOLUME OF LEAK		
Total Produced Water =	11.78	bbls
Area 3		
Approximate Area =	140.00	sq. ft.
Average Saturation (or depth) of spill =	12.00	inches
Average Porosity Factor =	0.15	
VOLUME OF LEAK		
Total Produced Water =	3.74	bbls
Area 4		
Approximate Area =	6138.00	sq. ft.
Average Saturation (or depth) of spill =	8.00	inches
Average Porosity Factor =	0.15	
VOLUME OF LEAK		
Total Produced Water =	109.32	bbls
Area 5		
Approximate Area =	506.00	sq. ft.
Average Saturation (or depth) of spill =	24.00	inches
Average Porosity Factor =	0.15	
VOLUME OF LEAK		
Total Produced Water =	27.04	bbls
TOTAL VOLUME OF LEAK		
Total Produced Water =	672.72	bbls
TOTAL VOLUME RECOVERED		
Total Produced Water =	15.00	bbls

State of New Mexico
Oil Conservation Division

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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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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.

State of New Mexico
Oil Conservation Division

Incident ID	NRM2016460654
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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 Littell Title: SH&E Supervisor
Signature:  Date: 6/11/20
email: Kyle_Littrell@xtoenergy.com Telephone: 432-221-7331

OCD Only

Received by: _____ Date: _____

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District RP	
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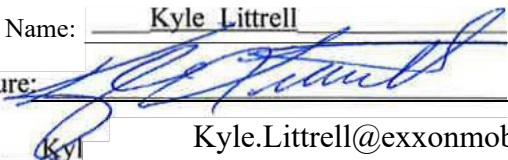
Closure

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.

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☒ 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)
- ☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☒ 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 Littrell Title: Environmental Manager
Signature:  Date: 6/11/21
email: Kyle.Littrell@exxonmobil.com Telephone: 432-221-7331



OCD Only

Received by: Chad Hensley Date: 07/13/2021

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:  Date: 07/13/2021
Printed Name: Chad Hensley Title: Environmental Specialist Advanced



WSP USA

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

June 11, 2021

District II
New Mexico Oil Conservation Division
811 South First Street
Artesia, New Mexico 88210

**Re: Variance for Closure Request
 Row 4 Wolverine SWD Riser
 Incident Number NRM2016460654
 Eddy County, New Mexico**

To Whom It May Concern:

WSP USA Inc. (WSP) on behalf of XTO Energy, Inc. (XTO), presents the following Variance for Closure Request as an update to the approved Remediation Work Plan (Work Plan) submitted on November 30, 2020 for the Row 4 Wolverine Saltwater Disposal (SWD) Riser (Site), located in Unit M, Section 7, Township 25 South, Range 30 East, in Eddy County, New Mexico (Figure 1). The original Work Plan proposed to complete excavation and soil sampling activities for closure of Incident Number NRM2016460654 and included a variance request to leave soil exceeding the reclamation standard for chloride in-place in areas immediately adjacent to active pipelines.

The Work Plan was approved by the New Mexico Oil Conservation Division (NMOCD) on February 24, 2021. The following report describes the implementation of the excavation and soil sampling activities as outlined in the Work Plan. Based on the excavation activities, soil sample laboratory analytical results, and completion of remediation as outlined in the approved Work Plan, XTO is requesting closure for Incident Number NRM2016460654.

RELEASE BACKGROUND

On June 1, 2020, a malfunction of a 2-inch welded olet on the bottom of a pipeline riser resulted in the release of approximately 672.72 barrels (bbls) of produced water. The release occurred on the riser pad and right-of-way (ROW) located on state land operated by the New Mexico State Land Office (SLO) and flowed west into the adjacent pasture, covering approximately 73,769 square feet. The riser pad and ROW consist of numerous risers to subsurface natural gas and produced water pipelines. The risers and 12 subsurface pipelines are located within the release extent. The release extent also includes a subsurface 3-inch steel pressurized gas pipeline operated by Lucid Energy Group (Lucid) and a utility pole and aboveground electrical lines operated by Xcel Energy (Xcel).

XTO reported the release to the NMOCD immediately on June 1, 2020 via email and subsequently submitted a Release Notification and Corrective Action Form C-141 (Form C-141) on June 12, 2020. The release was assigned Incident Number NRM2016460654.



CLOSURE CRITERIA

The Work Plan detailed site characterization 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). Site receptors are shown in Figure 1. Based on the site characterization, the following Closure Criteria were applied and approved in the original Work Plan:

- 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

Additionally, the top four feet of reclaimed surface in the affected pasture must be comprised of non-waste containing, uncontaminated earthen material exhibiting chloride concentrations below 600 mg/kg, which was applied per NMAC 19.15.29.13.D (1).

SUMMARY OF INITIAL SOIL SAMPLING ACTIVITIES AND REMEDIATION WORK PLAN

On June 5, 2020, WSP inspected the Site to evaluate the release extent and collect preliminary soil samples (SS01 through SS09) based on visual observations and information from the Form C-141. WSP personnel returned to the Site on August 17, 2020, to conduct further site assessment via delineation soil sample collection. WSP personnel advanced eight boreholes via a stainless-steel hand auger within the release extent to assess for the presence or absence of impact to soil at depth. WSP personnel returned to the Site on September 28, 2020 and October 6, 2020 to complete delineation via track hoe. WSP personnel advanced nine potholes via track hoe within the release extent to further assess for the presence or absence of impact to soil at depth.

No preliminary or delineation soil samples contained detectable concentrations of BTEX or TPH. All preliminary and delineation soil samples were compliant with the Table 1 Closure Criteria for chloride. However, the preliminary surface samples and delineation soil samples from several boreholes and all shallow pothole samples exceeded the reclamation standard for chloride. In the top 3 feet to 4 feet of the subsurface within the release extent, except in one location, soil contained chloride concentrations exceeding the reclamation standard. Below four feet bgs, chloride concentrations were compliant with the assigned Table 1 Closure Criteria and delineated to the most stringent Table 1 Closure Criteria. All previous remediation activities and soil sample analytical results can be referenced in the original report.



Based on the delineation data, XTO submitted a Remediation Work Plan on November 30, 2020 proposing to complete the following:

- Remove an estimated 10,930 cubic yards of waste-containing soil within the top 4 feet of the subsurface;
- Collect composite confirmation samples in any areas of the floor of the excavation that does not reach 4 feet bgs in depth. In addition, collect confirmation samples from all sidewalls to confirm that all waste-containing soil has been removed from the top four feet. The source of the release was produced water and no hydrocarbon constituents were observed in source samples; therefore, chloride was established as the contaminant of concern.
- Request a variance to leave soil in place near XTO riser equipment and multiple subsurface gas and water pipelines near the point of release; Lucid subsurface pipeline; and; aboveground electrical line and associated utility poles operated by Xcel in order to preserve the structural integrity of said equipment. XTO safety policy prohibits excavation within 2 feet of any subsurface line or aboveground production equipment and within 10 feet of the Xcel utility pole.

The Remediation Work Plan and Variance Request was approved by NMOCD on February 24, 2021 with the following conditions of approval:

- *Water wells should be no further than ½ mile away from the site due to the high loss of production water. Please provide further proof of DTW or use Table 1 Closure Criteria for ground water at a depth of 50 feet or less.*
- *Deferral is denied at this time. The OCD requests that samples be taken to a depth that contamination amounts are under the limit near the area requesting for deferment.*

XTO and NMOCD met on April 8, 2021 to discuss the Work Plan and conditions of approval. During the meeting, NMOCD indicated that it was open, in this instance, to a regional argument for depth to groundwater based on the lateral distance to the nearest water well of just over ½ mile. XTO clarified that deferral was not requested as a part of the Work Plan; however, additional delineation sampling was requested. The following sections of the report detail the regional depth to groundwater information, excavation activities, and additional delineation sampling conducted to meet NMOCD's conditions of approval.

GROUNDWATER EVALUATION

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 nearest permitted groundwater well with depth to water data is United States Geological Survey (USGS) well 320857103553301, located approximately 0.65 miles north of the Site (Figure 1). The well has a depth to groundwater of approximately 264 feet bgs and a total depth of approximately 385 feet bgs. The groundwater well is approximately 12 feet lower in elevation than the Site. In addition, there are five USGS and New Mexico Office of the State Engineer (NMOSE) wells located within a 4-mile radius of the Site and in separate directions. All of these wells have a recorded depth to groundwater of



greater than 100 feet bgs and sometimes as deep as 300 feet bgs. There are very few surface water features in the area. These characteristics indicate regional depth to water is greater than 100 feet bgs and WSP requests the NMOCD consider these facts in its own evaluation as opposed to applying its guidance that the nearest water well data be within ½ mile of the Site. The nearest water well in this instance is only 0.15 miles outside of that guidance. The referenced well records are included in Attachment 1.

REMEDIATION WORK PLAN IMPLEMENTATION

Between November 20, 2020 and January 8, 2021, WSP personnel returned to Site to oversee excavation of impacted soil in the top 4 feet of the release area. Soil was excavated as indicated by field screening activities and laboratory analytical results from the preliminary and delineation soil samples. Excavation activities were performed using track-mounted backhoe, transport vehicle, and hydrovac. The excavation occurred in the pipeline ROW and surrounding pasture. To direct excavation activities, WSP screened soil for volatile aromatic hydrocarbons and chloride utilizing a photo ionization detector (PID) and Hach® chloride QuanTab® test strips, respectively. Photographic documentation is included in Attachment 2.

Excavation was completed in the pasture to depths ranging from 2 feet to 4 feet bgs, as indicated by field screening activities. However, excavation was limited near XTO riser equipment and multiple subsurface gas and water pipelines near the point of release; Lucid subsurface pipeline; and; aboveground electrical line and associated utility poles operated by Xcel. XTO safety policy prohibits excavation within 2 feet of any subsurface line or aboveground production equipment and within 10 feet of utility poles to preserve the integrity of said equipment. Excavation in these areas was completed to the maximum extent possible through hand shoveling and hydrovac excavation while adhering to XTO safety policy.

Following removal of impacted soil, WSP collected 5-point composite soil samples at least every 200 square feet from the sidewalls of the excavation. In addition, composite soil samples were collected in any areas of the floor of the excavation that did not reach 4 feet bgs in depth. As previously discussed with the NMOCD, WSP did not collect soil samples from the floor of the excavation if the excavation depth was greater than or equal to 4 feet in depth. Delineation samples successfully demonstrated that soil greater than 4 feet in depth met Table 1 Closure Criteria and during excavation, all waste-containing material was removed from the top 4 feet in these areas. 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 SW01 through SW103 were collected from the sidewalls of the excavation from depths ranging from the ground surface to 4 feet bgs. Composite soil samples FS01 through FS17 were collected from the floor of the excavation from depths ranging from 2 feet to 3 feet bgs. The excavation extent and excavation soil sample locations are presented on Figure 2A through Figure 2C.



The excavation soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The source of the release was produced water and no hydrocarbon constituents were observed in source samples; therefore, chloride is the established contaminant of concern. The soil samples were transported at or below 4 degrees Celsius (°C) under strict chain-of-custody (COC) procedures to Xenco Laboratories (Xenco) in Carlsbad, New Mexico, for analysis of chloride following EPA Method 300.0.

The excavation area measured approximately 47,620 square feet. A total of approximately 7,100 cubic yards of impacted soil was removed during the excavation activities. The impacted soil was transported and properly disposed of at the R360 Facility in Hobbs, New Mexico.

Additional delineation sampling was completed on January 8, 2021 to laterally delineate soil left in place near the riser equipment and utility pole. Delineation potholes, PH10 (near the utility pole), PH11, and PH12 (near the riser) were collected at depths ranging from 0.5 feet bgs to 4 feet bgs and two discrete soil samples were collected from each pothole. PH11 and PH12 were placed in locations previously discussed and approved by NMOCD during the April 8, 2021 meeting. Those samples were analyzed for chloride only.

On and April 27, 2021, PH13 through PH20 were advanced within the release extent to better confirm concentrations of hydrocarbons and chloride in soil greater than 4 feet in depth. Two delineation soil samples were collected from those potholes from depths of 4.5 feet and 5.5 feet bgs. Samples were analyzed for chloride, BTEX by United States Environmental Protection Agency (EPA) Method 8021B, TPH-GRO, TPH-DRO, and TPH-ORO by EPA Method 8015M/D.

Field screening results and observations for each pothole were recorded on a lithologic/soil sampling log which are included in Attachment 3. All delineation soil sample locations are depicted on Figure 3. The delineation pothole soil samples were collected, handled, and analyzed as described above.

SOIL ANALYTICAL RESULTS

Laboratory analytical results for all excavation floor samples (FS01 through FS17) were compliant with the applied Closure Criteria and the reclamation standard of 600 mg/kg chloride. Laboratory analytical results for sidewall samples SW01 through SW24, SW28 through SW47, SW50 through SW69, SW74 through SW97, and SW100 through SW103 were compliant with the applied Closure Criteria and the reclamation standard of 600 mg/kg chloride. Sidewall samples near XTO riser equipment and multiple subsurface gas and water pipelines near the point of release (SW98 and SW99); Lucid subsurface pipeline (SW25 through SW27 and SW70 through SW73); and; aboveground electrical line and associated utility poles operated by Xcel (SW48 and SW49), were compliant with the Site Closure Criteria; however, exceeded the reclamation standard of 600 mg/kg chloride in the top 4 feet. Chloride concentrations ranged from 638 mg/kg in SW49 to



8,130 mg/kg in SW27. Additionally, the laboratory analytical results for PH10 through PH12 confirmed lateral delineation of chloride concentrations near the Xcel utility pole and XTO riser equipment to the strictest Table 1 Closure Criteria. Laboratory analytical results for PH13 through PH20 indicated soil concentrations for benzene, BTEX, TPH-GRO, TPH-DRO, TPH and chloride were in compliance with the strictest Table 1 Closure Criteria. Laboratory analytical results are summarized on Table 1 and laboratory analytical reports are included in Attachment 4.

BACKFILL ACTIVITIES

Due to the large size of the excavation and the location of the excavation in the pasture, the excavation was backfilled as soon as possible to protect wildlife and cattle. Following a review of the analytical results from the confirmation samples, the excavation was backfilled with locally procured topsoil and recontoured to match Site conditions. The area will be reseeded with Bureau of Land Management approved seed mix.

VARIANCE REQUEST

XTO has removed all soil exceeding 600 mg/kg of chloride in the top 4 feet in the pasture where it is safe to do so. However, existing active utilities in the following areas make soil removal unsafe:

- XTO riser equipment and multiple subsurface gas and water pipelines near the point of release;
- Lucid subsurface pipeline; and
- Aboveground electrical line and associated utility poles operated by Xcel.

XTO requests to leave soil in place at these locations in order to preserve the structural integrity of the above-mentioned equipment. XTO safety policy prohibits excavation within 2 feet of any subsurface line or aboveground production equipment and within 10 feet of the Xcel utility pole. Chloride impacted soil in the top 4 feet was excavated to the maximum extent possible without risking destabilization of the riser equipment, pipelines, or utility poles. Approximately 520 cubic yards of soil is left in place surrounding the equipment, assuming a maximum depth of impacts of 4 feet bgs. The areas with soil left in place are depicted on Figure 3.

WSP and XTO believe leaving the soil in place is equally protective of public health and environment. Approximately 7,100 cubic yards of waste-containing soil were excavated, which removed the bulk of the source contaminate. All remaining soil meets the Table 1 Closure Criteria applied to the Site. In addition, the total depth of impact has been defined as 4 feet bgs and the groundwater table is greater than 100 feet deep, suggesting the likelihood of chloride migrating a sufficient depth to impact groundwater is low. There are no other sensitive receptors near the release. There is no existing vegetation in the pipeline ROW near the risers or in the Lucid pipeline ROW. Vegetation near the electrical utility appears healthy and will remain in place. Photo documentation of healthy vegetation is included in Attachment 2. The risk to worker safety

District II
Page 7

associated with soil removal immediately adjacent to or under the pipelines and utility line is more significant than risk to vegetation following remediation. Based on these factors, XTO and WSP believe leaving the soil in place is protective of human health, the environment, and groundwater. As such, XTO respectfully requests a variance to leave the minimal amount of soil in place near the third-party equipment and congested riser area with no further action for this release.

If you have any questions or comments, please do not hesitate to contact Ms. Ashley Ager at (970) 385-1096.

Sincerely,

WSP USA Inc.

A handwritten signature in black ink that reads 'Tacoma Morrissey'.

Tacoma Morrissey
Consultant Geologist

A handwritten signature in black ink that reads 'Ashley L. Ager'.

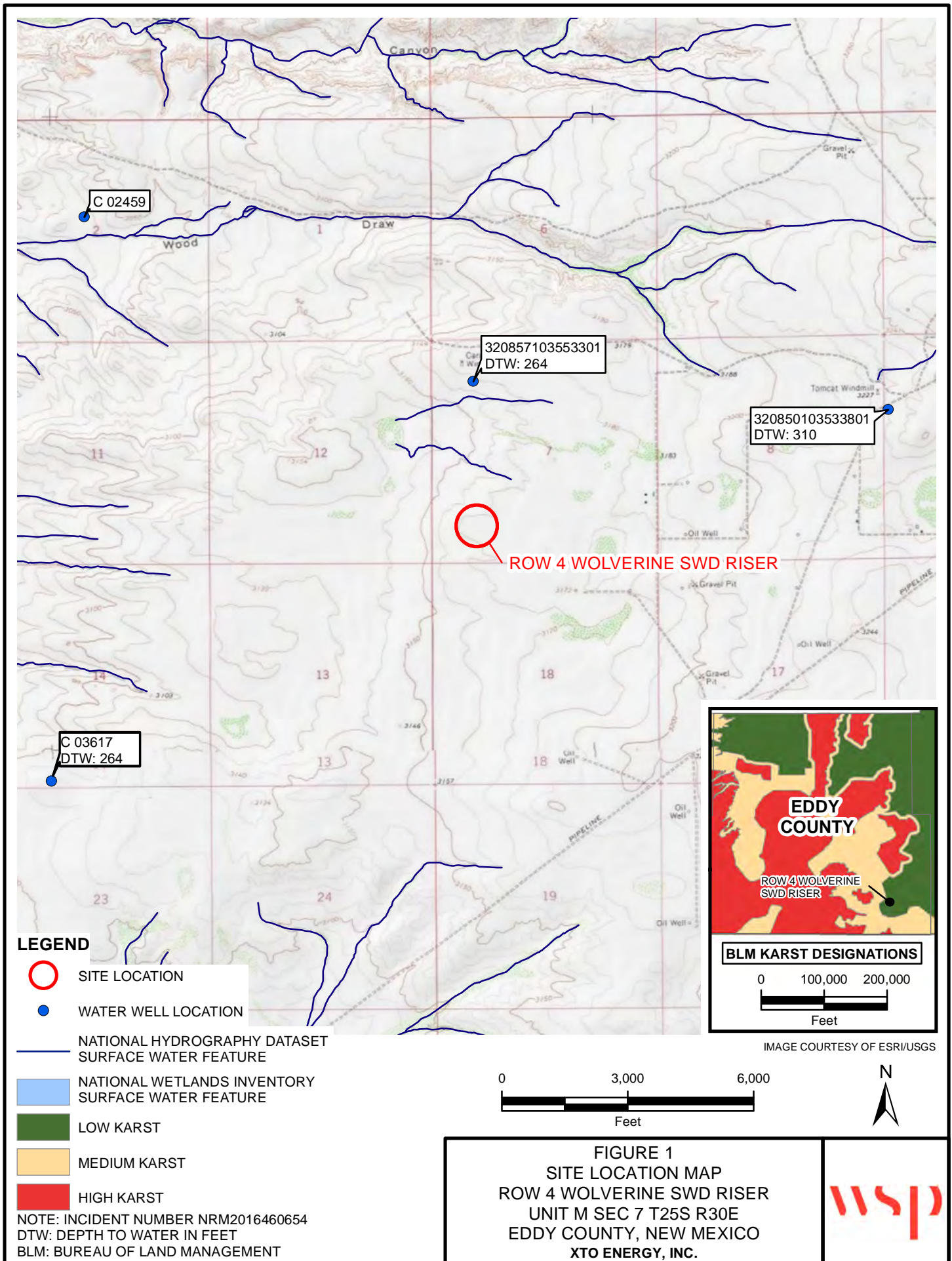
Ashley L. Ager, P.G.
Managing Director, Geologist

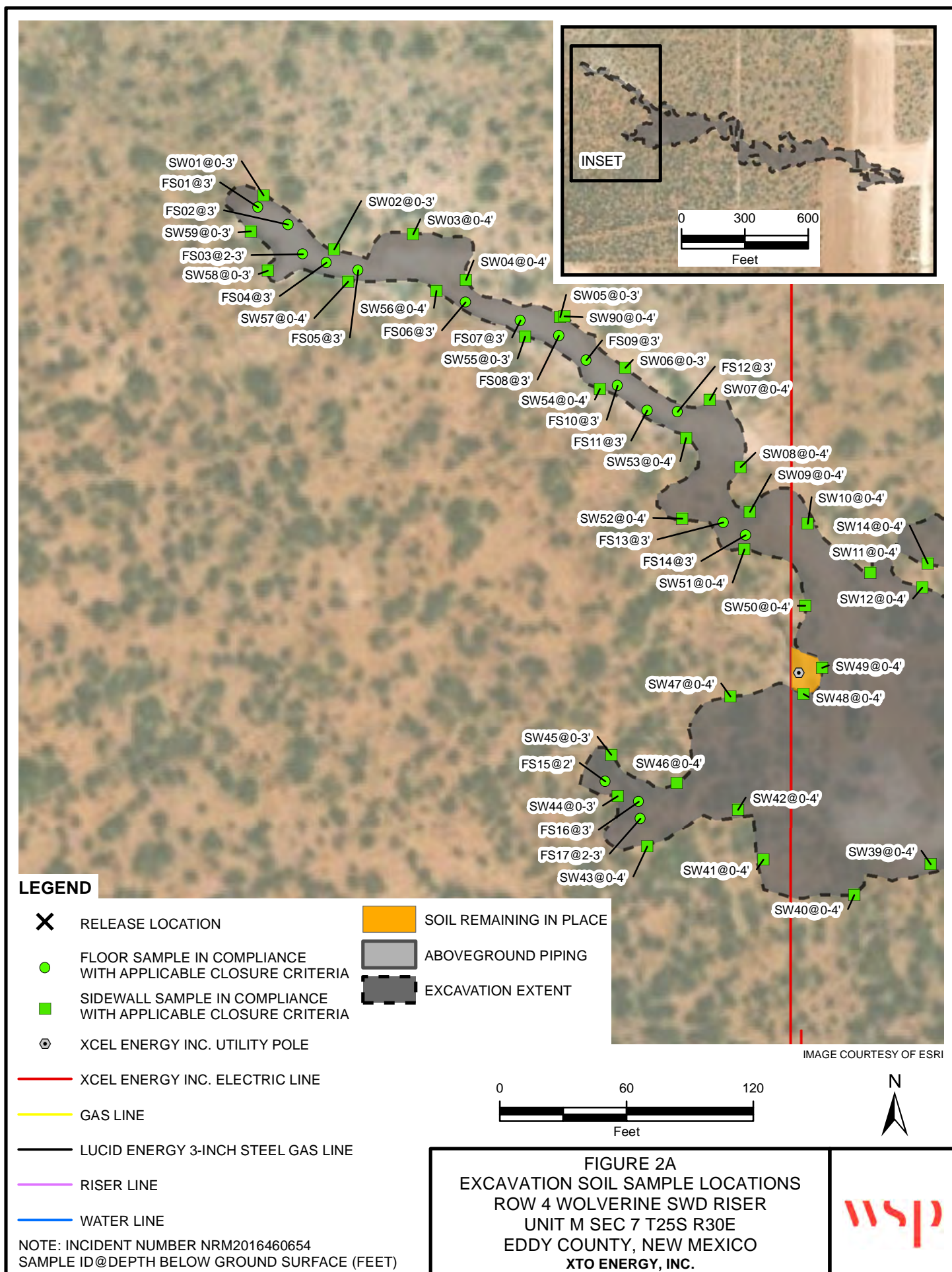
cc: Kyle Littrell, XTO Energy
Bureau of Land Management

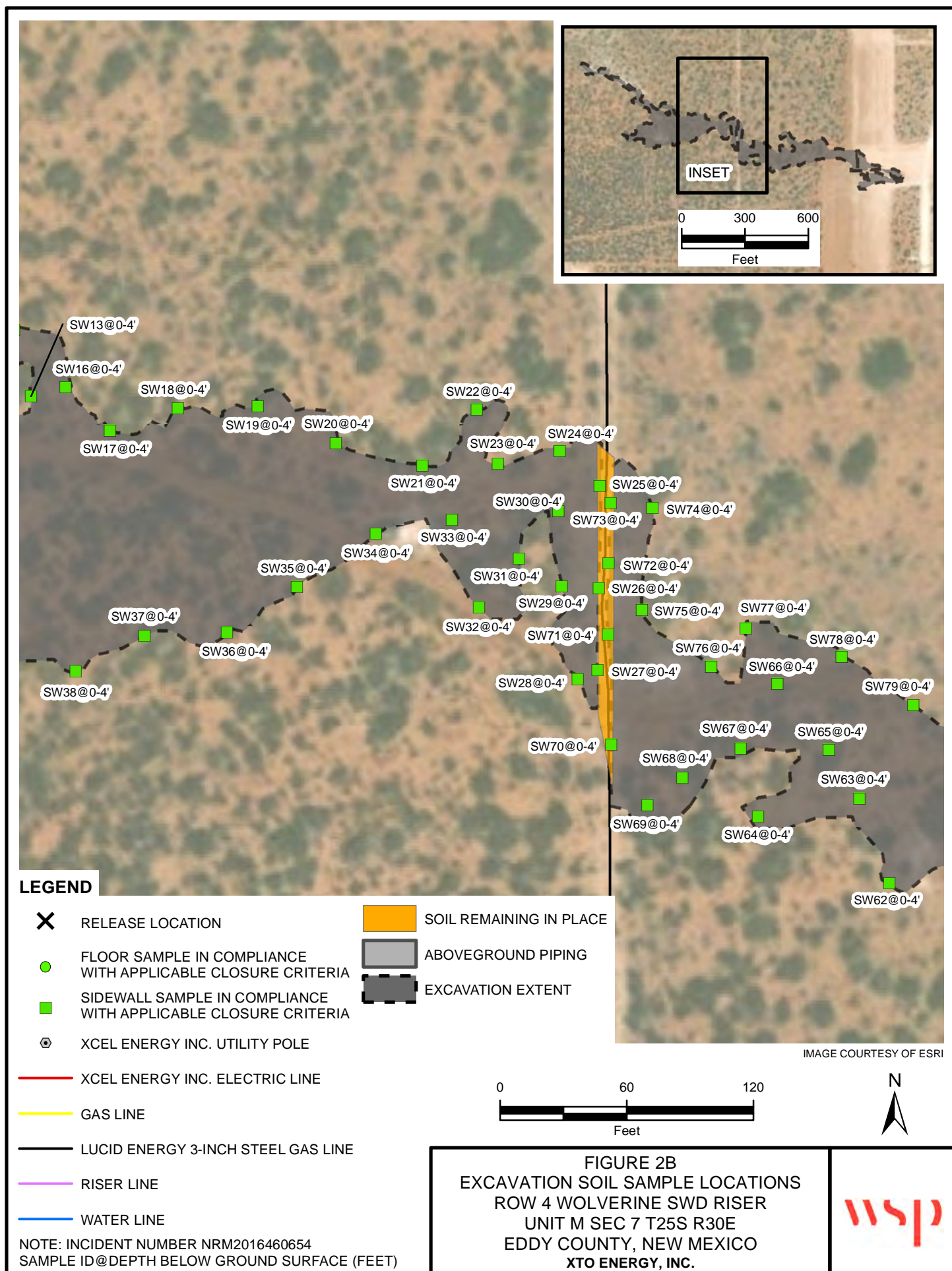
Attachments:

Figure 1	Site Location Map
Figure 2A- Figure 2C	Excavation Soil Sample Locations
Figure 3	Delineation Soil Sample Locations
Table 1	Soil Analytical Results
Attachment 1	Referenced Well Records
Attachment 2	Photographic Log
Attachment 3	Lithologic/Sampling Logs
Attachment 4	Laboratory Analytical Reports

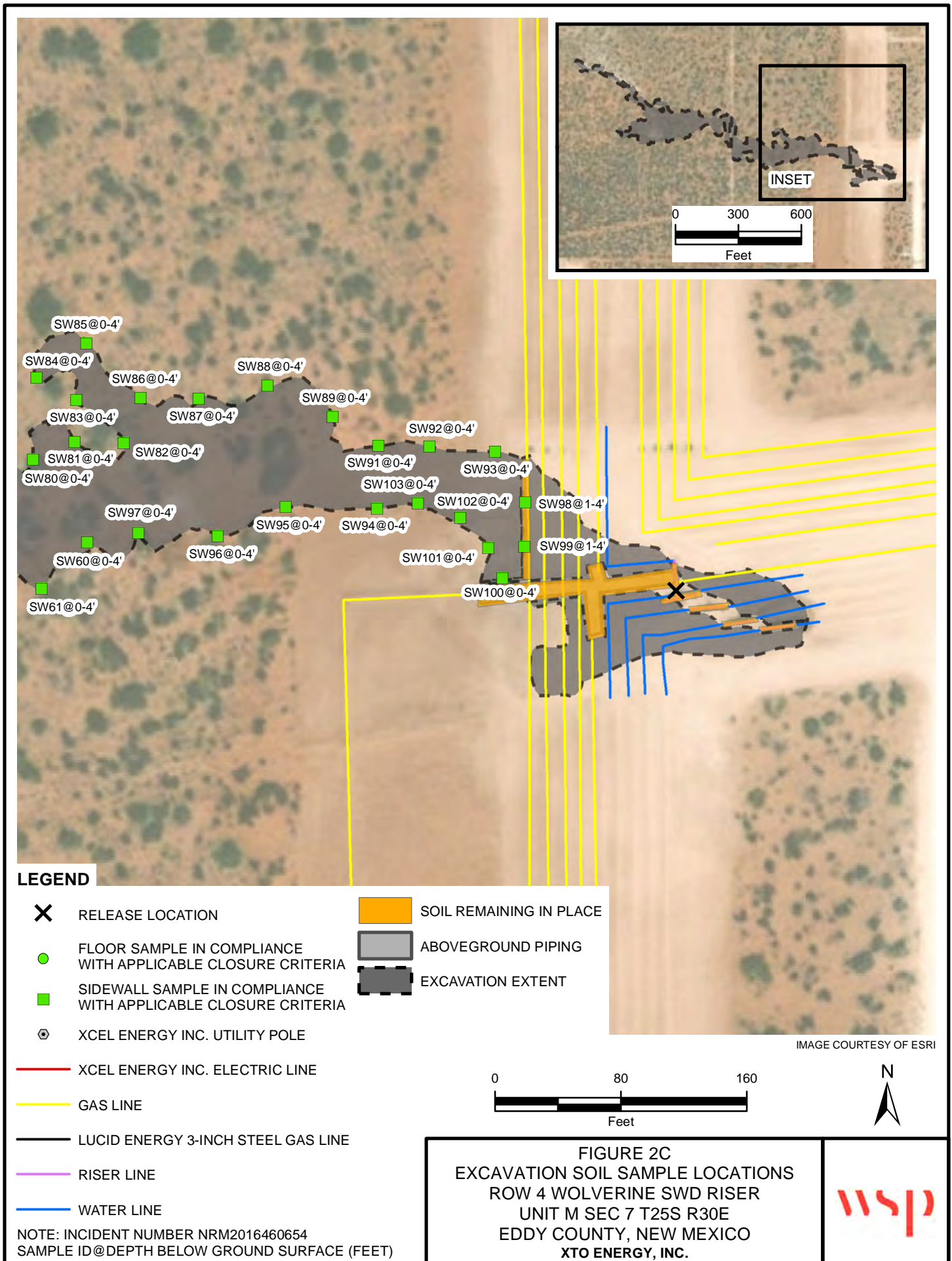
FIGURES



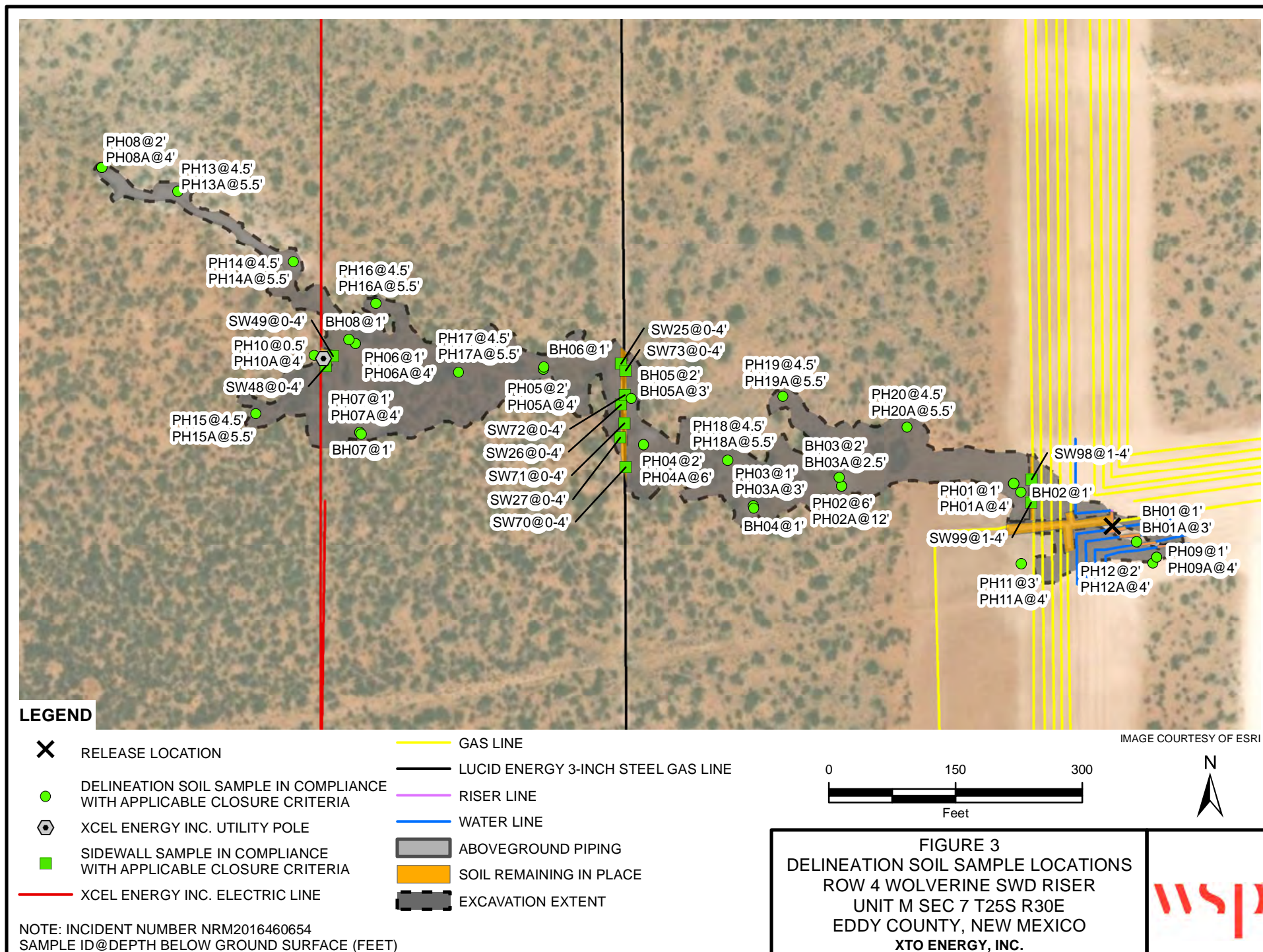




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TABLE

Table 1

Soil Analytical Results
ROW 4 WOLVERINE SWD RISER
INCIDENT NUMBER NRM2016460654
Eddy 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 GRO+DRO (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
Surface Samples										
SS01	06/05/2020	0.5	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	7,430
SS02	06/05/2020	0.5	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	186
SS03	06/05/2020	0.5	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	83.1
SS04	06/05/2020	0.5	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	5,480
SS05	06/05/2020	0.5	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	8,600
SS06	06/05/2020	0.5	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	7,250
SS07	06/05/2020	0.5	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	5,350
SS08	06/05/2020	0.5	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	4,770
SS09	06/05/2020	0.5	<0.00198	<0.00198	<49.8	<49.8	<49.8	<49.8	<49.8	5,170
Delineation Samples										
BH01	08/17/2020	1	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	4,490
BH01A	08/17/2020	3	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	4,500
BH02	08/17/2020	1	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	2,820
BH03	08/17/2020	2	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	2,120
BH03A	08/17/2020	2.5	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	1,420
BH04	08/17/2020	1	<0.00201	<0.00201	<50.1	<50.1	<50.1	<50.1	<50.1	3,160
BH05	08/17/2020	2	<0.00199	<0.00199	<50.2	<50.2	<50.2	<50.2	<50.2	206
BH05A	08/17/2020	3	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	374
BH06	08/17/2020	1	<0.00199	<0.00199	<50.1	<50.1	<50.1	<50.1	<50.1	578
BH07	08/17/2020	1	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	5,790
BH08	08/17/2020	1	<0.00199	<0.00199	<50.1	<50.1	<50.1	<50.1	<50.1	4,130

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Soil Analytical Results
ROW 4 WOLVERINE SWD RISER
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Eddy 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 GRO+DRO (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
Pothole Samples										
PH01	09/28/2020	1	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<61.4	3,210
PH01A	09/28/2020	4	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<61.4	34.2
PH02	09/28/2020	6	<0.00201	<0.00201	<50.1	<50.1	<50.1	<50.1	<60.5	7,400
PH02A	09/28/2020	12	<0.00201	<0.00201	<50.1	<50.1	<50.1	<50.1	<61.7	160
PH03	09/28/2020	1	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<60.2	3,020
PH03A	09/28/2020	3	<0.00202	<0.00202	<50.1	<50.1	<50.1	<50.1	<63.8	<10.0
PH04	09/28/2020	2	<0.00198	<0.00198	<50.1	<50.1	<50.1	<50.1	<63.8	5,890
PH04A	09/28/2020	6	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	<62.6	300
PH05	09/28/2020	2	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<61.4	4,080
PH05A	09/28/2020	4	<0.00201	<0.00201	<50.1	<50.1	<50.1	<50.1	<61.4	45.2
PH06	09/28/2020	1	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<61.4	3,610
PH06A	09/28/2020	4	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<60.5	<9.94
PH07	09/28/2020	1	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<61.7	4,600
PH07A	09/28/2020	4	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<60.2	47.7
PH08	10/06/2020	2	<0.00198	<0.00198	<50.3	<50.3	<50.3	<50.3	<63.8	955
PH08A	10/06/2020	4	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<63.8	112
PH09	10/06/2020	1	<0.00201	<0.00201	<50.2	<50.2	<50.2	<50.2	<62.6	2,890
PH09A	10/06/2020	4	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<61.4	199
PH10	01/08/2021	0.5	NA	NA	NA	NA	NA	NA	NA	<10.1
PH10A	01/08/2021	4	NA	NA	NA	NA	NA	NA	NA	11.3
PH11	01/08/2021	3	NA	NA	NA	NA	NA	NA	NA	15.3

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Eddy 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 GRO+DRO (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
PH11A	01/08/2021	4	NA	NA	NA	NA	NA	NA	NA	18.0
PH12	01/08/2021	2	NA	NA	NA	NA	NA	NA	NA	10.1
PH12A	01/08/2021	4	NA	NA	NA	NA	NA	NA	NA	<9.92
PH13	04/27/2021	4.5	<0.00198	<0.00396	58.5	<49.9	<49.9	58.5	58.5	67.6
PH13A	04/27/2021	5.5	<0.00200	<0.00399	<49.9	<49.9	<49.9	<49.9	<49.9	36.5
PH14	04/27/2021	4.5	<0.00200	<0.00400	143	<49.8	<49.8	143	141	457
PH14A	04/27/2021	5.5	<0.00199	<0.00398	181	<49.9	<49.9	181	129	454
PH15	04/27/2021	4.5	<0.00201	<0.00402	<50.0	<50.0	<50.0	<50.0	<50.0	50.9
PH15A	04/27/2021	5.5	<0.00200	<0.00401	<50.0	<50.0	<50.0	<50.0	<50.0	65.8
PH16	04/27/2021	4.5	<0.00200	<0.00401	<50.0	<50.0	<50.0	<50.0	<50.0	409
PH16A	04/27/2021	5.5	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	406
PH17	04/27/2021	4.5	<0.00200	<0.00400	<49.9	<49.9	<49.9	<49.9	<49.9	239
PH17A	04/27/2021	5.5	<0.00200	<0.00400	<50.0	<50.0	<50.0	<50.0	<50.0	159
PH18	04/27/2021	4.5	<0.00200	<0.00399	<50.0	<50.0	<50.0	<50.0	<50.0	170
PH18A	04/27/2021	5.5	<0.00200	<0.00401	<50.0	<50.0	<50.0	<50.0	<50.0	111
PH19	04/27/2021	4.5	<0.00202	<0.00404	<50.0	<50.0	<50.0	<50.0	<50.0	101
PH19A	04/27/2021	5.5	<0.00200	<0.00399	<49.9	<49.9	<49.9	<49.9	<49.9	46.2
PH20	04/27/2021	4.5	<0.00200	<0.00399	<49.9	<49.9	<49.9	<49.9	<49.9	147
PH20A	04/27/2021	5.5	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	105
Excavation Floor Samples										
FS01	11/20/2020	3	NA	NA	NA	NA	NA	NA	NA	15.5
FS02	11/20/2020	3	NA	NA	NA	NA	NA	NA	NA	62.5

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Soil Analytical Results
ROW 4 WOLVERINE SWD RISER
INCIDENT NUMBER NRM2016460654
Eddy 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 GRO+DRO (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
FS03	11/20/2020	2 - 3	NA	NA	NA	NA	NA	NA	NA	24.8
FS04	11/20/2020	3	NA	NA	NA	NA	NA	NA	NA	49.3
FS05	11/20/2020	3	NA	NA	NA	NA	NA	NA	NA	17.1
FS06	11/20/2020	3	NA	NA	NA	NA	NA	NA	NA	263
FS07	11/20/2020	3	NA	NA	NA	NA	NA	NA	NA	308
FS08	11/20/2020	3	NA	NA	NA	NA	NA	NA	NA	185
FS09	11/20/2020	3	NA	NA	NA	NA	NA	NA	NA	49.3
FS10	11/20/2020	3	NA	NA	NA	NA	NA	NA	NA	452
FS11	11/20/2020	3	NA	NA	NA	NA	NA	NA	NA	352
FS12	11/20/2020	3	NA	NA	NA	NA	NA	NA	NA	249
FS13	11/20/2020	3	NA	NA	NA	NA	NA	NA	NA	404
FS14	11/20/2020	3	NA	NA	NA	NA	NA	NA	NA	441
FS15	11/20/2020	2	NA	NA	NA	NA	NA	NA	NA	197
FS16	11/20/2020	3	NA	NA	NA	NA	NA	NA	NA	201
FS17	11/20/2020	2 - 3	NA	NA	NA	NA	NA	NA	NA	50.9
Excavation Sidewall Samples										
SW01	11/24/2020	0 - 3	NA	NA	NA	NA	NA	NA	NA	40.6
SW02	11/24/2020	0 - 3	NA	NA	NA	NA	NA	NA	NA	23.2
SW03	12/21/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	15.8
SW04	12/21/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	15.8
SW05	11/24/2020	0 - 3	NA	NA	NA	NA	NA	NA	NA	832
SW06	11/24/2020	0 - 3	NA	NA	NA	NA	NA	NA	NA	18.9

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Soil Analytical Results
ROW 4 WOLVERINE SWD RISER
INCIDENT NUMBER NRM2016460654
Eddy 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 GRO+DRO (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
SW07	12/22/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	20.1
SW08	11/24/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	15.8
SW09	11/24/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	111
SW10	12/19/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	<9.96
SW11	12/19/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	58.2
SW12	11/24/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	462
SW13	11/24/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	359
SW14	11/24/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	316
SW15	11/24/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	19.8
SW16	11/24/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	15.2
SW17	11/24/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	452
SW18	12/22/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	21.2
SW19	12/03/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	307
SW20	12/03/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	230
SW21	12/03/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	24.4
SW22	12/03/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	63.8
SW23	12/30/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	116
SW24	12/30/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	111
SW25	12/04/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	3,990
SW26	12/04/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	6,960
SW27	12/04/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	8,130
SW28	12/22/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	73.2

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NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	1,000	2,500	20,000
SW29	12/22/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	94.5
SW30	12/04/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	543
SW31	12/04/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	390
SW32	12/22/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	393
SW33	12/22/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	393
SW34	12/04/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	204
SW35	12/04/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	<9.98
SW36	12/21/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	268
SW37	12/21/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	243
SW38	12/04/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	380
SW39	12/04/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	18.6
SW40	12/08/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	79.7
SW41	12/21/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	23.8
SW42	12/21/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	36.8
SW43	12/08/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	<10.0
SW44	12/08/2020	0 - 3	NA	NA	NA	NA	NA	NA	NA	<10.1
SW45	12/08/2020	0 - 3	NA	NA	NA	NA	NA	NA	NA	191
SW46	12/08/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	<10.0
SW47	12/08/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	<10.0
SW48	12/08/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	638
SW49	12/08/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	3,330
SW50	12/21/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	176

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NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	1,000	2,500	20,000
SW51	12/08/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	130
SW52	12/21/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	19.2
SW53	12/21/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	18.7
SW54	12/21/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	127
SW55	12/08/2020	0 - 3	NA	NA	NA	NA	NA	NA	NA	407
SW56	12/08/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	20.1
SW57	12/08/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	104
SW58	12/08/2020	0 - 3	NA	NA	NA	NA	NA	NA	NA	<10.1
SW59	12/08/2020	0 - 3	NA	NA	NA	NA	NA	NA	NA	<10.1
SW60	12/09/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	502
SW61	12/09/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	231
SW62	12/09/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	327
SW63	12/30/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	95.2
SW64	12/30/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	21.8
SW65	12/30/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	37.7
SW66	12/30/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	196
SW67	12/30/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	40.0
SW68	12/30/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	160
SW69	12/30/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	203
SW70	12/09/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	2,250
SW71	12/09/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	6,220
SW72	12/09/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	2,990

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Eddy County, New Mexico

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NMOCD Table 1 Closure Criteria (NMAC 19.15.29)			10	50	NE	NE	NE	1,000	2,500	20,000
SW73	12/09/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	3,870
SW74	12/28/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	70.8
SW75	12/28/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	69.7
SW76	12/28/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	58.9
SW77	12/28/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	54.8
SW78	12/28/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	290
SW79	01/08/2021	0 - 4	NA	NA	NA	NA	NA	NA	NA	37.8
SW80	01/08/2021	0 - 4	NA	NA	NA	NA	NA	NA	NA	201
SW81	12/09/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	309
SW82	12/09/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	134
SW83	12/09/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	121
SW84	12/09/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	13.1
SW85	12/09/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	18.5
SW86	12/09/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	83.2
SW87	12/16/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	22.6
SW88	12/16/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	14.4
SW89	12/16/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	358
SW90	12/22/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	21.8
SW91	12/31/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	36.9
SW92	12/31/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	62.1
SW93	12/31/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	71.7
SW94	12/31/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	58.2
SW95	12/31/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	37.6

Table 1

Soil Analytical Results
ROW 4 WOLVERINE SWD RISER
INCIDENT NUMBER NRM2016460654
Eddy 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 GRO+DRO (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
SW96	12/31/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	18.8
SW97	12/31/2020	0 - 4	NA	NA	NA	NA	NA	NA	NA	111
SW98	01/08/2021	1 - 4	NA	NA	NA	NA	NA	NA	NA	5,210
SW99	01/08/2021	1 - 4	NA	NA	NA	NA	NA	NA	NA	1,470
SW100	01/08/2021	0 - 4	NA	NA	NA	NA	NA	NA	NA	73.7
SW101	01/08/2021	0 - 4	NA	NA	NA	NA	NA	NA	NA	47.9
SW102	01/08/2021	0 - 4	NA	NA	NA	NA	NA	NA	NA	214
SW103	01/08/2021	0 - 4	NA	NA	NA	NA	NA	NA	NA	507

mg/kg - milligrams per kilograms

BTEX - benzene, toluene, ethylbenzene, and total xylenes

TPH - total petroleum hydrocarbons

DRO - diesel range organics

GRO - gasoline range organics

NA - not analyzed

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

Greyed data represents samples that were excavated

ATTACHMENT 1: REFERENCED WELL RECORDS

USGS 320857103553301 25S.30E.07.112331

Available data for this site

Well Site

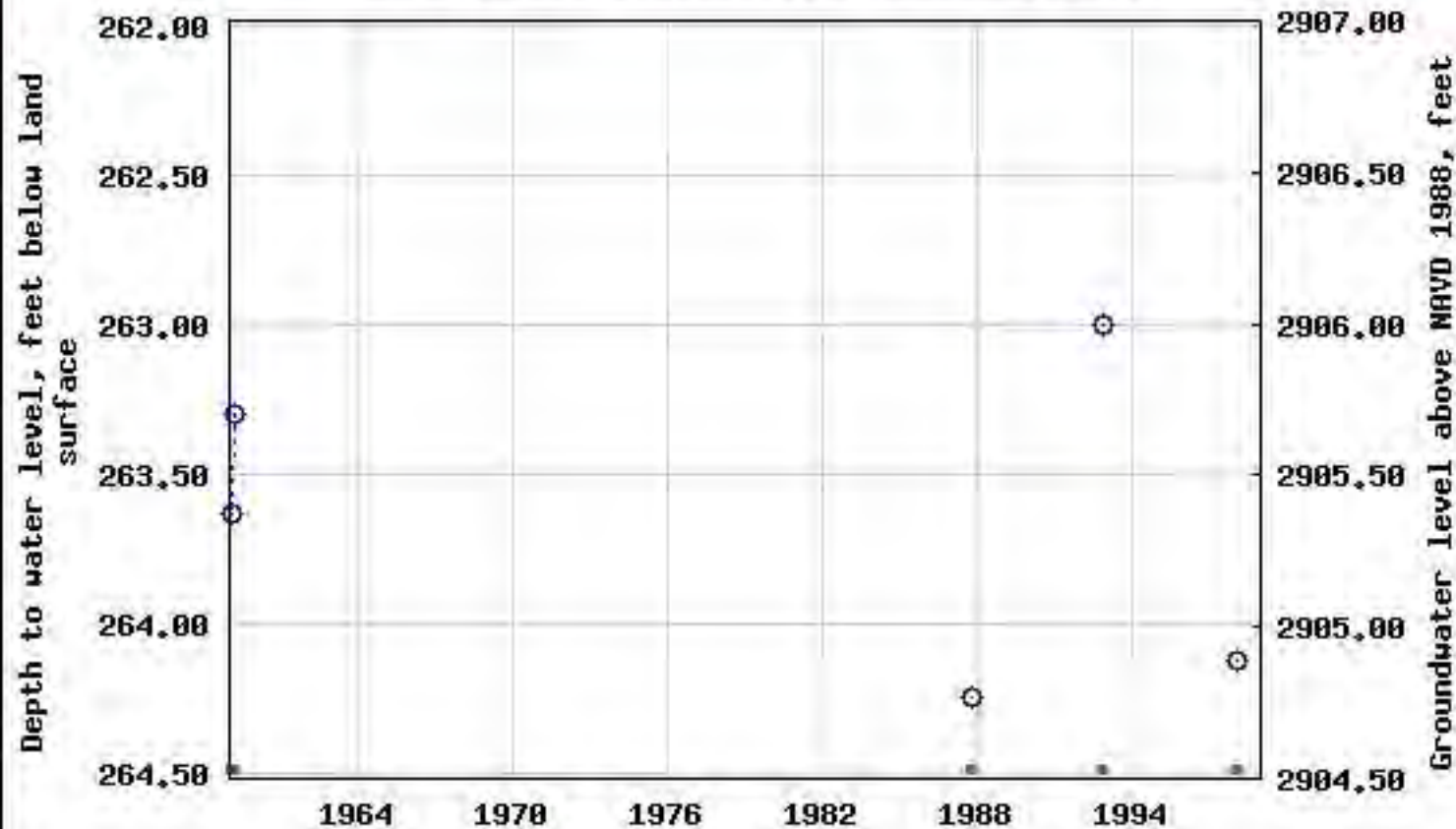
DESCRIPTION:

Latitude 32°08'57", Longitude 103°55'33" NAD27
Eddy County, New Mexico , Hydrologic Unit 13060011
Well depth: 385 feet
Land surface altitude: 3,169 feet above NAVD88.
Well completed in "Alluvium, Bolson Deposits and Other Surface Deposits"
(110AVMB) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1959-02-05	1998-01-28	5
Revisions	Unavailable (site:0) (timeseries:0)		

USGS 320857103553301 25S.30E.07.112331





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
C 03716	POD1	4	2	2	02	25S	30E	609069	3559211

Driller License: 1229 **Driller Company:** CARTER'S WELL DRILLING

Driller Name: RICHARD CARTER

Drill Start Date: 02/05/2014	Drill Finish Date: 03/03/2014	Plug Date:
Log File Date: 03/12/2014	PCW Rcv Date:	Source: Shallow
Pump Type:	Pipe Discharge Size:	Estimated Yield: 50 GPM
Casing Size:	Depth Well: 600 feet	Depth Water: 425 feet

Water Bearing Stratifications:	Top	Bottom	Description
	442	600	Sandstone/Gravel/Conglomerate

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

6/5/20 8:04 AM

POINT OF DIVERSION SUMMARY

ATTACHMENT 2: PHOTOGRAPHIC LOG

**PHOTOGRAPHIC LOG**

XTO Energy, Inc.	Row 4 Wolverine SWD Riser Eddy County, New Mexico	NRM2016460654
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Photo No.	Date	
1	November 3, 2020	
Western excavation area view Northwest.		

Photo No.	Date	
2	December 2, 2020	
Central excavation view West from near right-of-way.		



PHOTOGRAPHIC LOG


XTO Energy, Inc.	Row 4 Wolverine SWD Riser Eddy County, New Mexico	NRM2016460654
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Photo No.	Date	
3	February 19, 2021	
Right-of-way excavation view West.		

Photo No.	Date	
4	April 27, 2021	
Delineation at PH20. View East.		

**PHOTOGRAPHIC LOG**

XTO Energy, Inc.	Row 4 Wolverine SWD Riser Eddy County, New Mexico	NRM2016460654
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Photo No.	Date	
5	May 14, 2021	
Backfill. Western Excavation view East.		 <p>05.14.2021 11:31 a.m. 32.14042, -103.92933 Unnamed Road, Loving, NM 88256, EE UU</p>





PHOTOGRAPHIC LOG		
XTO Energy, Inc.	Row 4 Wolverine SWD Riser Eddy County, New Mexico	NRM2016460654


Photo No.	Date	
6	May 14, 2021	
Backfill. Eastern Excavation view West from right-of-way.		 <p>05.14.2021 11:26 a.m. 32.14003, -103.92706 Unnamed Road, Loving, NM 88256, EE: UU</p>


ATTACHMENT 3: LITHOLOGIC/SAMPLING LOG


 <div> WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220 </div>					BH or PH Name:		Date:	
					BH01		8/17/2020	
					Site Name: Row 4 Wolverine SWD Riser			
					RP or Incident Number: NRM2016460654			
WSP Job Number:					TE12920091			
LITHOLOGIC / SOIL SAMPLING LOG					Logged By Robert M.		Method: Hand Auger	
Lat/Long:			Field Screening:		Hole Diameter:		Total Depth:	
			Chloride, PID		3 inches		3 feet	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
D	6,137	2.6	N	BH01	1'	1	CCHE	Light Brown-tan. Trace brown sand, small grain, poorly sorted. No odor
D	9,206	2.1	N		2'	2	CHCE	Light Brown-tan. Trace brown sand, small grain, poorly sorted. No odor
D	7229	2.3	N	BH01A	3' 3.5'	3	CCHE	Light Brown-tan. Trace brown sand, small grain, poorly sorted. No odor Auger Refusal


 <p>WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220</p>		BH or PH Name:		Date:				
		BH02		8/17/2020				
		Site Name: Row 4 Wolverine SWD Riser						
		RP or Incident Number: NRM2016460654						
WSP Job Number: TE12920091								
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long:		Field Screening:		Hole Diameter:				
		Chloride, PID		3 inches				
Total Depth:		1 foot						
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
M	3,450	0.6	N	BH02	1' 1.5'	0 1	SP-SM Auger Refusal	Small, round grain. Brown. No odor


 <div> WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220 </div>		BH or PH Name:		Date:				
		BH03		8/17/2020				
		Site Name: Row 4 Wolverine SWD Riser						
		RP or Incident Number: NRM2016460654						
WSP Job Number: TE12920091								
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long:		Field Screening:		Hole Diameter:				
		Chloride, PID		3 inches				
Total Depth: 2.5 feet								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
M	2,980	0.6	N		1'	1	SP-SM	Small, round grain. Brown. No odor
M	2,778	1.2	N	BH03	2'	2	SP-SM	Small, round grain. Brown. No odor
M	2,425	1	N	BH03A	2.5'	2.5	SP-SM	Small, round grain. Brown. No odor
						3	Auger Refusal	


 <p>WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220</p>		BH or PH Name:		Date:				
		BH04		8/17/2020				
		Site Name: Row 4 Wolverine SWD Riser						
		RP or Incident Number: NRM2016460654						
WSP Job Number: TE12920091								
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long:		Field Screening:		Hole Diameter:				
		Chloride, PID		3 inches				
Total Depth:		1 foot						
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
M	1,993	0.4	N	BH04	1' 1.5'	0 1	SP-SM	Small, round grain. Brown. No odor Auger Refusal


 <div> WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220 </div>					BH or PH Name:		Date:	
					BH05		8/17/2020	
					Site Name: Row 4 Wolverine SWD Riser			
					RP or Incident Number: NRM2016460654			
WSP Job Number:					TE12920091			
LITHOLOGIC / SOIL SAMPLING LOG					Logged By Robert M.		Method: Hand Auger	
Lat/Long:			Field Screening:		Hole Diameter:		Total Depth:	
			Chloride, PID		3 inches		3 feet	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
M	480	0.4	N		1'	1	SP-SM	Small, round grain. Brown. No odor
M	828	0.6	N	BH05	2'	2	SP-SM	Small, round grain. Brown. No odor. Trace caliche
M	520	0.8	N	BH05A	3'	3 3.5	SP-SM	Small, round grain. Brown. No odor. Trace caliche Auger Refusal


 <div> WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220 </div>		BH or PH Name:		Date:				
		BH06		8/17/2020				
		Site Name: Row 4 Wolverine SWD Riser						
		RP or Incident Number: NRM2016460654						
WSP Job Number: TE12920091								
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long:		Field Screening:		Hole Diameter:				
		Chloride, PID		3 inches				
Total Depth:		1 foot						
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
M	1,238	1.2	N	BH06	1'	0 1 1.5	SP-SM	Small, round grain. Brown. No odor Auger Refusal


 <p>WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220</p>		BH or PH Name:		Date:				
		BH07		8/17/2020				
		Site Name: Row 4 Wolverine SWD Riser						
		RP or Incident Number: NRM2016460654						
WSP Job Number: TE12920091								
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long:		Field Screening:		Hole Diameter:				
		Chloride, PID		3 inches				
Total Depth:		1 foot						
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
M	3,450	0.6	N	BH07	1'	0 1 1.5	SP-SM	Small, round grain. Brown. No odor Auger Refusal


 <div> WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220 </div>		BH or PH Name:		Date:				
		BH08		8/17/2020				
		Site Name: Row 4 Wolverine SWD Riser						
		RP or Incident Number: NRM2016460654						
WSP Job Number: TE12920091								
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long:		Field Screening:		Hole Diameter:				
		Chloride, PID		3 inches				
Total Depth:		1 foot						
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
M	3,450	0.8	N	BH08	1'	0 1 1.5	SP-SM	Small, round grain. Brown. No odor Auger Refusal


 <div style="text-align: center;"> WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220 </div>					BH or PH Name:		Date:	
					BH09		2/17/2021	
					Site Name: Row 4 Wolverine SWD Riser			
					RP or Incident Number: NRM2016460654			
WSP Job Number:					TE12920091			
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: Jeremy H.		Method: Hand Auger	
Lat/Long:			Field Screening:		Hole Diameter:		Total Depth:	
			Chloride, PID		3 inches		4 feet	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
D	BDL 0.6	0.0	N		0.5'	0.5	SW-SM	Fine-corase grain, well graded w/ silt and gravel No odor, No plasticity, Organics. Brown/red
D	BDL 0.6	0.0	N		1'	1	SW-SM	Fine-corase grain, well graded w/ silt and gravel No odor, No plasticity, Organics. Brown/red
M	BDL 1.0	0.0	N	BH09	2'	2	SW-SM	Fine-corase grain, well graded w/ silt and gravel No odor, No plasticity, Organics. Light Brown/red
M	BDL 0.8	0.0	N		3'	3	SW-SM	Fine-corase grain, well graded w/ silt and gravel No odor, No plasticity, Organics. Light Brown/red
D	BDL 0.8	0.0	N	BH09A	4'	4	SW-SM	Fine-corase grain, well graded w/ silt and gravel No odor, No plasticity, Organics. Brown/red

 <p>WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220</p>		BH or PH Name:		Date:				
		BH10		2/17/2021				
		Site Name: Row 4 Wolverine SWD Riser						
		RP or Incident Number: NRM2016460654						
WSP Job Number: TE12920091								
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long:		Field Screening:		Hole Diameter:				
		Chloride, PID		3 inches				
Total Depth:		4 feet						
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
D	BDL 0.6	0.1	N		0.5'	0.5	SW-SM	Fine-corase grain, well graded w/ silt and gravel
D	BDL 0.8	0.1	N	BH10	1'	1	SW-SM	No odor, No plasticity, Organics. Brown/red
D	BDL 0.8	0.0	N		2'	2	SW-SM	Fine-corase grain, well graded w/ silt and gravel
M	BDL 0.8	0.0	N		3'	3	SW-SM	No odor, No plasticity, Organics. Brown/red
M	BDL 0.6	0.0	N	BH10A	4'	4	SW-SM	Fine-corase grain, well graded w/ silt and gravel
								No odor, No plasticity, Organics. Light Brown/ Red


 <div style="text-align: center;"> WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220 </div>					BH or PH Name:		Date:	
					BH11		2/17/2021	
					Site Name: Row 4 Wolverine SWD Riser			
					RP or Incident Number: NRM2016460654			
WSP Job Number:					TE12920091			
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: Jeremy H.		Method: Hand Auger	
Lat/Long:			Field Screening:		Hole Diameter:		Total Depth:	
			Chloride, PID		3 inches		4 feet	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
D	BDL 0.8	0.0	N		0.5'	0.5	SW-SM	Fine-corase grain, well graded w/ silt and gravel No odor, No plasticity, Organics. Light Brown/ Red
M	BDL 0.6	0.0	N		1'	1	SW-SM	Fine-corase grain, well graded w/ silt and gravel No odor, No plasticity, Organics. Brown/red
M	BDL 1.0	0.0	N	BH11	2'	2	SW-SM	Fine-corase grain, well graded w/ silt and gravel No odor, No plasticity, Organics. Brown/red
D	BDL 1.0	0.0	N		3'	3	SW-SM	Fine-corase grain, well graded w/ silt and gravel No odor, No plasticity, Organics. Light Brown/red
D	BDL 1.0	0.0	N	BH11A	4'	4	SW-SM	Fine-corase grain, well graded w/ silt and gravel No odor, No plasticity, Organics. Light Brown/red

 <p>WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220</p>		BH or PH Name:		Date:				
		BH12		2/17/2021				
		Site Name: Row 4 Wolverine SWD Riser						
		RP or Incident Number: NRM2016460654						
		WSP Job Number:		TE12920091				
LITHOLOGIC / SOIL SAMPLING LOG				Logged By: Jeremy H.				
Lat/Long:		Field Screening:		Method: Hand Auger				
		Chloride, PID						
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
D	BDL 0.8	0.0	N		0.5'	0.5	SW-SM	Fine-corase grain, well graded w/ silt and gravel No odor, No plasticity, Organics. Light Brown/red
M	BDL 0.6	0.0	N		1'	1	SW-SM	Fine-corase grain, well graded w/ silt and gravel No odor, No plasticity, Organics. Brown/red
M	BDL 0.8	0.1	N	BH12	2'	2	SW-SM	Fine-corase grain, well graded w/ silt and gravel No odor, No plasticity, Organics. Brown/red
M	BDL 0.8	0.0	N		3'	3	SW-SM	Fine-corase grain, well graded w/ silt and gravel No odor, No plasticity, Organics. Brown/red
M	BDL 0.6	0.0	N	BH12A	4'	4	SW-SM	Fine-corase grain, well graded w/ silt and gravel No odor, No plasticity, Organics. Brown/red

 <div style="text-align: center;"> WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220 </div>					BH or PH Name:		Date:	
					PH01		9/28/2020	
					Site Name: Row 4 Wolverine SWD Riser			
					RP or Incident Number: NRM2016460654			
WSP Job Number:					TE12920091			
LITHOLOGIC / SOIL SAMPLING LOG					Logged By Robert M.		Method: Trackhoe	
Lat/Long:			Field Screening:		Hole Diameter:		Total Depth:	
			Chloride, PID		2 feet		4 feet	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
M	4,088	0.9	N	PH01	1'	1	SP-SM	Dark Brown, fine-very fine grain, poorly graded
D	2,218	0.1	N		2'	2	CHCE	Very well cemented, highly consolidated, trace fine grain brown sand, white/tan
D	180	0.1	N	PH01A	4'	4	CHCE	Moderately cemented, low-moderate consolidation, white/ta


 <div> WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220 </div>					BH or PH Name:		Date:	
					PH02		9/28/2020	
					Site Name: Row 4 Wolverine SWD Riser			
					RP or Incident Number: NRM2016460654			
LITHOLOGIC / SOIL SAMPLING LOG					Logged By Robert M.		Method: Trackhoe	
Lat/Long:			Field Screening:		Hole Diameter:		Total Depth:	
			Chloride, PID		2 feet		12 feet	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
M	2,279	0.3	N	PH02	1'	1	SP-SM	Dark brown, very fine-grained, poorly graded
M	2,218	0.2	N		2'	2	SP-SM	SAA
D	5,756	0.2	N		3'	3	CHCE	Well cemented, well consolidated, white/tan, fines - pebbles - cobbles
					4'	4		
D	7,330		N		5'	5	CHCE	low- moderate consolidation, white/tan, fine - cobble
D	10,013		N		6'	6	CHCE	low- moderate consolidation, white/tan, fine - cobble
D	7,330		N		7'	7	CHCE	low- moderate consolidation, white/tan, fine - cobble
					8'	8		
D	5,759		N		9'	9	CHCE	low- moderate consolidation, white/tan, fine - cobble
D	4,088		N		10'	10	CHCE	low- moderate consolidation, white/tan, fine - cobble with more fine grain brown sand content
				11'	11			
D	347		N	PH02A	12'	12	CHCE	low- moderate consolidation, white/tan, fine - cobble with more fine grain brown sand content


[illegible]


 <div> WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220 </div>		BH or PH Name:		Date:				
		PH04		9/28/2020				
		Site Name: Row 4 Wolverine SWD Riser						
		RP or Incident Number: NRM2016460654						
WSP Job Number: TE12920091								
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long:		Field Screening:		Hole Diameter:				
		Chloride, PID		2 feet				
Total Depth: 6 feet								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
M	2,044	1.2	N		1'	1'	SP-SM	Brown, fine grain, poor grade
D	7,330	1.6	N	PH04	2'	2'	CHCE	Well cemented, well consolidated, white/tan, fines - pebbles - cobbles
D	5757	0.4	N		3'	3	CHCE	low- moderate consolidation, white/tan, fine - cobble
D	7,330	0.1	N		4'	4	CHCE	low- moderate consolidation, white/tan, fine - cobble
						5		
D	580	0.1	N	PH04A	6'	6	CHCE	low- moderate consolidation, white/tan, fine - cobble


[illegible]


[illegible]


 <p>WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220</p>		BH or PH Name: PH08		Date: 10/6/2020				
		Site Name: Row 4 Wolverine SWD Riser						
		RP or Incident Number: NRM2016460654						
		WSP Job Number:		TE12920091				
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long:		Field Screening: Chloride, PID		Hole Diameter: 2 feet				
				Total Depth: 4 feet				
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
M	244	1.3	N		1'	1	SP-SM	Dark Brown, fine-very fine grain, poorly graded
D	928	1	N	PH08	2'	2	SP-SM	No odor, No plasticity, Organics. Red/Brown
D	348	0.7	N		3'	3	CHCE	Dark Brown, fine-very fine grain, poorly graded
D	212	0.3	N	PH08A	4'	4	CHCE	No odor, No plasticity, Organics. Red/Brown
								Very well cemented, highly consolidated, trace fine grain brown sand, white/tan
								Moderately cemented, low-moderate consolidation, white/ta

 <div style="text-align: center;"> WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220 </div>					BH or PH Name:		Date:	
					PH09		10/6/2020	
					Site Name: Row 4 Wolverine SWD Riser			
					RP or Incident Number: NRM2016460654			
WSP Job Number:					TE12920091			
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: Jeremy Hill		Method: Trackhoe	
Lat/Long:			Field Screening:		Hole Diameter:		Total Depth:	
			Chloride, PID		2 feet		4 feet	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
M	2,584	0.4	N	PH09	1'	1	SP-SM	Dark Brown, fine-very fine grain, poorly graded
M	2,212	0.2	N		2'	2	SP-SM	No odor, No plasticity, Organics. Red/Brown
D	160	0.1	N		3'	3	CHCE	Dark Brown, fine-very fine grain, poorly graded
D	240	0.0	N	PH09A	4'	4	CHCE	No odor, No plasticity, Organics. Red/Brown
								Very well cemented, highly consolidated, trace fine grain brown sand, white/tan
								Moderately cemented, low-moderate consolidation, white/ta


 <p>WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220</p>					BH or PH Name:		Date:	
					PH10		1/8/2021	
					Site Name: Row 4 Wolverine SWD Riser			
					RP or Incident Number: NRM2016460654			
WSP Job Number:					TE12920091			
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: Jeremy Hill		Method: Trackhoe	
Lat/Long:			Field Screening:		Hole Diameter:		Total Depth:	
			Chloride, PID		2 feet		4 feet	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
M	BDL 0.8	0.0	N	PH10	0.5'	0	SP	Fine-very fine grain, poorly graded
M	BDL 0.6	0.0	N		1'	1	SW-SM	No odor, No plasticity, Organics. Brown
D	BDL 0.6	0.1	N		2'	2	CCHE	Brown, fine-med grain with gravel, well graded
D	BDL 0.6	0.0	N		3'	3	CHCE	No odor, No plasticity, Organics. Brown
D	BDL 0.6	0.0	N	PH10A	4'	4	CHCE	Moderately cemented, low-moderate consolidation, white
								Moderately cemented, low-moderate consolidation, white
								Well cemented, highly consolidated white


 <div> WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220 </div>					BH or PH Name:		Date:	
					PH11		1/8/2021	
					Site Name: Row 4 Wolverine SWD Riser			
					RP or Incident Number: NRM2016460654			
WSP Job Number:					TE12920091			
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: Jeremy Hill		Method: Trackhoe	
Lat/Long:			Field Screening:		Hole Diameter:		Total Depth:	
			Chloride, PID		2 feet		4 feet	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
D	BDL 0.8	0.2	N		0.5'	0	SW-SM	Brown, fine-med grain with gravel, well graded
M	BDL 0.8	0.1	N		1'	1	SP	No odor, No plasticity, Organics. Brown
M	BDL 0.8	0.1	N		2'	2	SW-SM	Fine-very fine grain, poorly graded
D	BDL 1.0	0.0	N	PH11	3'	3	CHCE	No odor, No plasticity, Organics. Brown
D	BDL 0.8	0.1	N	PH11A	4'	4	CHCE	No odor, No plasticity, Organics. Brown/white
								Moderately cemented, low-moderate consolidation, white
								Moderately cemented, highly consolidated white


 <div> WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220 </div>		BH or PH Name:		Date:				
		PH12		1/8/2021				
		Site Name: Row 4 Wolverine SWD Riser						
		RP or Incident Number: NRM2016460654						
WSP Job Number: TE12920091								
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long:		Field Screening:		Hole Diameter:				
		Chloride, PID		2 feet				
Total Depth: 4 feet								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
D	BDL 0.8	0.0	N		0.5'	0	SW-SM	Brown, fine-med grain with gravel, well graded
M	BDL 0.8	0.0	N		1'	1	SP	No odor, No plasticity, Organics. Brown
D	BDL 0.8	0.1	N	PH12	2'	2	CHCE	Fine-very fine grain, poorly graded
D	BDL 0.8	0.0	N		3'	3	CHCE	No odor, No plasticity, Organics. Brown
D	BDL 0.8	0.0	N	PH12A	4'	4	CHCE	Moderately cemented, low-moderate consolidation, white
								Moderately cemented, low-moderate consolidation, white
								Moderately cemented, highly consolidated white

 <div style="text-align: center;"> WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220 </div>		BH or PH Name:		Date:				
		PH13		4/27/2021				
		Site Name: Row 4 Wolverine SWD Riser						
		RP or Incident Number: NRM2016460654						
WSP Job Number: TE12920091								
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long:		Field Screening:		Hole Diameter:				
		Chloride, PID		20"				
Total Depth: 5.5'								
Comments:								
TD @ 5.5'								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
						0.5		
						1		
						2		
						3		
						4		
D	BDL	0.3	N	PH13	4.5	4.5'	CCHE	Caliche Silty with poor consolidation. Tan.
D	BDL	0.0	N	PH13A	5.5	5.5'	CCHE	Caliche Silty with poor consolidation. Tan.

[illegible]

 <div style="text-align: center;"> WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220 </div>		BH or PH Name:		Date:				
		PH16		4/27/2021				
		Site Name: Row 4 Wolverine SWD Riser						
		RP or Incident Number: NRM2016460654						
WSP Job Number: TE12920091								
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long:		Field Screening:		Hole Diameter:				
		Chloride, PID		20"				
Total Depth: 5.5'								
Comments:								
TD @ 5.5'								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
						0.5		
						1		
						2		
						3		
						4		
D	414.0	0.0	N	PH16	4.5	4.5'	CCHE	Caliche Silty with poor consolidation. Tan.
D	364.0	0.0	N	PH16	5.5	5.5'	CCHE	Caliche Silty with poor consolidation. Tan.

 <div style="text-align: center;"> WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220 </div>		BH or PH Name:		Date:				
		PH18		4/27/2021				
		Site Name: Row 4 Wolverine SWD Riser						
		RP or Incident Number: NRM2016460654						
WSP Job Number: TE12920091								
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long:		Field Screening:		Hole Diameter:				
		Chloride, PID		20"				
Total Depth: 5.5'								
Comments:								
TD @ 5.5'								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
						0.5		
						1		
						2		
						3		
						4		
D	BDL	0.1	N	PH18	4.5	4.5'	CCHE	Caliche Silty with poor consolidation. Tan.
D	BDL	0.2	N	PH18A	5.5	5.5'	CCHE	Caliche Silty with poor consolidation. Tan.

 <div style="text-align: center;"> WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220 </div>		BH or PH Name:		Date:				
		PH20		4/27/2021				
		Site Name: Row 4 Wolverine SWD Riser						
		RP or Incident Number: NRM2016460654						
WSP Job Number: TE12920091								
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long:		Field Screening:		Hole Diameter:				
		Chloride, PID		20"				
Total Depth: 5.5'								
Comments:								
TD @ 5.5'								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0		
						0.5		
						1		
						2		
						3		
						4		
D	BDL	0.1	N	PH20	4.5	4.5'	CCHE	Caliche Silty with poor consolidation. Tan.
D	BDL	0.1	N	PH20A	5.5	5.5'	CCHE	Caliche Silty with poor consolidation. Tan.

ATTACHMENT 4: LABORATORY ANALYTICAL REPORTS



Certificate of Analysis Summary 663699

LT Environmental, Inc., Arvada, CO

Project Name: Wolverine SWD River

Project Id: 012920091

Contact: Kyle Littrell

Project Location:

Date Received in Lab: Mon 06.08.2020 11:00

Report Date: 06.09.2020 13:28

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	663699-001	663699-002	663699-003	663699-004	663699-005	663699-006
	<i>Field Id:</i>	SS01	SS02	SS03	SS04	SS05	SS06
	<i>Depth:</i>	6.5- ft	6.5- ft	6.5- ft	6.5- ft	6.5- ft	6.5- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	06.05.2020 13:20	06.05.2020 13:33	06.05.2020 13:42	06.05.2020 13:58	06.05.2020 14:22	06.05.2020 14:30
BTEX by EPA 8021B	<i>Extracted:</i>	06.08.2020 13:14	06.08.2020 13:14	06.08.2020 13:14	06.08.2020 13:14	06.08.2020 13:14	06.08.2020 13:14
	<i>Analyzed:</i>	06.08.2020 16:45	06.08.2020 17:05	06.08.2020 17:26	06.08.2020 17:46	06.08.2020 18:06	06.08.2020 18:27
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
Toluene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
Ethylbenzene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
m,p-Xylenes		<0.00399 0.00399	<0.00399 0.00399	<0.00401 0.00401	<0.00398 0.00398	<0.00396 0.00396	<0.00400 0.00400
o-Xylene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
Total Xylenes		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
Total BTEX		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
Chloride by EPA 300	<i>Extracted:</i>	06.08.2020 17:00	06.08.2020 17:00	06.08.2020 17:00	06.08.2020 17:00	06.08.2020 17:00	06.08.2020 17:00
	<i>Analyzed:</i>	06.08.2020 18:22	06.08.2020 18:39	06.08.2020 18:45	06.08.2020 18:51	06.08.2020 18:56	06.08.2020 19:14
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		7430 99.0	186 9.92	83.1 9.92	5480 100	8600 100	7250 100
TPH by SW8015 Mod	<i>Extracted:</i>	06.08.2020 13:30	06.08.2020 13:30	06.08.2020 13:30	06.08.2020 13:30	06.08.2020 13:30	06.08.2020 13:30
	<i>Analyzed:</i>	06.08.2020 15:21	06.08.2020 14:19	06.08.2020 15:41	06.08.2020 16:02	06.08.2020 16:22	06.08.2020 16:43
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<49.8 49.8	<49.8 49.8	<49.8 49.8	<49.9 49.9	<49.9 49.9	<50.2 50.2
Diesel Range Organics (DRO)		<49.8 49.8	<49.8 49.8	<49.8 49.8	<49.9 49.9	<49.9 49.9	<50.2 50.2
Motor Oil Range Hydrocarbons (MRO)		<49.8 49.8	<49.8 49.8	<49.8 49.8	<49.9 49.9	<49.9 49.9	<50.2 50.2
Total GRO-DRO		<49.8 49.8	<49.8 49.8	<49.8 49.8	<49.9 49.9	<49.9 49.9	<50.2 50.2
Total TPH		<49.8 49.8	<49.8 49.8	<49.8 49.8	<49.9 49.9	<49.9 49.9	<50.2 50.2

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Jessica Kramer
Project Manager



Certificate of Analysis Summary 663699

LT Environmental, Inc., Arvada, CO

Project Name: Wolverine SWD River

Project Id: 012920091

Contact: Kyle Littrell

Project Location:

Date Received in Lab: Mon 06.08.2020 11:00

Report Date: 06.09.2020 13:28

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	663699-007	663699-008	663699-009			
	Field Id:	SS07	SS08	SS09			
	Depth:	6.5- ft	6.5- ft	6.5- ft			
	Matrix:	SOIL	SOIL	SOIL			
	Sampled:	06.05.2020 14:36	06.05.2020 14:42	06.05.2020 14:52			
BTEX by EPA 8021B	Extracted:	06.08.2020 13:14	06.08.2020 13:14	06.08.2020 13:14			
	Analyzed:	06.08.2020 18:47	06.08.2020 19:07	06.08.2020 19:28			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Benzene		<0.00199 0.00199	<0.00199 0.00199	<0.00198 0.00198			
Toluene		<0.00199 0.00199	<0.00199 0.00199	<0.00198 0.00198			
Ethylbenzene		<0.00199 0.00199	<0.00199 0.00199	<0.00198 0.00198			
m,p-Xylenes		<0.00398 0.00398	<0.00398 0.00398	<0.00396 0.00396			
o-Xylene		<0.00199 0.00199	<0.00199 0.00199	<0.00198 0.00198			
Total Xylenes		<0.00199 0.00199	<0.00199 0.00199	<0.00198 0.00198			
Total BTEX		<0.00199 0.00199	<0.00199 0.00199	<0.00198 0.00198			
Chloride by EPA 300	Extracted:	06.08.2020 17:00	06.08.2020 17:00	06.08.2020 17:00			
	Analyzed:	06.08.2020 19:20	06.08.2020 19:25	06.08.2020 19:31			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		5350 99.8	4770 99.8	5170 99.8			
TPH by SW8015 Mod	Extracted:	06.08.2020 13:30	06.08.2020 13:30	06.08.2020 13:30			
	Analyzed:	06.08.2020 17:03	06.08.2020 17:24	06.08.2020 17:45			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0	<50.0 50.0	<49.8 49.8			
Diesel Range Organics (DRO)		<50.0 50.0	<50.0 50.0	<49.8 49.8			
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.0 50.0	<49.8 49.8			
Total GRO-DRO		<50.0 50.0	<50.0 50.0	<49.8 49.8			
Total TPH		<50.0 50.0	<50.0 50.0	<49.8 49.8			

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Jessica Kramer
Project Manager



Analytical Report 663699

for

LT Environmental, Inc.

Project Manager: Kyle Littrell

Wolverine SWD River

012920091

06.09.2020

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-32), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-23), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-17)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-7)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



06.09.2020

Project Manager: **Kyle Littrell**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: XENCO Report No(s): **663699**

Wolverine SWD River

Project Address:

Kyle Littrell:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 663699. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 663699 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads 'Jessica Kramer'. The signature is written in a cursive, flowing style.

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 663699****LT Environmental, Inc., Arvada, CO**

Wolverine SWD River

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SS01	S	06.05.2020 13:20	6.5 ft	663699-001
SS02	S	06.05.2020 13:33	6.5 ft	663699-002
SS03	S	06.05.2020 13:42	6.5 ft	663699-003
SS04	S	06.05.2020 13:58	6.5 ft	663699-004
SS05	S	06.05.2020 14:22	6.5 ft	663699-005
SS06	S	06.05.2020 14:30	6.5 ft	663699-006
SS07	S	06.05.2020 14:36	6.5 ft	663699-007
SS08	S	06.05.2020 14:42	6.5 ft	663699-008
SS09	S	06.05.2020 14:52	6.5 ft	663699-009



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Wolverine SWD River

Project ID: 012920091
Work Order Number(s): 663699

Report Date: 06.09.2020
Date Received: 06.08.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 663699

LT Environmental, Inc., Arvada, CO

Wolverine SWD River

Sample Id: **SS01** Matrix: Soil Date Received: 06.08.2020 11:00
 Lab Sample Id: 663699-001 Date Collected: 06.05.2020 13:20 Sample Depth: 6.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 06.08.2020 17:00 Basis: Wet Weight
 Seq Number: 3128315

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7430	99.0	mg/kg	06.08.2020 18:22		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 06.08.2020 13:30 Basis: Wet Weight
 Seq Number: 3128299

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	06.08.2020 15:21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	06.08.2020 15:21	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	06.08.2020 15:21	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	06.08.2020 15:21	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	06.08.2020 15:21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	06.08.2020 15:21	
o-Terphenyl	84-15-1	87	%	70-135	06.08.2020 15:21	



Certificate of Analytical Results 663699

LT Environmental, Inc., Arvada, CO

Wolverine SWD River

Sample Id: **SS01**
Lab Sample Id: 663699-001

Matrix: Soil
Date Collected: 06.05.2020 13:20

Date Received: 06.08.2020 11:00
Sample Depth: 6.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.08.2020 13:14

Basis: Wet Weight

Seq Number: 3128312

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.08.2020 16:45	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.08.2020 16:45	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.08.2020 16:45	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	06.08.2020 16:45	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.08.2020 16:45	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.08.2020 16:45	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.08.2020 16:45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	97	%	70-130	06.08.2020 16:45	
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.08.2020 16:45	



Certificate of Analytical Results 663699

LT Environmental, Inc., Arvada, CO

Wolverine SWD River

Sample Id: **SS02** Matrix: Soil Date Received: 06.08.2020 11:00
 Lab Sample Id: 663699-002 Date Collected: 06.05.2020 13:33 Sample Depth: 6.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 06.08.2020 17:00 Basis: Wet Weight
 Seq Number: 3128315

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	186	9.92	mg/kg	06.08.2020 18:39		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 06.08.2020 13:30 Basis: Wet Weight
 Seq Number: 3128299

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	06.08.2020 14:19	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	06.08.2020 14:19	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	06.08.2020 14:19	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	06.08.2020 14:19	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	06.08.2020 14:19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	06.08.2020 14:19	
o-Terphenyl	84-15-1	85	%	70-135	06.08.2020 14:19	



Certificate of Analytical Results 663699

LT Environmental, Inc., Arvada, CO

Wolverine SWD River

Sample Id: **SS02**
 Lab Sample Id: 663699-002

Matrix: Soil
 Date Collected: 06.05.2020 13:33

Date Received: 06.08.2020 11:00
 Sample Depth: 6.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.08.2020 13:14

Basis: Wet Weight

Seq Number: 3128312

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.08.2020 17:05	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.08.2020 17:05	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.08.2020 17:05	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	06.08.2020 17:05	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.08.2020 17:05	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.08.2020 17:05	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.08.2020 17:05	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	106	%	70-130	06.08.2020 17:05		
4-Bromofluorobenzene	460-00-4	96	%	70-130	06.08.2020 17:05		



Certificate of Analytical Results 663699

LT Environmental, Inc., Arvada, CO

Wolverine SWD River

Sample Id: **SS03** Matrix: Soil Date Received: 06.08.2020 11:00
 Lab Sample Id: 663699-003 Date Collected: 06.05.2020 13:42 Sample Depth: 6.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 06.08.2020 17:00 Basis: Wet Weight
 Seq Number: 3128315

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	83.1	9.92	mg/kg	06.08.2020 18:45		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 06.08.2020 13:30 Basis: Wet Weight
 Seq Number: 3128299

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	06.08.2020 15:41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	06.08.2020 15:41	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	06.08.2020 15:41	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	06.08.2020 15:41	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	06.08.2020 15:41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	06.08.2020 15:41	
o-Terphenyl	84-15-1	89	%	70-135	06.08.2020 15:41	



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LT Environmental, Inc., Arvada, CO

Wolverine SWD River

Sample Id: **SS03**
 Lab Sample Id: 663699-003

Matrix: Soil
 Date Collected: 06.05.2020 13:42

Date Received: 06.08.2020 11:00
 Sample Depth: 6.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.08.2020 13:14

Basis: Wet Weight

Seq Number: 3128312

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.08.2020 17:26	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.08.2020 17:26	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.08.2020 17:26	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	06.08.2020 17:26	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.08.2020 17:26	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.08.2020 17:26	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.08.2020 17:26	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	109	%	70-130	06.08.2020 17:26		
4-Bromofluorobenzene	460-00-4	98	%	70-130	06.08.2020 17:26		



Certificate of Analytical Results 663699

LT Environmental, Inc., Arvada, CO

Wolverine SWD River

Sample Id: **SS04** Matrix: Soil Date Received: 06.08.2020 11:00
 Lab Sample Id: 663699-004 Date Collected: 06.05.2020 13:58 Sample Depth: 6.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 06.08.2020 17:00 Basis: Wet Weight
 Seq Number: 3128315

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5480	100	mg/kg	06.08.2020 18:51		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 06.08.2020 13:30 Basis: Wet Weight
 Seq Number: 3128299

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	06.08.2020 16:02	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	06.08.2020 16:02	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	06.08.2020 16:02	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	06.08.2020 16:02	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	06.08.2020 16:02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	06.08.2020 16:02	
o-Terphenyl	84-15-1	88	%	70-135	06.08.2020 16:02	



Certificate of Analytical Results 663699

LT Environmental, Inc., Arvada, CO

Wolverine SWD River

Sample Id: **SS04**
Lab Sample Id: 663699-004

Matrix: Soil
Date Collected: 06.05.2020 13:58

Date Received: 06.08.2020 11:00
Sample Depth: 6.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.08.2020 13:14

Basis: Wet Weight

Seq Number: 3128312

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.08.2020 17:46	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.08.2020 17:46	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.08.2020 17:46	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.08.2020 17:46	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.08.2020 17:46	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.08.2020 17:46	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.08.2020 17:46	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	111	%	70-130	06.08.2020 17:46	
4-Bromofluorobenzene	460-00-4	101	%	70-130	06.08.2020 17:46	



Certificate of Analytical Results 663699

LT Environmental, Inc., Arvada, CO

Wolverine SWD River

Sample Id: **SS05** Matrix: Soil Date Received: 06.08.2020 11:00
 Lab Sample Id: 663699-005 Date Collected: 06.05.2020 14:22 Sample Depth: 6.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 06.08.2020 17:00 Basis: Wet Weight
 Seq Number: 3128315

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8600	100	mg/kg	06.08.2020 18:56		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 06.08.2020 13:30 Basis: Wet Weight
 Seq Number: 3128299

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	06.08.2020 16:22	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	06.08.2020 16:22	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	06.08.2020 16:22	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	06.08.2020 16:22	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	06.08.2020 16:22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	06.08.2020 16:22	
o-Terphenyl	84-15-1	87	%	70-135	06.08.2020 16:22	



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LT Environmental, Inc., Arvada, CO

Wolverine SWD River

Sample Id: **SS05**
 Lab Sample Id: 663699-005

Matrix: Soil
 Date Collected: 06.05.2020 14:22

Date Received: 06.08.2020 11:00
 Sample Depth: 6.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.08.2020 13:14

Basis: Wet Weight

Seq Number: 3128312

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	06.08.2020 18:06	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	06.08.2020 18:06	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	06.08.2020 18:06	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	06.08.2020 18:06	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	06.08.2020 18:06	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	06.08.2020 18:06	U	1
Total BTEX		<0.00198	0.00198	mg/kg	06.08.2020 18:06	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	105	%	70-130	06.08.2020 18:06		
4-Bromofluorobenzene	460-00-4	93	%	70-130	06.08.2020 18:06		



Certificate of Analytical Results 663699

LT Environmental, Inc., Arvada, CO

Wolverine SWD River

Sample Id: **SS06** Matrix: Soil Date Received: 06.08.2020 11:00
 Lab Sample Id: 663699-006 Date Collected: 06.05.2020 14:30 Sample Depth: 6.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 06.08.2020 17:00 Basis: Wet Weight
 Seq Number: 3128315

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7250	100	mg/kg	06.08.2020 19:14		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 06.08.2020 13:30 Basis: Wet Weight
 Seq Number: 3128299

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	06.08.2020 16:43	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	06.08.2020 16:43	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	06.08.2020 16:43	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	06.08.2020 16:43	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	06.08.2020 16:43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	06.08.2020 16:43	
o-Terphenyl	84-15-1	86	%	70-135	06.08.2020 16:43	



Certificate of Analytical Results 663699

LT Environmental, Inc., Arvada, CO

Wolverine SWD River

Sample Id: **SS06**
 Lab Sample Id: 663699-006

Matrix: Soil
 Date Collected: 06.05.2020 14:30

Date Received: 06.08.2020 11:00
 Sample Depth: 6.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.08.2020 13:14

Basis: Wet Weight

Seq Number: 3128312

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.08.2020 18:27	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.08.2020 18:27	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.08.2020 18:27	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	06.08.2020 18:27	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.08.2020 18:27	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.08.2020 18:27	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.08.2020 18:27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	95	%	70-130	06.08.2020 18:27	
1,4-Difluorobenzene	540-36-3	109	%	70-130	06.08.2020 18:27	



Certificate of Analytical Results 663699

LT Environmental, Inc., Arvada, CO

Wolverine SWD River

Sample Id: **SS07** Matrix: Soil Date Received: 06.08.2020 11:00
 Lab Sample Id: 663699-007 Date Collected: 06.05.2020 14:36 Sample Depth: 6.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 06.08.2020 17:00 Basis: Wet Weight
 Seq Number: 3128315

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5350	99.8	mg/kg	06.08.2020 19:20		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 06.08.2020 13:30 Basis: Wet Weight
 Seq Number: 3128299

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	06.08.2020 17:03	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	06.08.2020 17:03	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	06.08.2020 17:03	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	06.08.2020 17:03	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	06.08.2020 17:03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	06.08.2020 17:03	
o-Terphenyl	84-15-1	87	%	70-135	06.08.2020 17:03	



Certificate of Analytical Results 663699

LT Environmental, Inc., Arvada, CO

Wolverine SWD River

Sample Id: **SS07**
 Lab Sample Id: 663699-007

Matrix: Soil
 Date Collected: 06.05.2020 14:36

Date Received: 06.08.2020 11:00
 Sample Depth: 6.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.08.2020 13:14

Basis: Wet Weight

Seq Number: 3128312

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.08.2020 18:47	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.08.2020 18:47	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.08.2020 18:47	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.08.2020 18:47	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.08.2020 18:47	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.08.2020 18:47	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.08.2020 18:47	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	98	%	70-130	06.08.2020 18:47	
1,4-Difluorobenzene	540-36-3	112	%	70-130	06.08.2020 18:47	



Certificate of Analytical Results 663699

LT Environmental, Inc., Arvada, CO

Wolverine SWD River

Sample Id: **SS08** Matrix: Soil Date Received: 06.08.2020 11:00
 Lab Sample Id: 663699-008 Date Collected: 06.05.2020 14:42 Sample Depth: 6.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 06.08.2020 17:00 Basis: Wet Weight
 Seq Number: 3128315

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4770	99.8	mg/kg	06.08.2020 19:25		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 06.08.2020 13:30 Basis: Wet Weight
 Seq Number: 3128299

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	06.08.2020 17:24	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	06.08.2020 17:24	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	06.08.2020 17:24	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	06.08.2020 17:24	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	06.08.2020 17:24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	06.08.2020 17:24	
o-Terphenyl	84-15-1	86	%	70-135	06.08.2020 17:24	



Certificate of Analytical Results 663699

LT Environmental, Inc., Arvada, CO

Wolverine SWD River

Sample Id: **SS08**
Lab Sample Id: 663699-008

Matrix: Soil
Date Collected: 06.05.2020 14:42

Date Received: 06.08.2020 11:00
Sample Depth: 6.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.08.2020 13:14

Basis: Wet Weight

Seq Number: 3128312

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.08.2020 19:07	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.08.2020 19:07	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.08.2020 19:07	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.08.2020 19:07	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.08.2020 19:07	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.08.2020 19:07	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.08.2020 19:07	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	96	%	70-130	06.08.2020 19:07		
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.08.2020 19:07		



Certificate of Analytical Results 663699

LT Environmental, Inc., Arvada, CO

Wolverine SWD River

Sample Id: **SS09** Matrix: Soil Date Received: 06.08.2020 11:00
 Lab Sample Id: 663699-009 Date Collected: 06.05.2020 14:52 Sample Depth: 6.5 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 06.08.2020 17:00 Basis: Wet Weight
 Seq Number: 3128315

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5170	99.8	mg/kg	06.08.2020 19:31		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 06.08.2020 13:30 Basis: Wet Weight
 Seq Number: 3128299

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	06.08.2020 17:45	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	06.08.2020 17:45	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	06.08.2020 17:45	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	06.08.2020 17:45	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	06.08.2020 17:45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	06.08.2020 17:45	
o-Terphenyl	84-15-1	87	%	70-135	06.08.2020 17:45	



Certificate of Analytical Results 663699

LT Environmental, Inc., Arvada, CO

Wolverine SWD River

Sample Id: **SS09**
Lab Sample Id: 663699-009

Matrix: Soil
Date Collected: 06.05.2020 14:52

Date Received: 06.08.2020 11:00
Sample Depth: 6.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 06.08.2020 13:14

Basis: Wet Weight

Seq Number: 3128312

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	06.08.2020 19:28	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	06.08.2020 19:28	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	06.08.2020 19:28	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	06.08.2020 19:28	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	06.08.2020 19:28	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	06.08.2020 19:28	U	1
Total BTEX		<0.00198	0.00198	mg/kg	06.08.2020 19:28	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	98	%	70-130	06.08.2020 19:28	
1,4-Difluorobenzene	540-36-3	110	%	70-130	06.08.2020 19:28	



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



LT Environmental, Inc.
Wolverine SWD River

Analytical Method: Chloride by EPA 300

Seq Number: 3128315

MB Sample Id: 7705029-1-BLK

Matrix: Solid

LCS Sample Id: 7705029-1-BKS

Prep Method: E300P

Date Prep: 06.08.2020

LCSD Sample Id: 7705029-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	252	101	253	101	90-110	0	20	mg/kg	06.08.2020 18:10	

Analytical Method: Chloride by EPA 300

Seq Number: 3128315

Parent Sample Id: 663699-001

Matrix: Soil

MS Sample Id: 663699-001 S

Prep Method: E300P

Date Prep: 06.08.2020

MSD Sample Id: 663699-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	7430	202	7620	94	7630	99	90-110	0	20	mg/kg	06.08.2020 18:27	

Analytical Method: Chloride by EPA 300

Seq Number: 3128315

Parent Sample Id: 663704-002

Matrix: Soil

MS Sample Id: 663704-002 S

Prep Method: E300P

Date Prep: 06.08.2020

MSD Sample Id: 663704-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	13.1	200	201	94	200	94	90-110	0	20	mg/kg	06.08.2020 19:48	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3128299

MB Sample Id: 7704998-1-BLK

Matrix: Solid

LCS Sample Id: 7704998-1-BKS

Prep Method: SW8015P

Date Prep: 06.08.2020

LCSD Sample Id: 7704998-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	1000	100	1010	101	70-135	1	35	mg/kg	06.08.2020 13:38	
Diesel Range Organics (DRO)	<50.0	1000	1010	101	1010	101	70-135	0	35	mg/kg	06.08.2020 13:38	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	93		109		107		70-135	%	06.08.2020 13:38
o-Terphenyl	90		95		93		70-135	%	06.08.2020 13:38

Analytical Method: TPH by SW8015 Mod

Seq Number: 3128299

Matrix: Solid

MB Sample Id: 7704998-1-BLK

Prep Method: SW8015P

Date Prep: 06.08.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	06.08.2020 13:17	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * | (C - E) / (C + E) |$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



LT Environmental, Inc.
Wolverine SWD River

Analytical Method: TPH by SW8015 Mod

Seq Number: 3128299

Parent Sample Id: 663699-002

Matrix: Soil

MS Sample Id: 663699-002 S

Prep Method: SW8015P

Date Prep: 06.08.2020

MSD Sample Id: 663699-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	1090	109	997	100	70-135	9	35	mg/kg	06.08.2020 14:39	
Diesel Range Organics (DRO)	<50.0	1000	1090	109	1010	101	70-135	8	35	mg/kg	06.08.2020 14:39	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	119		107		70-135	%	06.08.2020 14:39
o-Terphenyl	102		95		70-135	%	06.08.2020 14:39

Analytical Method: BTEX by EPA 8021B

Seq Number: 3128312

MB Sample Id: 7705033-1-BLK

Matrix: Solid

LCS Sample Id: 7705033-1-BKS

Prep Method: SW5035A

Date Prep: 06.08.2020

LCSD Sample Id: 7705033-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.111	111	0.110	110	70-130	1	35	mg/kg	06.08.2020 15:03	
Toluene	<0.00200	0.100	0.107	107	0.105	105	70-130	2	35	mg/kg	06.08.2020 15:03	
Ethylbenzene	<0.00200	0.100	0.100	100	0.0982	98	71-129	2	35	mg/kg	06.08.2020 15:03	
m,p-Xylenes	<0.00400	0.200	0.208	104	0.203	102	70-135	2	35	mg/kg	06.08.2020 15:03	
o-Xylene	<0.00200	0.100	0.105	105	0.103	103	71-133	2	35	mg/kg	06.08.2020 15:03	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		110		107		70-130	%	06.08.2020 15:03
4-Bromofluorobenzene	94		97		93		70-130	%	06.08.2020 15:03

Analytical Method: BTEX by EPA 8021B

Seq Number: 3128312

Parent Sample Id: 663699-001

Matrix: Soil

MS Sample Id: 663699-001 S

Prep Method: SW5035A

Date Prep: 06.08.2020

MSD Sample Id: 663699-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.116	116	0.121	122	70-130	4	35	mg/kg	06.08.2020 15:44	
Toluene	<0.00199	0.0996	0.112	112	0.117	118	70-130	4	35	mg/kg	06.08.2020 15:44	
Ethylbenzene	<0.00199	0.0996	0.105	105	0.108	109	71-129	3	35	mg/kg	06.08.2020 15:44	
m,p-Xylenes	<0.00398	0.199	0.218	110	0.225	114	70-135	3	35	mg/kg	06.08.2020 15:44	
o-Xylene	<0.00199	0.0996	0.109	109	0.112	113	71-133	3	35	mg/kg	06.08.2020 15:44	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		109		70-130	%	06.08.2020 15:44
4-Bromofluorobenzene	97		98		70-130	%	06.08.2020 15:44

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



Chain of Custody

Work Order No: 663699

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432-704-5440) EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
 Hobbs, NM (575-392-7550) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813-620-2000)

www.xenco.com

Page 1 of 1

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littlell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 E Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	432.236.3849	Email:	lidelval@ltenv.com

Program: <input type="checkbox"/> UST/PST <input type="checkbox"/> RRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RC <input type="checkbox"/> upfound <input type="checkbox"/> State of Project:	
Reporting Level: I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV <input type="checkbox"/>	Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other: <input type="checkbox"/>

ANALYSIS REQUEST

Work Order Notes

Project Name:	Wolverine SMD Riser	Turn Around	<input type="checkbox"/> Routine <input type="checkbox"/> Rush: 48 hr
Project Number:	6189220042	Rush:	48 hr
P.O. Number:		Due Date:	
Sampler's Name:	Benjamin Beilitt Luns Del Val	Due Date:	

SAMPLE RECEIPT		Temp Blank:		Yes		No		Well Ice:		Yes		No	
Temperature (°C):	3.2	Received Intact:	Yes	No	Thermometer ID	TMM007							
Cooler Custody Seals:	Yes	No	N/A	Correction Factor:	-0.2								
Sample Custody Seals:	Yes	No	N/A	Total Containers:	9								

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)										
SS01	S	6/15/16	13:00	6.5'	1	X	X	X										
SS02			13:33															
SS03			13:42															
SS04			13:58															
SS05			14:22															
SS06			14:30															
SS07			14:36															
SS08			14:42															
SS09			14:58															

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 SiO2 Na Sr Ti 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 Ti U 1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions service. 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 Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to 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
del Val	Witt 4/4	6/18/2016 4:00 PM	Witt 4/4		6/18/2016 11:00

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 06.08.2020 11.00.00 AM

Work Order #: 663699

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T NM 007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.2
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	Yes
#18 Water VOC samples have zero headspace?	N/A

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:


Checklist completed by:



Martha Castro

Date: 06.08.2020

Checklist reviewed by:



Jessica Kramer

Date: 06.08.2020

Certificate of Analysis Summary 670249



LT Environmental, Inc., Arvada, CO

Project Name: ROW 4 Wolverine SWD Riser

Project Id: 012920091

Date Received in Lab: Tue 08.18.2020 09:14

Contact: Dan Moir

Report Date: 08.21.2020 17:44

Project Location:

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	670249-001	670249-002	670249-003	670249-004	670249-005	670249-006
	<i>Field Id:</i>	BH01	BH01A	BH02	BH03	BH03A	BH04
	<i>Depth:</i>	1-	3-	1-	2-	2.5-	1-
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	08.17.2020 09:54	08.17.2020 10:04	08.17.2020 11:35	08.17.2020 11:47	08.17.2020 11:49	08.17.2020 12:40
BTEX by EPA 8021B	<i>Extracted:</i>	08.18.2020 11:51	08.18.2020 11:51	08.18.2020 11:51	08.18.2020 11:51	08.18.2020 11:51	08.18.2020 11:51
	<i>Analyzed:</i>	08.18.2020 16:10	08.18.2020 16:33	08.18.2020 16:55	08.18.2020 17:18	08.18.2020 17:40	08.18.2020 18:03
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201
Toluene		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201
m,p-Xylenes		<0.00398 0.00398	<0.00400 0.00400	<0.00399 0.00399	<0.00401 0.00401	<0.00402 0.00402	<0.00402 0.00402
o-Xylene		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201
Total BTEX		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201
Chloride by EPA 300	<i>Extracted:</i>	08.18.2020 12:39	08.18.2020 12:39	08.18.2020 12:39	08.18.2020 12:39	08.18.2020 12:48	08.18.2020 12:48
	<i>Analyzed:</i>	08.18.2020 14:37	08.18.2020 14:43	08.18.2020 14:48	08.18.2020 14:54	08.18.2020 15:27	08.18.2020 15:44
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		4490 49.9	4500 50.0	2820 50.2	2120 49.9	1420 50.0	3160 50.0
TPH by SW8015 Mod	<i>Extracted:</i>	08.18.2020 09:50	08.18.2020 09:50	08.18.2020 09:50	08.18.2020 09:50	08.18.2020 09:50	08.18.2020 09:50
	<i>Analyzed:</i>	08.18.2020 11:16	08.18.2020 12:37	08.18.2020 12:57	08.18.2020 13:17	08.18.2020 13:38	08.18.2020 13:58
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0	<50.0 50.0	<49.8 49.8	<49.9 49.9	<49.9 49.9	<50.1 50.1
Diesel Range Organics (DRO)		<50.0 50.0	<50.0 50.0	<49.8 49.8	<49.9 49.9	<49.9 49.9	<50.1 50.1
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.0 50.0	<49.8 49.8	<49.9 49.9	<49.9 49.9	<50.1 50.1
Total GRO-DRO		<50.0 50.0	<50.0 50.0	<49.8 49.8	<49.9 49.9	<49.9 49.9	<50.1 50.1
Total TPH		<50.0 50.0	<50.0 50.0	<49.8 49.8	<49.9 49.9	<49.9 49.9	<50.1 50.1

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Certificate of Analysis Summary 670249



LT Environmental, Inc., Arvada, CO

Project Name: ROW 4 Wolverine SWD Riser

Project Id: 012920091

Date Received in Lab: Tue 08.18.2020 09:14

Contact: Dan Moir

Report Date: 08.21.2020 17:44

Project Location:

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	670249-007	670249-008	670249-009	670249-010	670249-011	
	<i>Field Id:</i>	BH05	BH05A	BH06	BH07	BH08	
	<i>Depth:</i>	2-	3-	1-	1-	1-	
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	
	<i>Sampled:</i>	08.17.2020 13:05	08.17.2020 13:10	08.17.2020 13:26	08.17.2020 14:10	08.17.2020 14:40	
BTEX by EPA 8021B	<i>Extracted:</i>	08.18.2020 11:51	08.18.2020 11:51	08.18.2020 11:51	08.18.2020 11:51	08.18.2020 11:51	
	<i>Analyzed:</i>	08.18.2020 18:25	08.18.2020 18:48	08.18.2020 19:10	08.18.2020 20:40	08.18.2020 21:08	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Benzene		<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	
Toluene		<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	
Ethylbenzene		<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	
m,p-Xylenes		<0.00398 0.00398	<0.00396 0.00396	<0.00398 0.00398	<0.00399 0.00399	<0.00398 0.00398	
o-Xylene		<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	
Total Xylenes		<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	
Total BTEX		<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	
Chloride by EPA 300	<i>Extracted:</i>	08.18.2020 12:48	08.18.2020 12:48	08.18.2020 12:48	08.18.2020 12:48	08.18.2020 12:48	
	<i>Analyzed:</i>	08.18.2020 15:50	08.18.2020 15:55	08.18.2020 16:01	08.18.2020 16:06	08.18.2020 16:23	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Chloride		206 9.92	374 9.96	578 9.98	5790 49.8	4130 49.9	
TPH by SW8015 Mod	<i>Extracted:</i>	08.18.2020 09:50	08.18.2020 09:50	08.18.2020 09:50	08.18.2020 09:50	08.18.2020 09:50	
	<i>Analyzed:</i>	08.18.2020 14:18	08.18.2020 14:38	08.18.2020 14:58	08.18.2020 15:18	08.18.2020 15:59	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Gasoline Range Hydrocarbons (GRO)		<50.2 50.2	<49.9 49.9	<50.1 50.1	<50.2 50.2	<50.1 50.1	
Diesel Range Organics (DRO)		<50.2 50.2	<49.9 49.9	<50.1 50.1	<50.2 50.2	<50.1 50.1	
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2	<49.9 49.9	<50.1 50.1	<50.2 50.2	<50.1 50.1	
Total GRO-DRO		<50.2 50.2	<49.9 49.9	<50.1 50.1	<50.2 50.2	<50.1 50.1	
Total TPH		<50.2 50.2	<49.9 49.9	<50.1 50.1	<50.2 50.2	<50.1 50.1	

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 670249

for

LT Environmental, Inc.

Project Manager: Dan Moir

ROW 4 Wolverine SWD Riser

012920091

08.21.2020

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-37), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



08.21.2020

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: Eurofins Xenco, LLC Report No(s): **670249**

ROW 4 Wolverine SWD Riser

Project Address:

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 670249. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 670249 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 670249****LT Environmental, Inc., Arvada, CO**

ROW 4 Wolverine SWD Riser

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH01	S	08.17.2020 09:54	1	670249-001
BH01A	S	08.17.2020 10:04	3	670249-002
BH02	S	08.17.2020 11:35	1	670249-003
BH03	S	08.17.2020 11:47	2	670249-004
BH03A	S	08.17.2020 11:49	2.5	670249-005
BH04	S	08.17.2020 12:40	1	670249-006
BH05	S	08.17.2020 13:05	2	670249-007
BH05A	S	08.17.2020 13:10	3	670249-008
BH06	S	08.17.2020 13:26	1	670249-009
BH07	S	08.17.2020 14:10	1	670249-010
BH08	S	08.17.2020 14:40	1	670249-011



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: ROW 4 Wolverine SWD Riser

Project ID: 012920091

Report Date: 08.21.2020

Work Order Number(s): 670249

Date Received: 08.18.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH01** Matrix: Soil Date Received: 08.18.2020 09:14
 Lab Sample Id: 670249-001 Date Collected: 08.17.2020 09:54 Sample Depth: 1
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 08.18.2020 12:39 Basis: Wet Weight
 Seq Number: 3134917

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4490	49.9	mg/kg	08.18.2020 14:37		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 08.18.2020 09:50 Basis: Wet Weight
 Seq Number: 3134923

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	08.18.2020 11:16	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	08.18.2020 11:16	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	08.18.2020 11:16	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	08.18.2020 11:16	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	08.18.2020 11:16	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	08.18.2020 11:16	
o-Terphenyl	84-15-1	92	%	70-135	08.18.2020 11:16	



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH01**
 Lab Sample Id: 670249-001

Matrix: Soil
 Date Collected: 08.17.2020 09:54

Date Received: 08.18.2020 09:14
 Sample Depth: 1

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 08.18.2020 11:51

Basis: Wet Weight

Seq Number: 3134914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	08.18.2020 16:10	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	08.18.2020 16:10	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	08.18.2020 16:10	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	08.18.2020 16:10	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	08.18.2020 16:10	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	08.18.2020 16:10	U	1
Total BTEX		<0.00199	0.00199	mg/kg	08.18.2020 16:10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	94	%	70-130	08.18.2020 16:10	
1,4-Difluorobenzene	540-36-3	94	%	70-130	08.18.2020 16:10	



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH01A**
Lab Sample Id: 670249-002

Matrix: Soil
Date Collected: 08.17.2020 10:04

Date Received: 08.18.2020 09:14
Sample Depth: 3

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3134917

Date Prep: 08.18.2020 12:39

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4500	50.0	mg/kg	08.18.2020 14:43		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3134923

Date Prep: 08.18.2020 09:50

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	08.18.2020 12:37	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	08.18.2020 12:37	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	08.18.2020 12:37	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	08.18.2020 12:37	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	08.18.2020 12:37	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	08.18.2020 12:37	
o-Terphenyl	84-15-1	92	%	70-135	08.18.2020 12:37	



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH01A**
 Lab Sample Id: 670249-002

Matrix: Soil
 Date Collected: 08.17.2020 10:04

Date Received: 08.18.2020 09:14
 Sample Depth: 3

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 08.18.2020 11:51

Basis: Wet Weight

Seq Number: 3134914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	08.18.2020 16:33	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	08.18.2020 16:33	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	08.18.2020 16:33	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	08.18.2020 16:33	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	08.18.2020 16:33	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	08.18.2020 16:33	U	1
Total BTEX		<0.00200	0.00200	mg/kg	08.18.2020 16:33	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	88	%	70-130	08.18.2020 16:33		
1,4-Difluorobenzene	540-36-3	101	%	70-130	08.18.2020 16:33		



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH02** Matrix: Soil Date Received: 08.18.2020 09:14
 Lab Sample Id: 670249-003 Date Collected: 08.17.2020 11:35 Sample Depth: 1
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 08.18.2020 12:39 Basis: Wet Weight
 Seq Number: 3134917

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2820	50.2	mg/kg	08.18.2020 14:48		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 08.18.2020 09:50 Basis: Wet Weight
 Seq Number: 3134923

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	08.18.2020 12:57	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	08.18.2020 12:57	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	08.18.2020 12:57	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	08.18.2020 12:57	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	08.18.2020 12:57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	08.18.2020 12:57	
o-Terphenyl	84-15-1	86	%	70-135	08.18.2020 12:57	



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH02**
 Lab Sample Id: 670249-003

Matrix: Soil
 Date Collected: 08.17.2020 11:35

Date Received: 08.18.2020 09:14
 Sample Depth: 1

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 08.18.2020 11:51

Basis: Wet Weight

Seq Number: 3134914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	08.18.2020 16:55	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	08.18.2020 16:55	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	08.18.2020 16:55	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	08.18.2020 16:55	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	08.18.2020 16:55	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	08.18.2020 16:55	U	1
Total BTEX		<0.00200	0.00200	mg/kg	08.18.2020 16:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	101	%	70-130	08.18.2020 16:55	
4-Bromofluorobenzene	460-00-4	91	%	70-130	08.18.2020 16:55	



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH03**
Lab Sample Id: 670249-004

Matrix: Soil
Date Collected: 08.17.2020 11:47

Date Received: 08.18.2020 09:14
Sample Depth: 2

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3134917

Date Prep: 08.18.2020 12:39

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2120	49.9	mg/kg	08.18.2020 14:54		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3134923

Date Prep: 08.18.2020 09:50

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	08.18.2020 13:17	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	08.18.2020 13:17	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	08.18.2020 13:17	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	08.18.2020 13:17	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	08.18.2020 13:17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	08.18.2020 13:17	
o-Terphenyl	84-15-1	86	%	70-135	08.18.2020 13:17	



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH03**
 Lab Sample Id: 670249-004

Matrix: Soil
 Date Collected: 08.17.2020 11:47

Date Received: 08.18.2020 09:14
 Sample Depth: 2

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 08.18.2020 11:51

Basis: Wet Weight

Seq Number: 3134914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	08.18.2020 17:18	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	08.18.2020 17:18	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	08.18.2020 17:18	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	08.18.2020 17:18	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	08.18.2020 17:18	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	08.18.2020 17:18	U	1
Total BTEX		<0.00200	0.00200	mg/kg	08.18.2020 17:18	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	95	%	70-130	08.18.2020 17:18		
1,4-Difluorobenzene	540-36-3	103	%	70-130	08.18.2020 17:18		



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH03A** Matrix: Soil Date Received: 08.18.2020 09:14
 Lab Sample Id: 670249-005 Date Collected: 08.17.2020 11:49 Sample Depth: 2.5
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 08.18.2020 12:48 Basis: Wet Weight
 Seq Number: 3134919

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1420	50.0	mg/kg	08.18.2020 15:27		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 08.18.2020 09:50 Basis: Wet Weight
 Seq Number: 3134923

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	08.18.2020 13:38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	08.18.2020 13:38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	08.18.2020 13:38	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	08.18.2020 13:38	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	08.18.2020 13:38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	08.18.2020 13:38	
o-Terphenyl	84-15-1	85	%	70-135	08.18.2020 13:38	



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH03A**
 Lab Sample Id: 670249-005

Matrix: Soil
 Date Collected: 08.17.2020 11:49

Date Received: 08.18.2020 09:14
 Sample Depth: 2.5

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 08.18.2020 11:51

Basis: Wet Weight

Seq Number: 3134914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	08.18.2020 17:40	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	08.18.2020 17:40	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	08.18.2020 17:40	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	08.18.2020 17:40	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	08.18.2020 17:40	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	08.18.2020 17:40	U	1
Total BTEX		<0.00201	0.00201	mg/kg	08.18.2020 17:40	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	08.18.2020 17:40		
1,4-Difluorobenzene	540-36-3	103	%	70-130	08.18.2020 17:40		



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH04** Matrix: Soil Date Received: 08.18.2020 09:14
 Lab Sample Id: 670249-006 Date Collected: 08.17.2020 12:40 Sample Depth: 1
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 08.18.2020 12:48 Basis: Wet Weight
 Seq Number: 3134919

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3160	50.0	mg/kg	08.18.2020 15:44		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 08.18.2020 09:50 Basis: Wet Weight
 Seq Number: 3134923

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	08.18.2020 13:58	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	08.18.2020 13:58	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	08.18.2020 13:58	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	08.18.2020 13:58	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	08.18.2020 13:58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	08.18.2020 13:58	
o-Terphenyl	84-15-1	84	%	70-135	08.18.2020 13:58	



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH04**
 Lab Sample Id: 670249-006

Matrix: Soil
 Date Collected: 08.17.2020 12:40

Date Received: 08.18.2020 09:14
 Sample Depth: 1

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 08.18.2020 11:51

Basis: Wet Weight

Seq Number: 3134914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	08.18.2020 18:03	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	08.18.2020 18:03	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	08.18.2020 18:03	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	08.18.2020 18:03	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	08.18.2020 18:03	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	08.18.2020 18:03	U	1
Total BTEX		<0.00201	0.00201	mg/kg	08.18.2020 18:03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	91	%	70-130	08.18.2020 18:03	
1,4-Difluorobenzene	540-36-3	101	%	70-130	08.18.2020 18:03	



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH05** Matrix: Soil Date Received: 08.18.2020 09:14
 Lab Sample Id: 670249-007 Date Collected: 08.17.2020 13:05 Sample Depth: 2
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 08.18.2020 12:48 Basis: Wet Weight
 Seq Number: 3134919

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	206	9.92	mg/kg	08.18.2020 15:50		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 08.18.2020 09:50 Basis: Wet Weight
 Seq Number: 3134923

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	08.18.2020 14:18	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	08.18.2020 14:18	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	08.18.2020 14:18	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	08.18.2020 14:18	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	08.18.2020 14:18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	87	%	70-135	08.18.2020 14:18	
o-Terphenyl	84-15-1	82	%	70-135	08.18.2020 14:18	



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH05**
 Lab Sample Id: 670249-007

Matrix: Soil
 Date Collected: 08.17.2020 13:05

Date Received: 08.18.2020 09:14
 Sample Depth: 2

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 08.18.2020 11:51

Basis: Wet Weight

Seq Number: 3134914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	08.18.2020 18:25	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	08.18.2020 18:25	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	08.18.2020 18:25	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	08.18.2020 18:25	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	08.18.2020 18:25	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	08.18.2020 18:25	U	1
Total BTEX		<0.00199	0.00199	mg/kg	08.18.2020 18:25	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	94	%	70-130	08.18.2020 18:25	
1,4-Difluorobenzene	540-36-3	102	%	70-130	08.18.2020 18:25	



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH05A** Matrix: Soil Date Received: 08.18.2020 09:14
 Lab Sample Id: 670249-008 Date Collected: 08.17.2020 13:10 Sample Depth: 3
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 08.18.2020 12:48 Basis: Wet Weight
 Seq Number: 3134919

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	374	9.96	mg/kg	08.18.2020 15:55		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 08.18.2020 09:50 Basis: Wet Weight
 Seq Number: 3134923

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	08.18.2020 14:38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	08.18.2020 14:38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	08.18.2020 14:38	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	08.18.2020 14:38	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	08.18.2020 14:38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	08.18.2020 14:38	
o-Terphenyl	84-15-1	85	%	70-135	08.18.2020 14:38	



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH05A**
 Lab Sample Id: 670249-008

Matrix: Soil
 Date Collected: 08.17.2020 13:10

Date Received: 08.18.2020 09:14
 Sample Depth: 3

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 08.18.2020 11:51

Basis: Wet Weight

Seq Number: 3134914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	08.18.2020 18:48	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	08.18.2020 18:48	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	08.18.2020 18:48	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	08.18.2020 18:48	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	08.18.2020 18:48	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	08.18.2020 18:48	U	1
Total BTEX		<0.00198	0.00198	mg/kg	08.18.2020 18:48	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	93	%	70-130	08.18.2020 18:48		
1,4-Difluorobenzene	540-36-3	103	%	70-130	08.18.2020 18:48		



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH06** Matrix: Soil Date Received: 08.18.2020 09:14
 Lab Sample Id: 670249-009 Date Collected: 08.17.2020 13:26 Sample Depth: 1
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 08.18.2020 12:48 Basis: Wet Weight
 Seq Number: 3134919

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	578	9.98	mg/kg	08.18.2020 16:01		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 08.18.2020 09:50 Basis: Wet Weight
 Seq Number: 3134923

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	08.18.2020 14:58	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	08.18.2020 14:58	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	08.18.2020 14:58	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	08.18.2020 14:58	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	08.18.2020 14:58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	08.18.2020 14:58	
o-Terphenyl	84-15-1	85	%	70-135	08.18.2020 14:58	



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH06**
 Lab Sample Id: 670249-009

Matrix: Soil
 Date Collected: 08.17.2020 13:26

Date Received: 08.18.2020 09:14
 Sample Depth: 1

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 08.18.2020 11:51

Basis: Wet Weight

Seq Number: 3134914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	08.18.2020 19:10	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	08.18.2020 19:10	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	08.18.2020 19:10	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	08.18.2020 19:10	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	08.18.2020 19:10	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	08.18.2020 19:10	U	1
Total BTEX		<0.00199	0.00199	mg/kg	08.18.2020 19:10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	102	%	70-130	08.18.2020 19:10	
4-Bromofluorobenzene	460-00-4	95	%	70-130	08.18.2020 19:10	



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH07** Matrix: Soil Date Received: 08.18.2020 09:14
 Lab Sample Id: 670249-010 Date Collected: 08.17.2020 14:10 Sample Depth: 1
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 08.18.2020 12:48 Basis: Wet Weight
 Seq Number: 3134919

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5790	49.8	mg/kg	08.18.2020 16:06		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 08.18.2020 09:50 Basis: Wet Weight
 Seq Number: 3134923

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	08.18.2020 15:18	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	08.18.2020 15:18	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	08.18.2020 15:18	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	08.18.2020 15:18	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	08.18.2020 15:18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	08.18.2020 15:18	
o-Terphenyl	84-15-1	87	%	70-135	08.18.2020 15:18	



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH07**
 Lab Sample Id: 670249-010

Matrix: Soil
 Date Collected: 08.17.2020 14:10

Date Received: 08.18.2020 09:14
 Sample Depth: 1

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 08.18.2020 11:51

Basis: Wet Weight

Seq Number: 3134914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	08.18.2020 20:40	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	08.18.2020 20:40	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	08.18.2020 20:40	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	08.18.2020 20:40	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	08.18.2020 20:40	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	08.18.2020 20:40	U	1
Total BTEX		<0.00200	0.00200	mg/kg	08.18.2020 20:40	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	91	%	70-130	08.18.2020 20:40		
1,4-Difluorobenzene	540-36-3	103	%	70-130	08.18.2020 20:40		



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH08** Matrix: Soil Date Received: 08.18.2020 09:14
 Lab Sample Id: 670249-011 Date Collected: 08.17.2020 14:40 Sample Depth: 1
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 08.18.2020 12:48 Basis: Wet Weight
 Seq Number: 3134919

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4130	49.9	mg/kg	08.18.2020 16:23		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 08.18.2020 09:50 Basis: Wet Weight
 Seq Number: 3134923

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	08.18.2020 15:59	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	08.18.2020 15:59	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	08.18.2020 15:59	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	08.18.2020 15:59	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	08.18.2020 15:59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	08.18.2020 15:59	
o-Terphenyl	84-15-1	84	%	70-135	08.18.2020 15:59	



Certificate of Analytical Results 670249

LT Environmental, Inc., Arvada, CO

ROW 4 Wolverine SWD Riser

Sample Id: **BH08**
 Lab Sample Id: 670249-011

Matrix: Soil
 Date Collected: 08.17.2020 14:40

Date Received: 08.18.2020 09:14
 Sample Depth: 1

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 08.18.2020 11:51

Basis: Wet Weight

Seq Number: 3134914

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	08.18.2020 21:08	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	08.18.2020 21:08	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	08.18.2020 21:08	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	08.18.2020 21:08	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	08.18.2020 21:08	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	08.18.2020 21:08	U	1
Total BTEX		<0.00199	0.00199	mg/kg	08.18.2020 21:08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	83	%	70-130	08.18.2020 21:08	
1,4-Difluorobenzene	540-36-3	98	%	70-130	08.18.2020 21:08	



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



LT Environmental, Inc.
ROW 4 Wolverine SWD Riser

Analytical Method: Chloride by EPA 300

Seq Number: 3134917

MB Sample Id: 7709666-1-BLK

Matrix: Solid

LCS Sample Id: 7709666-1-BKS

Prep Method: E300P

Date Prep: 08.18.2020

LCSD Sample Id: 7709666-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	259	104	261	104	90-110	1	20	mg/kg	08.18.2020 12:12	

Analytical Method: Chloride by EPA 300

Seq Number: 3134919

MB Sample Id: 7709667-1-BLK

Matrix: Solid

LCS Sample Id: 7709667-1-BKS

Prep Method: E300P

Date Prep: 08.18.2020

LCSD Sample Id: 7709667-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	261	104	263	105	90-110	1	20	mg/kg	08.18.2020 15:16	

Analytical Method: Chloride by EPA 300

Seq Number: 3134917

Parent Sample Id: 670227-001

Matrix: Soil

MS Sample Id: 670227-001 S

Prep Method: E300P

Date Prep: 08.18.2020

MSD Sample Id: 670227-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	2680	199	2870	95	2870	95	90-110	0	20	mg/kg	08.18.2020 12:29	

Analytical Method: Chloride by EPA 300

Seq Number: 3134917

Parent Sample Id: 670227-011

Matrix: Soil

MS Sample Id: 670227-011 S

Prep Method: E300P

Date Prep: 08.18.2020

MSD Sample Id: 670227-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1370	200	1560	95	1560	95	90-110	0	20	mg/kg	08.18.2020 13:47	

Analytical Method: Chloride by EPA 300

Seq Number: 3134919

Parent Sample Id: 670249-005

Matrix: Soil

MS Sample Id: 670249-005 S

Prep Method: E300P

Date Prep: 08.18.2020

MSD Sample Id: 670249-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1420	198	1630	106	1600	90	90-110	2	20	mg/kg	08.18.2020 15:33	

Analytical Method: Chloride by EPA 300

Seq Number: 3134919

Parent Sample Id: 670314-004

Matrix: Soil

MS Sample Id: 670314-004 S

Prep Method: E300P

Date Prep: 08.18.2020

MSD Sample Id: 670314-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	2140	247	2370	93	2380	97	90-110	0	20	mg/kg	08.18.2020 16:51	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



LT Environmental, Inc.
ROW 4 Wolverine SWD Riser

Analytical Method: TPH by SW8015 Mod

Seq Number: 3134923

MB Sample Id: 7709645-1-BLK

Matrix: Solid

LCS Sample Id: 7709645-1-BKS

Prep Method: SW8015P

Date Prep: 08.18.2020

LCSD Sample Id: 7709645-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	979	98	956	96	70-135	2	35	mg/kg	08.18.2020 10:35	
Diesel Range Organics (DRO)	<50.0	1000	1010	101	971	97	70-135	4	35	mg/kg	08.18.2020 10:35	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	87		116		112		70-135	%	08.18.2020 10:35
o-Terphenyl	83		101		98		70-135	%	08.18.2020 10:35

Analytical Method: TPH by SW8015 Mod

Seq Number: 3134923

MB Sample Id: 7709645-1-BLK

Matrix: Solid

Prep Method: SW8015P

Date Prep: 08.18.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	08.18.2020 10:15	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3134923

Parent Sample Id: 670249-001

Matrix: Soil

MS Sample Id: 670249-001 S

Prep Method: SW8015P

Date Prep: 08.18.2020

MSD Sample Id: 670249-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<49.9	998	859	86	879	88	70-135	2	35	mg/kg	08.18.2020 11:36	
Diesel Range Organics (DRO)	<49.9	998	882	88	889	89	70-135	1	35	mg/kg	08.18.2020 11:36	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	104		106		70-135	%	08.18.2020 11:36
o-Terphenyl	92		93		70-135	%	08.18.2020 11:36

Analytical Method: BTEX by EPA 8021B

Seq Number: 3134914

MB Sample Id: 7709668-1-BLK

Matrix: Solid

LCS Sample Id: 7709668-1-BKS

Prep Method: SW5035A

Date Prep: 08.18.2020

LCSD Sample Id: 7709668-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.100	100	0.108	108	70-130	8	35	mg/kg	08.18.2020 13:38	
Toluene	<0.00200	0.100	0.0965	97	0.104	104	70-130	7	35	mg/kg	08.18.2020 13:38	
Ethylbenzene	<0.00200	0.100	0.0901	90	0.0969	97	71-129	7	35	mg/kg	08.18.2020 13:38	
m,p-Xylenes	<0.00400	0.200	0.182	91	0.197	99	70-135	8	35	mg/kg	08.18.2020 13:38	
o-Xylene	<0.00200	0.100	0.0894	89	0.0956	96	71-133	7	35	mg/kg	08.18.2020 13:38	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	97		99		98		70-130	%	08.18.2020 13:38
4-Bromofluorobenzene	87		94		94		70-130	%	08.18.2020 13:38

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



LT Environmental, Inc.
ROW 4 Wolverine SWD Riser

Analytical Method: BTEX by EPA 8021B

Seq Number: 3134914

Parent Sample Id: 670249-001

Matrix: Soil

MS Sample Id: 670249-001 S

Prep Method: SW5035A

Date Prep: 08.18.2020

MSD Sample Id: 670249-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.112	112	0.108	108	70-130	4	35	mg/kg	08.18.2020 19:55	
Toluene	<0.00200	0.0998	0.109	109	0.103	103	70-130	6	35	mg/kg	08.18.2020 19:55	
Ethylbenzene	<0.00200	0.0998	0.101	101	0.0957	96	71-129	5	35	mg/kg	08.18.2020 19:55	
m,p-Xylenes	<0.00399	0.200	0.206	103	0.194	97	70-135	6	35	mg/kg	08.18.2020 19:55	
o-Xylene	<0.00200	0.0998	0.102	102	0.0962	96	71-133	6	35	mg/kg	08.18.2020 19:55	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		99		70-130	%	08.18.2020 19:55
4-Bromofluorobenzene	93		88		70-130	%	08.18.2020 19:55

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



Chain of Custody

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432-704-5440) EL Paso, TX (915)585-3443 Lubbock, TX (806)794-1296
 Hobbs, NM (575-392-7550) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813-620-2000)

Work Order No: 670249

www.xenco.com Page 1 of 2

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littlell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A St. Bldg 1, Unit 222	Address:	3104 E Greene St.
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM
Phone:	(432) 701-2610	Email:	dmoir@ltenv.com mcafee@ltenv.com

Program: <input checked="" type="checkbox"/> UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RC <input type="checkbox"/> Superfund State of Project: NM	
Reporting Level: <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> ST/UST <input type="checkbox"/> RRP <input type="checkbox"/> Level IV <input type="checkbox"/>	Deliverables: <input type="checkbox"/> EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:

Project Name:	RDW 4 Wolverine SMD Riser	Turn Around	<input checked="" type="checkbox"/>
Project Number:	012920091	Rush:	<input checked="" type="checkbox"/>
P.O. Number:		Due Date:	
Sampler's Name:	Robert McAfee		

SAMPLE RECEIPT				ANALYSIS REQUEST				Work Order Notes	
Temp Blank:	Temp Blank:	Yes	No	Wet Ice:	Yes	No			
Temperature (°C):	1.6/1.4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Thermometer ID	T-NM-007				
Received Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Correction Factor:	-0.2				
Cooler Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Total Containers: 11							
Sample Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A								

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 8021)	Chloride (EPA 300.0)	ANALYSIS REQUEST																Work Order Notes
BH01	S	08/17/20	0954	1'	1	X	X	X																	TAT starts the day received by the lab, if received by 4:30pm
BH01A			1004	3'		X	X	X																	
BH02			1135	1'		X	X	X																	
BH03			1147	2'		X	X	X																	
BH03A			1149	2.5'		X	X	X																	
BH04			1240	1'		X	X	X																	
BH05			1305	2'		X	X	X																	
BH05A			1310	3'		X	X	X																	
BH06			1326	1'		X	X	X																	
BH07			1410	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 Pb Mn Mo Ni Se Ag Ti U 1631 / 245.1 / 7470 / 7471 : Hg

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 Ti U

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>[Signature]</i>	<i>[Signature]</i>	8-15-20 09:14			

Work Order No: 670249

Page _____ of _____

Work Order Comments	
Program: UST/PST	<input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RC <input type="checkbox"/> Superfund <input type="checkbox"/>
State of Project:	NM
Reporting Level II	<input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> RRP <input type="checkbox"/> Level IV <input type="checkbox"/>
Deliverables: EDD	<input type="checkbox"/> ADaPT <input type="checkbox"/> Other:

SAMPLE RECEIPT				
Temperature (°C):	Temp Blank:	Yes	No	Wet Ice:
Received Intact:	Yes	No		Yes
Cooler Custody Seals:	Yes	No	N/A	No
Sample Custody Seals:	Yes	No	N/A	
			Correction Factor:	
			Total Containers:	

Number of Containers

PA 8015)

PA 8021)

(EPA 300.0)

TAT starts the day received by the lab if received by 4:30pm

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number	TPH (EP)	BTEX (EP)	Chloride	Sample Comments
BH08	S	08/17/20	1440	1'	1	X	X	X	discrete

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 SiO2 Na Sr Ti 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 Ti U	1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. 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 Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Final 1.000

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 08.18.2020 09.14.00 AM

Work Order #: 670249

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	1.4
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

Samples received in bulk containers

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 08.18.2020

Checklist reviewed by:



Jessica Kramer

Date: 08.18.2020



Certificate of Analysis Summary 673861

LT Environmental, Inc., Arvada, CO

Project Name: Row 4 Wolverine SWD Riser

Project Id: 012920091

Contact: Dan Moir

Project Location:

Date Received in Lab: Tue 09.29.2020 16:45

Report Date: 09.30.2020 16:13

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	673861-001	673861-002	673861-003	673861-004	673861-005	673861-006
	<i>Field Id:</i>	PH01	PH01 A	PH02	PH02 A	PH03	PH03 A
	<i>Depth:</i>	1- ft	4- ft	6- ft	12- ft	1- ft	3- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	09.28.2020 09:50	09.28.2020 10:10	09.28.2020 10:55	09.28.2020 12:45	09.28.2020 13:05	09.28.2020 13:14
BTEX by EPA 8021B	<i>Extracted:</i>	09.29.2020 17:53	09.29.2020 17:53	09.29.2020 17:53	09.29.2020 17:53	09.29.2020 17:53	09.29.2020 17:53
	<i>Analyzed:</i>	09.29.2020 23:15	09.29.2020 23:37	09.29.2020 23:59	09.30.2020 00:22	09.30.2020 00:44	09.30.2020 01:07
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201	<0.00202 0.00202
Toluene		<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201	<0.00202 0.00202
Ethylbenzene		<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201	<0.00202 0.00202
m,p-Xylenes		<0.00399 0.00399	<0.00401 0.00401	<0.00402 0.00402	<0.00402 0.00402	<0.00402 0.00402	<0.00403 0.00403
o-Xylene		<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201	<0.00202 0.00202
Total Xylenes		<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201	<0.00202 0.00202
Total BTEX		<0.00200 0.00200	<0.00200 0.00200	<0.00201 0.00201	<0.00201 0.00201	<0.00201 0.00201	<0.00202 0.00202
Chloride by EPA 300	<i>Extracted:</i>	09.29.2020 17:26	09.29.2020 17:26	09.29.2020 17:26	09.29.2020 17:26	09.29.2020 17:26	09.29.2020 17:26
	<i>Analyzed:</i>	09.30.2020 00:09	09.30.2020 00:14	09.30.2020 00:20	09.30.2020 00:25	09.30.2020 00:31	09.30.2020 00:36
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		3210 49.5	34.2 9.88	7400 49.9	160 10.0	3020 50.1	<10.0 10.0
TPH by SW8015 Mod	<i>Extracted:</i>	09.29.2020 17:30	09.29.2020 17:30	09.29.2020 17:30	09.29.2020 18:00	09.29.2020 18:00	09.29.2020 18:00
	<i>Analyzed:</i>	09.30.2020 04:44	09.30.2020 05:04	09.30.2020 05:25	09.30.2020 08:08	09.30.2020 07:07	09.30.2020 08:29
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0	<50.1 50.1	<50.1 50.1	<50.1 50.1	<50.0 50.0	<50.1 50.1
Diesel Range Organics (DRO)		<50.0 50.0	<50.1 50.1	<50.1 50.1	<50.1 50.1	<50.0 50.0	<50.1 50.1
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.1 50.1	<50.1 50.1	<50.1 50.1	<50.0 50.0	<50.1 50.1
Total GRO-DRO		<50.0 50.0	<50.1 50.1	<50.1 50.1	<50.1 50.1	<50.0 50.0	<50.1 50.1
Total TPH		<50.0 50.0	<50.1 50.1	<50.1 50.1	<50.1 50.1	<50.0 50.0	<50.1 50.1

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Jessica Kramer



Certificate of Analysis Summary 673861

LT Environmental, Inc., Arvada, CO

Project Name: Row 4 Wolverine SWD Riser

Project Id: 012920091

Contact: Dan Moir

Project Location:

Date Received in Lab: Tue 09.29.2020 16:45

Report Date: 09.30.2020 16:13

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	673861-007	673861-008	673861-009	673861-010	673861-011	673861-012
	<i>Field Id:</i>	PH04	PH04 A	PH05	PH05 A	PH06	PH06 A
	<i>Depth:</i>	2- ft	6- ft	2- ft	4- ft	1- ft	4- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	09.28.2020 13:40	09.28.2020 14:02	09.28.2020 14:20	09.28.2020 14:28	09.28.2020 14:46	09.28.2020 14:55
BTEX by EPA 8021B	<i>Extracted:</i>	09.29.2020 17:53	09.29.2020 17:53	09.29.2020 17:53	09.29.2020 17:53	09.29.2020 17:53	09.29.2020 17:53
	<i>Analyzed:</i>	09.30.2020 01:29	09.30.2020 01:51	09.30.2020 02:14	09.30.2020 02:36	09.30.2020 03:56	09.30.2020 04:19
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202
Toluene		<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202
Ethylbenzene		<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202
m,p-Xylenes		<0.00397 0.00397	<0.00403 0.00403	<0.00399 0.00399	<0.00402 0.00402	<0.00400 0.00400	<0.00404 0.00404
o-Xylene		<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202
Total Xylenes		<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202
Total BTEX		<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00201 0.00201	<0.00200 0.00200	<0.00202 0.00202
Chloride by EPA 300	<i>Extracted:</i>	09.29.2020 17:26	09.29.2020 17:26	09.29.2020 17:26	09.29.2020 17:26	09.29.2020 17:26	09.29.2020 17:26
	<i>Analyzed:</i>	09.30.2020 00:52	09.30.2020 00:58	09.30.2020 01:14	09.30.2020 01:20	09.30.2020 01:25	09.30.2020 01:31
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		5890 49.6	300 49.9	4080 49.8	45.2 9.98	3610 49.6	<9.94 9.94
TPH by SW8015 Mod	<i>Extracted:</i>	09.29.2020 18:00	09.29.2020 18:00	09.29.2020 18:00	09.29.2020 18:00	09.29.2020 18:00	09.29.2020 18:00
	<i>Analyzed:</i>	09.30.2020 08:48	09.30.2020 09:09	09.30.2020 09:29	09.30.2020 09:49	09.30.2020 10:10	09.30.2020 10:30
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<50.1 50.1	<50.0 50.0	<49.9 49.9	<50.1 50.1	<50.2 50.2	<50.2 50.2
Diesel Range Organics (DRO)		<50.1 50.1	<50.0 50.0	<49.9 49.9	<50.1 50.1	<50.2 50.2	<50.2 50.2
Motor Oil Range Hydrocarbons (MRO)		<50.1 50.1	<50.0 50.0	<49.9 49.9	<50.1 50.1	<50.2 50.2	<50.2 50.2
Total GRO-DRO		<50.1 50.1	<50.0 50.0	<49.9 49.9	<50.1 50.1	<50.2 50.2	<50.2 50.2
Total TPH		<50.1 50.1	<50.0 50.0	<49.9 49.9	<50.1 50.1	<50.2 50.2	<50.2 50.2

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Jessica Kramer

Certificate of Analysis Summary 673861



LT Environmental, Inc., Arvada, CO

Project Name: Row 4 Wolverine SWD Riser

Project Id: 012920091

Date Received in Lab: Tue 09.29.2020 16:45

Contact: Dan Moir

Report Date: 09.30.2020 16:13

Project Location:

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	673861-013	673861-014				
	Field Id:	PH07	PH07 A				
	Depth:	1- ft	4- ft				
	Matrix:	SOIL	SOIL				
	Sampled:	09.28.2020 15:15	09.28.2020 15:24				
BTEX by EPA 8021B	Extracted:	09.29.2020 17:53	09.29.2020 17:53				
	Analyzed:	09.30.2020 04:41	09.30.2020 05:03				
	Units/RL:	mg/kg RL	mg/kg RL				
Benzene		<0.00199 0.00199	<0.00200 0.00200				
Toluene		<0.00199 0.00199	<0.00200 0.00200				
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200				
m,p-Xylenes		<0.00398 0.00398	<0.00400 0.00400				
o-Xylene		<0.00199 0.00199	<0.00200 0.00200				
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200				
Total BTEX		<0.00199 0.00199	<0.00200 0.00200				
Chloride by EPA 300	Extracted:	09.29.2020 17:26	09.29.2020 17:26				
	Analyzed:	09.30.2020 01:36	09.30.2020 01:42				
	Units/RL:	mg/kg RL	mg/kg RL				
Chloride		4600 50.1	47.7 10.0				
TPH by SW8015 Mod	Extracted:	09.29.2020 18:00	09.29.2020 18:00				
	Analyzed:	09.30.2020 10:50	09.30.2020 11:30				
	Units/RL:	mg/kg RL	mg/kg RL				
Gasoline Range Hydrocarbons (GRO)		<49.9 49.9	<50.0 50.0				
Diesel Range Organics (DRO)		<49.9 49.9	<50.0 50.0				
Motor Oil Range Hydrocarbons (MRO)		<49.9 49.9	<50.0 50.0				
Total GRO-DRO		<49.9 49.9	<50.0 50.0				
Total TPH		<49.9 49.9	<50.0 50.0				

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 673861

for

LT Environmental, Inc.

Project Manager: Dan Moir

Row 4 Wolverine SWD Riser

012920091

09.30.2020

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



09.30.2020

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: Eurofins Xenco, LLC Report No(s): **673861**

Row 4 Wolverine SWD Riser

Project Address:

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 673861. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 673861 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 673861****LT Environmental, Inc., Arvada, CO**

Row 4 Wolverine SWD Riser

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
PH01	S	09.28.2020 09:50	1 ft	673861-001
PH01 A	S	09.28.2020 10:10	4 ft	673861-002
PH02	S	09.28.2020 10:55	6 ft	673861-003
PH02 A	S	09.28.2020 12:45	12 ft	673861-004
PH03	S	09.28.2020 13:05	1 ft	673861-005
PH03 A	S	09.28.2020 13:14	3 ft	673861-006
PH04	S	09.28.2020 13:40	2 ft	673861-007
PH04 A	S	09.28.2020 14:02	6 ft	673861-008
PH05	S	09.28.2020 14:20	2 ft	673861-009
PH05 A	S	09.28.2020 14:28	4 ft	673861-010
PH06	S	09.28.2020 14:46	1 ft	673861-011
PH06 A	S	09.28.2020 14:55	4 ft	673861-012
PH07	S	09.28.2020 15:15	1 ft	673861-013
PH07 A	S	09.28.2020 15:24	4 ft	673861-014



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Row 4 Wolverine SWD Riser

Project ID: 012920091

Report Date: 09.30.2020

Work Order Number(s): 673861

Date Received: 09.29.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH01** Matrix: Soil Date Received: 09.29.2020 16:45
 Lab Sample Id: 673861-001 Date Collected: 09.28.2020 09:50 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 09.29.2020 17:26 Basis: Wet Weight
 Seq Number: 3138471

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3210	49.5	mg/kg	09.30.2020 00:09		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 09.29.2020 17:30 Basis: Wet Weight
 Seq Number: 3138454

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	09.30.2020 04:44	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	09.30.2020 04:44	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	09.30.2020 04:44	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	09.30.2020 04:44	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	09.30.2020 04:44	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	09.30.2020 04:44	
o-Terphenyl	84-15-1	102	%	70-135	09.30.2020 04:44	



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH01**
Lab Sample Id: 673861-001

Matrix: Soil
Date Collected: 09.28.2020 09:50

Date Received: 09.29.2020 16:45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 09.29.2020 17:53

Basis: Wet Weight

Seq Number: 3138453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.29.2020 23:15	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.29.2020 23:15	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.29.2020 23:15	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	09.29.2020 23:15	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.29.2020 23:15	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.29.2020 23:15	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.29.2020 23:15	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	114	%	70-130	09.29.2020 23:15		
1,4-Difluorobenzene	540-36-3	103	%	70-130	09.29.2020 23:15		



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH01 A**
Lab Sample Id: 673861-002

Matrix: Soil
Date Collected: 09.28.2020 10:10

Date Received: 09.29.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3138471

Date Prep: 09.29.2020 17:26

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	34.2	9.88	mg/kg	09.30.2020 00:14		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3138454

Date Prep: 09.29.2020 17:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	09.30.2020 05:04	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	09.30.2020 05:04	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	09.30.2020 05:04	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	09.30.2020 05:04	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	09.30.2020 05:04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	116	%	70-135	09.30.2020 05:04	
o-Terphenyl	84-15-1	105	%	70-135	09.30.2020 05:04	



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH01 A**
Lab Sample Id: 673861-002

Matrix: Soil
Date Collected: 09.28.2020 10:10

Date Received: 09.29.2020 16:45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 09.29.2020 17:53

Basis: Wet Weight

Seq Number: 3138453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.29.2020 23:37	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.29.2020 23:37	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.29.2020 23:37	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	09.29.2020 23:37	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.29.2020 23:37	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.29.2020 23:37	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.29.2020 23:37	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	98	%	70-130	09.29.2020 23:37		
4-Bromofluorobenzene	460-00-4	108	%	70-130	09.29.2020 23:37		



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH02**
Lab Sample Id: 673861-003

Matrix: Soil
Date Collected: 09.28.2020 10:55

Date Received: 09.29.2020 16:45
Sample Depth: 6 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3138471

Date Prep: 09.29.2020 17:26

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7400	49.9	mg/kg	09.30.2020 00:20		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3138454

Date Prep: 09.29.2020 17:30

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	09.30.2020 05:25	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	09.30.2020 05:25	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	09.30.2020 05:25	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	09.30.2020 05:25	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	09.30.2020 05:25	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	121	%	70-135	09.30.2020 05:25	
o-Terphenyl	84-15-1	129	%	70-135	09.30.2020 05:25	



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH02**
Lab Sample Id: 673861-003

Matrix: Soil
Date Collected: 09.28.2020 10:55

Date Received: 09.29.2020 16:45
Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 09.29.2020 17:53

Basis: Wet Weight

Seq Number: 3138453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	09.29.2020 23:59	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	09.29.2020 23:59	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	09.29.2020 23:59	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	09.29.2020 23:59	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	09.29.2020 23:59	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	09.29.2020 23:59	U	1
Total BTEX		<0.00201	0.00201	mg/kg	09.29.2020 23:59	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	120	%	70-130	09.29.2020 23:59		
1,4-Difluorobenzene	540-36-3	106	%	70-130	09.29.2020 23:59		



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH02 A**
Lab Sample Id: 673861-004

Matrix: Soil
Date Collected: 09.28.2020 12:45

Date Received: 09.29.2020 16:45
Sample Depth: 12 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3138471

Date Prep: 09.29.2020 17:26

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	160	10.0	mg/kg	09.30.2020 00:25		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3138480

Date Prep: 09.29.2020 18:00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	09.30.2020 08:08	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	09.30.2020 08:08	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	09.30.2020 08:08	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	09.30.2020 08:08	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	09.30.2020 08:08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	09.30.2020 08:08	
o-Terphenyl	84-15-1	103	%	70-135	09.30.2020 08:08	



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH02 A**
 Lab Sample Id: 673861-004

Matrix: Soil
 Date Collected: 09.28.2020 12:45

Date Received: 09.29.2020 16:45
 Sample Depth: 12 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 09.29.2020 17:53

Basis: Wet Weight

Seq Number: 3138453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	09.30.2020 00:22	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	09.30.2020 00:22	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	09.30.2020 00:22	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	09.30.2020 00:22	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	09.30.2020 00:22	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	09.30.2020 00:22	U	1
Total BTEX		<0.00201	0.00201	mg/kg	09.30.2020 00:22	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	107	%	70-130	09.30.2020 00:22		
4-Bromofluorobenzene	460-00-4	121	%	70-130	09.30.2020 00:22		



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH03**
Lab Sample Id: 673861-005

Matrix: Soil
Date Collected: 09.28.2020 13:05

Date Received: 09.29.2020 16:45
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3138471

Date Prep: 09.29.2020 17:26

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3020	50.1	mg/kg	09.30.2020 00:31		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3138480

Date Prep: 09.29.2020 18:00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	09.30.2020 07:07	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	09.30.2020 07:07	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	09.30.2020 07:07	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	09.30.2020 07:07	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	09.30.2020 07:07	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	09.30.2020 07:07	
o-Terphenyl	84-15-1	99	%	70-135	09.30.2020 07:07	



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH03**
Lab Sample Id: 673861-005

Matrix: Soil
Date Collected: 09.28.2020 13:05

Date Received: 09.29.2020 16:45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 09.29.2020 17:53

Basis: Wet Weight

Seq Number: 3138453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	09.30.2020 00:44	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	09.30.2020 00:44	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	09.30.2020 00:44	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	09.30.2020 00:44	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	09.30.2020 00:44	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	09.30.2020 00:44	U	1
Total BTEX		<0.00201	0.00201	mg/kg	09.30.2020 00:44	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	115	%	70-130	09.30.2020 00:44	
1,4-Difluorobenzene	540-36-3	107	%	70-130	09.30.2020 00:44	



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH03 A**
Lab Sample Id: 673861-006

Matrix: Soil
Date Collected: 09.28.2020 13:14

Date Received: 09.29.2020 16:45
Sample Depth: 3 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 09.29.2020 17:26

Basis: Wet Weight

Seq Number: 3138471

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.0	10.0	mg/kg	09.30.2020 00:36	U	1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DTH

% Moisture:

Analyst: DTH

Date Prep: 09.29.2020 18:00

Basis: Wet Weight

Seq Number: 3138480

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	09.30.2020 08:29	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	09.30.2020 08:29	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	09.30.2020 08:29	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	09.30.2020 08:29	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	09.30.2020 08:29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	09.30.2020 08:29	
o-Terphenyl	84-15-1	118	%	70-135	09.30.2020 08:29	



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH03 A**
 Lab Sample Id: 673861-006

Matrix: Soil
 Date Collected: 09.28.2020 13:14

Date Received: 09.29.2020 16:45
 Sample Depth: 3 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 09.29.2020 17:53

Basis: Wet Weight

Seq Number: 3138453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	09.30.2020 01:07	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	09.30.2020 01:07	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	09.30.2020 01:07	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	09.30.2020 01:07	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	09.30.2020 01:07	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	09.30.2020 01:07	U	1
Total BTEX		<0.00202	0.00202	mg/kg	09.30.2020 01:07	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	94	%	70-130	09.30.2020 01:07		
4-Bromofluorobenzene	460-00-4	108	%	70-130	09.30.2020 01:07		



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH04**
Lab Sample Id: 673861-007

Matrix: Soil
Date Collected: 09.28.2020 13:40

Date Received: 09.29.2020 16:45
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3138471

Date Prep: 09.29.2020 17:26

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5890	49.6	mg/kg	09.30.2020 00:52		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3138480

Date Prep: 09.29.2020 18:00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	09.30.2020 08:48	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	09.30.2020 08:48	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	09.30.2020 08:48	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	09.30.2020 08:48	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	09.30.2020 08:48	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	09.30.2020 08:48	
o-Terphenyl	84-15-1	100	%	70-135	09.30.2020 08:48	



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH04**
Lab Sample Id: 673861-007

Matrix: Soil
Date Collected: 09.28.2020 13:40

Date Received: 09.29.2020 16:45
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 09.29.2020 17:53

Basis: Wet Weight

Seq Number: 3138453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	09.30.2020 01:29	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	09.30.2020 01:29	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	09.30.2020 01:29	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	09.30.2020 01:29	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	09.30.2020 01:29	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	09.30.2020 01:29	U	1
Total BTEX		<0.00198	0.00198	mg/kg	09.30.2020 01:29	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	70-130	09.30.2020 01:29		
4-Bromofluorobenzene	460-00-4	118	%	70-130	09.30.2020 01:29		



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH04 A**
Lab Sample Id: 673861-008

Matrix: Soil
Date Collected: 09.28.2020 14:02

Date Received: 09.29.2020 16:45
Sample Depth: 6 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3138471

Date Prep: 09.29.2020 17:26

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	300	49.9	mg/kg	09.30.2020 00:58		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3138480

Date Prep: 09.29.2020 18:00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	09.30.2020 09:09	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	09.30.2020 09:09	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	09.30.2020 09:09	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	09.30.2020 09:09	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	09.30.2020 09:09	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	09.30.2020 09:09	
o-Terphenyl	84-15-1	102	%	70-135	09.30.2020 09:09	



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH04 A**
Lab Sample Id: 673861-008

Matrix: Soil
Date Collected: 09.28.2020 14:02

Date Received: 09.29.2020 16:45
Sample Depth: 6 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 09.29.2020 17:53

Basis: Wet Weight

Seq Number: 3138453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	09.30.2020 01:51	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	09.30.2020 01:51	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	09.30.2020 01:51	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	09.30.2020 01:51	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	09.30.2020 01:51	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	09.30.2020 01:51	U	1
Total BTEX		<0.00202	0.00202	mg/kg	09.30.2020 01:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	118	%	70-130	09.30.2020 01:51	
1,4-Difluorobenzene	540-36-3	102	%	70-130	09.30.2020 01:51	



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH05**
Lab Sample Id: 673861-009

Matrix: Soil
Date Collected: 09.28.2020 14:20

Date Received: 09.29.2020 16:45
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3138471

Date Prep: 09.29.2020 17:26

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4080	49.8	mg/kg	09.30.2020 01:14		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3138480

Date Prep: 09.29.2020 18:00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	09.30.2020 09:29	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	09.30.2020 09:29	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	09.30.2020 09:29	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	09.30.2020 09:29	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	09.30.2020 09:29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	09.30.2020 09:29	
o-Terphenyl	84-15-1	100	%	70-135	09.30.2020 09:29	



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH05**
Lab Sample Id: 673861-009

Matrix: Soil
Date Collected: 09.28.2020 14:20

Date Received: 09.29.2020 16:45
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 09.29.2020 17:53

Basis: Wet Weight

Seq Number: 3138453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.30.2020 02:14	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.30.2020 02:14	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.30.2020 02:14	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	09.30.2020 02:14	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.30.2020 02:14	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.30.2020 02:14	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.30.2020 02:14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	100	%	70-130	09.30.2020 02:14		
4-Bromofluorobenzene	460-00-4	113	%	70-130	09.30.2020 02:14		



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH05 A** Matrix: Soil Date Received: 09.29.2020 16:45
 Lab Sample Id: 673861-010 Date Collected: 09.28.2020 14:28 Sample Depth: 4 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 09.29.2020 17:26 Basis: Wet Weight
 Seq Number: 3138471

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	45.2	9.98	mg/kg	09.30.2020 01:20		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 09.29.2020 18:00 Basis: Wet Weight
 Seq Number: 3138480

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	09.30.2020 09:49	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	09.30.2020 09:49	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	09.30.2020 09:49	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	09.30.2020 09:49	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	09.30.2020 09:49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	09.30.2020 09:49	
o-Terphenyl	84-15-1	100	%	70-135	09.30.2020 09:49	



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH05 A**
Lab Sample Id: 673861-010

Matrix: Soil
Date Collected: 09.28.2020 14:28

Date Received: 09.29.2020 16:45
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 09.29.2020 17:53

Basis: Wet Weight

Seq Number: 3138453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	09.30.2020 02:36	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	09.30.2020 02:36	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	09.30.2020 02:36	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	09.30.2020 02:36	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	09.30.2020 02:36	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	09.30.2020 02:36	U	1
Total BTEX		<0.00201	0.00201	mg/kg	09.30.2020 02:36	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	70-130	09.30.2020 02:36		
4-Bromofluorobenzene	460-00-4	115	%	70-130	09.30.2020 02:36		



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH06**
Lab Sample Id: 673861-011

Matrix: Soil
Date Collected: 09.28.2020 14:46

Date Received: 09.29.2020 16:45
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3138471

Date Prep: 09.29.2020 17:26

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3610	49.6	mg/kg	09.30.2020 01:25		5

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3138480

Date Prep: 09.29.2020 18:00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	09.30.2020 10:10	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	09.30.2020 10:10	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	09.30.2020 10:10	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	09.30.2020 10:10	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	09.30.2020 10:10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	09.30.2020 10:10	
o-Terphenyl	84-15-1	105	%	70-135	09.30.2020 10:10	



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH06**
Lab Sample Id: 673861-011

Matrix: Soil
Date Collected: 09.28.2020 14:46

Date Received: 09.29.2020 16:45
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 09.29.2020 17:53

Basis: Wet Weight

Seq Number: 3138453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.30.2020 03:56	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.30.2020 03:56	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.30.2020 03:56	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	09.30.2020 03:56	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.30.2020 03:56	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.30.2020 03:56	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.30.2020 03:56	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	118	%	70-130	09.30.2020 03:56		
1,4-Difluorobenzene	540-36-3	102	%	70-130	09.30.2020 03:56		



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH06 A**
Lab Sample Id: 673861-012

Matrix: Soil
Date Collected: 09.28.2020 14:55

Date Received: 09.29.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3138471

Date Prep: 09.29.2020 17:26

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.94	9.94	mg/kg	09.30.2020 01:31	U	1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3138480

Date Prep: 09.29.2020 18:00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	09.30.2020 10:30	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	09.30.2020 10:30	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	09.30.2020 10:30	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	09.30.2020 10:30	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	09.30.2020 10:30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	09.30.2020 10:30	
o-Terphenyl	84-15-1	103	%	70-135	09.30.2020 10:30	



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH06 A**
 Lab Sample Id: 673861-012

Matrix: Soil
 Date Collected: 09.28.2020 14:55

Date Received: 09.29.2020 16:45
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 09.29.2020 17:53

Basis: Wet Weight

Seq Number: 3138453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	09.30.2020 04:19	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	09.30.2020 04:19	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	09.30.2020 04:19	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	09.30.2020 04:19	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	09.30.2020 04:19	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	09.30.2020 04:19	U	1
Total BTEX		<0.00202	0.00202	mg/kg	09.30.2020 04:19	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	115	%	70-130	09.30.2020 04:19		
1,4-Difluorobenzene	540-36-3	105	%	70-130	09.30.2020 04:19		



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH07** Matrix: Soil Date Received: 09.29.2020 16:45
 Lab Sample Id: 673861-013 Date Collected: 09.28.2020 15:15 Sample Depth: 1 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB % Moisture:
 Analyst: MAB Date Prep: 09.29.2020 17:26 Basis: Wet Weight
 Seq Number: 3138471

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4600	50.1	mg/kg	09.30.2020 01:36		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DTH % Moisture:
 Analyst: DTH Date Prep: 09.29.2020 18:00 Basis: Wet Weight
 Seq Number: 3138480

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	09.30.2020 10:50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	09.30.2020 10:50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	09.30.2020 10:50	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	09.30.2020 10:50	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	09.30.2020 10:50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	09.30.2020 10:50	
o-Terphenyl	84-15-1	102	%	70-135	09.30.2020 10:50	



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH07**
 Lab Sample Id: 673861-013

Matrix: Soil
 Date Collected: 09.28.2020 15:15

Date Received: 09.29.2020 16:45
 Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 09.29.2020 17:53

Basis: Wet Weight

Seq Number: 3138453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	09.30.2020 04:41	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	09.30.2020 04:41	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	09.30.2020 04:41	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	09.30.2020 04:41	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	09.30.2020 04:41	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	09.30.2020 04:41	U	1
Total BTEX		<0.00199	0.00199	mg/kg	09.30.2020 04:41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	113	%	70-130	09.30.2020 04:41	
1,4-Difluorobenzene	540-36-3	104	%	70-130	09.30.2020 04:41	



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH07 A**
Lab Sample Id: 673861-014

Matrix: Soil
Date Collected: 09.28.2020 15:24

Date Received: 09.29.2020 16:45
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Tech: MAB

Analyst: MAB

Seq Number: 3138471

Date Prep: 09.29.2020 17:26

Prep Method: E300P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	47.7	10.0	mg/kg	09.30.2020 01:42		1

Analytical Method: TPH by SW8015 Mod

Tech: DTH

Analyst: DTH

Seq Number: 3138480

Date Prep: 09.29.2020 18:00

Prep Method: SW8015P

% Moisture:

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	09.30.2020 11:30	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	09.30.2020 11:30	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	09.30.2020 11:30	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	09.30.2020 11:30	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	09.30.2020 11:30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	09.30.2020 11:30	
o-Terphenyl	84-15-1	106	%	70-135	09.30.2020 11:30	



Certificate of Analytical Results 673861

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **PH07 A**
 Lab Sample Id: 673861-014

Matrix: Soil
 Date Collected: 09.28.2020 15:24

Date Received: 09.29.2020 16:45
 Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

% Moisture:

Analyst: MAB

Date Prep: 09.29.2020 17:53

Basis: Wet Weight

Seq Number: 3138453

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	09.30.2020 05:03	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	09.30.2020 05:03	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	09.30.2020 05:03	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	09.30.2020 05:03	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	09.30.2020 05:03	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	09.30.2020 05:03	U	1
Total BTEX		<0.00200	0.00200	mg/kg	09.30.2020 05:03	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	119	%	70-130	09.30.2020 05:03		
1,4-Difluorobenzene	540-36-3	108	%	70-130	09.30.2020 05:03		

Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



LT Environmental, Inc.

Row 4 Wolverine SWD Riser

Analytical Method: Chloride by EPA 300

Seq Number: 3138471

MB Sample Id: 7712349-1-BLK

Matrix: Solid

LCS Sample Id: 7712349-1-BKS

Prep Method: E300P

Date Prep: 09.29.2020

LCSD Sample Id: 7712349-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	250	100	251	100	90-110	0	20	mg/kg	09.29.2020 23:08	

Analytical Method: Chloride by EPA 300

Seq Number: 3138471

Parent Sample Id: 673855-001

Matrix: Soil

MS Sample Id: 673855-001 S

Prep Method: E300P

Date Prep: 09.29.2020

MSD Sample Id: 673855-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	209	199	407	99	408	100	90-110	0	20	mg/kg	09.29.2020 23:25	

Analytical Method: Chloride by EPA 300

Seq Number: 3138471

Parent Sample Id: 673861-006

Matrix: Soil

MS Sample Id: 673861-006 S

Prep Method: E300P

Date Prep: 09.29.2020

MSD Sample Id: 673861-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	201	213	106	213	106	90-110	0	20	mg/kg	09.30.2020 00:41	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3138454

MB Sample Id: 7712307-1-BLK

Matrix: Solid

LCS Sample Id: 7712307-1-BKS

Prep Method: SW8015P

Date Prep: 09.29.2020

LCSD Sample Id: 7712307-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	1080	108	1030	103	70-135	5	35	mg/kg	09.29.2020 20:58	
Diesel Range Organics (DRO)	<50.0	1000	1130	113	1090	109	70-135	4	35	mg/kg	09.29.2020 20:58	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	92		122		117		70-135	%	09.29.2020 20:58
o-Terphenyl	90		105		104		70-135	%	09.29.2020 20:58

Analytical Method: TPH by SW8015 Mod

Seq Number: 3138480

MB Sample Id: 7712357-1-BLK

Matrix: Solid

LCS Sample Id: 7712357-1-BKS

Prep Method: SW8015P

Date Prep: 09.29.2020

LCSD Sample Id: 7712357-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	948	95	864	86	70-135	9	35	mg/kg	09.30.2020 06:06	
Diesel Range Organics (DRO)	<50.0	1000	986	99	890	89	70-135	10	35	mg/kg	09.30.2020 06:06	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	97		122		112		70-135	%	09.30.2020 06:06
o-Terphenyl	90		91		85		70-135	%	09.30.2020 06:06

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



LT Environmental, Inc.

Row 4 Wolverine SWD Riser

Analytical Method: TPH by SW8015 Mod

Seq Number: 3138454

Matrix: Solid

Prep Method: SW8015P

Date Prep: 09.29.2020

MB Sample Id: 7712307-1-BLK

Parameter

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	09.29.2020 21:39	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3138480

Matrix: Solid

Prep Method: SW8015P

Date Prep: 09.29.2020

MB Sample Id: 7712357-1-BLK

Parameter

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	09.30.2020 06:47	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3138454

Matrix: Soil

Prep Method: SW8015P

Date Prep: 09.29.2020

Parent Sample Id: 673797-026

MS Sample Id: 673797-026 S

MSD Sample Id: 673797-026 SD

Parameter

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.3	1010	1080	107	1080	108	70-135	0	35	mg/kg	09.29.2020 22:20	
Diesel Range Organics (DRO)	<50.3	1010	1160	115	1140	114	70-135	2	35	mg/kg	09.29.2020 22:20	

Surrogate

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	125		125		70-135	%	09.29.2020 22:20
o-Terphenyl	113		112		70-135	%	09.29.2020 22:20

Analytical Method: TPH by SW8015 Mod

Seq Number: 3138480

Matrix: Soil

Prep Method: SW8015P

Date Prep: 09.29.2020

Parent Sample Id: 673861-005

MS Sample Id: 673861-005 S

MSD Sample Id: 673861-005 SD

Parameter

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<49.8	996	1040	104	1010	101	70-135	3	35	mg/kg	09.30.2020 07:28	
Diesel Range Organics (DRO)	<49.8	996	1080	108	1050	105	70-135	3	35	mg/kg	09.30.2020 07:28	

Surrogate

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	123		118		70-135	%	09.30.2020 07:28
o-Terphenyl	107		103		70-135	%	09.30.2020 07:28

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



LT Environmental, Inc.

Row 4 Wolverine SWD Riser

Analytical Method: BTEX by EPA 8021B

Seq Number: 3138453

MB Sample Id: 7712342-1-BLK

Matrix: Solid

LCS Sample Id: 7712342-1-BKS

Prep Method: SW5035A

Date Prep: 09.29.2020

LCSD Sample Id: 7712342-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0896	90	0.0974	97	70-130	8	35	mg/kg	09.29.2020 21:10	
Toluene	<0.00200	0.100	0.0840	84	0.0902	90	70-130	7	35	mg/kg	09.29.2020 21:10	
Ethylbenzene	<0.00200	0.100	0.0916	92	0.0958	96	71-129	4	35	mg/kg	09.29.2020 21:10	
m,p-Xylenes	<0.00400	0.200	0.185	93	0.196	98	70-135	6	35	mg/kg	09.29.2020 21:10	
o-Xylene	<0.00200	0.100	0.0929	93	0.0991	99	71-133	6	35	mg/kg	09.29.2020 21:10	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		100		101		70-130	%	09.29.2020 21:10
4-Bromofluorobenzene	115		105		114		70-130	%	09.29.2020 21:10

Analytical Method: BTEX by EPA 8021B

Seq Number: 3138453

Parent Sample Id: 673861-001

Matrix: Soil

MS Sample Id: 673861-001 S

Prep Method: SW5035A

Date Prep: 09.29.2020

MSD Sample Id: 673861-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.125	125	0.0998	100	70-130	22	35	mg/kg	09.29.2020 21:55	
Toluene	<0.00201	0.100	0.120	120	0.0953	95	70-130	23	35	mg/kg	09.29.2020 21:55	
Ethylbenzene	<0.00201	0.100	0.123	123	0.0975	98	71-129	23	35	mg/kg	09.29.2020 21:55	
m,p-Xylenes	<0.00402	0.201	0.248	123	0.195	97	70-135	24	35	mg/kg	09.29.2020 21:55	
o-Xylene	<0.00201	0.100	0.122	122	0.0957	96	71-133	24	35	mg/kg	09.29.2020 21:55	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		101		70-130	%	09.29.2020 21:55
4-Bromofluorobenzene	112		114		70-130	%	09.29.2020 21:55

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



Chain of Custody

Work Order No: 1633861

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
Midland, TX (432-704-5440) EL Paso, TX (915)585-3443 Lubbock, TX (806)794-1296
Hobbs, NM (575-392-7550) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813-620-2000)

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Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littlell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A St. Bldg 1, Unit 222	Address:	3104 E Greene St.
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM
Phone:	(432) 701-2610	Email:	dmoir@ltenv.com rmcalfree@ltenv.com

Program: <input checked="" type="checkbox"/> UST/PT <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RC <input type="checkbox"/> Superfund State of Project: NM Reporting Level: <input type="checkbox"/> I <input type="checkbox"/> Level II <input type="checkbox"/> Level III <input type="checkbox"/> UST/UST <input type="checkbox"/> RRP <input type="checkbox"/> Level IV <input type="checkbox"/> Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:		Work Order Comments
---	--	---------------------

Project Name:	Row 4 Wolverine SMD River	Turn Around	<input type="checkbox"/> Routine <input checked="" type="checkbox"/> Rush: 24H
Project Number:	012920091		
P.O. Number:			
Sampler's Name:	Robert McAlfee	Due Date:	

SAMPLE RECEIPT Temperature (°C): 3.2/3.0 Received In tact: Yes No Cooler Custody Seals: Yes No N/A Sample Custody Seals: Yes No N/A Thermometer ID: TMM007 Correction Factor: -0.2 Total Containers: 14		ANALYSIS REQUEST TPH (EPA 8015) BTEX (EPA 8021) Chloride (EPA 300.0)	
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Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	Work Order Notes													
PH01	S	09/29/20	0950	1'	1	X	X	X											
PH01A			1010	4'	1	X	X	X											
PH02			1055	6'	1	X	X	X											
PH02A			1245	12'	1	X	X	X											
PH03			1305	1'	1	X	X	X											
PH03A			1314	3'	1	X	X	X											
PH04			1340	2'	1	X	X	X											
PH04A			1402	6'	1	X	X	X											
PH05			1420	2'	1	X	X	X											
PH05A			1428	4'	1	X	X	X											

TAT starts the day received by the lab, if received by 4:30pm

Sample Comments

discrete

A

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 SiO2 Na Sr Ti Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed		TCPLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U	1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. 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 Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to 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
		9/29/20 16:45			



Chain of Custody

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
Midland, TX (432-704-5440) El Paso, TX (915)585-3443 Lubbock, TX (806)794-1296
Hobbs, NM (575-392-7550) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813-620-2000)

Work Order No: 673861

www.xenco.com Page 2 of 2

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A St. Bldg 1, Unit 222	Address:	3104 E Greene St.
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM
Phone:	(432) 701-2610	Email:	dmoir@ltenv.com kmlittell@ltenv.com

Program: <input checked="" type="checkbox"/> UST/PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RC <input type="checkbox"/> Superfund State of Project: NM Reporting Level: <input type="checkbox"/> Level II <input type="checkbox"/> Level III <input type="checkbox"/> UST/UST <input type="checkbox"/> RRP <input type="checkbox"/> Level IV <input type="checkbox"/> Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:	
Work Order Comments Work Order Notes	

Project Name:	ROW 4 Midline SWD Riser	Turn Around	<input type="checkbox"/> Routine <input checked="" type="checkbox"/> Rush: 24H
Project Number:	019A20091	Due Date:	
P.O. Number:			
Sampler's Name:	Robert McAfee		

SAMPLE RECEIPT				ANALYSIS REQUEST				Work Order Notes	
Temperature (°C):	Temp Blank:	Yes	No	Wet Ice:	Yes	No			
Received Intact:	Yes	No		Thermometer ID					
Cooler Custody Seals:	Yes	No		Correction Factor:					
Sample Custody Seals:	Yes	No		Total Containers:					

Sample Identification					Matrix	Date Sampled	Time Sampled	Depth	Number	TPH (EP	BTEX (E	Chloride	Sample Comments									
PH06					S	09/29/20	1446	1'	1	X	X	X	discrete ↓ ▲									
PH06A							1455	4'	1	X	X	X										
PH07							1515	1'	1	X	X	X										
PH07A					▲	▲	1524	4'	1	X	X	X										

Total 200.7 / 6010 200.8 / 6020:

Circle Method(s) and Metal(s) to be analyzed: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn
TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U 1631 / 245.1 / 7470 / 7471 : Hg

Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. 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 Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to 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
<i>[Signature]</i>	<i>[Signature]</i>	9/29/20 16:45			

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 09.29.2020 04.45.00 PM

Work Order #: 673861

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

Samples received in bulk containers.

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 09.29.2020

Checklist reviewed by:



Jessica Kramer

Date: 09.30.2020

Certificate of Analysis Summary 674465



LT Environmental, Inc., Arvada, CO

Project Name: Row 4 Wolvene SWD Riser

Project Id: 012920091

Date Received in Lab: Tue 10.06.2020 16:43

Contact: Dan Moir

Report Date: 11.06.2020 10:40

Project Location:

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	674465-001	674465-002	674465-003	674465-004		
	<i>Field Id:</i>	PH08	PH08A	PH09	PH09A		
	<i>Depth:</i>	2- ft	4- ft	1- ft	4- ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	10.06.2020 11:53	10.06.2020 11:56	10.06.2020 12:50	10.06.2020 12:59		
BTEX by EPA 8021B	<i>Extracted:</i>	10.06.2020 17:37	10.06.2020 17:37	10.06.2020 17:37	10.06.2020 17:37		
	<i>Analyzed:</i>	10.07.2020 10:24	10.07.2020 10:46	10.07.2020 11:08	10.07.2020 11:31		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00198 0.00198	<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200		
Toluene		<0.00198 0.00198	<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200		
Ethylbenzene		<0.00198 0.00198	<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200		
m,p-Xylenes		<0.00397 0.00397	<0.00398 0.00398	<0.00402 0.00402	<0.00401 0.00401		
o-Xylene		<0.00198 0.00198	<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200		
Total Xylenes		<0.00198 0.00198	<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200		
Total BTEX		<0.00198 0.00198	<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200		
Chloride by EPA 300	<i>Extracted:</i>	10.06.2020 18:39	10.06.2020 18:39	10.06.2020 18:39	10.06.2020 18:39		
	<i>Analyzed:</i>	10.06.2020 19:44	10.06.2020 20:02	10.06.2020 20:08	10.06.2020 20:14		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		955 9.90	112 49.8	2890 50.1	199 50.2		
TPH by SW8015 Mod	<i>Extracted:</i>	10.06.2020 17:30	10.06.2020 17:30	10.06.2020 17:30	10.07.2020 10:30		
	<i>Analyzed:</i>	10.07.2020 00:30	10.07.2020 00:50	10.07.2020 01:11	10.07.2020 11:37		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons (GRO)		<50.3 50.3	<49.8 49.8	<50.2 50.2	<50.0 50.0		
Diesel Range Organics (DRO)		<50.3 50.3	<49.8 49.8	<50.2 50.2	<50.0 50.0		
Motor Oil Range Hydrocarbons (MRO)		<50.3 50.3	<49.8 49.8	<50.2 50.2	<50.0 50.0		
Total GRO-DRO		<50.3 50.3	<49.8 49.8	<50.2 50.2	<50.0 50.0		
Total TPH		<50.3 50.3	<49.8 49.8	<50.2 50.2	<50.0 50.0		

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 674465

for

LT Environmental, Inc.

Project Manager: Dan Moir

Row 4 Wolvene SWD Riser

012920091

11.06.2020

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



11.06.2020

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: Eurofins Xenco, LLC Report No(s): **674465**

Row 4 Wolvene SWD Riser

Project Address:

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 674465. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 674465 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 674465****LT Environmental, Inc., Arvada, CO**

Row 4 Wolvene SWD Riser

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
PH08	S	10.06.2020 11:53	2 ft	674465-001
PH08A	S	10.06.2020 11:56	4 ft	674465-002
PH09	S	10.06.2020 12:50	1 ft	674465-003
PH09A	S	10.06.2020 12:59	4 ft	674465-004



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Row 4 Wolvene SWD Riser

Project ID: 012920091
Work Order Number(s): 674465

Report Date: 11.06.2020
Date Received: 10.06.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 674465

LT Environmental, Inc., Arvada, CO

Row 4 Wolveve SWD Riser

Sample Id: **PH08**
Lab Sample Id: 674465-001

Matrix: Soil
Date Collected: 10.06.2020 11:53

Date Received: 10.06.2020 16:43
Sample Depth: 2 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 10.06.2020 18:39

% Moisture:
Basis: Wet Weight

Seq Number: 3139047

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	955	9.90	mg/kg	10.06.2020 19:44		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DTH

Analyst: DTH

Date Prep: 10.06.2020 17:30

% Moisture:
Basis: Wet Weight

Seq Number: 3139030

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	10.07.2020 00:30	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	10.07.2020 00:30	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	10.07.2020 00:30	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	10.07.2020 00:30	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	10.07.2020 00:30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	10.07.2020 00:30	
o-Terphenyl	84-15-1	86	%	70-135	10.07.2020 00:30	



Certificate of Analytical Results 674465

LT Environmental, Inc., Arvada, CO

Row 4 Wolvene SWD Riser

Sample Id: **PH08**
Lab Sample Id: 674465-001

Matrix: Soil
Date Collected: 10.06.2020 11:53

Date Received: 10.06.2020 16:43
Sample Depth: 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 10.06.2020 17:37

% Moisture:
Basis: Wet Weight

Seq Number: 3139044

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	10.07.2020 10:24	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	10.07.2020 10:24	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	10.07.2020 10:24	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	10.07.2020 10:24	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	10.07.2020 10:24	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	10.07.2020 10:24	U	1
Total BTEX		<0.00198	0.00198	mg/kg	10.07.2020 10:24	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	110	%	70-130	10.07.2020 10:24		
1,4-Difluorobenzene	540-36-3	100	%	70-130	10.07.2020 10:24		



Certificate of Analytical Results 674465

LT Environmental, Inc., Arvada, CO

Row 4 Wolveve SWD Riser

Sample Id: **PH08A**
Lab Sample Id: 674465-002

Matrix: Soil
Date Collected: 10.06.2020 11:56

Date Received: 10.06.2020 16:43
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 10.06.2020 18:39

% Moisture:
Basis: Wet Weight

Seq Number: 3139047

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	112	49.8	mg/kg	10.06.2020 20:02		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DTH

Analyst: DTH

Date Prep: 10.06.2020 17:30

% Moisture:
Basis: Wet Weight

Seq Number: 3139030

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	10.07.2020 00:50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	10.07.2020 00:50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	10.07.2020 00:50	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	10.07.2020 00:50	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	10.07.2020 00:50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	10.07.2020 00:50	
o-Terphenyl	84-15-1	102	%	70-135	10.07.2020 00:50	



Certificate of Analytical Results 674465

LT Environmental, Inc., Arvada, CO

Row 4 Wolvene SWD Riser

Sample Id: **PH08A**
Lab Sample Id: 674465-002

Matrix: Soil
Date Collected: 10.06.2020 11:56

Date Received: 10.06.2020 16:43
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 10.06.2020 17:37

% Moisture:
Basis: Wet Weight

Seq Number: 3139044

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.07.2020 10:46	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.07.2020 10:46	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.07.2020 10:46	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.07.2020 10:46	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.07.2020 10:46	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.07.2020 10:46	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.07.2020 10:46	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	112	%	70-130	10.07.2020 10:46		
1,4-Difluorobenzene	540-36-3	103	%	70-130	10.07.2020 10:46		



Certificate of Analytical Results 674465

LT Environmental, Inc., Arvada, CO

Row 4 Wolveve SWD Riser

Sample Id: **PH09**
Lab Sample Id: 674465-003

Matrix: Soil
Date Collected: 10.06.2020 12:50

Date Received: 10.06.2020 16:43
Sample Depth: 1 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 10.06.2020 18:39

% Moisture:
Basis: Wet Weight

Seq Number: 3139047

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2890	50.1	mg/kg	10.06.2020 20:08		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DTH

Analyst: DTH

Date Prep: 10.06.2020 17:30

% Moisture:
Basis: Wet Weight

Seq Number: 3139030

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	10.07.2020 01:11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	10.07.2020 01:11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	10.07.2020 01:11	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	10.07.2020 01:11	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	10.07.2020 01:11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	10.07.2020 01:11	
o-Terphenyl	84-15-1	100	%	70-135	10.07.2020 01:11	



Certificate of Analytical Results 674465

LT Environmental, Inc., Arvada, CO

Row 4 Wolvene SWD Riser

Sample Id: **PH09**
Lab Sample Id: 674465-003

Matrix: Soil
Date Collected: 10.06.2020 12:50

Date Received: 10.06.2020 16:43
Sample Depth: 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 10.06.2020 17:37

% Moisture:
Basis: Wet Weight

Seq Number: 3139044

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	10.07.2020 11:08	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	10.07.2020 11:08	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	10.07.2020 11:08	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	10.07.2020 11:08	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	10.07.2020 11:08	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	10.07.2020 11:08	U	1
Total BTEX		<0.00201	0.00201	mg/kg	10.07.2020 11:08	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	114	%	70-130	10.07.2020 11:08		
1,4-Difluorobenzene	540-36-3	104	%	70-130	10.07.2020 11:08		



Certificate of Analytical Results 674465

LT Environmental, Inc., Arvada, CO

Row 4 Wolvene SWD Riser

Sample Id: **PH09A**
Lab Sample Id: 674465-004

Matrix: Soil
Date Collected: 10.06.2020 12:59

Date Received: 10.06.2020 16:43
Sample Depth: 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 10.06.2020 18:39

% Moisture:
Basis: Wet Weight

Seq Number: 3139047

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	199	50.2	mg/kg	10.06.2020 20:14		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DTH

Analyst: DTH

Date Prep: 10.07.2020 10:30

% Moisture:
Basis: Wet Weight

Seq Number: 3139072

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	10.07.2020 11:37	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	10.07.2020 11:37	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	10.07.2020 11:37	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	10.07.2020 11:37	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	10.07.2020 11:37	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	124	%	70-135	10.07.2020 11:37	
o-Terphenyl	84-15-1	117	%	70-135	10.07.2020 11:37	



Certificate of Analytical Results 674465

LT Environmental, Inc., Arvada, CO

Row 4 Wolvene SWD Riser

Sample Id: **PH09A**
Lab Sample Id: 674465-004

Matrix: Soil
Date Collected: 10.06.2020 12:59

Date Received: 10.06.2020 16:43
Sample Depth: 4 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 10.06.2020 17:37

% Moisture:
Basis: Wet Weight

Seq Number: 3139044

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.07.2020 11:31	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.07.2020 11:31	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.07.2020 11:31	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	10.07.2020 11:31	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.07.2020 11:31	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.07.2020 11:31	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.07.2020 11:31	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	114	%	70-130	10.07.2020 11:31		
1,4-Difluorobenzene	540-36-3	101	%	70-130	10.07.2020 11:31		

Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



LT Environmental, Inc.
Row 4 Wolvene SWD Riser

Analytical Method: Chloride by EPA 300

Seq Number: 3139047

MB Sample Id: 7712757-1-BLK

Matrix: Solid

LCS Sample Id: 7712757-1-BKS

Prep Method: E300P

Date Prep: 10.06.2020

LCSD Sample Id: 7712757-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	261	104	262	105	90-110	0	20	mg/kg	10.06.2020 19:32	

Analytical Method: Chloride by EPA 300

Seq Number: 3139047

Parent Sample Id: 674465-001

Matrix: Soil

MS Sample Id: 674465-001 S

Prep Method: E300P

Date Prep: 10.06.2020

MSD Sample Id: 674465-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	955	198	1140	93	1150	98	90-110	1	20	mg/kg	10.06.2020 19:50	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3139030

MB Sample Id: 7712740-1-BLK

Matrix: Solid

LCS Sample Id: 7712740-1-BKS

Prep Method: SW8015P

Date Prep: 10.06.2020

LCSD Sample Id: 7712740-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	1140	114	1150	115	70-135	1	35	mg/kg	10.06.2020 11:04	
Diesel Range Organics (DRO)	<50.0	1000	1060	106	1090	109	70-135	3	35	mg/kg	10.06.2020 11:04	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	95		117		115		70-135	%	10.06.2020 11:04
o-Terphenyl	86		83		85		70-135	%	10.06.2020 11:04

Analytical Method: TPH by SW8015 Mod

Seq Number: 3139072

MB Sample Id: 7712800-1-BLK

Matrix: Solid

LCS Sample Id: 7712800-1-BKS

Prep Method: SW8015P

Date Prep: 10.07.2020

LCSD Sample Id: 7712800-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	1210	121	1170	117	70-135	3	35	mg/kg	10.07.2020 10:37	
Diesel Range Organics (DRO)	<50.0	1000	1340	134	1310	131	70-135	2	35	mg/kg	10.07.2020 10:37	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	108		129		124		70-135	%	10.07.2020 10:37
o-Terphenyl	104		113		111		70-135	%	10.07.2020 10:37

Analytical Method: TPH by SW8015 Mod

Seq Number: 3139030

Matrix: Solid
MB Sample Id: 7712740-1-BLK

Prep Method: SW8015P

Date Prep: 10.06.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	10.06.2020 11:44	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



LT Environmental, Inc.
Row 4 Wolvene SWD Riser

Analytical Method: TPH by SW8015 Mod

Seq Number: 3139072

Matrix: Solid

Prep Method: SW8015P

Date Prep: 10.07.2020

MB Sample Id: 7712800-1-BLK

Parameter

Motor Oil Range Hydrocarbons (MRO)

**MB
Result**

<50.0

Units

mg/kg

**Analysis
Date**

10.07.2020 10:17

Flag**Analytical Method: TPH by SW8015 Mod**

Seq Number: 3139030

Matrix: Soil

Prep Method: SW8015P

Date Prep: 10.06.2020

Parent Sample Id: 674445-003

MS Sample Id: 674445-003 S

MSD Sample Id: 674445-003 SD

Parameter

Gasoline Range Hydrocarbons (GRO)

**Parent
Result**

<50.1

**Spike
Amount**

1000

**MS
Result**

1340

**MS
%Rec**

134

**MSD
Result**

1320

**MSD
%Rec**

133

Limits

70-135

%RPD

2

**RPD
Limit**

35

Units

mg/kg

**Analysis
Date**

10.06.2020 19:27

Flag

Diesel Range Organics (DRO)

<50.1

1000

1210

121

1240

125

70-135

2

35

mg/kg

10.06.2020 19:27

Surrogate

1-Chlorooctane

**MS
%Rec**

129

**MS
Flag****MSD
%Rec**

131

**MSD
Flag****Limits**

70-135

Units

%

**Analysis
Date**

10.06.2020 19:27

o-Terphenyl

123

116

70-135

%

10.06.2020 19:27

Analytical Method: TPH by SW8015 Mod

Seq Number: 3139072

Matrix: Soil

Prep Method: SW8015P

Date Prep: 10.07.2020

Parent Sample Id: 674465-004

MS Sample Id: 674465-004 S

MSD Sample Id: 674465-004 SD

Parameter

Gasoline Range Hydrocarbons (GRO)

**Parent
Result**

<50.2

**Spike
Amount**

1000

**MS
Result**

968

**MS
%Rec**

97

**MSD
Result**

1110

**MSD
%Rec**

110

Limits

70-135

%RPD

14

**RPD
Limit**

35

Units

mg/kg

**Analysis
Date**

10.07.2020 12:18

Flag

Diesel Range Organics (DRO)

<50.2

1000

1150

115

1290

128

70-135

11

35

mg/kg

10.07.2020 12:18

Surrogate

1-Chlorooctane

**MS
%Rec**

127

**MS
Flag****MSD
%Rec**

131

**MSD
Flag****Limits**

70-135

Units

%

**Analysis
Date**

10.07.2020 12:18

o-Terphenyl

120

129

70-135

%

10.07.2020 12:18

Analytical Method: BTEX by EPA 8021B

Seq Number: 3139044

Matrix: Solid

Prep Method: SW5035A

Date Prep: 10.06.2020

MB Sample Id: 7712749-1-BLK

LCS Sample Id: 7712749-1-BKS

LCSD Sample Id: 7712749-1-BSD

Parameter

Benzene

**MB
Result**

<0.00200

**Spike
Amount**

0.100

**LCS
Result**

0.0891

**LCS
%Rec**

89

**LCSD
Result**

0.0928

**LCSD
%Rec**

93

Limits

70-130

%RPD

4

**RPD
Limit**

35

Units

mg/kg

**Analysis
Date**

10.07.2020 02:31

Flag

Toluene

<0.00200

0.100

0.0853

85

0.0887

89

70-130

4

35

mg/kg

10.07.2020 02:31

Ethylbenzene

<0.00200

0.100

0.0885

89

0.0912

91

71-129

3

35

mg/kg

10.07.2020 02:31

m,p-Xylenes

<0.00400

0.200

0.178

89

0.186

93

70-135

4

35

mg/kg

10.07.2020 02:31

o-Xylene

<0.00200

0.100

0.0868

87

0.0949

95

71-133

9

35

mg/kg

10.07.2020 02:31

Surrogate

1,4-Difluorobenzene

**MB
%Rec**

107

**MB
Flag****LCS
%Rec**

102

**LCS
Flag****LCSD
%Rec**

98

**LCSD
Flag****Limits**

70-130

Units

%

**Analysis
Date**

10.07.2020 02:31

4-Bromofluorobenzene

114

107

105

70-130

%

10.07.2020 02:31

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



LT Environmental, Inc.

Row 4 Wolvene SWD Riser

Analytical Method: BTEX by EPA 8021B

Seq Number: 3139044

Parent Sample Id: 674445-007

Matrix: Soil

MS Sample Id: 674445-007 S

Prep Method: SW5035A

Date Prep: 10.06.2020

MSD Sample Id: 674445-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.113	113	0.109	109	70-130	4	35	mg/kg	10.07.2020 03:15	
Toluene	<0.00200	0.100	0.107	107	0.0994	99	70-130	7	35	mg/kg	10.07.2020 03:15	
Ethylbenzene	<0.00200	0.100	0.110	110	0.108	108	71-129	2	35	mg/kg	10.07.2020 03:15	
m,p-Xylenes	<0.00401	0.200	0.219	110	0.212	106	70-135	3	35	mg/kg	10.07.2020 03:15	
o-Xylene	<0.00200	0.100	0.109	109	0.105	105	71-133	4	35	mg/kg	10.07.2020 03:15	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		99		70-130	%	10.07.2020 03:15
4-Bromofluorobenzene	109		106		70-130	%	10.07.2020 03:15

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
Midland, TX (432-704-5440) El Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
Hobbs, NM (575-392-7550) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813) 281-1111

674465

Work Order Comments	
Program: UST/PST State of Project: Reporting Level II <input type="checkbox"/> Level III <input type="checkbox"/> ST/UST <input type="checkbox"/> RRP <input type="checkbox"/> Level IV <input type="checkbox"/> Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:	<input type="checkbox"/> RP <input type="checkbox"/> Growfields <input type="checkbox"/> RC <input type="checkbox"/> \$perfund <input type="checkbox"/>

SAMPLE RECEIPT		Temp Blank:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	Wet Ice:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Temperature (°C):	1.2/1.0	Thermometer ID T = NW-007					
Received Intact:	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No					
Cooler Custody Seals:	Yes	<input checked="" type="checkbox"/> No	Correction Factor: -0.2				
Sample Custody Seals:	Yes	<input checked="" type="checkbox"/> No	Total Containers: 4				

[illegible]

1631 / 245.1 / 7470 / 7471 : Hg

incurred by the client 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 Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
	[Signature]	10-6-28 1643	2		
			4		
			6		

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 10.06.2020 04.43.00 PM

Work Order #: 674465

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	1
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

Samples received in bulk containers.

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 10.06.2020

Checklist reviewed by:



Jessica Kramer

Date: 10.07.2020

Certificate of Analysis Summary 678682



WSP USA, Dallas, TX

Project Name: Row 4 Wolverine SWD Riser

Project Id: TE012920091

Date Received in Lab: Fri 11.20.2020 16:08

Contact: Dan Moir

Report Date: 11.25.2020 07:21

Project Location:

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	678682-001	678682-002	678682-003	678682-004	678682-005	678682-006
	<i>Field Id:</i>	FS01	FS02	FS03	FS04	FS05	FS06
	<i>Depth:</i>	3.0- ft	3.0- ft	2.0-3.0 ft	3.0- ft	3.0- ft	3.0- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	11.20.2020 10:03	11.20.2020 10:07	11.20.2020 10:12	11.20.2020 10:16	11.20.2020 10:20	11.20.2020 10:25
Chloride by EPA 300	<i>Extracted:</i>	11.23.2020 14:15	11.23.2020 14:15	11.23.2020 14:15	11.23.2020 14:15	11.23.2020 14:15	11.23.2020 14:15
	<i>Analyzed:</i>	11.23.2020 21:42	11.23.2020 21:58	11.23.2020 22:03	11.23.2020 22:08	11.23.2020 22:14	11.23.2020 22:19
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		15.5 10.0	62.5 9.92	24.8 9.96	49.3 9.94	17.1 9.90	263 9.98

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Certificate of Analysis Summary 678682



WSP USA, Dallas, TX

Project Name: Row 4 Wolverine SWD Riser

Project Id: TE012920091

Date Received in Lab: Fri 11.20.2020 16:08

Contact: Dan Moir

Report Date: 11.25.2020 07:21

Project Location:

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	678682-007	678682-008	678682-009	678682-010	678682-011	678682-012
	Field Id:	FS07	FS08	FS09	FS10	FS11	FS12
	Depth:	3.0- ft	3.0- ft	3.0- ft	3.0- ft	3.0- ft	3.0- ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	11.20.2020 10:30	11.20.2020 10:34	11.20.2020 10:37	11.20.2020 10:41	11.20.2020 11:51	11.20.2020 11:55
Chloride by EPA 300	Extracted:	11.23.2020 14:15	11.23.2020 14:15	11.23.2020 14:15	11.23.2020 14:15	11.23.2020 14:15	11.23.2020 14:15
	Analyzed:	11.23.2020 22:24	11.23.2020 22:39	11.23.2020 22:45	11.23.2020 23:00	11.23.2020 23:05	11.23.2020 23:10
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		308 9.92	185 9.98	49.3 9.98	452 9.96	352 9.90	249 9.90

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Certificate of Analysis Summary 678682



WSP USA, Dallas, TX

Project Name: Row 4 Wolverine SWD Riser

Project Id: TE012920091

Date Received in Lab: Fri 11.20.2020 16:08

Contact: Dan Moir

Report Date: 11.25.2020 07:21

Project Location:

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	678682-013	678682-014	678682-015	678682-016	678682-017	
	<i>Field Id:</i>	FS13	FS14	FS15	FS16	FS17	
	<i>Depth:</i>	3.0- ft	3.0- ft	2.0- ft	3.0- ft	2.0-3.0 ft	
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	
	<i>Sampled:</i>	11.20.2020 12:04	11.20.2020 12:08	11.20.2020 13:18	11.20.2020 13:24	11.20.2020 13:31	
Chloride by EPA 300	<i>Extracted:</i>	11.23.2020 14:15	11.23.2020 14:15	11.23.2020 14:15	11.23.2020 14:15	11.23.2020 07:59	
	<i>Analyzed:</i>	11.23.2020 23:16	11.23.2020 23:21	11.23.2020 23:26	11.23.2020 23:31	11.23.2020 17:49	
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Chloride		404 10.1	441 10.0	197 9.98	201 9.98	50.9 9.98	

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 678682

for

WSP USA

Project Manager: Dan Moir

Row 4 Wolverine SWD Riser

TE012920091

11.25.2020

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



11.25.2020

Project Manager: **Dan Moir**

WSP USA

2777 N. Stemmons Freeway, Suite 1600
Dallas, TX 75207

Reference: Eurofins Xenco, LLC Report No(s): **678682**

Row 4 Wolverine SWD Riser

Project Address:

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 678682. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 678682 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 678682****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
FS01	S	11.20.2020 10:03	3.0 ft	678682-001
FS02	S	11.20.2020 10:07	3.0 ft	678682-002
FS03	S	11.20.2020 10:12	2.0 - 3.0 ft	678682-003
FS04	S	11.20.2020 10:16	3.0 ft	678682-004
FS05	S	11.20.2020 10:20	3.0 ft	678682-005
FS06	S	11.20.2020 10:25	3.0 ft	678682-006
FS07	S	11.20.2020 10:30	3.0 ft	678682-007
FS08	S	11.20.2020 10:34	3.0 ft	678682-008
FS09	S	11.20.2020 10:37	3.0 ft	678682-009
FS10	S	11.20.2020 10:41	3.0 ft	678682-010
FS11	S	11.20.2020 11:51	3.0 ft	678682-011
FS12	S	11.20.2020 11:55	3.0 ft	678682-012
FS13	S	11.20.2020 12:04	3.0 ft	678682-013
FS14	S	11.20.2020 12:08	3.0 ft	678682-014
FS15	S	11.20.2020 13:18	2.0 ft	678682-015
FS16	S	11.20.2020 13:24	3.0 ft	678682-016
FS17	S	11.20.2020 13:31	2.0 - 3.0 ft	678682-017



CASE NARRATIVE

Client Name: WSP USA

Project Name: Row 4 Wolverine SWD Riser

Project ID: TE012920091
Work Order Number(s): 678682

Report Date: 11.25.2020
Date Received: 11.20.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 678682

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **FS01**
Lab Sample Id: 678682-001

Matrix: Soil
Date Collected: 11.20.2020 10:03

Date Received: 11.20.2020 16:08
Sample Depth: 3.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.23.2020 14:15

% Moisture:
Basis: Wet Weight

Seq Number: 3143168

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	15.5	10.0	mg/kg	11.23.2020 21:42		1



Certificate of Analytical Results 678682

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **FS02**
Lab Sample Id: 678682-002

Matrix: Soil
Date Collected: 11.20.2020 10:07

Date Received: 11.20.2020 16:08
Sample Depth: 3.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.23.2020 14:15

% Moisture:
Basis: Wet Weight

Seq Number: 3143168

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	62.5	9.92	mg/kg	11.23.2020 21:58		1

**Certificate of Analytical Results 678682****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **FS03**
Lab Sample Id: 678682-003

Matrix: Soil
Date Collected: 11.20.2020 10:12

Date Received: 11.20.2020 16:08
Sample Depth: 2.0 - 3.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.23.2020 14:15

% Moisture:
Basis: Wet Weight

Seq Number: 3143168

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	24.8	9.96	mg/kg	11.23.2020 22:03		1

**Certificate of Analytical Results 678682****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **FS04**
Lab Sample Id: 678682-004

Matrix: Soil
Date Collected: 11.20.2020 10:16

Date Received: 11.20.2020 16:08
Sample Depth: 3.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.23.2020 14:15

% Moisture:
Basis: Wet Weight

Seq Number: 3143168

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	49.3	9.94	mg/kg	11.23.2020 22:08		1



Certificate of Analytical Results 678682

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **FS05**
Lab Sample Id: 678682-005

Matrix: Soil
Date Collected: 11.20.2020 10:20

Date Received: 11.20.2020 16:08
Sample Depth: 3.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.23.2020 14:15

% Moisture:
Basis: Wet Weight

Seq Number: 3143168

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	17.1	9.90	mg/kg	11.23.2020 22:14		1



Certificate of Analytical Results 678682

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **FS06**
Lab Sample Id: 678682-006

Matrix: Soil
Date Collected: 11.20.2020 10:25

Date Received: 11.20.2020 16:08
Sample Depth: 3.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.23.2020 14:15

% Moisture:
Basis: Wet Weight

Seq Number: 3143168

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	263	9.98	mg/kg	11.23.2020 22:19		1



Certificate of Analytical Results 678682

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **FS07**
Lab Sample Id: 678682-007

Matrix: Soil
Date Collected: 11.20.2020 10:30

Date Received: 11.20.2020 16:08
Sample Depth: 3.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.23.2020 14:15

% Moisture:
Basis: Wet Weight

Seq Number: 3143168

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	308	9.92	mg/kg	11.23.2020 22:24		1

**Certificate of Analytical Results 678682****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **FS08**

Matrix: Soil

Date Received: 11.20.2020 16:08

Lab Sample Id: 678682-008

Date Collected: 11.20.2020 10:34

Sample Depth: 3.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.23.2020 14:15

% Moisture:

Seq Number: 3143168

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	185	9.98	mg/kg	11.23.2020 22:39		1



Certificate of Analytical Results 678682

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **FS09**
Lab Sample Id: 678682-009

Matrix: Soil
Date Collected: 11.20.2020 10:37

Date Received: 11.20.2020 16:08
Sample Depth: 3.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.23.2020 14:15

% Moisture:
Basis: Wet Weight

Seq Number: 3143168

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	49.3	9.98	mg/kg	11.23.2020 22:45		1

**Certificate of Analytical Results 678682****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **FS10**
Lab Sample Id: 678682-010

Matrix: Soil
Date Collected: 11.20.2020 10:41

Date Received: 11.20.2020 16:08
Sample Depth: 3.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.23.2020 14:15

% Moisture:
Basis: Wet Weight

Seq Number: 3143168

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	452	9.96	mg/kg	11.23.2020 23:00		1



Certificate of Analytical Results 678682

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **FS11**
Lab Sample Id: 678682-011

Matrix: Soil
Date Collected: 11.20.2020 11:51

Date Received: 11.20.2020 16:08
Sample Depth: 3.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.23.2020 14:15

% Moisture:
Basis: Wet Weight

Seq Number: 3143168

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	352	9.90	mg/kg	11.23.2020 23:05		1



Certificate of Analytical Results 678682

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **FS12**
Lab Sample Id: 678682-012

Matrix: Soil
Date Collected: 11.20.2020 11:55

Date Received: 11.20.2020 16:08
Sample Depth: 3.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.23.2020 14:15

% Moisture:
Basis: Wet Weight

Seq Number: 3143168

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	249	9.90	mg/kg	11.23.2020 23:10		1



Certificate of Analytical Results 678682

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **FS13**

Matrix: Soil

Date Received: 11.20.2020 16:08

Lab Sample Id: 678682-013

Date Collected: 11.20.2020 12:04

Sample Depth: 3.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.23.2020 14:15

% Moisture:

Seq Number: 3143168

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	404	10.1	mg/kg	11.23.2020 23:16		1



Certificate of Analytical Results 678682

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **FS14**
Lab Sample Id: 678682-014

Matrix: Soil
Date Collected: 11.20.2020 12:08

Date Received: 11.20.2020 16:08
Sample Depth: 3.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.23.2020 14:15

% Moisture:
Basis: Wet Weight

Seq Number: 3143168

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	441	10.0	mg/kg	11.23.2020 23:21		1

**Certificate of Analytical Results 678682****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **FS15**
Lab Sample Id: 678682-015

Matrix: Soil
Date Collected: 11.20.2020 13:18

Date Received: 11.20.2020 16:08
Sample Depth: 2.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.23.2020 14:15

% Moisture:
Basis: Wet Weight

Seq Number: 3143168

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	197	9.98	mg/kg	11.23.2020 23:26		1



Certificate of Analytical Results 678682

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **FS16**
Lab Sample Id: 678682-016

Matrix: Soil
Date Collected: 11.20.2020 13:24

Date Received: 11.20.2020 16:08
Sample Depth: 3.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.23.2020 14:15

% Moisture:
Basis: Wet Weight

Seq Number: 3143168

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	201	9.98	mg/kg	11.23.2020 23:31		1



Certificate of Analytical Results 678682

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **FS17**
Lab Sample Id: 678682-017

Matrix: Soil
Date Collected: 11.20.2020 13:31

Date Received: 11.20.2020 16:08
Sample Depth: 2.0 - 3.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.23.2020 07:59

% Moisture:
Basis: Wet Weight

Seq Number: 3143166

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	50.9	9.98	mg/kg	11.23.2020 17:49		1



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



WSP USA

Row 4 Wolverine SWD Riser

Analytical Method: Chloride by EPA 300

Seq Number: 3143166

Matrix: Solid

Prep Method: E300P

Date Prep: 11.23.2020

MB Sample Id: 7715707-1-BLK

LCS Sample Id: 7715707-1-BKS

LCSD Sample Id: 7715707-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	245	98	241	96	90-110	2	20	mg/kg	11.23.2020 15:35	

Analytical Method: Chloride by EPA 300

Seq Number: 3143168

Matrix: Solid

Prep Method: E300P

Date Prep: 11.23.2020

MB Sample Id: 7715806-1-BLK

LCS Sample Id: 7715806-1-BKS

LCSD Sample Id: 7715806-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	244	98	243	97	90-110	0	20	mg/kg	11.23.2020 21:01	

Analytical Method: Chloride by EPA 300

Seq Number: 3143166

Matrix: Soil

Prep Method: E300P

Date Prep: 11.23.2020

Parent Sample Id: 678527-006

MS Sample Id: 678527-006 S

MSD Sample Id: 678527-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	14900	199	15100	101	15100	99	90-110	0	20	mg/kg	11.23.2020 15:50	

Analytical Method: Chloride by EPA 300

Seq Number: 3143166

Matrix: Soil

Prep Method: E300P

Date Prep: 11.23.2020

Parent Sample Id: 678527-016

MS Sample Id: 678527-016 S

MSD Sample Id: 678527-016 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	131	200	331	100	327	99	90-110	1	20	mg/kg	11.23.2020 17:03	

Analytical Method: Chloride by EPA 300

Seq Number: 3143168

Matrix: Soil

Prep Method: E300P

Date Prep: 11.23.2020

Parent Sample Id: 678677-021

MS Sample Id: 678677-021 S

MSD Sample Id: 678677-021 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	122	199	306	92	310	94	90-110	1	20	mg/kg	11.23.2020 21:17	

Analytical Method: Chloride by EPA 300

Seq Number: 3143168

Matrix: Soil

Prep Method: E300P

Date Prep: 11.23.2020

Parent Sample Id: 678682-007

MS Sample Id: 678682-007 S

MSD Sample Id: 678682-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	308	199	502	97	500	96	90-110	0	20	mg/kg	11.23.2020 22:29	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432) 704-5440 El Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
 Hobbs, NM (575) 392-7550 Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8800 Tampa, FL (813) 620-2000

Chain of Custody

Work Order No: 1078682

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Litrell
Company Name:	WSP USA	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	522 W. Mermod St.
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	jhlill@xenco.com, dmoir@xenco.com

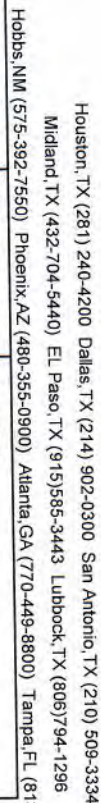
Project Name:	Flow 4 Volume Swg & over	Turn Around	Routine R
Project Number:	TE016400641	Rush:	
P.O. Number:	5011 date 4/1/20	Due Date:	
Sampler's Name:	Jeremy Hill		

SAMPLE RECEIPT			
Temperature (°C):	2.4/0.2	Temp Blank:	Yes No
Received Inact:	Yes No	Thermometer ID:	2111-007
Cooler Custody Seals:	Yes No	Correction Factor:	0.0.2
Sample Custody Seals:	Yes No	Total Containers:	17

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TRH (EPA 8015)	BTEX (EPA 0-8821)	Chloride (EPA 300.0)	ANALYSIS REQUEST	Work Order Notes
F301	S	4/30/20	1003	3.0'	1			X		
F302			1007	3.0'						
F303			1012	3.0-3.0'						
F304			1016	3.0'						
F305			1020	3.0'						
F306			1025	3.0'						
F307			1030	3.0'						
F308			1034	3.0'						
F309			1037	3.0'						
F310			1041	3.0'						

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 SiO2 Na Sr Ti 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 Ti U
 Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. 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 Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to 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
<i>[Signature]</i>	<i>[Signature]</i>	1-20-20 10:08			



Chain of Custody

Work Order No: 1078682

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littrell
Company Name:	WSP USA	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	522 W. Mermod St.
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	jhlill@ltenv.com, dmoir@ltenv.com

Work Order Comments				
Program: UST/PST	<input type="checkbox"/> RP	<input type="checkbox"/> Growfields	<input type="checkbox"/> RC	<input type="checkbox"/> \$perfund
State of Project:				
Reporting Level II	<input type="checkbox"/> Level III	<input type="checkbox"/> ST/UST	<input type="checkbox"/> RP	<input type="checkbox"/> Level IV
Deliverables: EDD	<input type="checkbox"/>	ADA/Pt	<input type="checkbox"/>	Other:

ANALYSIS REQUEST

Work Order Notes

Project Name:	Area 4 Volume Survey	Turn Around
Project Number:	TE 010920091	Routine <input checked="" type="checkbox"/>
P.O. Number:	501122 6/1/20	Rush:
Sampler's Name:	Jeremy Hill	Due Date:

SAMPLE RECEIPT	Temp Blank:	Yes		No		Wet Ice:	Yes		No	
		Yes	No	Yes	No		Yes	No		
Temperature (°C):	0.4 / 0.2					Thermometer ID				
Received Intact:	Yes		No			T-100-007				
Cooler Custody Seals:	Yes	No	N/A			Correction Factor:	-0.2			
Sample Custody Seals:	Yes	No	N/A			Total Containers:	4			

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number	TPH (%)	BTEX	Chloride	Sample Comments
FS11	S	11/09/20	1151	3.0'	1			X	Composite
FS12			1155	3.0'					
FS13			1204	3.0'					
FS14			1208	3.0'					
FS15			1318	2.0'					
FS16			1324	3.0'					
FS17	Y		1331	2.0-3.0'	Y				

Total 200.7 / 6010 200.8 / 6020:


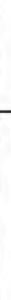
8RCrA	13PPM	Texas 11	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	SiO ₂	Na	Sr	Ti	Sn	U	V	Zn
			1631 / 245.1 / 7470 / 7471 : Hg																											

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 H O

1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco. Its affiliates and subcontractors. It assigns standard terms and conditions of service. 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 Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to 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			11.20.20 16.05			
2						
3						
4						
5						
6						

Revised Date 05/14/18 Rev. 2018

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: WSP USA

Date/ Time Received: 11.20.2020 04.08.00 PM

Work Order #: 678682

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.2
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

Samples received in bulk containers.

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 11.20.2020

Checklist reviewed by:



Jessica Kramer

Date: 11.23.2020

Certificate of Analysis Summary 678998



WSP USA, Dallas, TX

Project Name: Row 4 Wolverine SWD Riser

Project Id: TE012920091

Date Received in Lab: Tue 11.24.2020 16:20

Contact: Dan Moir

Report Date: 11.30.2020 13:53

Project Location:

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	678998-001	678998-002	678998-003	678998-004	678998-005	678998-006
	<i>Field Id:</i>	SW01	SW02	SW05	SW06	SW08	SW09
	<i>Depth:</i>	0-3 ft	0-3 ft	0-3 ft	0-3 ft	0-4 ft	0-4 ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	11.24.2020 09:57	11.24.2020 10:03	11.24.2020 10:29	11.24.2020 10:38	11.24.2020 11:45	11.24.2020 11:52
Chloride by EPA 300	<i>Extracted:</i>	11.25.2020 09:36	11.25.2020 09:36	11.25.2020 09:36	11.25.2020 09:36	11.25.2020 09:36	11.25.2020 09:36
	<i>Analyzed:</i>	11.25.2020 11:06	11.25.2020 11:22	11.25.2020 11:27	11.25.2020 11:32	11.25.2020 11:37	11.25.2020 11:53
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		40.6 9.90	23.2 9.98	832 9.98	18.9 10.1	15.8 10.1	111 10.1

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Certificate of Analysis Summary 678998



WSP USA, Dallas, TX

Project Name: Row 4 Wolverine SWD Riser

Project Id: TE012920091

Date Received in Lab: Tue 11.24.2020 16:20

Contact: Dan Moir

Report Date: 11.30.2020 13:53

Project Location:

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	678998-007	678998-008	678998-009	678998-010	678998-011	678998-012
	Field Id:	SW12	SW13	SW14	SW15	SW16	SW17
	Depth:	0-4 ft	0-4 ft	0-4 ft	0-4 ft	0-4 ft	0-4 ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	11.24.2020 12:18	11.24.2020 12:26	11.24.2020 13:08	11.24.2020 13:17	11.24.2020 13:25	11.24.2020 13:33
Chloride by EPA 300	Extracted:	11.25.2020 09:36	11.25.2020 09:36	11.25.2020 09:36	11.25.2020 09:36	11.25.2020 09:36	11.25.2020 09:36
	Analyzed:	11.25.2020 11:58	11.25.2020 12:03	11.25.2020 12:08	11.25.2020 12:13	11.25.2020 12:19	11.25.2020 12:34
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		462 9.92	359 9.98	316 9.96	19.8 9.98	15.2 9.96	452 9.90

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 678998

for

WSP USA

Project Manager: Dan Moir

Row 4 Wolverine SWD Riser

TE012920091

11.30.2020

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



11.30.2020

Project Manager: **Dan Moir**

WSP USA

2777 N. Stemmons Freeway, Suite 1600

Dallas, TX 75207

Reference: Eurofins Xenco, LLC Report No(s): **678998**

Row 4 Wolverine SWD Riser

Project Address:

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 678998. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 678998 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 678998****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW01	S	11.24.2020 09:57	0 - 3 ft	678998-001
SW02	S	11.24.2020 10:03	0 - 3 ft	678998-002
SW05	S	11.24.2020 10:29	0 - 3 ft	678998-003
SW06	S	11.24.2020 10:38	0 - 3 ft	678998-004
SW08	S	11.24.2020 11:45	0 - 4 ft	678998-005
SW09	S	11.24.2020 11:52	0 - 4 ft	678998-006
SW12	S	11.24.2020 12:18	0 - 4 ft	678998-007
SW13	S	11.24.2020 12:26	0 - 4 ft	678998-008
SW14	S	11.24.2020 13:08	0 - 4 ft	678998-009
SW15	S	11.24.2020 13:17	0 - 4 ft	678998-010
SW16	S	11.24.2020 13:25	0 - 4 ft	678998-011
SW17	S	11.24.2020 13:33	0 - 4 ft	678998-012



CASE NARRATIVE

Client Name: WSP USA

Project Name: Row 4 Wolverine SWD Riser

Project ID: TE012920091
Work Order Number(s): 678998

Report Date: 11.30.2020
Date Received: 11.24.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

**Certificate of Analytical Results 678998****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW01**
Lab Sample Id: 678998-001

Matrix: Soil
Date Collected: 11.24.2020 09:57

Date Received: 11.24.2020 16:20
Sample Depth: 0 - 3 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.25.2020 09:36

% Moisture:
Basis: Wet Weight

Seq Number: 3143429

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	40.6	9.90	mg/kg	11.25.2020 11:06		1

**Certificate of Analytical Results 678998****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW02**
Lab Sample Id: 678998-002

Matrix: Soil
Date Collected: 11.24.2020 10:03

Date Received: 11.24.2020 16:20
Sample Depth: 0 - 3 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.25.2020 09:36

% Moisture:
Basis: Wet Weight

Seq Number: 3143429

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	23.2	9.98	mg/kg	11.25.2020 11:22		1

**Certificate of Analytical Results 678998****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW05**
Lab Sample Id: 678998-003

Matrix: Soil
Date Collected: 11.24.2020 10:29

Date Received: 11.24.2020 16:20
Sample Depth: 0 - 3 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.25.2020 09:36

% Moisture:
Basis: Wet Weight

Seq Number: 3143429

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	832	9.98	mg/kg	11.25.2020 11:27		1



Certificate of Analytical Results 678998

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW06**
Lab Sample Id: 678998-004

Matrix: Soil
Date Collected: 11.24.2020 10:38

Date Received: 11.24.2020 16:20
Sample Depth: 0 - 3 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.25.2020 09:36

% Moisture:
Basis: Wet Weight

Seq Number: 3143429

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	18.9	10.1	mg/kg	11.25.2020 11:32		1



Certificate of Analytical Results 678998

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW08**

Matrix: Soil

Date Received: 11.24.2020 16:20

Lab Sample Id: 678998-005

Date Collected: 11.24.2020 11:45

Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.25.2020 09:36

% Moisture:

Seq Number: 3143429

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	15.8	10.1	mg/kg	11.25.2020 11:37		1



Certificate of Analytical Results 678998

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW09**
Lab Sample Id: 678998-006

Matrix: Soil
Date Collected: 11.24.2020 11:52

Date Received: 11.24.2020 16:20
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.25.2020 09:36

% Moisture:
Basis: Wet Weight

Seq Number: 3143429

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	111	10.1	mg/kg	11.25.2020 11:53		1



Certificate of Analytical Results 678998

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW12**
Lab Sample Id: 678998-007

Matrix: Soil
Date Collected: 11.24.2020 12:18

Date Received: 11.24.2020 16:20
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.25.2020 09:36

% Moisture:
Basis: Wet Weight

Seq Number: 3143429

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	462	9.92	mg/kg	11.25.2020 11:58		1

**Certificate of Analytical Results 678998****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW13**
Lab Sample Id: 678998-008

Matrix: Soil
Date Collected: 11.24.2020 12:26

Date Received: 11.24.2020 16:20
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.25.2020 09:36

% Moisture:
Basis: Wet Weight

Seq Number: 3143429

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	359	9.98	mg/kg	11.25.2020 12:03		1

**Certificate of Analytical Results 678998****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW14**
Lab Sample Id: 678998-009

Matrix: Soil
Date Collected: 11.24.2020 13:08

Date Received: 11.24.2020 16:20
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.25.2020 09:36

% Moisture:
Basis: Wet Weight

Seq Number: 3143429

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	316	9.96	mg/kg	11.25.2020 12:08		1

**Certificate of Analytical Results 678998****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW15**
Lab Sample Id: 678998-010

Matrix: Soil
Date Collected: 11.24.2020 13:17

Date Received: 11.24.2020 16:20
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.25.2020 09:36

% Moisture:
Basis: Wet Weight

Seq Number: 3143429

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	19.8	9.98	mg/kg	11.25.2020 12:13		1



Certificate of Analytical Results 678998

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW16**
Lab Sample Id: 678998-011

Matrix: Soil
Date Collected: 11.24.2020 13:25

Date Received: 11.24.2020 16:20
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.25.2020 09:36

% Moisture:
Basis: Wet Weight

Seq Number: 3143429

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	15.2	9.96	mg/kg	11.25.2020 12:19		1

**Certificate of Analytical Results 678998****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW17**
Lab Sample Id: 678998-012

Matrix: Soil
Date Collected: 11.24.2020 13:33

Date Received: 11.24.2020 16:20
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 11.25.2020 09:36

% Moisture:
Basis: Wet Weight

Seq Number: 3143429

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	452	9.90	mg/kg	11.25.2020 12:34		1



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



WSP USA

Row 4 Wolverine SWD Riser

Analytical Method: Chloride by EPA 300

Seq Number: 3143429

MB Sample Id: 7715976-1-BLK

Matrix: Solid

LCS Sample Id: 7715976-1-BKS

Prep Method: E300P

Date Prep: 11.25.2020

LCSD Sample Id: 7715976-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.00	250.0	242.8	97	239.3	96	90-110	1	20	mg/kg	11.25.2020 10:56	

Analytical Method: Chloride by EPA 300

Seq Number: 3143429

Parent Sample Id: 678998-001

Matrix: Soil

MS Sample Id: 678998-001 S

Prep Method: E300P

Date Prep: 11.25.2020

MSD Sample Id: 678998-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	40.63	199.0	226.0	93	230.3	95	90-110	2	20	mg/kg	11.25.2020 11:11	

Analytical Method: Chloride by EPA 300

Seq Number: 3143429

Parent Sample Id: 678998-011

Matrix: Soil

MS Sample Id: 678998-011 S

Prep Method: E300P

Date Prep: 11.25.2020

MSD Sample Id: 678998-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	15.15	200.0	210.0	97	210.5	97	90-110	0	20	mg/kg	11.25.2020 12:24	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



Chain of Custody

Work Order No: 678998

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 508-3334
 Midland, TX (432) 704-5440 EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
 Hobbs, NM (575) 392-7550 Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8800 Tampa, FL (813) 620-2000

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Page 1 of 2

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littlell
Company Name:	WSP USA	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	522 W. Mermod St.
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	jhill@xenco.com, dmoir@xenco.com

Program: <input type="checkbox"/> US/PT <input type="checkbox"/> RP <input type="checkbox"/> Crownfields <input type="checkbox"/> RC <input type="checkbox"/> Superfund
State of Project:
Reporting Level: <input type="checkbox"/> Level I <input type="checkbox"/> Level II <input type="checkbox"/> Level III <input type="checkbox"/> Level IV
Deliverables: <input type="checkbox"/> EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:

Project Name:	Raw 4 Wolverine Swab	Turn Around	
Project Number:	TEC13930001	Routine	<input checked="" type="checkbox"/>
P.O. Number:	Spill date 6/1/20	Rush:	
Sampler's Name:	Jeremy Hill	Due Date:	

SAMPLE RECEIPT	Temp Blank:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Wet Ice:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Temperature (°C):	1.6 / 1.4	Thermometer ID	TCMM-003
	Received Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Correction Factor:	-0.7
	Cooler Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total Containers:	12

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPHNEPA 8015)	BTEX (EPA 0-8021)	Chloride (EPA 300.0)	ANALYSIS REQUEST	Work Order Notes
Swab 1	S	11/24/20	0957	0-3'	1			X		
Swab 2			1003							
Swab 5			1039							
Swab 6			1038							
Swab 8			1145	0-4'						
Swab 9			1152							
Swab 12			1218							
Swab 13			1226							
Swab 14			1308							
Swab 15			1317							

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 SiO2 Na Sr Ti 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 Ti U 1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. 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 Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to 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
		11-24-20 1628			



Work Order No: 678998

Page 2 of 2

Work Order Comments	
Program: UST/PST State of Project: Reporting Level II Deliverables: EDD	<input type="checkbox"/> RP <input type="checkbox"/> Growfields <input type="checkbox"/> RC <input type="checkbox"/> \$perfund <input type="checkbox"/> <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> RP <input type="checkbox"/> Level IV <input type="checkbox"/> <input type="checkbox"/> Adapt <input type="checkbox"/> Other:

[illegible][illegible][illegible]

signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions service. 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 Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to 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
		11-24-20 11:22			

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: WSP USA

Date/ Time Received: 11.24.2020 04.20.00 PM

Work Order #: 678998

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	1.4
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 11.24.2020

Checklist reviewed by:



Jessica Kramer

Date: 11.25.2020

Certificate of Analysis Summary 679907



WSP USA, Dallas, TX

Project Name: Row 4 Wolverine SWD Riser

Project Id: TE012920091

Date Received in Lab: Fri 12.04.2020 16:30

Contact: Dan Moir

Report Date: 12.08.2020 16:40

Project Location:

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	679907-001	679907-002	679907-003	679907-004		
	<i>Field Id:</i>	SW19	SW20	SW21	SW22		
	<i>Depth:</i>	0-4 ft	0-4 ft	0-4 ft	0-4 ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	12.03.2020 13:03	12.03.2020 13:12	12.03.2020 13:22	12.03.2020 13:31		
Chloride by EPA 300	<i>Extracted:</i>	12.07.2020 16:17	12.07.2020 16:17	12.07.2020 16:17	12.07.2020 16:17		
	<i>Analyzed:</i>	12.07.2020 17:28	12.07.2020 17:45	12.07.2020 17:50	12.07.2020 17:56		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		307 9.94	230 9.96	24.4 10.0	63.8 9.92		

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 679907

for

WSP USA

Project Manager: Dan Moir

Row 4 Wolverine SWD Riser

TE012920091

12.08.2020

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



12.08.2020

Project Manager: **Dan Moir**

WSP USA

2777 N. Stemmons Freeway, Suite 1600
Dallas, TX 75207

Reference: Eurofins Xenco, LLC Report No(s): **679907**

Row 4 Wolverine SWD Riser

Project Address:

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 679907. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 679907 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 679907****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW19	S	12.03.2020 13:03	0 - 4 ft	679907-001
SW20	S	12.03.2020 13:12	0 - 4 ft	679907-002
SW21	S	12.03.2020 13:22	0 - 4 ft	679907-003
SW22	S	12.03.2020 13:31	0 - 4 ft	679907-004



CASE NARRATIVE

Client Name: WSP USA

Project Name: Row 4 Wolverine SWD Riser

Project ID: TE012920091
Work Order Number(s): 679907

Report Date: 12.08.2020
Date Received: 12.04.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

**Certificate of Analytical Results 679907****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW19**
Lab Sample Id: 679907-001

Matrix: Soil
Date Collected: 12.03.2020 13:03

Date Received: 12.04.2020 16:30
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.07.2020 16:17

% Moisture:
Basis: Wet Weight

Seq Number: 3144164

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	307	9.94	mg/kg	12.07.2020 17:28		1

**Certificate of Analytical Results 679907****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW20**
Lab Sample Id: 679907-002

Matrix: Soil
Date Collected: 12.03.2020 13:12

Date Received: 12.04.2020 16:30
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.07.2020 16:17

% Moisture:
Basis: Wet Weight

Seq Number: 3144164

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	230	9.96	mg/kg	12.07.2020 17:45		1



Certificate of Analytical Results 679907

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW21**
Lab Sample Id: 679907-003

Matrix: Soil
Date Collected: 12.03.2020 13:22

Date Received: 12.04.2020 16:30
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.07.2020 16:17

% Moisture:
Basis: Wet Weight

Seq Number: 3144164

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	24.4	10.0	mg/kg	12.07.2020 17:50		1

**Certificate of Analytical Results 679907****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW22**
Lab Sample Id: 679907-004

Matrix: Soil
Date Collected: 12.03.2020 13:31

Date Received: 12.04.2020 16:30
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.07.2020 16:17

% Moisture:
Basis: Wet Weight

Seq Number: 3144164

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	63.8	9.92	mg/kg	12.07.2020 17:56		1



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



WSP USA

Row 4 Wolverine SWD Riser

Analytical Method: Chloride by EPA 300

Seq Number: 3144164

MB Sample Id: 7716603-1-BLK

Matrix: Solid

LCS Sample Id: 7716603-1-BKS

Prep Method: E300P

Date Prep: 12.07.2020

LCSD Sample Id: 7716603-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	244	98	245	98	90-110	0	20	mg/kg	12.07.2020 17:17	

Analytical Method: Chloride by EPA 300

Seq Number: 3144164

Parent Sample Id: 679907-001

Matrix: Soil

MS Sample Id: 679907-001 S

Prep Method: E300P

Date Prep: 12.07.2020

MSD Sample Id: 679907-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	307	200	497	95	487	90	90-110	2	20	mg/kg	12.07.2020 17:34	

Analytical Method: Chloride by EPA 300

Seq Number: 3144164

Parent Sample Id: 679909-007

Matrix: Soil

MS Sample Id: 679909-007 S

Prep Method: E300P

Date Prep: 12.07.2020

MSD Sample Id: 679909-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	201	205	102	201	100	90-110	2	20	mg/kg	12.07.2020 18:52	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



Chain of Custody

Work Order No: 609903

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432) 704-5440 EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296

Hobbs, NM (575) 392-7550 Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8800 Tampa, FL (813) 620-2000

www.xenco.com

Page 1 of 1

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littrell
Company Name:	WSP USA	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	522 W. Mermod St.
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	dan.moir@wsp.com

Project Name:	New 4 Wellbore SWS Riser	Turn Around	Routine
Project Number:	TE010920031	Rush:	
P.O. Number:	Spill Date: 6/1/20	Due Date:	
Sampler's Name:	Jeremy Hill		

Temp Blank:	Yes	No	Wet Ice:	Yes	No
Temperature (°C):	10/0.8	Thermometer ID			
Received Intact:	Yes	No	Correction Factor:	-0.2	
Cooler Custody Seals:	Yes	No	Total Containers:	4	
Sample Custody Seals:	Yes	No			

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0-8021)	Chloride (EPA 300.0)
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Sample 1	S	6/3/20	1303	0-4'	1			
Sample 2	S		1312					
Sample 3	S		1322					
Sample 4	S		1331					

ANALYSIS REQUEST	Work Order Notes
TAT starts the day received by the lab, if received by 4:30pm	
Sample Comments	

Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	SiO2	Na	Sr	Ti	Sn	U	V	Zn
----	----	----	----	----	---	----	----	----	----	----	----	----	----	----	----	----	---	----	----	------	----	----	----	----	---	---	----

Circle Method(s) and Metal(s) to be analyzed: 8RCRA 13PPM Texas 11 AI Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn

TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions service. 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 Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to 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
------------------------------	--------------------------	-----------	------------------------------	--------------------------	-----------

Signature	Signature	12-4-20 1630	Signature	Signature	
-----------	-----------	--------------	-----------	-----------	--

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: WSP USA

Date/ Time Received: 12.04.2020 04.30.00 PM

Work Order #: 679907

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.8
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

Samples received in bulk containers.

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 12.04.2020

Checklist reviewed by:



Jessica Kramer

Date: 12.07.2020

Certificate of Analysis Summary 679909



WSP USA, Dallas, TX

Project Name: Row 4 Wolverine SWD Riser

Project Id: TE012920091

Date Received in Lab: Fri 12.04.2020 16:30

Contact: Dan Moir

Report Date: 12.08.2020 16:39

Project Location:

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	679909-001	679909-002	679909-003	679909-004	679909-005	679909-006
	Field Id:	SW25	SW26	SW27	SW30	SW31	SW34
	Depth:	0-4 ft	0-4 ft	0-4 ft	0-4 ft	0-4 ft	0-4 ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	12.04.2020 10:14	12.04.2020 10:20	12.04.2020 10:29	12.04.2020 11:49	12.04.2020 12:00	12.04.2020 12:53
Chloride by EPA 300	Extracted:	12.07.2020 16:17	12.07.2020 16:17	12.07.2020 16:17	12.07.2020 16:17	12.07.2020 16:17	12.07.2020 16:17
	Analyzed:	12.07.2020 18:01	12.07.2020 18:18	12.07.2020 18:24	12.07.2020 18:29	12.07.2020 18:35	12.07.2020 18:41
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		3990 50.3	6960 50.5	8130 50.1	543 9.96	390 10.0	204 10.0

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Certificate of Analysis Summary 679909

WSP USA, Dallas, TX

Project Name: Row 4 Wolverine SWD Riser

Project Id: TE012920091

Contact: Dan Moir

Project Location:

Date Received in Lab: Fri 12.04.2020 16:30

Report Date: 12.08.2020 16:39

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	679909-007	679909-008	679909-009			
	<i>Field Id:</i>	SW35	SW38	SW39			
	<i>Depth:</i>	0-4 ft	0-4 ft	0-4 ft			
	<i>Matrix:</i>	SOIL	SOIL	SOIL			
	<i>Sampled:</i>	12.04.2020 13:01	12.04.2020 14:09	12.04.2020 14:21			
Chloride by EPA 300	<i>Extracted:</i>	12.07.2020 16:17	12.07.2020 16:17	12.07.2020 16:17			
	<i>Analyzed:</i>	12.07.2020 18:46	12.07.2020 19:03	12.07.2020 19:08			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		<9.98 9.98	380 9.98	18.6 10.0			

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico





Analytical Report 679909

for

WSP USA

Project Manager: Dan Moir

Row 4 Wolverine SWD Riser

TE012920091

12.08.2020

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



12.08.2020

Project Manager: **Dan Moir**

WSP USA

2777 N. Stemmons Freeway, Suite 1600

Dallas, TX 75207

Reference: Eurofins Xenco, LLC Report No(s): **679909**

Row 4 Wolverine SWD Riser

Project Address:

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 679909. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 679909 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 679909****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW25	S	12.04.2020 10:14	0 - 4 ft	679909-001
SW26	S	12.04.2020 10:20	0 - 4 ft	679909-002
SW27	S	12.04.2020 10:29	0 - 4 ft	679909-003
SW30	S	12.04.2020 11:49	0 - 4 ft	679909-004
SW31	S	12.04.2020 12:00	0 - 4 ft	679909-005
SW34	S	12.04.2020 12:53	0 - 4 ft	679909-006
SW35	S	12.04.2020 13:01	0 - 4 ft	679909-007
SW38	S	12.04.2020 14:09	0 - 4 ft	679909-008
SW39	S	12.04.2020 14:21	0 - 4 ft	679909-009



CASE NARRATIVE

Client Name: WSP USA

Project Name: Row 4 Wolverine SWD Riser

Project ID: TE012920091
Work Order Number(s): 679909

Report Date: 12.08.2020
Date Received: 12.04.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

**Certificate of Analytical Results 679909****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW25**
Lab Sample Id: 679909-001

Matrix: Soil
Date Collected: 12.04.2020 10:14

Date Received: 12.04.2020 16:30
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.07.2020 16:17

% Moisture:
Basis: Wet Weight

Seq Number: 3144164

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3990	50.3	mg/kg	12.07.2020 18:01		5

**Certificate of Analytical Results 679909****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW26**
Lab Sample Id: 679909-002

Matrix: Soil
Date Collected: 12.04.2020 10:20

Date Received: 12.04.2020 16:30
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.07.2020 16:17

% Moisture:
Basis: Wet Weight

Seq Number: 3144164

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6960	50.5	mg/kg	12.07.2020 18:18		5



Certificate of Analytical Results 679909

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW27**
Lab Sample Id: 679909-003

Matrix: Soil
Date Collected: 12.04.2020 10:29

Date Received: 12.04.2020 16:30
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.07.2020 16:17

% Moisture:
Basis: Wet Weight

Seq Number: 3144164

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8130	50.1	mg/kg	12.07.2020 18:24		5



Certificate of Analytical Results 679909

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW30**
Lab Sample Id: 679909-004

Matrix: Soil
Date Collected: 12.04.2020 11:49

Date Received: 12.04.2020 16:30
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.07.2020 16:17

% Moisture:
Basis: Wet Weight

Seq Number: 3144164

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	543	9.96	mg/kg	12.07.2020 18:29		1



Certificate of Analytical Results 679909

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW31**
Lab Sample Id: 679909-005

Matrix: Soil
Date Collected: 12.04.2020 12:00

Date Received: 12.04.2020 16:30
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.07.2020 16:17

% Moisture:
Basis: Wet Weight

Seq Number: 3144164

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	390	10.0	mg/kg	12.07.2020 18:35		1



Certificate of Analytical Results 679909

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW34**
Lab Sample Id: 679909-006

Matrix: Soil
Date Collected: 12.04.2020 12:53

Date Received: 12.04.2020 16:30
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.07.2020 16:17

% Moisture:
Basis: Wet Weight

Seq Number: 3144164

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	204	10.0	mg/kg	12.07.2020 18:41		1

**Certificate of Analytical Results 679909****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW35**
Lab Sample Id: 679909-007

Matrix: Soil
Date Collected: 12.04.2020 13:01

Date Received: 12.04.2020 16:30
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.07.2020 16:17

% Moisture:
Basis: Wet Weight

Seq Number: 3144164

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.98	9.98	mg/kg	12.07.2020 18:46	U	1



Certificate of Analytical Results 679909

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW38**
Lab Sample Id: 679909-008

Matrix: Soil
Date Collected: 12.04.2020 14:09

Date Received: 12.04.2020 16:30
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.07.2020 16:17

% Moisture:
Basis: Wet Weight

Seq Number: 3144164

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	380	9.98	mg/kg	12.07.2020 19:03		1



Certificate of Analytical Results 679909

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW39**
Lab Sample Id: 679909-009

Matrix: Soil
Date Collected: 12.04.2020 14:21

Date Received: 12.04.2020 16:30
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.07.2020 16:17

% Moisture:
Basis: Wet Weight

Seq Number: 3144164

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	18.6	10.0	mg/kg	12.07.2020 19:08		1



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



WSP USA

Row 4 Wolverine SWD Riser

Analytical Method: Chloride by EPA 300

Seq Number: 3144164

MB Sample Id: 7716603-1-BLK

Matrix: Solid

LCS Sample Id: 7716603-1-BKS

Prep Method: E300P

Date Prep: 12.07.2020

LCSD Sample Id: 7716603-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	244	98	245	98	90-110	0	20	mg/kg	12.07.2020 17:17	

Analytical Method: Chloride by EPA 300

Seq Number: 3144164

Parent Sample Id: 679907-001

Matrix: Soil

MS Sample Id: 679907-001 S

Prep Method: E300P

Date Prep: 12.07.2020

MSD Sample Id: 679907-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	307	200	497	95	487	90	90-110	2	20	mg/kg	12.07.2020 17:34	

Analytical Method: Chloride by EPA 300

Seq Number: 3144164

Parent Sample Id: 679909-007

Matrix: Soil

MS Sample Id: 679909-007 S

Prep Method: E300P

Date Prep: 12.07.2020

MSD Sample Id: 679909-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	201	205	102	201	100	90-110	2	20	mg/kg	12.07.2020 18:52	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



Chain of Custody

Work Order No: 679909

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432) 704-5440 EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
 Hobbs, NM (575) 392-7550 Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8800 Tampa, FL (813) 620-2000

www.xenco.com Page 1 of 1

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littlell
Company Name:	WSP USA	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	522 W. Mermod St.
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	littl@xenco.com, dan@xenco.com, dan.moir@wsp.com

ANALYSIS REQUEST

Program: UST/PT	<input type="checkbox"/> RP	<input type="checkbox"/> Growfields	<input type="checkbox"/> RC	<input type="checkbox"/> Superfund
State of Project:				
Reporting Level II	<input type="checkbox"/> Level III	<input type="checkbox"/> PT/UST	<input type="checkbox"/> RP	<input type="checkbox"/> Level IV
Deliverables: EDD	<input type="checkbox"/> ADAPT	Other:		

Work Order Notes

Project Name:	Raw y Volume SWD Pater	Turn Around	Routine R
Project Number:	TE 618930041	Rush:	
P.O. Number:	5,011 One - 6/01/20	Due Date:	
Sampler's Name:	Jeremy Hill		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0-8021)	Chloride (EPA 300.0)	ANALYSIS REQUEST										Work Order Notes
SW 25	S	12/4/20	1614	0-4'	1			X											TAT starts the day received by the lab, if received by 4:30pm
SW 26			1620																
SW 27			1629																
SW 30			1149																
SW 31			1306																
SW 34			1253																Sample Comments Corrosive
SW 35			1301																
SW 38			1409																
SW 39			1421																

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 SiO2 Na Sr Ti 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 Ti U 1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. 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 Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to 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 <i>[Signature]</i>	<i>[Signature]</i>	12.4.20 1630	2		
3			4		
5			6		

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: WSP USA

Date/ Time Received: 12.04.2020 04.30.00 PM

Work Order #: 679909

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.8
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

Samples received in bulk containers.

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 12.04.2020

Checklist reviewed by:



Jessica Kramer

Date: 12.07.2020

Certificate of Analysis Summary 680289



LT Environmental, Inc., Arvada, CO

Project Name: Row 4 Wolverine SWD Riser

Project Id: TE012920091

Date Received in Lab: Tue 12.08.2020 16:47

Contact: Dan Moir

Report Date: 12.10.2020 13:20

Project Location:

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	680289-001	680289-002	680289-003	680289-004	680289-005	680289-006
	Field Id:	SW51	SW55	SW56	SW57	SW58	SW59
	Depth:	0-4 ft	0-3 ft	0-4 ft	0-4 ft	0-3 ft	0-3 ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	12.08.2020 11:09	12.08.2020 11:40	12.08.2020 11:50	12.08.2020 11:55	12.08.2020 13:03	12.08.2020 13:10
Chloride by EPA 300	Extracted:	12.09.2020 11:12	12.09.2020 11:12	12.09.2020 11:12	12.09.2020 11:12	12.09.2020 11:12	12.09.2020 11:12
	Analyzed:	12.09.2020 11:58	12.09.2020 12:14	12.09.2020 12:20	12.09.2020 12:26	12.09.2020 12:31	12.09.2020 12:48
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		130 9.92	407 9.98	20.1 0.893	104 9.98	<10.1 10.1	<10.1 10.1

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 680289

for

LT Environmental, Inc.

Project Manager: Dan Moir

Row 4 Wolverine SWD Riser

TE012920091

12.10.2020

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



12.10.2020

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: Eurofins Xenco, LLC Report No(s): **680289**

Row 4 Wolverine SWD Riser

Project Address:

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 680289. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 680289 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 680289****LT Environmental, Inc., Arvada, CO**

Row 4 Wolverine SWD Riser

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW51	S	12.08.2020 11:09	0 - 4 ft	680289-001
SW55	S	12.08.2020 11:40	0 - 3 ft	680289-002
SW56	S	12.08.2020 11:50	0 - 4 ft	680289-003
SW57	S	12.08.2020 11:55	0 - 4 ft	680289-004
SW58	S	12.08.2020 13:03	0 - 3 ft	680289-005
SW59	S	12.08.2020 13:10	0 - 3 ft	680289-006



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Row 4 Wolverine SWD Riser

Project ID: TE012920091
Work Order Number(s): 680289

Report Date: 12.10.2020
Date Received: 12.08.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 680289

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **SW51**
Lab Sample Id: 680289-001

Matrix: Soil
Date Collected: 12.08.2020 11:09

Date Received: 12.08.2020 16:47
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.09.2020 11:12

% Moisture:
Basis: Wet Weight

Seq Number: 3144392

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	130	9.92	mg/kg	12.09.2020 11:58		1

**Certificate of Analytical Results 680289****LT Environmental, Inc., Arvada, CO**

Row 4 Wolverine SWD Riser

Sample Id: **SW55**
Lab Sample Id: 680289-002

Matrix: Soil
Date Collected: 12.08.2020 11:40

Date Received: 12.08.2020 16:47
Sample Depth: 0 - 3 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.09.2020 11:12

% Moisture:
Basis: Wet Weight

Seq Number: 3144392

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	407	9.98	mg/kg	12.09.2020 12:14		1



Certificate of Analytical Results 680289

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **SW56**
Lab Sample Id: 680289-003

Matrix: Soil
Date Collected: 12.08.2020 11:50

Date Received: 12.08.2020 16:47
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.09.2020 11:12

% Moisture:
Basis: Wet Weight

Seq Number: 3144392

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	20.1	0.893	mg/kg	12.09.2020 12:20		1



Certificate of Analytical Results 680289

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **SW57**
Lab Sample Id: 680289-004

Matrix: Soil
Date Collected: 12.08.2020 11:55

Date Received: 12.08.2020 16:47
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.09.2020 11:12

% Moisture:
Basis: Wet Weight

Seq Number: 3144392

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	104	9.98	mg/kg	12.09.2020 12:26		1



Certificate of Analytical Results 680289

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **SW58**

Matrix: Soil

Date Received: 12.08.2020 16:47

Lab Sample Id: 680289-005

Date Collected: 12.08.2020 13:03

Sample Depth: 0 - 3 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.09.2020 11:12

% Moisture:

Seq Number: 3144392

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.1	10.1	mg/kg	12.09.2020 12:31	U	1

**Certificate of Analytical Results 680289****LT Environmental, Inc., Arvada, CO**

Row 4 Wolverine SWD Riser

Sample Id: **SW59**
Lab Sample Id: 680289-006

Matrix: Soil
Date Collected: 12.08.2020 13:10

Date Received: 12.08.2020 16:47
Sample Depth: 0 - 3 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.09.2020 11:12

% Moisture:
Basis: Wet Weight

Seq Number: 3144392

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.1	10.1	mg/kg	12.09.2020 12:48	U	1



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



LT Environmental, Inc.

Row 4 Wolverine SWD Riser

Analytical Method: Chloride by EPA 300

Seq Number: 3144392

MB Sample Id: 7716778-1-BLK

Matrix: Solid

LCS Sample Id: 7716778-1-BKS

Prep Method: E300P

Date Prep: 12.09.2020

LCSD Sample Id: 7716778-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	243	97	244	98	90-110	0	20	mg/kg	12.09.2020 11:46	

Analytical Method: Chloride by EPA 300

Seq Number: 3144392

Parent Sample Id: 680289-001

Matrix: Soil

MS Sample Id: 680289-001 S

Prep Method: E300P

Date Prep: 12.09.2020

MSD Sample Id: 680289-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	130	199	330	101	331	101	90-110	0	20	mg/kg	12.09.2020 12:03	

Analytical Method: Chloride by EPA 300

Seq Number: 3144392

Parent Sample Id: 680291-005

Matrix: Soil

MS Sample Id: 680291-005 S

Prep Method: E300P

Date Prep: 12.09.2020

MSD Sample Id: 680291-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.1	201	202	100	204	101	90-110	1	20	mg/kg	12.09.2020 13:21	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
Midland, TX (432-704-5440) EL Paso, TX (915)585-3443 Lubbock, TX (806)794-1296
Hobbs, NM (575-392-7550) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813-620-2000)

Chain of Custody

Work Order No: 1680289

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littlell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	
City, State ZIP:	Midland, Tx 79705	City, State ZIP:	
Phone:	(432) 236-3849	Email:	Jeremy.Hill@wsp.com Tacoma.Morrissey@wsp.com

Project Name:	Row 4 Wolverine SWD Riser	Turn Around	
Project Number:	TE012920091	Routine	
P.O. Number:	Spill Date 06-01-2020	Rush:	
Sampler's Name:	Jeremy Hill	Due Date:	

SAMPLE RECEIPT	Temp Blank:	Yes	No	Wet Ice:	Yes	No
Temperature (°C):	4.0/3.8	Thermometer ID				
Received Intact:	Yes	No	T-NM-007			
Cooler Custody Seals:	Yes	No	N/A	Correction Factor:	-0.2	
Sample Custody Seals:	Yes	No	N/A	Total Containers:	6	

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	ANALYSIS REQUEST										Work Order Notes
					Number of Containers	TPH (EPA 8015)	BTEX (EPA 0-8021)	Chloride (EPA 300.0)							
SW51	S	12/8/2020	11:09	0-4	1			X							COMPOSITE
SW55	S	12/8/2020	11:40	0-3	1			X							COMPOSITE
SW56	S	12/8/2020	11:50	0-4	1			X							COMPOSITE
SW57	S	12/8/2020	11:55	0-4	1			X							COMPOSITE
SW58	S	12/8/2020	13:03	0-3	1			X							COMPOSITE
SW59	S	12/8/2020	13:10	0-3	1			X							COMPOSITE

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 SiO2 Na Sr Ti 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 Ti U
 1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. 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 Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5.00 each sample submitted to 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
<i>[Signature]</i>	<i>[Signature]</i>	12/6/2014 4:00 PM	<i>[Signature]</i>	<i>[Signature]</i>	12/8/2016 4:47

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 12.08.2020 04.47.00 PM

Work Order #: 680289

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.8
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

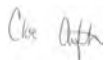
Samples received in bulk containers.

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 12.08.2020

Checklist reviewed by:



Jessica Kramer

Date: 12.09.2020

Certificate of Analysis Summary 680291



WSP USA, Dallas, TX

Project Name: Row 4 Wolverine SWD Riser

Project Id: TE012920091

Date Received in Lab: Tue 12.08.2020 16:47

Contact: Dan Moir

Report Date: 12.14.2020 14:12

Project Location:

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	680291-001	680291-002	680291-003	680291-004	680291-005	680291-006
	Field Id:	SW40	SW43	SW44	SW45	SW46	SW47
	Depth:	0-4 ft	0-4 ft	0-3 ft	0-3 ft	0-4 ft	0-4 ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	12.08.2020 10:51	12.08.2020 11:15	12.08.2020 11:22	12.08.2020 11:29	12.08.2020 11:38	12.08.2020 11:46
Chloride by EPA 300	Extracted:	12.09.2020 11:12	12.09.2020 11:12	12.09.2020 11:12	12.09.2020 11:12	12.09.2020 11:12	12.09.2020 11:12
	Analyzed:	12.09.2020 12:53	12.09.2020 12:59	12.09.2020 13:05	12.09.2020 13:10	12.09.2020 13:16	12.09.2020 13:32
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		79.7 9.98	<10.0 10.0	<10.1 10.1	191 10.0	<10.0 10.0	<10.0 10.0

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Certificate of Analysis Summary 680291



WSP USA, Dallas, TX

Project Name: Row 4 Wolverine SWD Riser

Project Id: TE012920091

Date Received in Lab: Tue 12.08.2020 16:47

Contact: Dan Moir

Report Date: 12.14.2020 14:12

Project Location:

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	680291-007	680291-008				
	<i>Field Id:</i>	SW48	SW49				
	<i>Depth:</i>	0-4 ft	0-4 ft				
	<i>Matrix:</i>	SOIL	SOIL				
	<i>Sampled:</i>	12.08.2020 11:55	12.08.2020 12:04				
Chloride by EPA 300	<i>Extracted:</i>	12.09.2020 11:12	12.09.2020 11:12				
	<i>Analyzed:</i>	12.09.2020 13:38	12.09.2020 13:55				
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				
Chloride		638 9.98	3330 50.3				

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 680291

for

WSP USA

Project Manager: Dan Moir

Row 4 Wolverine SWD Riser

TE012920091

12.14.2020

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



12.14.2020

Project Manager: **Dan Moir**

WSP USA

2777 N. Stemmons Freeway, Suite 1600
Dallas, TX 75207

Reference: Eurofins Xenco, LLC Report No(s): **680291**

Row 4 Wolverine SWD Riser

Project Address:

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 680291. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 680291 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 680291****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW40	S	12.08.2020 10:51	0 - 4 ft	680291-001
SW43	S	12.08.2020 11:15	0 - 4 ft	680291-002
SW44	S	12.08.2020 11:22	0 - 3 ft	680291-003
SW45	S	12.08.2020 11:29	0 - 3 ft	680291-004
SW46	S	12.08.2020 11:38	0 - 4 ft	680291-005
SW47	S	12.08.2020 11:46	0 - 4 ft	680291-006
SW48	S	12.08.2020 11:55	0 - 4 ft	680291-007
SW49	S	12.08.2020 12:04	0 - 4 ft	680291-008



CASE NARRATIVE

Client Name: WSP USA

Project Name: Row 4 Wolverine SWD Riser

Project ID: TE012920091
Work Order Number(s): 680291

Report Date: 12.14.2020
Date Received: 12.08.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 680291

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW40**
Lab Sample Id: 680291-001

Matrix: Soil
Date Collected: 12.08.2020 10:51

Date Received: 12.08.2020 16:47
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.09.2020 11:12

% Moisture:
Basis: Wet Weight

Seq Number: 3144392

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	79.7	9.98	mg/kg	12.09.2020 12:53		1

**Certificate of Analytical Results 680291****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW43**
Lab Sample Id: 680291-002

Matrix: Soil
Date Collected: 12.08.2020 11:15

Date Received: 12.08.2020 16:47
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.09.2020 11:12

% Moisture:
Basis: Wet Weight

Seq Number: 3144392

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.0	10.0	mg/kg	12.09.2020 12:59	U	1



Certificate of Analytical Results 680291

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW44**
Lab Sample Id: 680291-003

Matrix: Soil
Date Collected: 12.08.2020 11:22

Date Received: 12.08.2020 16:47
Sample Depth: 0 - 3 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.09.2020 11:12

% Moisture:
Basis: Wet Weight

Seq Number: 3144392

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.1	10.1	mg/kg	12.09.2020 13:05	U	1



Certificate of Analytical Results 680291

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW45**
Lab Sample Id: 680291-004

Matrix: Soil
Date Collected: 12.08.2020 11:29

Date Received: 12.08.2020 16:47
Sample Depth: 0 - 3 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.09.2020 11:12

% Moisture:
Basis: Wet Weight

Seq Number: 3144392

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	191	10.0	mg/kg	12.09.2020 13:10		1

**Certificate of Analytical Results 680291****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW46**
Lab Sample Id: 680291-005

Matrix: Soil
Date Collected: 12.08.2020 11:38

Date Received: 12.08.2020 16:47
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.09.2020 11:12

% Moisture:
Basis: Wet Weight

Seq Number: 3144392

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.0	10.0	mg/kg	12.09.2020 13:16	U	1



Certificate of Analytical Results 680291

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW47**
Lab Sample Id: 680291-006

Matrix: Soil
Date Collected: 12.08.2020 11:46

Date Received: 12.08.2020 16:47
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.09.2020 11:12

% Moisture:
Basis: Wet Weight

Seq Number: 3144392

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.0	10.0	mg/kg	12.09.2020 13:32	U	1



Certificate of Analytical Results 680291

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW48**

Matrix: Soil

Date Received: 12.08.2020 16:47

Lab Sample Id: 680291-007

Date Collected: 12.08.2020 11:55

Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.09.2020 11:12

% Moisture:

Seq Number: 3144392

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	638	9.98	mg/kg	12.09.2020 13:38		1



Certificate of Analytical Results 680291

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW49**
Lab Sample Id: 680291-008

Matrix: Soil
Date Collected: 12.08.2020 12:04

Date Received: 12.08.2020 16:47
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.09.2020 11:12

% Moisture:
Basis: Wet Weight

Seq Number: 3144392

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3330	50.3	mg/kg	12.09.2020 13:55		5



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



WSP USA

Row 4 Wolverine SWD Riser

Analytical Method: Chloride by EPA 300

Seq Number: 3144392

MB Sample Id: 7716778-1-BLK

Matrix: Solid

LCS Sample Id: 7716778-1-BKS

Prep Method: E300P

Date Prep: 12.09.2020

LCSD Sample Id: 7716778-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.00	250.0	243.5	97	244.0	98	90-110	0	20	mg/kg	12.09.2020 11:46	

Analytical Method: Chloride by EPA 300

Seq Number: 3144392

Parent Sample Id: 680289-001

Matrix: Soil

MS Sample Id: 680289-001 S

Prep Method: E300P

Date Prep: 12.09.2020

MSD Sample Id: 680289-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	130.1	199.0	329.6	100	330.7	100	90-110	0	20	mg/kg	12.09.2020 12:03	

Analytical Method: Chloride by EPA 300

Seq Number: 3144392

Parent Sample Id: 680291-005

Matrix: Soil

MS Sample Id: 680291-005 S

Prep Method: E300P

Date Prep: 12.09.2020

MSD Sample Id: 680291-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.06	201.0	201.9	100	203.6	101	90-110	1	20	mg/kg	12.09.2020 13:21	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432) 704-5440 EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
 Hobbs, NM (575) 392-7550 Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8800 Tampa, FL (813) 620-2000

Work Order No: 1680291

Chain of Custody

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littlell
Company Name:	WSP USA	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	522 W. Mermod St.
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	dan.moir@wsp.com

Project Name:	Rev 4 Water SWD Lisa	Turn Around	
Project Number:	TP010410091	Routine	<input checked="" type="checkbox"/>
P.O. Number:	5011 date 06/01/20	Rush:	
Sampler's Name:	Jeremy Hill	Due Date:	

SAMPLE RECEIPT	Temp Blank:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Wet Ice:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Temperature (°C):	4.0/3.8	Thermometer ID		
Received Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Correction Factor:		
Cooler Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Total Containers:		
Sample Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	8		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number	TPH (EPA 8015)	BTEX (EPA 8015)	Chloride (EPA 8015)											Sample Comments
SW20	S	12/8/20	1651	0-4'	1			X											Permasite
SW43			1115	0-4'															
SW44			1133	0-3'															
SW45			1139	0-3'															
SW46			1138	0-4'															
SW47			1146	0-4'															
SW48			1155	0-4'															
SW49			1201	0-4'															

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 SiO2 Na Sr Ti 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 Ti U

1631 / 245.1 / 7470 / 7471 : Hg

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>[Signature]</i>	<i>[Signature]</i>	12/8/20 4:00pm	<i>[Signature]</i>	<i>[Signature]</i>	12-8-20 1645

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: WSP USA

Date/ Time Received: 12.08.2020 04.47.00 PM

Work Order #: 680291

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.8
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

Samples received in bulk containers.

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 12.08.2020

Checklist reviewed by:



Jessica Kramer

Date: 12.09.2020

Certificate of Analysis Summary 680475



LT Environmental, Inc., Arvada, CO

Project Name: Row 4 Wolverine SWD Riser

Project Id: TE012920091

Date Received in Lab: Wed 12.09.2020 16:14

Contact: Dan Moir

Report Date: 12.14.2020 10:17

Project Location:

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	680475-001	680475-002	680475-003	680475-004	680475-005	680475-006
	Field Id:	SW60	SW61	SW62	SW81	SW82	SW83
	Depth:	0-4 ft	0-4 ft	0-4 ft	0-4 ft	0-4 ft	0-4 ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	12.09.2020 09:07	12.09.2020 09:13	12.09.2020 09:21	12.09.2020 09:50	12.09.2020 09:59	12.09.2020 10:07
Chloride by EPA 300	Extracted:	12.10.2020 08:38	12.10.2020 08:38	12.10.2020 08:38	12.10.2020 08:38	12.10.2020 08:38	12.10.2020 08:38
	Analyzed:	12.10.2020 12:51	12.10.2020 13:08	12.10.2020 13:13	12.10.2020 13:19	12.10.2020 13:24	12.10.2020 13:41
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		502 9.90	231 9.92	327 9.94	309 9.90	134 9.98	121 50.1

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Certificate of Analysis Summary 680475

LT Environmental, Inc., Arvada, CO

Project Name: Row 4 Wolverine SWD Riser

Project Id: TE012920091

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed 12.09.2020 16:14

Report Date: 12.14.2020 10:17

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	680475-007	680475-008	680475-009			
	<i>Field Id:</i>	SW84	SW85	SW86			
	<i>Depth:</i>	0-4 ft	0-4 ft	0-4 ft			
	<i>Matrix:</i>	SOIL	SOIL	SOIL			
	<i>Sampled:</i>	12.09.2020 10:14	12.09.2020 10:21	12.09.2020 10:29			
Chloride by EPA 300	<i>Extracted:</i>	12.10.2020 08:38	12.10.2020 08:38	12.10.2020 08:38			
	<i>Analyzed:</i>	12.10.2020 13:47	12.10.2020 13:52	12.10.2020 13:58			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		13.1 10.0	18.5 9.98	83.2 9.98			

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico





Analytical Report 680475

for

LT Environmental, Inc.

Project Manager: Dan Moir

Row 4 Wolverine SWD Riser

TE012920091

12.14.2020

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



12.14.2020

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: Eurofins Xenco, LLC Report No(s): **680475**

Row 4 Wolverine SWD Riser

Project Address:

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 680475. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 680475 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 680475****LT Environmental, Inc., Arvada, CO**

Row 4 Wolverine SWD Riser

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW60	S	12.09.2020 09:07	0 - 4 ft	680475-001
SW61	S	12.09.2020 09:13	0 - 4 ft	680475-002
SW62	S	12.09.2020 09:21	0 - 4 ft	680475-003
SW81	S	12.09.2020 09:50	0 - 4 ft	680475-004
SW82	S	12.09.2020 09:59	0 - 4 ft	680475-005
SW83	S	12.09.2020 10:07	0 - 4 ft	680475-006
SW84	S	12.09.2020 10:14	0 - 4 ft	680475-007
SW85	S	12.09.2020 10:21	0 - 4 ft	680475-008
SW86	S	12.09.2020 10:29	0 - 4 ft	680475-009



CASE NARRATIVE

Client Name: LT Environmental, Inc.

Project Name: Row 4 Wolverine SWD Riser

Project ID: *TE012920091*
Work Order Number(s): *680475*

Report Date: *12.14.2020*
Date Received: *12.09.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 680475

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **SW60**
Lab Sample Id: 680475-001

Matrix: Soil
Date Collected: 12.09.2020 09:07

Date Received: 12.09.2020 16:14
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.10.2020 08:38

% Moisture:
Basis: Wet Weight

Seq Number: 3144560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	502	9.90	mg/kg	12.10.2020 12:51		1



Certificate of Analytical Results 680475

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **SW61**
Lab Sample Id: 680475-002

Matrix: Soil
Date Collected: 12.09.2020 09:13

Date Received: 12.09.2020 16:14
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.10.2020 08:38

% Moisture:
Basis: Wet Weight

Seq Number: 3144560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	231	9.92	mg/kg	12.10.2020 13:08		1



Certificate of Analytical Results 680475

LT Environmental, Inc., Arvada, CO

Row 4 Wolverine SWD Riser

Sample Id: **SW62**

Matrix: Soil

Date Received: 12.09.2020 16:14

Lab Sample Id: 680475-003

Date Collected: 12.09.2020 09:21

Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.10.2020 08:38

% Moisture:

Seq Number: 3144560

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	327	9.94	mg/kg	12.10.2020 13:13		1

**Certificate of Analytical Results 680475****LT Environmental, Inc., Arvada, CO**

Row 4 Wolverine SWD Riser

Sample Id: **SW81**
Lab Sample Id: 680475-004

Matrix: Soil
Date Collected: 12.09.2020 09:50

Date Received: 12.09.2020 16:14
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.10.2020 08:38

% Moisture:
Basis: Wet Weight

Seq Number: 3144560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	309	9.90	mg/kg	12.10.2020 13:19		1

**Certificate of Analytical Results 680475****LT Environmental, Inc., Arvada, CO**

Row 4 Wolverine SWD Riser

Sample Id: **SW82**

Matrix: Soil

Date Received: 12.09.2020 16:14

Lab Sample Id: 680475-005

Date Collected: 12.09.2020 09:59

Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.10.2020 08:38

% Moisture:

Seq Number: 3144560

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	134	9.98	mg/kg	12.10.2020 13:24		1

**Certificate of Analytical Results 680475****LT Environmental, Inc., Arvada, CO**

Row 4 Wolverine SWD Riser

Sample Id: **SW83**

Matrix: Soil

Date Received: 12.09.2020 16:14

Lab Sample Id: 680475-006

Date Collected: 12.09.2020 10:07

Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.10.2020 08:38

% Moisture:

Seq Number: 3144560

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	121	50.1	mg/kg	12.10.2020 13:41		5

**Certificate of Analytical Results 680475****LT Environmental, Inc., Arvada, CO**

Row 4 Wolverine SWD Riser

Sample Id: **SW84**

Matrix: Soil

Date Received: 12.09.2020 16:14

Lab Sample Id: 680475-007

Date Collected: 12.09.2020 10:14

Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.10.2020 08:38

% Moisture:

Seq Number: 3144560

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	13.1	10.0	mg/kg	12.10.2020 13:47		1

**Certificate of Analytical Results 680475****LT Environmental, Inc., Arvada, CO**

Row 4 Wolverine SWD Riser

Sample Id: **SW85**

Matrix: Soil

Date Received: 12.09.2020 16:14

Lab Sample Id: 680475-008

Date Collected: 12.09.2020 10:21

Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.10.2020 08:38

% Moisture:

Seq Number: 3144560

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	18.5	9.98	mg/kg	12.10.2020 13:52		1

**Certificate of Analytical Results 680475****LT Environmental, Inc., Arvada, CO**

Row 4 Wolverine SWD Riser

Sample Id: **SW86**

Matrix: Soil

Date Received: 12.09.2020 16:14

Lab Sample Id: 680475-009

Date Collected: 12.09.2020 10:29

Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.10.2020 08:38

% Moisture:

Seq Number: 3144560

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	83.2	9.98	mg/kg	12.10.2020 13:58		1



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



LT Environmental, Inc.

Row 4 Wolverine SWD Riser

Analytical Method: Chloride by EPA 300

Seq Number: 3144560

MB Sample Id: 7716881-1-BLK

Matrix: Solid

LCS Sample Id: 7716881-1-BKS

Prep Method: E300P

Date Prep: 12.10.2020

LCSD Sample Id: 7716881-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	234	94	235	94	90-110	0	20	mg/kg	12.10.2020 12:40	

Analytical Method: Chloride by EPA 300

Seq Number: 3144560

Parent Sample Id: 680475-001

Matrix: Soil

MS Sample Id: 680475-001 S

Prep Method: E300P

Date Prep: 12.10.2020

MSD Sample Id: 680475-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	502	199	686	92	684	90	90-110	0	20	mg/kg	12.10.2020 12:56	

Analytical Method: Chloride by EPA 300

Seq Number: 3144560

Parent Sample Id: 680478-002

Matrix: Soil

MS Sample Id: 680478-002 S

Prep Method: E300P

Date Prep: 12.10.2020

MSD Sample Id: 680478-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	6220	201	6420	100	6410	95	90-110	0	20	mg/kg	12.10.2020 14:14	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



Chain of Custody

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432) 704-5440 EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
 Hobbs, NM (575) 392-7550 Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8800 Tampa, FL (813) 620-2000

Work Order No: 680475

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Litrell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	
City, State ZIP:	Midland, Tx 79705	City, State ZIP:	
Phone:	(432) 236-3849	Email:	Elliott.Lee@wsp.com, Tacoma.Morrissey@wsp.com

Program: <input checked="" type="checkbox"/> UST/PST <input type="checkbox"/> RP <input type="checkbox"/> Brownfields <input type="checkbox"/> RC <input type="checkbox"/> Superfund State of Project:	
Reporting Level: <input type="checkbox"/> I <input type="checkbox"/> II <input type="checkbox"/> III <input type="checkbox"/> IV	Deliverables: <input type="checkbox"/> EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:

Project Name:	Row 4 Wolverine SWD Riser	Turn Around
Project Number:	TE012920091	Routine <input checked="" type="checkbox"/>
P.O. Number:	Spill Date 06-01-20	Rush:
Sampler's Name:	Elliott Lee	Due Date:

SAMPLE RECEIPT	Temp Blank:	Yes	No	Wet Ice:	Yes	No
Temperature (°C):	13.2/13.0	Thermometer ID				
Received In tact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Correction Factor: T-NW-007				
Cooler Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total Containers: 9				
Sample Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 8021)	Chloride (EPA 300.0)	ANALYSIS REQUEST										Work Order Notes
SW60	S	12/9/2020	9:07	0-4	1	X													COMPOSITE
SW61	S	12/9/2020	9:13	0-4	1	X													COMPOSITE
SW62	S	12/9/2020	9:21	0-4	1	X													COMPOSITE
SW81	S	12/9/2020	9:50	0-4	1	X													COMPOSITE
SW82	S	12/9/2020	9:59	0-4	1	X													COMPOSITE
SW83	S	12/9/2020	10:07	0-4	1	X													COMPOSITE
SW84	S	12/9/2020	10:14	0-4	1	X													COMPOSITE
SW85	S	12/9/2020	10:21	0-4	1	X													COMPOSITE
SW86	S	12/9/2020	10:29	0-4	1	X													COMPOSITE

Total 200.7 / 6010 200.8 / 6020:

Circle Method(s) and Metal(s) to be analyzed: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn
 TCIP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. 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 Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to 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
<i>[Signature]</i>	<i>[Signature]</i>	12/9/2020 14:00	<i>[Signature]</i>	<i>[Signature]</i>	12-9-20 16:14

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 12.09.2020 04.14.00 PM

Work Order #: 680475

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	13
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

Samples received in bulk containers.

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 12.09.2020

Checklist reviewed by:



Jessica Kramer

Date: 12.10.2020

Certificate of Analysis Summary 680478



WSP USA, Dallas, TX

Project Name: Row 4 Wolverine SWD Riser

Project Id: TE012920091

Date Received in Lab: Wed 12.09.2020 16:18

Contact: Dan Moir

Report Date: 12.14.2020 10:18

Project Location:

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	680478-001	680478-002	680478-003	680478-004		
	<i>Field Id:</i>	SW70	SW71	SW72	SW73		
	<i>Depth:</i>	0-4 ft	0-4 ft	0-4 ft	0-4 ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	12.09.2020 10:36	12.09.2020 10:43	12.09.2020 10:51	12.09.2020 10:59		
Chloride by EPA 300	<i>Extracted:</i>	12.10.2020 08:38	12.10.2020 08:38	12.10.2020 08:38	12.10.2020 08:38		
	<i>Analyzed:</i>	12.10.2020 14:03	12.10.2020 14:09	12.10.2020 14:26	12.10.2020 14:31		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		46.9 9.90	6220 99.0	2990 50.4	222 9.92		

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 680478

for

WSP USA

Project Manager: Dan Moir

Row 4 Wolverine SWD Riser

TE012920091

12.14.2020

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



12.14.2020

Project Manager: **Dan Moir**

WSP USA

2777 N. Stemmons Freeway, Suite 1600
Dallas, TX 75207

Reference: Eurofins Xenco, LLC Report No(s): **680478**

Row 4 Wolverine SWD Riser

Project Address:

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 680478. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 680478 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 680478****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW70	S	12.09.2020 10:36	0 - 4 ft	680478-001
SW71	S	12.09.2020 10:43	0 - 4 ft	680478-002
SW72	S	12.09.2020 10:51	0 - 4 ft	680478-003
SW73	S	12.09.2020 10:59	0 - 4 ft	680478-004



CASE NARRATIVE

Client Name: WSP USA

Project Name: Row 4 Wolverine SWD Riser

Project ID: TE012920091
Work Order Number(s): 680478

Report Date: 12.14.2020
Date Received: 12.09.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

**Certificate of Analytical Results 680478****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW70**
Lab Sample Id: 680478-001

Matrix: Soil
Date Collected: 12.09.2020 10:36

Date Received: 12.09.2020 16:18
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.10.2020 08:38

% Moisture:
Basis: Wet Weight

Seq Number: 3144560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	46.9	9.90	mg/kg	12.10.2020 14:03		1

**Certificate of Analytical Results 680478****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW71**
Lab Sample Id: 680478-002

Matrix: Soil
Date Collected: 12.09.2020 10:43

Date Received: 12.09.2020 16:18
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.10.2020 08:38

% Moisture:
Basis: Wet Weight

Seq Number: 3144560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6220	99.0	mg/kg	12.10.2020 14:09		10

**Certificate of Analytical Results 680478****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW72**
Lab Sample Id: 680478-003

Matrix: Soil
Date Collected: 12.09.2020 10:51

Date Received: 12.09.2020 16:18
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.10.2020 08:38

% Moisture:
Basis: Wet Weight

Seq Number: 3144560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2990	50.4	mg/kg	12.10.2020 14:26		5



Certificate of Analytical Results 680478

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW73**
Lab Sample Id: 680478-004

Matrix: Soil
Date Collected: 12.09.2020 10:59

Date Received: 12.09.2020 16:18
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.10.2020 08:38

% Moisture:
Basis: Wet Weight

Seq Number: 3144560

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	222	9.92	mg/kg	12.10.2020 14:31		1



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



WSP USA

Row 4 Wolverine SWD Riser

Analytical Method: Chloride by EPA 300

Seq Number: 3144560

MB Sample Id: 7716881-1-BLK

Matrix: Solid

LCS Sample Id: 7716881-1-BKS

Prep Method: E300P

Date Prep: 12.10.2020

LCSD Sample Id: 7716881-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	234	94	235	94	90-110	0	20	mg/kg	12.10.2020 12:40	

Analytical Method: Chloride by EPA 300

Seq Number: 3144560

Parent Sample Id: 680475-001

Matrix: Soil

MS Sample Id: 680475-001 S

Prep Method: E300P

Date Prep: 12.10.2020

MSD Sample Id: 680475-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	502	199	686	92	684	90	90-110	0	20	mg/kg	12.10.2020 12:56	

Analytical Method: Chloride by EPA 300

Seq Number: 3144560

Parent Sample Id: 680478-002

Matrix: Soil

MS Sample Id: 680478-002 S

Prep Method: E300P

Date Prep: 12.10.2020

MSD Sample Id: 680478-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	6220	201	6420	100	6410	95	90-110	0	20	mg/kg	12.10.2020 14:14	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * | (C - E) / (C + E) |$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec

Work Order No: 680478

Page 1 of 1

Work Order Comments	
Program: UST/PST	<input type="checkbox"/> RP <input type="checkbox"/> Growfields <input type="checkbox"/> RC <input type="checkbox"/> \$perfund <input type="checkbox"/>
State of Project:	
Reporting Level II	<input type="checkbox"/> Level III <input type="checkbox"/> ST/UST <input type="checkbox"/> RP <input type="checkbox"/> Level IV <input type="checkbox"/>
Deliverables: EDD	<input type="checkbox"/> ADAPT <input type="checkbox"/> Other:

[illegible]

Number of Containers	
A 8015)	
PA 0=8021)	
(EPA 300.0)	Only
TAT starts the day received by the lab if received by 4:30pm	

[illegible]

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn
TCLP/SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U
1631 / 245.1 / 7470 / 7471 : Hg

1631 / 245.1 / 7470 / 7471 : Hg

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>[Signature]</i>	<i>[Signature]</i>	12.9.20 16:18			

Revised Date 05/11/19 Row 10/10

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: WSP USA

Date/ Time Received: 12.09.2020 04.18.00 PM

Work Order #: 680478

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist**Comments**

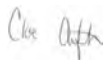
#1 *Temperature of cooler(s)?	.6	
#2 *Shipping container in good condition?	Yes	
#3 *Samples received on ice?	Yes	
#4 *Custody Seals intact on shipping container/ cooler?	Yes	
#5 Custody Seals intact on sample bottles?	Yes	
#6 *Custody Seals Signed and dated?	Yes	
#7 *Chain of Custody present?	Yes	
#8 Any missing/extra samples?	No	
#9 Chain of Custody signed when relinquished/ received?	Yes	
#10 Chain of Custody agrees with sample labels/matrix?	Yes	
#11 Container label(s) legible and intact?	Yes	
#12 Samples in proper container/ bottle?	Yes	Samples received in bulk containers.
#13 Samples properly preserved?	Yes	
#14 Sample container(s) intact?	Yes	
#15 Sufficient sample amount for indicated test(s)?	Yes	
#16 All samples received within hold time?	Yes	
#17 Subcontract of sample(s)?	No	
#18 Water VOC samples have zero headspace?	N/A	

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 12.09.2020

Checklist reviewed by:



Jessica Kramer

Date: 12.10.2020

Certificate of Analysis Summary 681577

WSP USA, Dallas, TX

Project Name: Row 4 Wolverine SWD Riser

Project Id: TE012920091

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed 12.16.2020 16:27

Report Date: 12.21.2020 09:50

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	681577-001	681577-002	681577-003			
	<i>Field Id:</i>	SW87	SW88	SW89			
	<i>Depth:</i>	0-4 ft	0-4 ft	0-4 ft			
	<i>Matrix:</i>	SOIL	SOIL	SOIL			
	<i>Sampled:</i>	12.16.2020 11:34	12.16.2020 11:41	12.16.2020 11:49			
Chloride by EPA 300	<i>Extracted:</i>	12.17.2020 12:43	12.17.2020 12:43	12.17.2020 12:43			
	<i>Analyzed:</i>	12.18.2020 12:58	12.18.2020 13:15	12.18.2020 13:22			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		22.6 9.94	14.4 9.92	358 9.94			

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico





Analytical Report 681577

for

WSP USA

Project Manager: Dan Moir

Row 4 Wolverine SWD Riser

TE012920091

12.21.2020

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



12.21.2020

Project Manager: **Dan Moir**

WSP USA

2777 N. Stemmons Freeway, Suite 1600
Dallas, TX 75207

Reference: Eurofins Xenco, LLC Report No(s): **681577**

Row 4 Wolverine SWD Riser

Project Address:

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 681577. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 681577 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Sample Cross Reference 681577

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW87	S	12.16.2020 11:34	0 - 4 ft	681577-001
SW88	S	12.16.2020 11:41	0 - 4 ft	681577-002
SW89	S	12.16.2020 11:49	0 - 4 ft	681577-003



CASE NARRATIVE

Client Name: WSP USA

Project Name: Row 4 Wolverine SWD Riser

Project ID: TE012920091
Work Order Number(s): 681577

Report Date: 12.21.2020
Date Received: 12.16.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

**Certificate of Analytical Results 681577****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW87**
Lab Sample Id: 681577-001

Matrix: Soil
Date Collected: 12.16.2020 11:34

Date Received: 12.16.2020 16:27
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.17.2020 12:43

% Moisture:
Basis: Wet Weight

Seq Number: 3145340

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	22.6	9.94	mg/kg	12.18.2020 12:58		1



Certificate of Analytical Results 681577

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW88**
Lab Sample Id: 681577-002

Matrix: Soil
Date Collected: 12.16.2020 11:41

Date Received: 12.16.2020 16:27
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.17.2020 12:43

% Moisture:
Basis: Wet Weight

Seq Number: 3145340

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	14.4	9.92	mg/kg	12.18.2020 13:15		1

**Certificate of Analytical Results 681577****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW89**
Lab Sample Id: 681577-003

Matrix: Soil
Date Collected: 12.16.2020 11:49

Date Received: 12.16.2020 16:27
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.17.2020 12:43

% Moisture:
Basis: Wet Weight

Seq Number: 3145340

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	358	9.94	mg/kg	12.18.2020 13:22		1



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



WSP USA

Row 4 Wolverine SWD Riser

Analytical Method: Chloride by EPA 300

Seq Number: 3145340

MB Sample Id: 7717428-1-BLK

Matrix: Solid

LCS Sample Id: 7717428-1-BKS

Prep Method: E300P

Date Prep: 12.17.2020

LCSD Sample Id: 7717428-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	244	98	247	99	90-110	1	20	mg/kg	12.18.2020 12:46	

Analytical Method: Chloride by EPA 300

Seq Number: 3145340

Parent Sample Id: 681577-001

Matrix: Soil

MS Sample Id: 681577-001 S

Prep Method: E300P

Date Prep: 12.17.2020

MSD Sample Id: 681577-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	22.6	200	213	95	215	96	90-110	1	20	mg/kg	12.18.2020 13:04	

Analytical Method: Chloride by EPA 300

Seq Number: 3145340

Parent Sample Id: 681584-002

Matrix: Soil

MS Sample Id: 681584-002 S

Prep Method: E300P

Date Prep: 12.17.2020

MSD Sample Id: 681584-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	11600	201	11800	100	11800	100	90-110	0	20	mg/kg	12.18.2020 14:58	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * | (C - E) / (C + E) |$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec



Chain of Custody

Work Order No: 681537

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432-704-5440) EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
 Hobbs, NM (575-392-7550) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8900) Tampa, FL (813-620-2000)

www.xenco.com Page 1 of 1

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littlell
Company Name:	WSP USA	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	522 W. Mermod St.
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	jeremy.hill@wsp.com, Dan.Moir@wsp.com

Program: UST/PST	<input type="checkbox"/> RP	<input type="checkbox"/> Brownfields	<input type="checkbox"/> RC	<input type="checkbox"/> Deepfund
State of Project:				
Reporting Level II	<input type="checkbox"/> Level III	<input type="checkbox"/> PST/UST	<input type="checkbox"/> RP	<input type="checkbox"/> Level IV
Deliverables: EDD	<input type="checkbox"/>	ADAPT	<input type="checkbox"/>	Other:

Project Name:	Lowy Uldene Sub Reser	Turn Around	
Project Number:	TE01930051	Routine	<input checked="" type="checkbox"/>
P.O. Number:	5011 det 6/1/20	Rush:	
Sampler's Name:	Jeremy Hill	Due Date:	

SAMPLE RECEIPT	Temp Blank:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Wet Ice:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
	Temperature (°C):	10.2 / 10.0	Thermometer ID	
	Received Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Correction Factor:	-0.2
	Cooler Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total Containers:	3
	Sample Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 8062)	Chloride (EPA 300.0)	ANALYSIS REQUEST	Work Order Notes
SL 87	S	12/16/20	1134	0-4'	1					
SL 88	S	12/16/20	1141							
SL 89	S	12/16/20	1149							
<div style="border: 1px solid black; height: 100px; width: 100%;"></div>										
						TAT starts the day received by the lab, if received by 4:30pm				
						Sample Comments				
						Correct				

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 SiO2 Na Sr Ti 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 Ti U 1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. 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 Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to 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
SPY Wi	Joe Giff	12.16.20 11:27			

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: WSP USA

Date/ Time Received: 12.16.2020 04.27.00 PM

Work Order #: 681577

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	6
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

Samples received in bulk containers.

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 12.17.2020

Checklist reviewed by:



Jessica Kramer

Date: 12.18.2020

Certificate of Analysis Summary 681972

WSP USA, Dallas, TX

Project Name: Wolverine SWD Riser

Project Id: TE012920091
 Contact: Dan Moir
 Project Location: Eddy County, New Mexico

Date Received in Lab: Fri 12.18.2020 16:55
 Report Date: 12.23.2020 11:46
 Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	681972-001	681972-002				
	<i>Field Id:</i>	SW10	SW11				
	<i>Depth:</i>	0-4 ft	0-4 ft				
	<i>Matrix:</i>	SOIL	SOIL				
	<i>Sampled:</i>	12.19.2020 15:10	12.19.2020 15:15				
Chloride by EPA 300	<i>Extracted:</i>	12.19.2020 18:08	12.19.2020 18:08				
	<i>Analyzed:</i>	12.21.2020 12:10	12.21.2020 12:16				
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				
Chloride		<9.96 9.96	58.2 9.98				

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico





Analytical Report 681972

for

WSP USA

Project Manager: Dan Moir

Wolverine SWD Riser

TE012920091

12.23.2020

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



12.23.2020

Project Manager: **Dan Moir**

WSP USA

2777 N. Stemmons Freeway, Suite 1600

Dallas, TX 75207

Reference: Eurofins Xenco, LLC Report No(s): **681972**

Wolverine SWD Riser

Project Address: Eddy County, New Mexico

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 681972. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 681972 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Sample Cross Reference 681972

WSP USA, Dallas, TX

Wolverine SWD Riser

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW10	S	12.19.2020 15:10	0 - 4 ft	681972-001
SW11	S	12.19.2020 15:15	0 - 4 ft	681972-002



CASE NARRATIVE

Client Name: WSP USA

Project Name: Wolverine SWD Riser

Project ID: TE012920091
Work Order Number(s): 681972

Report Date: 12.23.2020
Date Received: 12.18.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

**Certificate of Analytical Results 681972****WSP USA, Dallas, TX****Wolverine SWD Riser**

Sample Id: **SW10**
Lab Sample Id: 681972-001

Matrix: Soil
Date Collected: 12.19.2020 15:10

Date Received: 12.18.2020 16:55
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.19.2020 18:08

% Moisture:
Basis: Wet Weight

Seq Number: 3145669

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.96	9.96	mg/kg	12.21.2020 12:10	U	1

**Certificate of Analytical Results 681972****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW11**
Lab Sample Id: 681972-002

Matrix: Soil
Date Collected: 12.19.2020 15:15

Date Received: 12.18.2020 16:55
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.19.2020 18:08

% Moisture:
Basis: Wet Weight

Seq Number: 3145669

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	58.2	9.98	mg/kg	12.21.2020 12:16		1



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



WSP USA
Wolverine SWD Riser

Analytical Method: Chloride by EPA 300

Seq Number: 3145669

MB Sample Id: 7717518-1-BLK

Matrix: Solid

LCS Sample Id: 7717518-1-BKS

Prep Method: E300P

Date Prep: 12.19.2020

LCSD Sample Id: 7717518-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	261	104	261	104	90-110	0	20	mg/kg	12.21.2020 09:34	

Analytical Method: Chloride by EPA 300

Seq Number: 3145669

Parent Sample Id: 681884-001

Matrix: Soil

MS Sample Id: 681884-001 S

Prep Method: E300P

Date Prep: 12.19.2020

MSD Sample Id: 681884-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	46.5	199	258	106	258	106	90-110	0	20	mg/kg	12.21.2020 09:52	

Analytical Method: Chloride by EPA 300

Seq Number: 3145669

Parent Sample Id: 681884-011

Matrix: Soil

MS Sample Id: 681884-011 S

Prep Method: E300P

Date Prep: 12.19.2020

MSD Sample Id: 681884-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<9.96	199	208	105	205	103	90-110	1	20	mg/kg	12.21.2020 11:16	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
Midland, TX (432-704-5440) EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813) 251-3333
Hobbs, NM (575-392-7550)

Page 1 of 1

Chain of Custody

Work Order No:

681972

Work Order Comments					
Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littrell		
Company Name:	WSP USA Inc. Permian office	Company Name:	XTO Energy		
Address:	3300 North A Street	Address:	522 West Mermond		
City, State ZIP:	Midland, Tx 79705	City, State ZIP:	Carlsbad, NM 88220		
Phone:	(432) 236-3849	Email:	enaka@lternv.com, dmoir@lternv.com		

ANALYSIS REQUEST					
Program: UST/PST <input type="checkbox"/> RP <input type="checkbox"/> Growfields <input checked="" type="checkbox"/> RC \$perfund <input type="checkbox"/>					
State of Project:					
Reporting Level II <input type="checkbox"/> Level III <input type="checkbox"/> ST/UST <input type="checkbox"/> RP <input checked="" type="checkbox"/> Level IV <input type="checkbox"/>					
Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other: _____					
					Work Order Notes

Project Name:		Wilmington SWD Kiser		Turn Around	
Project Number:		TE012920091		Routine <input checked="" type="checkbox"/>	
P.O. Number:		Eddy County		Rush:	
Sampler's Name:		Elizabeth Naka		Due Date:	

SAMPLE RECEIPT		Temp Blank:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Wet Ice:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Temperature (°C):		5.0/4.8 Thermometer ID			
Received Intact:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Cooler Custody Seals:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Sample Custody Seals:		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No			
Total Containers:		2			

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)	TAT starts the day received by the lab, if received by 4:30pm									
SW10	S	12/18/20	1510	0'-4'	1				comp's H									
SW11	S	12/18/20	1515	0'-4'	1				comp's H									
1631 / 245.1 / 7470 / 7471 : Hg																		

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 SiO2 Na Sr Ti 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 Ti U														
Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. 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 Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to 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 <i>[Signature]</i>		1 <i>[Signature]</i>		12-18-20 1655		2								
3						4								
5						6								

Revised Date 05/14/18 Rev. 20

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: WSP USA

Date/ Time Received: 12.19.2020 04.55.00 PM

Work Order #: 681972

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	4.8
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

Samples received in bulk containers

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 12.21.2020

Checklist reviewed by:



Jessica Kramer

Date: 12.21.2020

Certificate of Analysis Summary 682134



WSP USA, Dallas, TX

Project Name: Wolverine SWD Riser

Project Id: TE012920091
Contact: Dan Moir
Project Location: Eddy County, New Mexico

Date Received in Lab: Mon 12.21.2020 16:43
Report Date: 12.28.2020 11:43
Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	682134-001	682134-002	682134-003	682134-004	682134-005	682134-006
	Field Id:	SW50	SW52	SW53	SW54	SW03	SW04
	Depth:	0-4 ft	0-4 ft	0-4 ft	0-4 ft	0-4 ft	0-4 ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	12.21.2020 09:10	12.21.2020 09:15	12.21.2020 09:20	12.21.2020 09:25	12.21.2020 10:25	12.21.2020 10:30
Chloride by EPA 300	Extracted:	12.22.2020 11:00	12.22.2020 11:00	12.22.2020 11:00	12.22.2020 11:00	12.22.2020 11:00	12.22.2020 11:00
	Analyzed:	12.22.2020 13:02	12.22.2020 13:20	12.22.2020 13:26	12.22.2020 13:32	12.22.2020 13:38	12.22.2020 13:56
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		176 9.92	19.2 9.96	18.7 10.0	127 10.0	15.8 9.98	15.8 9.92

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Certificate of Analysis Summary 682134



WSP USA, Dallas, TX

Project Name: Wolverine SWD Riser

Project Id: TE012920091
Contact: Dan Moir
Project Location: Eddy County, New Mexico

Date Received in Lab: Mon 12.21.2020 16:43
Report Date: 12.28.2020 11:43
Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	682134-007	682134-008	682134-009	682134-010		
	<i>Field Id:</i>	SW42	SW41	SW36	SW37		
	<i>Depth:</i>	0-4 ft	0-4 ft	0-4 ft	0-4 ft		
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	12.21.2020 12:30	12.21.2020 12:35	12.21.2020 13:20	12.21.2020 13:25		
Chloride by EPA 300	<i>Extracted:</i>	12.22.2020 11:00	12.22.2020 11:00	12.22.2020 11:00	12.22.2020 11:00		
	<i>Analyzed:</i>	12.22.2020 14:02	12.22.2020 14:08	12.22.2020 14:14	12.22.2020 14:20		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		36.8 9.94	23.8 9.96	268 10.0	243 9.98		

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 682134

for

WSP USA

Project Manager: Dan Moir

Wolverine SWD Riser

TE012920091

12.28.2020

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



12.28.2020

Project Manager: **Dan Moir**

WSP USA

2777 N. Stemmons Freeway, Suite 1600
Dallas, TX 75207

Reference: Eurofins Xenco, LLC Report No(s): **682134**

Wolverine SWD Riser

Project Address: Eddy County, New Mexico

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 682134. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 682134 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 682134****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW50	S	12.21.2020 09:10	0 - 4 ft	682134-001
SW52	S	12.21.2020 09:15	0 - 4 ft	682134-002
SW53	S	12.21.2020 09:20	0 - 4 ft	682134-003
SW54	S	12.21.2020 09:25	0 - 4 ft	682134-004
SW03	S	12.21.2020 10:25	0 - 4 ft	682134-005
SW04	S	12.21.2020 10:30	0 - 4 ft	682134-006
SW42	S	12.21.2020 12:30	0 - 4 ft	682134-007
SW41	S	12.21.2020 12:35	0 - 4 ft	682134-008
SW36	S	12.21.2020 13:20	0 - 4 ft	682134-009
SW37	S	12.21.2020 13:25	0 - 4 ft	682134-010



CASE NARRATIVE

Client Name: WSP USA

Project Name: Wolverine SWD Riser

Project ID: TE012920091
Work Order Number(s): 682134

Report Date: 12.28.2020
Date Received: 12.21.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

**Certificate of Analytical Results 682134****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW50**
Lab Sample Id: 682134-001

Matrix: Soil
Date Collected: 12.21.2020 09:10

Date Received: 12.21.2020 16:43
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.22.2020 11:00

% Moisture:
Basis: Wet Weight

Seq Number: 3146061

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	176	9.92	mg/kg	12.22.2020 13:02		1

**Certificate of Analytical Results 682134****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW52**
Lab Sample Id: 682134-002

Matrix: Soil
Date Collected: 12.21.2020 09:15

Date Received: 12.21.2020 16:43
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.22.2020 11:00

% Moisture:
Basis: Wet Weight

Seq Number: 3146061

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	19.2	9.96	mg/kg	12.22.2020 13:20		1

**Certificate of Analytical Results 682134****WSP USA, Dallas, TX****Wolverine SWD Riser**

Sample Id: **SW53**
Lab Sample Id: 682134-003

Matrix: Soil
Date Collected: 12.21.2020 09:20

Date Received: 12.21.2020 16:43
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.22.2020 11:00

% Moisture:
Basis: Wet Weight

Seq Number: 3146061

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	18.7	10.0	mg/kg	12.22.2020 13:26		1

**Certificate of Analytical Results 682134****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW54**
Lab Sample Id: 682134-004

Matrix: Soil
Date Collected: 12.21.2020 09:25

Date Received: 12.21.2020 16:43
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.22.2020 11:00

% Moisture:
Basis: Wet Weight

Seq Number: 3146061

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	127	10.0	mg/kg	12.22.2020 13:32		1

**Certificate of Analytical Results 682134****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW03**

Matrix: Soil

Date Received: 12.21.2020 16:43

Lab Sample Id: 682134-005

Date Collected: 12.21.2020 10:25

Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.22.2020 11:00

% Moisture:

Seq Number: 3146061

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	15.8	9.98	mg/kg	12.22.2020 13:38		1

**Certificate of Analytical Results 682134****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW04**
Lab Sample Id: 682134-006

Matrix: Soil
Date Collected: 12.21.2020 10:30

Date Received: 12.21.2020 16:43
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.22.2020 11:00

% Moisture:
Basis: Wet Weight

Seq Number: 3146061

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	15.8	9.92	mg/kg	12.22.2020 13:56		1

**Certificate of Analytical Results 682134****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW42**
Lab Sample Id: 682134-007

Matrix: Soil
Date Collected: 12.21.2020 12:30

Date Received: 12.21.2020 16:43
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.22.2020 11:00

% Moisture:
Basis: Wet Weight

Seq Number: 3146061

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	36.8	9.94	mg/kg	12.22.2020 14:02		1

**Certificate of Analytical Results 682134****WSP USA, Dallas, TX****Wolverine SWD Riser**

Sample Id: **SW41**
Lab Sample Id: 682134-008

Matrix: Soil
Date Collected: 12.21.2020 12:35

Date Received: 12.21.2020 16:43
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.22.2020 11:00

% Moisture:
Basis: Wet Weight

Seq Number: 3146061

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	23.8	9.96	mg/kg	12.22.2020 14:08		1

**Certificate of Analytical Results 682134****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW36**
Lab Sample Id: 682134-009

Matrix: Soil
Date Collected: 12.21.2020 13:20

Date Received: 12.21.2020 16:43
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.22.2020 11:00

% Moisture:
Basis: Wet Weight

Seq Number: 3146061

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	268	10.0	mg/kg	12.22.2020 14:14		1

**Certificate of Analytical Results 682134****WSP USA, Dallas, TX****Wolverine SWD Riser**

Sample Id: **SW37**
Lab Sample Id: 682134-010

Matrix: Soil
Date Collected: 12.21.2020 13:25

Date Received: 12.21.2020 16:43
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.22.2020 11:00

% Moisture:
Basis: Wet Weight

Seq Number: 3146061

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	243	9.98	mg/kg	12.22.2020 14:20		1



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



WSP USA
Wolverine SWD Riser

Analytical Method: Chloride by EPA 300

Seq Number: 3146061

MB Sample Id: 7717660-1-BLK

Matrix: Solid

LCS Sample Id: 7717660-1-BKS

Prep Method: E300P

Date Prep: 12.22.2020

LCSD Sample Id: 7717660-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	259	104	260	104	90-110	0	20	mg/kg	12.22.2020 12:50	

Analytical Method: Chloride by EPA 300

Seq Number: 3146061

Parent Sample Id: 682134-001

Matrix: Soil

MS Sample Id: 682134-001 S

Prep Method: E300P

Date Prep: 12.22.2020

MSD Sample Id: 682134-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	176	200	391	108	389	107	90-110	1	20	mg/kg	12.22.2020 13:08	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * | (C - E) / (C + E) |$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



Chain of Custody

Work Order No: 1682134

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432) 704-5440 EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296

Hobbs, NM (575) 392-7550 Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8800 Tampa, FL (813) 620-2000

www.xenco.com Page 1 of 1

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Litrell
Company Name:	WSP USA Inc, Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	522 West Mermond
City, State ZIP:	Midland, Tx 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	anaka@lienry.com, dmoir@lienry.com

Program: UST/PST <input type="checkbox"/> RP <input type="checkbox"/> Crownfields <input type="checkbox"/> RC <input type="checkbox"/> Superfund <input type="checkbox"/> State of Project:	
Reporting Level II <input type="checkbox"/>	Level III <input type="checkbox"/> ST/UST <input type="checkbox"/> RP <input type="checkbox"/> Level IV <input type="checkbox"/>
Deliverables: EDD <input type="checkbox"/>	ADAPT <input type="checkbox"/> Other: <input type="checkbox"/>

Project Name:	Molitor SWD P-30		Turn Around													Work Order Notes			
Project Number:	TE012920091		Routine <input checked="" type="checkbox"/>																
P.O. Number:	Eddy County		Rush:													TAT starts the day received by the lab, if received by 4:30pm			
Sampler's Name:	Elizabeth Naka		Due Date:																
SAMPLE RECEIPT				Temp Blank:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Wet Ice:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No												
Temperature (°C):	0.6/0.4		Thermometer ID																
Received Intact:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Correction Factor:	-0.2															
Cooler Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Total Containers:	10															
Sample Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No																		
Sample Identification				Matrix	Date Sampled	Time Sampled	Depth	Number of Containers											
SW 50	5	12/21/20	0910	0'-4"	1	TPH (EPA 8015)													
SW 52			0915			BTX (EPA 0-8021)													
SW 53			0928			<input checked="" type="checkbox"/> Chloride (EPA 300.0)													
SW 54			0925																
SW 03			1025																
SW 04			1030																
SW 42			1230																
SW 41			1235																
SW 36			1320																
SW 37			1325																
Total 200.7 / 6010 200.8 / 6020:																Sample Comments			
Circle Method(s) and Metal(s) to be analyzed																			
8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn																			
TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U																			
1631 / 245.1 / 7470 / 7471 : Hg																			

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. 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 Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$8 for each sample submitted to 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
<i>Elizabeth Naka</i>	<i>Clae Luffe</i>	12-21-20 1643			

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: WSP USA

Date/ Time Received: 12.21.2020 04.43.00 PM

Work Order #: 682134

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	.4
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

Samples received in bulk containers.

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 12.21.2020

Checklist reviewed by:



Jessica Kramer

Date: 12.22.2020

Certificate of Analysis Summary 682314



WSP USA, Dallas, TX

Project Name: Wolverine SWD Riser

Project Id: TE012920094

Date Received in Lab: Tue 12.22.2020 16:30

Contact: Dan Moir

Report Date: 12.29.2020 11:46

Project Location: Eddy County, New Mexico

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	682314-001	682314-002	682314-003	682314-004	682314-005	682314-006
	<i>Field Id:</i>	SW32	SW33	SW28	SW29	SW18	SW90
	<i>Depth:</i>	0-4 ft	0-4 ft	0-4 ft	0-4 ft	0-4 ft	0-4 ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	12.22.2020 13:30	12.22.2020 13:35	12.22.2020 14:05	12.22.2020 14:10	12.22.2020 14:40	12.22.2020 14:45
Chloride by EPA 300	<i>Extracted:</i>	12.28.2020 11:46	12.28.2020 11:46	12.28.2020 11:46	12.28.2020 11:46	12.28.2020 11:46	12.28.2020 11:46
	<i>Analyzed:</i>	12.28.2020 14:06	12.28.2020 14:24	12.28.2020 14:30	12.28.2020 14:48	12.28.2020 14:54	12.28.2020 15:00
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		393 9.96	393 9.92	73.2 9.96	94.5 9.98	21.2 10.0	21.8 9.94

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Certificate of Analysis Summary 682314

WSP USA, Dallas, TX

Project Name: Wolverine SWD Riser

Project Id: TE012920094
 Contact: Dan Moir
 Project Location: Eddy County, New Mexico

Date Received in Lab: Tue 12.22.2020 16:30
 Report Date: 12.29.2020 11:46
 Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	682314-007					
	<i>Field Id:</i>	SW07					
	<i>Depth:</i>	0-4 ft					
	<i>Matrix:</i>	SOIL					
	<i>Sampled:</i>	12.22.2020 14:50					
Chloride by EPA 300	<i>Extracted:</i>	12.28.2020 11:46					
	<i>Analyzed:</i>	12.28.2020 15:06					
	<i>Units/RL:</i>	mg/kg RL					
Chloride		20.1 9.98					

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico





Analytical Report 682314

for

WSP USA

Project Manager: Dan Moir

Wolverine SWD Riser

TE012920094

12.29.2020

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



12.29.2020

Project Manager: **Dan Moir**

WSP USA

2777 N. Stemmons Freeway, Suite 1600
Dallas, TX 75207

Reference: Eurofins Xenco, LLC Report No(s): **682314**

Wolverine SWD Riser

Project Address: Eddy County, New Mexico

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 682314. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 682314 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 682314****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW32	S	12.22.2020 13:30	0 - 4 ft	682314-001
SW33	S	12.22.2020 13:35	0 - 4 ft	682314-002
SW28	S	12.22.2020 14:05	0 - 4 ft	682314-003
SW29	S	12.22.2020 14:10	0 - 4 ft	682314-004
SW18	S	12.22.2020 14:40	0 - 4 ft	682314-005
SW90	S	12.22.2020 14:45	0 - 4 ft	682314-006
SW07	S	12.22.2020 14:50	0 - 4 ft	682314-007



CASE NARRATIVE

Client Name: WSP USA

Project Name: Wolverine SWD Riser

Project ID: TE012920094
Work Order Number(s): 682314

Report Date: 12.29.2020
Date Received: 12.22.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

**Certificate of Analytical Results 682314****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW32**
Lab Sample Id: 682314-001

Matrix: Soil
Date Collected: 12.22.2020 13:30

Date Received: 12.22.2020 16:30
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.28.2020 11:46

% Moisture:
Basis: Wet Weight

Seq Number: 3146198

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	393	9.96	mg/kg	12.28.2020 14:06		1

**Certificate of Analytical Results 682314****WSP USA, Dallas, TX****Wolverine SWD Riser**

Sample Id: **SW33**
Lab Sample Id: 682314-002

Matrix: Soil
Date Collected: 12.22.2020 13:35

Date Received: 12.22.2020 16:30
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.28.2020 11:46

% Moisture:
Basis: Wet Weight

Seq Number: 3146198

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	393	9.92	mg/kg	12.28.2020 14:24		1

**Certificate of Analytical Results 682314****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW28**
Lab Sample Id: 682314-003

Matrix: Soil
Date Collected: 12.22.2020 14:05

Date Received: 12.22.2020 16:30
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.28.2020 11:46

% Moisture:
Basis: Wet Weight

Seq Number: 3146198

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	73.2	9.96	mg/kg	12.28.2020 14:30		1

**Certificate of Analytical Results 682314****WSP USA, Dallas, TX****Wolverine SWD Riser**

Sample Id: **SW29**
Lab Sample Id: 682314-004

Matrix: Soil
Date Collected: 12.22.2020 14:10

Date Received: 12.22.2020 16:30
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.28.2020 11:46

% Moisture:
Basis: Wet Weight

Seq Number: 3146198

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	94.5	9.98	mg/kg	12.28.2020 14:48		1

**Certificate of Analytical Results 682314****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW18**
Lab Sample Id: 682314-005

Matrix: Soil
Date Collected: 12.22.2020 14:40

Date Received: 12.22.2020 16:30
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.28.2020 11:46

% Moisture:
Basis: Wet Weight

Seq Number: 3146198

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	21.2	10.0	mg/kg	12.28.2020 14:54		1

**Certificate of Analytical Results 682314****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW90**
Lab Sample Id: 682314-006

Matrix: Soil
Date Collected: 12.22.2020 14:45

Date Received: 12.22.2020 16:30
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.28.2020 11:46

% Moisture:
Basis: Wet Weight

Seq Number: 3146198

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	21.8	9.94	mg/kg	12.28.2020 15:00		1

**Certificate of Analytical Results 682314****WSP USA, Dallas, TX****Wolverine SWD Riser**

Sample Id: **SW07**
Lab Sample Id: 682314-007

Matrix: Soil
Date Collected: 12.22.2020 14:50

Date Received: 12.22.2020 16:30
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.28.2020 11:46

% Moisture:
Basis: Wet Weight

Seq Number: 3146198

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	20.1	9.98	mg/kg	12.28.2020 15:06		1



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



WSP USA
Wolverine SWD Riser

Analytical Method: Chloride by EPA 300

Seq Number: 3146198

MB Sample Id: 7717954-1-BLK

Matrix: Solid

LCS Sample Id: 7717954-1-BKS

Prep Method: E300P

Date Prep: 12.28.2020

LCSD Sample Id: 7717954-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	260	104	260	104	90-110	0	20	mg/kg	12.28.2020 12:30	

Analytical Method: Chloride by EPA 300

Seq Number: 3146198

Parent Sample Id: 682305-001

Matrix: Soil

MS Sample Id: 682305-001 S

Prep Method: E300P

Date Prep: 12.28.2020

MSD Sample Id: 682305-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<9.98	200	206	103	206	104	90-110	0	20	mg/kg	12.28.2020 12:48	

Analytical Method: Chloride by EPA 300

Seq Number: 3146198

Parent Sample Id: 682314-001

Matrix: Soil

MS Sample Id: 682314-001 S

Prep Method: E300P

Date Prep: 12.28.2020

MSD Sample Id: 682314-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	393	200	611	109	613	110	90-110	0	20	mg/kg	12.28.2020 14:12	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



Chain of Custody

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432-704-5440) EL Paso, TX (915)585-3443 Lubbock, TX (806)794-1296

Work Order No:

682314

Project Manager: Dan Moir
 Bill to: (if different) Kyle Litrell

www.xenco.com Page 1 of 1

Company Name: WSP USA Inc, Permian office

Address: 3300 North A Street

City, State ZIP: Midland, TX 79705

Phone: (432) 236-3849

Email: enaka@ltenv.com, dmoir@ltenv.com

Project Name: WSP USA SMD River

Project Number: T6012928094

P.O. Number: Eddy County

Sampler's Name: Elizabeth Naka

Turn Around: Routine

Rush: Due Date:

Temp Blank: Yes No

Wet Ice: Yes No

Thermometer ID: 1-NM-007

Correction Factor: 0.2

Total Containers: 1650

Temperature (°C): 1.2/1.0

Received Intact: Yes No

Cooler Custody Seals: Yes No

Sample Custody Seals: Yes No

Sample Identification

Matrix

Date

Sampled

Time

Depth

Number of Containers

TPH (EPA 8015)

BTEX (EPA 0=8021)

Chloride (EPA 300.0)

Analysis Request

Work Order Notes

Program: UST/PST

State of Project:

Reporting Level II

Deliverables: EDD

Level III

ST/UST

RP

Level IV

Other:

Adapt

Other:

Work Order Comments

Program: UST/PST

State of Project:

Reporting Level II

Deliverables: EDD

Level III

ST/UST

RP

Level IV

Other:

Work Order Comments

Program: UST/PST

State of Project:

Reporting Level II

Deliverables: EDD

Level III

ST/UST

RP

Level IV

Other:

Adapt

Other:

Work Order Comments

Program: UST/PST

State of Project:

Reporting Level II

Deliverables: EDD

Level III

ST/UST

RP

Level IV

Other:

Adapt

Other:

Work Order Comments

Program: UST/PST

State of Project:

Reporting Level II

Deliverables: EDD

Level III

ST/UST

RP

Level IV

Other:

Adapt

Other:

Work Order Comments

Program: UST/PST

State of Project:

Reporting Level II

Deliverables: EDD

Level III

ST/UST

RP

Level IV

Other:

Adapt

Other:

Work Order Comments

Program: UST/PST

State of Project:

Reporting Level II

Deliverables: EDD

Level III

ST/UST

RP

Level IV

Other:

Adapt

Other:

Work Order Comments

Program: UST/PST

State of Project:

Reporting Level II

Deliverables: EDD

Level III

ST/UST

RP

Level IV

Other:

Adapt

Other:

Work Order Comments

Program: UST/PST

State of Project:

Reporting Level II

Deliverables: EDD

Level III

ST/UST

RP

Level IV

Other:

Adapt

Other:

Work Order Comments

Program: UST/PST

State of Project:

Reporting Level II

Deliverables: EDD

Level III

ST/UST

RP

Level IV

Other:

Adapt

Other:

Work Order Comments

Program: UST/PST

State of Project:

Reporting Level II

Deliverables: EDD

Level III

ST/UST

RP

Level IV

Other:

Adapt

Other:

Work Order Comments

Program: UST/PST

State of Project:

Reporting Level II

Deliverables: EDD

Level III

ST/UST

RP

Level IV

Other:

Adapt

Other:

Work Order Comments

Program: UST/PST

State of Project:

Reporting Level II

Deliverables: EDD

Level III

ST/UST

RP

Level IV

Other:

Adapt

Other:

Work Order Comments

Program: UST/PST

State of Project:

Reporting Level II

Deliverables: EDD

Level III

ST/UST

RP

Level IV

Other:

Adapt

Other:

Work Order Comments

Program: UST/PST

State of Project:

Reporting Level II

Deliverables: EDD

Level III

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Work Order Comments

Program: UST/PST

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Reporting Level II

Deliverables: EDD

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Reporting Level II

Deliverables: EDD

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ST/UST

RP

Level IV

Other:

Adapt

Other:

Work Order Comments

Program: UST/PST

State of Project:

Reporting Level II

Deliverables: EDD

Level III

ST/UST

RP

Level IV

Other:

Adapt

Other:

Work Order Comments

Program: UST/PST

State of Project:

Reporting Level II

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: WSP USA

Date/ Time Received: 12.22.2020 04.30.00 PM

Work Order #: 682314

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	1
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

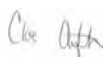
Samples received in bulk containers.

* Must be completed for after-hours delivery of samples prior to placing in the refrigerator

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 12.22.2020

Checklist reviewed by:



Jessica Kramer

Date: 12.28.2020

Certificate of Analysis Summary 682818



WSP USA, Dallas, TX

Project Name: Wolverine SWD Riser

Project Id: TE012920091
Contact: Dan Moir
Project Location: Eddy County, New Mexico

Date Received in Lab: Tue 12.29.2020 11:19
Report Date: 01.05.2021 11:35
Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	682818-001	682818-002	682818-003	682818-004	682818-005	
	Field Id:	SW74	SW75	SW76	SW77	SW78	
	Depth:	0-4 ft	0-4 ft	0-4 ft	0-4 ft	0-4 ft	
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	
	Sampled:	12.28.2020 10:30	12.28.2020 10:35	12.28.2020 14:20	12.28.2020 14:25	12.28.2020 13:20	
Chloride by EPA 300	Extracted:	12.31.2020 08:30	12.31.2020 08:30	12.31.2020 08:30	12.31.2020 08:30	12.31.2020 08:30	
	Analyzed:	12.31.2020 09:18	12.31.2020 09:36	12.31.2020 09:42	12.31.2020 09:48	12.31.2020 09:54	
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	
Chloride		70.8 9.90	69.7 9.98	58.9 9.96	54.8 9.96	290 49.6	

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 682818

for

WSP USA

Project Manager: Dan Moir

Wolverine SWD Riser

TE012920091

01.05.2021

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



01.05.2021

Project Manager: **Dan Moir**

WSP USA

2777 N. Stemmons Freeway, Suite 1600

Dallas, TX 75207

Reference: Eurofins Xenco, LLC Report No(s): **682818**

Wolverine SWD Riser

Project Address: Eddy County, New Mexico

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 682818. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 682818 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 682818****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW74	S	12.28.2020 10:30	0 - 4 ft	682818-001
SW75	S	12.28.2020 10:35	0 - 4 ft	682818-002
SW76	S	12.28.2020 14:20	0 - 4 ft	682818-003
SW77	S	12.28.2020 14:25	0 - 4 ft	682818-004
SW78	S	12.28.2020 13:20	0 - 4 ft	682818-005



CASE NARRATIVE

Client Name: WSP USA

Project Name: Wolverine SWD Riser

Project ID: *TE012920091*
Work Order Number(s): *682818*

Report Date: *01.05.2021*
Date Received: *12.29.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

**Certificate of Analytical Results 682818****WSP USA, Dallas, TX****Wolverine SWD Riser**

Sample Id: **SW74**
Lab Sample Id: 682818-001

Matrix: Soil
Date Collected: 12.28.2020 10:30

Date Received: 12.29.2020 11:19
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 08:30

% Moisture:
Basis: Wet Weight

Seq Number: 3146517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	70.8	9.90	mg/kg	12.31.2020 09:18		1

**Certificate of Analytical Results 682818****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW75**
Lab Sample Id: 682818-002

Matrix: Soil
Date Collected: 12.28.2020 10:35

Date Received: 12.29.2020 11:19
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 08:30

% Moisture:
Basis: Wet Weight

Seq Number: 3146517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	69.7	9.98	mg/kg	12.31.2020 09:36		1

**Certificate of Analytical Results 682818****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW76**
Lab Sample Id: 682818-003

Matrix: Soil
Date Collected: 12.28.2020 14:20

Date Received: 12.29.2020 11:19
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 08:30

% Moisture:
Basis: Wet Weight

Seq Number: 3146517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	58.9	9.96	mg/kg	12.31.2020 09:42		1

**Certificate of Analytical Results 682818****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW77**
Lab Sample Id: 682818-004

Matrix: Soil
Date Collected: 12.28.2020 14:25

Date Received: 12.29.2020 11:19
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 08:30

% Moisture:
Basis: Wet Weight

Seq Number: 3146517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	54.8	9.96	mg/kg	12.31.2020 09:48		1

**Certificate of Analytical Results 682818****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW78**

Matrix: Soil

Date Received: 12.29.2020 11:19

Lab Sample Id: 682818-005

Date Collected: 12.28.2020 13:20

Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 08:30

% Moisture:

Seq Number: 3146517

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	290	49.6	mg/kg	12.31.2020 09:54		5



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



WSP USA
Wolverine SWD Riser

Analytical Method: Chloride by EPA 300

Seq Number: 3146517

MB Sample Id: 7718218-1-BLK

Matrix: Solid

LCS Sample Id: 7718218-1-BKS

Prep Method: E300P

Date Prep: 12.31.2020

LCSD Sample Id: 7718218-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	251	100	253	101	90-110	1	20	mg/kg	12.31.2020 09:06	

Analytical Method: Chloride by EPA 300

Seq Number: 3146517

Parent Sample Id: 682818-001

Matrix: Soil

MS Sample Id: 682818-001 S

Prep Method: E300P

Date Prep: 12.31.2020

MSD Sample Id: 682818-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	70.8	199	275	103	275	103	90-110	0	20	mg/kg	12.31.2020 09:24	

Analytical Method: Chloride by EPA 300

Seq Number: 3146517

Parent Sample Id: 683014-001

Matrix: Soil

MS Sample Id: 683014-001 S

Prep Method: E300P

Date Prep: 12.31.2020

MSD Sample Id: 683014-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	105	200	295	95	293	94	90-110	1	20	mg/kg	12.31.2020 10:48	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
Midland, TX (432) 704-5440 El Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
Hobbs, NM (575) 392-7550 Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8800 Tampa, FL (813) 620-2000

Chain of Custody

Work Order No: 652818

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Litrell
Company Name:	WSP USA Inc, Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	522 West Mermond
City, State ZIP:	Midland, Tx 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	enaka@itenv.com, dmoir@itenv.com

Program: UST/PST	<input type="checkbox"/> RP	<input type="checkbox"/> Groundfields	<input type="checkbox"/> RC	<input type="checkbox"/> Deepfund
State of Project:				
Reporting Level II	<input type="checkbox"/> Level III	<input type="checkbox"/> ST/UST	<input type="checkbox"/> RP	<input type="checkbox"/> Level IV
Deliverables: EDD	<input type="checkbox"/> ADAPT	Other:		

Project Name:	Wolverine SWB Pipe	Turn Around	
Project Number:	TE012928091	Routine	<input checked="" type="checkbox"/>
P.O. Number:		Rush:	
Sampler's Name:	Elizabeth Naka	Due Date:	

SAMPLE RECEIPT	Temp Blank:	Yes	No	Wet Ice:	Yes	No	
Temperature (°C):	4.2/4.0	Thermometer ID					
Received Intact:	Yes	No	Correction Factor: -0.2				
Cooler Custody Seals:	Yes	No	N/A	Total Containers: 5			
Sample Custody Seals:	Yes	No	N/A				

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number	TPH (EPA)	BTEX (EPA)	Chloride	Sample Comments
SW 74	S	12/29/20	1030	0'-4'	1			X	Composite ↑
SW 75	↑		1035	↑	↑			↑	
SW 76			1420						
SW 77			1425						
SW 78	↑	↑	1320	↑	↑			↑	
Blank/Not a Sample									

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 SiO2 Na Sr Ti 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 Ti U

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
Elizabeth Naka	Kim Cupka	12-29-20 11/9			

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: WSP USA

Date/ Time Received: 12.29.2020 11.19.00 AM

Work Order #: 682818

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : T_NM_007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	4
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 Custody Seals intact on sample bottles?	Yes
#6 *Custody Seals Signed and dated?	Yes
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

Samples received in bulk containers.

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 12.29.2020

Checklist reviewed by:



Jessica Kramer

Date: 12.30.2020

Certificate of Analysis Summary 683106



WSP USA, Dallas, TX

Project Name: Wolverine SWD Riser

Project Id: TE012920091
Contact: Dan Moir
Project Location: Eddy County, NM

Date Received in Lab: Wed 12.30.2020 16:55
Report Date: 01.05.2021 14:16
Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	683106-001	683106-002	683106-003	683106-004	683106-005	683106-006
	Field Id:	SW63	SW64	SW65	SW66	SW67	SW68
	Depth:	0-4 ft	0-4 ft	0-4 ft	0-4 ft	0-4 ft	0-4 ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	12.30.2020 14:35	12.30.2020 13:50	12.30.2020 11:05	12.30.2020 13:30	12.30.2020 10:30	12.30.2020 09:55
Chloride by EPA 300	Extracted:	12.31.2020 15:08	12.31.2020 15:08	12.31.2020 15:08	12.31.2020 15:08	12.31.2020 15:08	12.31.2020 15:08
	Analyzed:	01.01.2021 00:47	01.01.2021 01:05	01.01.2021 01:11	01.01.2021 01:17	01.01.2021 01:23	01.01.2021 01:41
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		95.2 10.0	21.8 9.92	37.7 10.0	196 9.96	40.0 9.92	160 10.1

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Certificate of Analysis Summary 683106

WSP USA, Dallas, TX

Project Name: Wolverine SWD Riser

Project Id: TE012920091
 Contact: Dan Moir
 Project Location: Eddy County, NM

Date Received in Lab: Wed 12.30.2020 16:55
 Report Date: 01.05.2021 14:16
 Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	683106-007	683106-008	683106-009			
	<i>Field Id:</i>	SW69	SW23	SW24			
	<i>Depth:</i>	0-4 ft	0-4 ft	0-4 ft			
	<i>Matrix:</i>	SOIL	SOIL	SOIL			
	<i>Sampled:</i>	12.30.2020 09:50	12.30.2020 12:40	12.30.2020 12:45			
Chloride by EPA 300	<i>Extracted:</i>	12.31.2020 15:08	12.31.2020 15:08	12.31.2020 15:08			
	<i>Analyzed:</i>	01.01.2021 01:47	01.01.2021 01:53	01.01.2021 01:59			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		203 9.96	116 9.90	111 9.92			

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico





Analytical Report 683106

for

WSP USA

Project Manager: Dan Moir

Wolverine SWD Riser

TE012920091

01.05.2021

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



01.05.2021

Project Manager: **Dan Moir****WSP USA**2777 N. Stemmons Freeway, Suite 1600
Dallas, TX 75207Reference: Eurofins Xenco, LLC Report No(s): **683106****Wolverine SWD Riser**

Project Address: Eddy County, NM

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 683106. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 683106 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 683106****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW63	S	12.30.2020 14:35	0 - 4 ft	683106-001
SW64	S	12.30.2020 13:50	0 - 4 ft	683106-002
SW65	S	12.30.2020 11:05	0 - 4 ft	683106-003
SW66	S	12.30.2020 13:30	0 - 4 ft	683106-004
SW67	S	12.30.2020 10:30	0 - 4 ft	683106-005
SW68	S	12.30.2020 09:55	0 - 4 ft	683106-006
SW69	S	12.30.2020 09:50	0 - 4 ft	683106-007
SW23	S	12.30.2020 12:40	0 - 4 ft	683106-008
SW24	S	12.30.2020 12:45	0 - 4 ft	683106-009



CASE NARRATIVE

Client Name: WSP USA

Project Name: Wolverine SWD Riser

Project ID: TE012920091
Work Order Number(s): 683106

Report Date: 01.05.2021
Date Received: 12.30.2020

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

**Certificate of Analytical Results 683106****WSP USA, Dallas, TX****Wolverine SWD Riser**

Sample Id: **SW63**
Lab Sample Id: 683106-001

Matrix: Soil
Date Collected: 12.30.2020 14:35

Date Received: 12.30.2020 16:55
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 15:08

% Moisture:
Basis: Wet Weight

Seq Number: 3146546

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	95.2	10.0	mg/kg	01.01.2021 00:47		1

**Certificate of Analytical Results 683106****WSP USA, Dallas, TX****Wolverine SWD Riser**

Sample Id: **SW64**
Lab Sample Id: 683106-002

Matrix: Soil
Date Collected: 12.30.2020 13:50

Date Received: 12.30.2020 16:55
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 15:08

% Moisture:
Basis: Wet Weight

Seq Number: 3146546

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	21.8	9.92	mg/kg	01.01.2021 01:05		1

**Certificate of Analytical Results 683106****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW65**
Lab Sample Id: 683106-003

Matrix: Soil
Date Collected: 12.30.2020 11:05

Date Received: 12.30.2020 16:55
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 15:08

% Moisture:
Basis: Wet Weight

Seq Number: 3146546

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	37.7	10.0	mg/kg	01.01.2021 01:11		1

**Certificate of Analytical Results 683106****WSP USA, Dallas, TX****Wolverine SWD Riser**

Sample Id: **SW66**
Lab Sample Id: 683106-004

Matrix: Soil
Date Collected: 12.30.2020 13:30

Date Received: 12.30.2020 16:55
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 15:08

% Moisture:
Basis: Wet Weight

Seq Number: 3146546

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	196	9.96	mg/kg	01.01.2021 01:17		1

**Certificate of Analytical Results 683106****WSP USA, Dallas, TX****Wolverine SWD Riser**

Sample Id: **SW67**
Lab Sample Id: 683106-005

Matrix: Soil
Date Collected: 12.30.2020 10:30

Date Received: 12.30.2020 16:55
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 15:08

% Moisture:
Basis: Wet Weight

Seq Number: 3146546

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	40.0	9.92	mg/kg	01.01.2021 01:23		1

**Certificate of Analytical Results 683106****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW68**
Lab Sample Id: 683106-006

Matrix: Soil
Date Collected: 12.30.2020 09:55

Date Received: 12.30.2020 16:55
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 15:08

% Moisture:
Basis: Wet Weight

Seq Number: 3146546

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	160	10.1	mg/kg	01.01.2021 01:41		1

**Certificate of Analytical Results 683106****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW69**
Lab Sample Id: 683106-007

Matrix: Soil
Date Collected: 12.30.2020 09:50

Date Received: 12.30.2020 16:55
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 15:08

% Moisture:
Basis: Wet Weight

Seq Number: 3146546

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	203	9.96	mg/kg	01.01.2021 01:47		1



Certificate of Analytical Results 683106

WSP USA, Dallas, TX

Wolverine SWD Riser

Sample Id: **SW23**
Lab Sample Id: 683106-008

Matrix: Soil
Date Collected: 12.30.2020 12:40

Date Received: 12.30.2020 16:55
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 15:08

% Moisture:
Basis: Wet Weight

Seq Number: 3146546

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	116	9.90	mg/kg	01.01.2021 01:53		1

**Certificate of Analytical Results 683106****WSP USA, Dallas, TX****Wolverine SWD Riser**

Sample Id: **SW24**
Lab Sample Id: 683106-009

Matrix: Soil
Date Collected: 12.30.2020 12:45

Date Received: 12.30.2020 16:55
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 15:08

% Moisture:
Basis: Wet Weight

Seq Number: 3146546

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	111	9.92	mg/kg	01.01.2021 01:59		1



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



WSP USA
Wolverine SWD Riser

Analytical Method: Chloride by EPA 300

Seq Number: 3146546

MB Sample Id: 7718260-1-BLK

Matrix: Solid

LCS Sample Id: 7718260-1-BKS

Prep Method: E300P

Date Prep: 12.31.2020

LCSD Sample Id: 7718260-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	254	102	254	102	90-110	0	20	mg/kg	01.01.2021 00:35	

Analytical Method: Chloride by EPA 300

Seq Number: 3146546

Parent Sample Id: 683106-001

Matrix: Soil

MS Sample Id: 683106-001 S

Prep Method: E300P

Date Prep: 12.31.2020

MSD Sample Id: 683106-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	95.2	201	288	96	310	106	90-110	7	20	mg/kg	01.01.2021 00:53	

Analytical Method: Chloride by EPA 300

Seq Number: 3146546

Parent Sample Id: 683140-002

Matrix: Soil

MS Sample Id: 683140-002 S

Prep Method: E300P

Date Prep: 12.31.2020

MSD Sample Id: 683140-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	62.1	200	257	97	252	95	90-110	2	20	mg/kg	01.01.2021 02:17	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * | (C - E) / (C + E) |$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



Chain of Custody

Work Order No: 1683106

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432) 704-5440 EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296 Corsabad, NM (432) 704-5440
 Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8800 Tampa, FL (813) 620-2000 West Palm Beach, FL (561) 689-6701

www.xenco.com Page 1 of 1

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Little
Company Name:	USP USA Inc	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	522 West Merimond
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Corsabad, NM 88220
Phone:	(432) 3849	Email:	elizabeth.naka@usp.com, dmoir@xenco.com

Program: <input type="checkbox"/> PST <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>
State of Project:
Reporting Level: <input type="checkbox"/> Level I <input type="checkbox"/> Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>
Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:

Project Name:	Wolverine SWD Riser	Turn Around	<input checked="" type="checkbox"/>
Project Number:	TE012920091	Routine	<input checked="" type="checkbox"/>
Project Location:	Eddy County, NM	Rush:	
Sampler's Name:	Elizabeth Naka	Due Date:	
PO #:		Quote #:	

SAMPLE RECEIPT		Temp Blank:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Wet Ice:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Temperature (°C):	10.0	Thermometer ID	TN1007		
Received Intact:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Correction Factor:	-0.2		
Cooler Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Total Containers:	9		
Sample Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

Lab ID	Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	ANALYSIS REQUEST	Preservative Codes	Sample Comments
SW63		S	12/30/20	1435	0'-4'	1	X Chloride (EPA 300.0)	MeOH: Me None: NO HNO3: HN H2SO4: H2 HCL: HL NaOH: Na Zn Acetate+ NaOH: Zn	colposite
SW64				1350					
SW65				1105					
SW66				1330					
SW67				1030					
SW68				0955					
SW69				0950					
SW23				1240					
SW24				1245					

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Pb Mn Mo Ni K Se Ag SiO2 Na Sr Ti 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 Ti U
 1631 / 245.1 / 7470 / 7471: Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. 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 Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. Those terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>[Signature]</i>	<i>[Signature]</i>	12/30/20 16:55			

Revised Date 02/26/19 Rev. 2019.1

Certificate of Analysis Summary 683140



WSP USA, Dallas, TX

Project Name: Wolverine SWD Riser

Project Id: TE012920091
Contact: Dan Moir
Project Location: Eddy County, NM

Date Received in Lab: Thu 12.31.2020 12:50**Report Date:** 01.08.2021 10:54**Project Manager:** Jessica Kramer

Analysis Requested	Lab Id:	683140-001	683140-002	683140-003	683140-004	683140-005	683140-006
	Field Id:	SW91	SW92	SW93	SW94	SW95	SW96
	Depth:	0-4 ft	0-4 ft	0-4 ft	0-4 ft	0-4 ft	0-4 ft
	Matrix:	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	Sampled:	12.31.2020 09:45	12.31.2020 10:20	12.31.2020 10:25	12.31.2020 10:30	12.31.2020 10:35	12.31.2020 11:05
Chloride by EPA 300	Extracted:	12.31.2020 15:08	12.31.2020 15:08	12.31.2020 15:08	12.31.2020 15:08	12.31.2020 15:08	12.31.2020 15:08
	Analyzed:	01.01.2021 02:05	01.01.2021 02:11	01.01.2021 02:29	01.01.2021 02:35	01.01.2021 02:53	01.01.2021 02:59
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		36.9 10.0	62.1 9.96	71.7 9.98	58.2 10.0	37.6 10.0	18.8 9.98

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Certificate of Analysis Summary 683140

WSP USA, Dallas, TX

Project Name: Wolverine SWD Riser

Project Id: TE012920091
 Contact: Dan Moir
 Project Location: Eddy County, NM

Date Received in Lab: Thu 12.31.2020 12:50
 Report Date: 01.08.2021 10:54
 Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	683140-007					
	<i>Field Id:</i>	SW97					
	<i>Depth:</i>	0-4 ft					
	<i>Matrix:</i>	SOIL					
	<i>Sampled:</i>	12.31.2020 11:10					
Chloride by EPA 300	<i>Extracted:</i>	12.31.2020 15:08					
	<i>Analyzed:</i>	01.01.2021 03:05					
	<i>Units/RL:</i>	mg/kg RL					
Chloride		111 9.96					

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico





Analytical Report 683140

for

WSP USA

Project Manager: Dan Moir

Wolverine SWD Riser

TE012920091

01.08.2021

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-24)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-20-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



01.08.2021

Project Manager: **Dan Moir**

WSP USA

2777 N. Stemmons Freeway, Suite 1600

Dallas, TX 75207

Reference: Eurofins Xenco, LLC Report No(s): **683140**

Wolverine SWD Riser

Project Address: Eddy County, NM

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 683140. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 683140 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 683140****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW91	S	12.31.2020 09:45	0 - 4 ft	683140-001
SW92	S	12.31.2020 10:20	0 - 4 ft	683140-002
SW93	S	12.31.2020 10:25	0 - 4 ft	683140-003
SW94	S	12.31.2020 10:30	0 - 4 ft	683140-004
SW95	S	12.31.2020 10:35	0 - 4 ft	683140-005
SW96	S	12.31.2020 11:05	0 - 4 ft	683140-006
SW97	S	12.31.2020 11:10	0 - 4 ft	683140-007



CASE NARRATIVE

Client Name: WSP USA

Project Name: Wolverine SWD Riser

Project ID: TE012920091
Work Order Number(s): 683140

Report Date: 01.08.2021
Date Received: 12.31.2020

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

**Certificate of Analytical Results 683140****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW91**
Lab Sample Id: 683140-001

Matrix: Soil
Date Collected: 12.31.2020 09:45

Date Received: 12.31.2020 12:50
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 15:08

% Moisture:
Basis: Wet Weight

Seq Number: 3146546

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	36.9	10.0	mg/kg	01.01.2021 02:05		1

**Certificate of Analytical Results 683140****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW92**
Lab Sample Id: 683140-002

Matrix: Soil
Date Collected: 12.31.2020 10:20

Date Received: 12.31.2020 12:50
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 15:08

% Moisture:
Basis: Wet Weight

Seq Number: 3146546

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	62.1	9.96	mg/kg	01.01.2021 02:11		1

**Certificate of Analytical Results 683140****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW93**
Lab Sample Id: 683140-003

Matrix: Soil
Date Collected: 12.31.2020 10:25

Date Received: 12.31.2020 12:50
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 15:08

% Moisture:
Basis: Wet Weight

Seq Number: 3146546

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	71.7	9.98	mg/kg	01.01.2021 02:29		1

**Certificate of Analytical Results 683140****WSP USA, Dallas, TX****Wolverine SWD Riser**

Sample Id: **SW94**
Lab Sample Id: 683140-004

Matrix: Soil
Date Collected: 12.31.2020 10:30

Date Received: 12.31.2020 12:50
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 15:08

% Moisture:
Basis: Wet Weight

Seq Number: 3146546

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	58.2	10.0	mg/kg	01.01.2021 02:35		1

**Certificate of Analytical Results 683140****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW95**
Lab Sample Id: 683140-005

Matrix: Soil
Date Collected: 12.31.2020 10:35

Date Received: 12.31.2020 12:50
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 15:08

% Moisture:
Basis: Wet Weight

Seq Number: 3146546

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	37.6	10.0	mg/kg	01.01.2021 02:53		1

**Certificate of Analytical Results 683140****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW96**
Lab Sample Id: 683140-006

Matrix: Soil
Date Collected: 12.31.2020 11:05

Date Received: 12.31.2020 12:50
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 15:08

% Moisture:
Basis: Wet Weight

Seq Number: 3146546

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	18.8	9.98	mg/kg	01.01.2021 02:59		1

**Certificate of Analytical Results 683140****WSP USA, Dallas, TX**

Wolverine SWD Riser

Sample Id: **SW97**
Lab Sample Id: 683140-007

Matrix: Soil
Date Collected: 12.31.2020 11:10

Date Received: 12.31.2020 12:50
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 12.31.2020 15:08

% Moisture:
Basis: Wet Weight

Seq Number: 3146546

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	111	9.96	mg/kg	01.01.2021 03:05		1



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



WSP USA
Wolverine SWD Riser

Analytical Method: Chloride by EPA 300

Seq Number: 3146546

MB Sample Id: 7718260-1-BLK

Matrix: Solid

LCS Sample Id: 7718260-1-BKS

Prep Method: E300P

Date Prep: 12.31.2020

LCSD Sample Id: 7718260-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	254	102	254	102	90-110	0	20	mg/kg	01.01.2021 00:35	

Analytical Method: Chloride by EPA 300

Seq Number: 3146546

Parent Sample Id: 683106-001

Matrix: Soil

MS Sample Id: 683106-001 S

Prep Method: E300P

Date Prep: 12.31.2020

MSD Sample Id: 683106-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	95.2	201	288	96	310	106	90-110	7	20	mg/kg	01.01.2021 00:53	

Analytical Method: Chloride by EPA 300

Seq Number: 3146546

Parent Sample Id: 683140-002

Matrix: Soil

MS Sample Id: 683140-002 S

Prep Method: E300P

Date Prep: 12.31.2020

MSD Sample Id: 683140-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	62.1	200	257	97	252	95	90-110	2	20	mg/kg	01.01.2021 02:17	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



Chain of Custody

Work Order No:

683140

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432) 704-5440 El Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296 Corsabad, NM (432) 704-5440
 Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8800 Tampa, FL (813) 620-2000 West Palm Beach, FL (561) 589-6701

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Page 1 of 1

Project Manager:	Don Morris	Bill to: (if different)	Kyle Littrill
Company Name:	WSP USA Inc	Company Name:	XTO Energy
Address:	3800 North A Street	Address:	522 West Merriam
City, State ZIP:	Midland TX 79705	City, State ZIP:	Corsabad NM 88120
Phone:	432-236-3849	Email:	elizabeth.naka@wsp.com, donmorris@houston.com

Program: UST/PT <input type="checkbox"/> PRP <input type="checkbox"/> Brownfields <input type="checkbox"/> RRC <input type="checkbox"/> Superfund <input type="checkbox"/>
State of Project:
Reporting: Level II <input type="checkbox"/> Level III <input type="checkbox"/> PST/UST <input type="checkbox"/> TRRP <input type="checkbox"/> Level IV <input type="checkbox"/>
Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:

Project Name:	Wolverine SWD #188	Turn Around	
Project Number:	TE012920091	Routine	<input checked="" type="checkbox"/>
Project Location:	Eddy County	Rush:	
Sampler's Name:	Elizabeth Naka	Due Date:	
PO #:		Quote #:	

SAMPLE RECEIPT	Temp Blank:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Wet Ice:	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Temperature (°C):	1.8	Thermometer ID	TNN007	
Received Intact:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Correction Factor:	-0.2	
Cooler Custody Seals:	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	Total Containers:	7	

Lab ID	Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers
--------	-----------------------	--------	--------------	--------------	-------	----------------------

SW91	S	12/31/20	0945	0'-4'	1
SW92			1020		
SW93			1025		
SW94			1030		
SW95			1035		
SW96			1105		
SW97			1110		

ANALYSIS REQUEST												
Pres. Code												
	Chloride (EPA 300.0)											

Preservative Codes	MeOH: Me	
	None: NO	
	HNO3: HN	
	H2SO4: H2	
	HCL: HL	
	NaOH: Na	
	Zn Acetate+ NaOH: Zn	
Sample Comments	TAT starts the day received by the lab, if received by 4:00pm	

Total 200.7 / 6010 200.8 / 6020:

Circle Method(s) and Metal(s) to be analyzed

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn

TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U

1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. 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 Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to 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
Quilley Rick		12/31/20 18:50			

Certificate of Analysis Summary 684049



WSP USA, Dallas, TX

Project Name: Row 4 Wolverine SWD Riser

Project Id: TE012920091

Date Received in Lab: Fri 01.08.2021 16:06

Contact: Dan Moir

Report Date: 01.12.2021 16:45

Project Location:

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	684049-001	684049-002	684049-003	684049-004	684049-005	684049-006
	<i>Field Id:</i>	SW98	SW99	SW100	SW101	SW102	SW103
	<i>Depth:</i>	1-4 ft	1-4 ft	0-4 ft	0-4 ft	0-4 ft	0-4 ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	01.08.2021 07:56	01.08.2021 08:00	01.08.2021 08:03	01.08.2021 08:07	01.08.2021 08:11	01.08.2021 08:14
Chloride by EPA 300	<i>Extracted:</i>	01.11.2021 12:00	01.11.2021 12:00	01.11.2021 12:00	01.11.2021 12:00	01.11.2021 12:00	01.11.2021 12:00
	<i>Analyzed:</i>	01.11.2021 19:51	01.11.2021 20:09	01.11.2021 20:15	01.11.2021 20:21	01.11.2021 20:27	01.11.2021 20:45
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		5210 49.5	1470 49.9	73.7 9.92	47.9 9.90	214 10.0	507 9.96

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Certificate of Analysis Summary 684049



WSP USA, Dallas, TX

Project Name: Row 4 Wolverine SWD Riser

Project Id: TE012920091

Date Received in Lab: Fri 01.08.2021 16:06

Contact: Dan Moir

Report Date: 01.12.2021 16:45

Project Location:

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	684049-007	684049-008	684049-009	684049-010	684049-011	684049-012
	<i>Field Id:</i>	PH10	PH10 A	SW79	SW80	PH11	PH11 A
	<i>Depth:</i>	0.5- ft	4.0- ft	0-4 ft	0-4 ft	3.0- ft	4.0- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	01.08.2021 09:33	01.08.2021 09:40	01.08.2021 10:55	01.08.2021 12:18	01.08.2021 13:01	01.08.2021 13:03
Chloride by EPA 300	<i>Extracted:</i>	01.11.2021 12:00	01.11.2021 12:00	01.11.2021 12:00	01.11.2021 12:00	01.11.2021 12:00	01.11.2021 12:00
	<i>Analyzed:</i>	01.11.2021 20:51	01.11.2021 20:57	01.11.2021 21:03	01.11.2021 21:09	01.11.2021 21:15	01.11.2021 21:33
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<10.1 10.1	11.3 10.1	37.8 10.0	201 9.90	15.3 10.0	18.0 10.0

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Certificate of Analysis Summary 684049

WSP USA, Dallas, TX

Project Name: Row 4 Wolverine SWD Riser

Project Id: TE012920091

Contact: Dan Moir

Project Location:

Date Received in Lab: Fri 01.08.2021 16:06

Report Date: 01.12.2021 16:45

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	684049-013	684049-014				
	<i>Field Id:</i>	PH12	PH12 A				
	<i>Depth:</i>	2.0- ft	4.0- ft				
	<i>Matrix:</i>	SOIL	SOIL				
	<i>Sampled:</i>	01.08.2021 13:32	01.08.2021 13:38				
Chloride by EPA 300	<i>Extracted:</i>	01.11.2021 12:00	01.11.2021 12:00				
	<i>Analyzed:</i>	01.11.2021 21:51	01.11.2021 21:57				
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL				
Chloride		10.1 9.94	<9.92 9.92				

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico





Analytical Report 684049

for

WSP USA

Project Manager: Dan Moir

Row 4 Wolverine SWD Riser

TE012920091

01.12.2021

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-24)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-20-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



01.12.2021

Project Manager: **Dan Moir**

WSP USA

2777 N. Stemmons Freeway, Suite 1600

Dallas, TX 75207

Reference: Eurofins Xenco, LLC Report No(s): **684049**

Row 4 Wolverine SWD Riser

Project Address:

Dan Moir:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 684049. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 684049 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Jessica Kramer".

Jessica Kramer

Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 684049****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SW98	S	01.08.2021 07:56	1 - 4 ft	684049-001
SW99	S	01.08.2021 08:00	1 - 4 ft	684049-002
SW100	S	01.08.2021 08:03	0 - 4 ft	684049-003
SW101	S	01.08.2021 08:07	0 - 4 ft	684049-004
SW102	S	01.08.2021 08:11	0 - 4 ft	684049-005
SW103	S	01.08.2021 08:14	0 - 4 ft	684049-006
PH10	S	01.08.2021 09:33	0.5 ft	684049-007
PH10 A	S	01.08.2021 09:40	4.0 ft	684049-008
SW79	S	01.08.2021 10:55	0 - 4 ft	684049-009
SW80	S	01.08.2021 12:18	0 - 4 ft	684049-010
PH11	S	01.08.2021 13:01	3.0 ft	684049-011
PH11 A	S	01.08.2021 13:03	4.0 ft	684049-012
PH12	S	01.08.2021 13:32	2.0 ft	684049-013
PH12 A	S	01.08.2021 13:38	4.0 ft	684049-014



CASE NARRATIVE

Client Name: WSP USA

Project Name: Row 4 Wolverine SWD Riser

Project ID: TE012920091
Work Order Number(s): 684049

Report Date: 01.12.2021
Date Received: 01.08.2021

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

**Certificate of Analytical Results 684049****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW98**
Lab Sample Id: 684049-001

Matrix: Soil
Date Collected: 01.08.2021 07:56

Date Received: 01.08.2021 16:06
Sample Depth: 1 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.11.2021 12:00

% Moisture:
Basis: Wet Weight

Seq Number: 3147501

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5210	49.5	mg/kg	01.11.2021 19:51		5

**Certificate of Analytical Results 684049****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW99**
Lab Sample Id: 684049-002

Matrix: Soil
Date Collected: 01.08.2021 08:00

Date Received: 01.08.2021 16:06
Sample Depth: 1 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.11.2021 12:00

% Moisture:
Basis: Wet Weight

Seq Number: 3147501

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1470	49.9	mg/kg	01.11.2021 20:09		5



Certificate of Analytical Results 684049

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW100**
Lab Sample Id: 684049-003

Matrix: Soil
Date Collected: 01.08.2021 08:03

Date Received: 01.08.2021 16:06
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.11.2021 12:00

% Moisture:
Basis: Wet Weight

Seq Number: 3147501

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	73.7	9.92	mg/kg	01.11.2021 20:15		1

**Certificate of Analytical Results 684049****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW101**
Lab Sample Id: 684049-004

Matrix: Soil
Date Collected: 01.08.2021 08:07

Date Received: 01.08.2021 16:06
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.11.2021 12:00

% Moisture:
Basis: Wet Weight

Seq Number: 3147501

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	47.9	9.90	mg/kg	01.11.2021 20:21		1



Certificate of Analytical Results 684049

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW102**
Lab Sample Id: 684049-005

Matrix: Soil
Date Collected: 01.08.2021 08:11

Date Received: 01.08.2021 16:06
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.11.2021 12:00

% Moisture:
Basis: Wet Weight

Seq Number: 3147501

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	214	10.0	mg/kg	01.11.2021 20:27		1



Certificate of Analytical Results 684049

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW103**
Lab Sample Id: 684049-006

Matrix: Soil
Date Collected: 01.08.2021 08:14

Date Received: 01.08.2021 16:06
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.11.2021 12:00

% Moisture:
Basis: Wet Weight

Seq Number: 3147501

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	507	9.96	mg/kg	01.11.2021 20:45		1

**Certificate of Analytical Results 684049****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **PH10**
Lab Sample Id: 684049-007

Matrix: Soil
Date Collected: 01.08.2021 09:33

Date Received: 01.08.2021 16:06
Sample Depth: 0.5 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.11.2021 12:00

% Moisture:
Basis: Wet Weight

Seq Number: 3147501

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<10.1	10.1	mg/kg	01.11.2021 20:51	U	1



Certificate of Analytical Results 684049

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **PH10 A**
Lab Sample Id: 684049-008

Matrix: Soil
Date Collected: 01.08.2021 09:40

Date Received: 01.08.2021 16:06
Sample Depth: 4.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.11.2021 12:00

% Moisture:
Basis: Wet Weight

Seq Number: 3147501

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11.3	10.1	mg/kg	01.11.2021 20:57		1



Certificate of Analytical Results 684049

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **SW79**
Lab Sample Id: 684049-009

Matrix: Soil
Date Collected: 01.08.2021 10:55

Date Received: 01.08.2021 16:06
Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.11.2021 12:00

% Moisture:
Basis: Wet Weight

Seq Number: 3147501

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	37.8	10.0	mg/kg	01.11.2021 21:03		1

**Certificate of Analytical Results 684049****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **SW80**

Matrix: Soil

Date Received: 01.08.2021 16:06

Lab Sample Id: 684049-010

Date Collected: 01.08.2021 12:18

Sample Depth: 0 - 4 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.11.2021 12:00

% Moisture:

Seq Number: 3147501

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	201	9.90	mg/kg	01.11.2021 21:09		1

**Certificate of Analytical Results 684049****WSP USA, Dallas, TX**

Row 4 Wolverine SWD Riser

Sample Id: **PH11**
Lab Sample Id: 684049-011

Matrix: Soil
Date Collected: 01.08.2021 13:01

Date Received: 01.08.2021 16:06
Sample Depth: 3.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.11.2021 12:00

% Moisture:
Basis: Wet Weight

Seq Number: 3147501

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	15.3	10.0	mg/kg	01.11.2021 21:15		1



Certificate of Analytical Results 684049

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **PH11 A**
Lab Sample Id: 684049-012

Matrix: Soil
Date Collected: 01.08.2021 13:03

Date Received: 01.08.2021 16:06
Sample Depth: 4.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.11.2021 12:00

% Moisture:
Basis: Wet Weight

Seq Number: 3147501

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	18.0	10.0	mg/kg	01.11.2021 21:33		1



Certificate of Analytical Results 684049

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **PH12**
Lab Sample Id: 684049-013

Matrix: Soil
Date Collected: 01.08.2021 13:32

Date Received: 01.08.2021 16:06
Sample Depth: 2.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.11.2021 12:00

% Moisture:
Basis: Wet Weight

Seq Number: 3147501

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10.1	9.94	mg/kg	01.11.2021 21:51		1



Certificate of Analytical Results 684049

WSP USA, Dallas, TX

Row 4 Wolverine SWD Riser

Sample Id: **PH12 A**
Lab Sample Id: 684049-014

Matrix: Soil
Date Collected: 01.08.2021 13:38

Date Received: 01.08.2021 16:06
Sample Depth: 4.0 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.11.2021 12:00

% Moisture:
Basis: Wet Weight

Seq Number: 3147501

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.92	9.92	mg/kg	01.11.2021 21:57	U	1



Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



WSP USA

Row 4 Wolverine SWD Riser

Analytical Method: Chloride by EPA 300

Seq Number: 3147501

MB Sample Id: 7718893-1-BLK

Matrix: Solid

LCS Sample Id: 7718893-1-BKS

Prep Method: E300P

Date Prep: 01.11.2021

LCSD Sample Id: 7718893-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	256	102	258	103	90-110	1	20	mg/kg	01.11.2021 19:40	

Analytical Method: Chloride by EPA 300

Seq Number: 3147501

Parent Sample Id: 684049-001

Matrix: Soil

MS Sample Id: 684049-001 S

Prep Method: E300P

Date Prep: 01.11.2021

MSD Sample Id: 684049-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	5210	200	5410	100	5410	99	90-110	0	20	mg/kg	01.11.2021 19:57	

Analytical Method: Chloride by EPA 300

Seq Number: 3147501

Parent Sample Id: 684049-011

Matrix: Soil

MS Sample Id: 684049-011 S

Prep Method: E300P

Date Prep: 01.11.2021

MSD Sample Id: 684049-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	15.3	199	214	100	215	100	90-110	0	20	mg/kg	01.11.2021 21:21	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



Chain of Custody

Work Order No: 684049

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432-704-5440) EL Paso, TX (915)585-3443 Lubbock, TX (806)794-1296

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Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littlell
Company Name:	WSP USA	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	522 W. Mermod St.
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	jeremy.hill@wsp.com, Dan.Moir@wsp.com

Program: UST/PST	<input type="checkbox"/> RP	<input type="checkbox"/> Groundfields	<input type="checkbox"/> RC	<input type="checkbox"/> \$perfund
State of Project:				
Reporting Level II	<input type="checkbox"/> Level III	<input type="checkbox"/> ST/UST	<input type="checkbox"/> RP	<input type="checkbox"/> Level IV
Deliverables: EDD	<input type="checkbox"/>	ADAPT	<input type="checkbox"/>	Other:

Project Name:	Rev 4 Wellbore SWB Riv	Turn Around	
Project Number:	TE 01520091	Routine	<input checked="" type="checkbox"/>
P.O. Number:	611/20 2011 det	Rush:	
Sampler's Name:	Jeremy Hill	Due Date:	

SAMPLE RECEIPT	Temp Blank	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Well Ice:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Temperature (°C):	1.0 / 0.8	Thermometer ID		
Received Inlet:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Correction Factor:		
Cooler Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Total Containers:		
Sample Custody Seals:	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	14		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 8021)	Chloride (EPA 300.0)	ANALYSIS REQUEST	Work Order Notes
SW 98	S	1/5/21	0756	1-4'	1					TAT starts the day received by the lab, if received by 4:30pm
SW 99			0900	1-4'						Sample Comments
SW 100			0803	0-4'						
SW 101			0807	0-4'						
SW 102			0811	0-4'						
SW 103			0814	0-4'						
PH 10A			0933	0.5'						
SW 79			0938	4.0'						
SW 80			091055	0-4'						
			1219	0-4'						

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 SiO2 Na Sr Ti 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 Ti U

Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. 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 Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$8 for each sample submitted to 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
		1-8-21 1606			



Chain of Custody

Work Order No: 684049

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432-704-5440) EL Paso, TX (915)585-3443 Lubbock, TX (806)794-1296
 Hobbs, NM (575-392-7550) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813-620-2000)

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Page 2 of 2

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Little
Company Name:	WSP USA	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	522 W. Mermod St.
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	(432) 236-3849	Email:	jeremy.hill@wsp.com, Dan.Moir@wsp.com

Program: <input type="checkbox"/> UST/PST <input type="checkbox"/> RP <input type="checkbox"/> Growfields <input type="checkbox"/> RC <input type="checkbox"/> Superfund
State of Project:
Reporting Level: <input type="checkbox"/> Level II <input type="checkbox"/> Level III <input type="checkbox"/> ST/UST <input type="checkbox"/> RP <input type="checkbox"/> Level IV
Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other:

Project Name:	Rev 4 Wilcox SWD Rwy	Turn Around
Project Number:	TE019980091	Routine
P.O. Number:	611/20 7011 date	Rush:
Sampler's Name:	Jeremy Hill	Due Date:

Temperature (°C):	Temp Blank:	Yes	No	Wet/dry:	Yes	No
Received Intact:	Yes	No	Thermometer ID			
Cooler Custody Seals:	Yes	No	Correction Factor:			
Sample Custody Seals:	Yes	No	Total Containers:			

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number	TPH (EP	BTEX (E	Chloride	Sample Comments
PH11	5	1/18/20	1301	3.0	1				
PH11A			1303	4.0					discrete
PH12			1333	2.0					
PH12A			1335	2.0					
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Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-585-1

Laboratory Sample Delivery Group: TE012920091

Client Project/Site: Wolverine SWD Riser

Revision: 1

For:

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

Attn: Dan Moir

A handwritten signature in cursive script that reads "Jessica Kramer".

Authorized for release by:
5/7/2021 1:55:52 PM

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

LINKS

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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: Wolverine SWD Riser

Laboratory Job ID: 890-585-1
SDG: TE012920091

Table of Contents

Cover Page	1
Table of Contents	2
Definitions/Glossary	3
Case Narrative	4
Client Sample Results	5
Surrogate Summary	16
QC Sample Results	18
QC Association Summary	24
Lab Chronicle	28
Certification Summary	32
Method Summary	33
Sample Summary	34
Chain of Custody	35
Receipt Checklists	39

1
2
3
4
5
6
7
8
9
10
11
12
13
14

Definitions/Glossary

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

Qualifiers

GC VOA

Qualifier	Qualifier Description
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, high biased.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
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

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Case Narrative

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

Job ID: 890-585-1

Laboratory: Eurofins Xenco, Carlsbad

Narrative

Job Narrative 890-585-1

Comments

No additional comments.

Revision

The report being provided is a revision of the original report sent on 5/5/2021. The report (revision 1) is being revised due to: Per client email, requesting re run of TPH for sample PH14 and PH14A.

Receipt

The samples were received on 4/27/2021 3:05 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 was 5.0° C.

Receipt Exceptions

Per client email, requesting re run of TPH for sample PH14 and PH14A

The following samples analyzed for method BTEX 8021 were received and analyzed from an unpreserved bulk soil jar: PH13 (890-585-1), PH13A (890-585-2), PH14 (890-585-3), PH14A (890-585-4), PH15 (890-585-5), PH15A (890-585-6), PH16 (890-585-7), PH16A (890-585-8), PH17 (890-585-9), PH17A (890-585-10), PH18 (890-585-11), PH18A (890-585-12), PH19 (890-585-13), PH19A (890-585-14), PH20 (890-585-15) and PH20A (890-585-16).

GC VOA

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

GC Semi VOA

Method 8015B NM: The laboratory control sample (LCS) associated with preparation batch 880-2476 and analytical batch 880-2591 was outside acceptance criteria. Re-extraction and/or re-analysis could not be performed; therefore, the data have been reported. The batch matrix spike/matrix spike duplicate (MS/MSD) was within acceptance limits and may be used to evaluate matrix performance.

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

General Chemistry

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

Organic Prep

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

VOA Prep

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

Client Sample Results

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

Client Sample ID: PH13

Lab Sample ID: 890-585-1

Date Collected: 04/27/21 09:29

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 4.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		04/29/21 10:36	04/30/21 14:34	1
Toluene	<0.00198	U	0.00198	mg/Kg		04/29/21 10:36	04/30/21 14:34	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		04/29/21 10:36	04/30/21 14:34	1
m-Xylene & p-Xylene	<0.00396	U	0.00396	mg/Kg		04/29/21 10:36	04/30/21 14:34	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		04/29/21 10:36	04/30/21 14:34	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		04/29/21 10:36	04/30/21 14:34	1
Total BTEX	<0.00396	U	0.00396	mg/Kg		04/29/21 10:36	04/30/21 14:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		70 - 130	04/29/21 10:36	04/30/21 14:34	1
1,4-Difluorobenzene (Surr)	94		70 - 130	04/29/21 10:36	04/30/21 14:34	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	<49.9	U	49.9	mg/Kg		04/29/21 10:18	05/01/21 13:05	1
Diesel Range Organics (Over C10-C28)	58.5	*+	49.9	mg/Kg		04/29/21 10:18	05/01/21 13:05	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		04/29/21 10:18	05/01/21 13:05	1
Total TPH	58.5		49.9	mg/Kg		04/29/21 10:18	05/01/21 13:05	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	109		70 - 130	04/29/21 10:18	05/01/21 13:05	1
o-Terphenyl	112		70 - 130	04/29/21 10:18	05/01/21 13:05	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	67.6		4.97	mg/Kg			04/29/21 22:33	1

Client Sample ID: PH13A

Lab Sample ID: 890-585-2

Date Collected: 04/27/21 09:37

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 5.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 14:54	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 14:54	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 14:54	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		04/29/21 10:36	04/30/21 14:54	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 14:54	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		04/29/21 10:36	04/30/21 14:54	1
Total BTEX	<0.00399	U	0.00399	mg/Kg		04/29/21 10:36	04/30/21 14:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	04/29/21 10:36	04/30/21 14:54	1
1,4-Difluorobenzene (Surr)	93		70 - 130	04/29/21 10:36	04/30/21 14:54	1

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Client Sample Results

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

Client Sample ID: PH13A

Lab Sample ID: 890-585-2

Date Collected: 04/27/21 09:37

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 5.5

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		04/29/21 10:18	05/01/21 14:09	1
Diesel Range Organics (Over C10-C28)	<49.9	U *	49.9	mg/Kg		04/29/21 10:18	05/01/21 14:09	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		04/29/21 10:18	05/01/21 14:09	1
Total TPH	<49.9	U	49.9	mg/Kg		04/29/21 10:18	05/01/21 14:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	107		70 - 130	04/29/21 10:18	05/01/21 14:09	1
o-Terphenyl	112		70 - 130	04/29/21 10:18	05/01/21 14:09	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	36.5		4.95	mg/Kg			04/29/21 22:48	1

Client Sample ID: PH14

Lab Sample ID: 890-585-3

Date Collected: 04/27/21 09:46

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 4.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 15:15	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 15:15	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 15:15	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		04/29/21 10:36	04/30/21 15:15	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 15:15	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		04/29/21 10:36	04/30/21 15:15	1
Total BTEX	<0.00400	U	0.00400	mg/Kg		04/29/21 10:36	04/30/21 15:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		70 - 130	04/29/21 10:36	04/30/21 15:15	1
1,4-Difluorobenzene (Surr)	94		70 - 130	04/29/21 10:36	04/30/21 15:15	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	<49.9	U	49.9	mg/Kg		05/06/21 11:32	05/07/21 05:56	1
Diesel Range Organics (Over C10-C28)	141		49.9	mg/Kg		05/06/21 11:32	05/07/21 05:56	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		05/06/21 11:32	05/07/21 05:56	1
Total TPH	141		49.9	mg/Kg		05/06/21 11:32	05/07/21 05:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	97		70 - 130	05/06/21 11:32	05/07/21 05:56	1
o-Terphenyl	101		70 - 130	05/06/21 11:32	05/07/21 05:56	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	457		4.95	mg/Kg			04/29/21 22:54	1

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Client Sample Results

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

Client Sample ID: PH14A

Lab Sample ID: 890-585-4

Date Collected: 04/27/21 09:50

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 5.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		04/29/21 10:36	04/30/21 15:35	1
Toluene	<0.00199	U	0.00199	mg/Kg		04/29/21 10:36	04/30/21 15:35	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		04/29/21 10:36	04/30/21 15:35	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		04/29/21 10:36	04/30/21 15:35	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		04/29/21 10:36	04/30/21 15:35	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		04/29/21 10:36	04/30/21 15:35	1
Total BTEX	<0.00398	U	0.00398	mg/Kg		04/29/21 10:36	04/30/21 15:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		70 - 130	04/29/21 10:36	04/30/21 15:35	1
1,4-Difluorobenzene (Surr)	94		70 - 130	04/29/21 10:36	04/30/21 15:35	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	50.0	mg/Kg		05/06/21 11:32	05/07/21 06:17	1
Diesel Range Organics (Over C10-C28)	129		50.0	mg/Kg		05/06/21 11:32	05/07/21 06:17	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		05/06/21 11:32	05/07/21 06:17	1
Total TPH	129		50.0	mg/Kg		05/06/21 11:32	05/07/21 06:17	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	94		70 - 130	05/06/21 11:32	05/07/21 06:17	1
o-Terphenyl	99		70 - 130	05/06/21 11:32	05/07/21 06:17	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	454		5.00	mg/Kg			04/29/21 22:59	1

Client Sample ID: PH15

Lab Sample ID: 890-585-5

Date Collected: 04/27/21 10:04

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 4.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		04/29/21 10:36	04/30/21 16:33	1
Toluene	<0.00201	U	0.00201	mg/Kg		04/29/21 10:36	04/30/21 16:33	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		04/29/21 10:36	04/30/21 16:33	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		04/29/21 10:36	04/30/21 16:33	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		04/29/21 10:36	04/30/21 16:33	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		04/29/21 10:36	04/30/21 16:33	1
Total BTEX	<0.00402	U	0.00402	mg/Kg		04/29/21 10:36	04/30/21 16:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130	04/29/21 10:36	04/30/21 16:33	1
1,4-Difluorobenzene (Surr)	91		70 - 130	04/29/21 10:36	04/30/21 16:33	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

Client Sample ID: PH15

Lab Sample ID: 890-585-5

Date Collected: 04/27/21 10:04

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 4.5

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		04/29/21 10:18	05/01/21 15:14	1
Diesel Range Organics (Over C10-C28)	<50.0	U *+	50.0	mg/Kg		04/29/21 10:18	05/01/21 15:14	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		04/29/21 10:18	05/01/21 15:14	1
Total TPH	<50.0	U	50.0	mg/Kg		04/29/21 10:18	05/01/21 15:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	128		70 - 130	04/29/21 10:18	05/01/21 15:14	1
o-Terphenyl	133	S1+	70 - 130	04/29/21 10:18	05/01/21 15:14	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	50.9		5.04	mg/Kg			04/29/21 23:04	1

Client Sample ID: PH15A

Lab Sample ID: 890-585-6

Date Collected: 04/27/21 10:09

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 5.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 16:54	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 16:54	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 16:54	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		04/29/21 10:36	04/30/21 16:54	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 16:54	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		04/29/21 10:36	04/30/21 16:54	1
Total BTEX	<0.00401	U	0.00401	mg/Kg		04/29/21 10:36	04/30/21 16:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		70 - 130	04/29/21 10:36	04/30/21 16:54	1
1,4-Difluorobenzene (Surr)	91		70 - 130	04/29/21 10:36	04/30/21 16:54	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		04/29/21 10:18	05/01/21 15:35	1
Diesel Range Organics (Over C10-C28)	<50.0	U *+	50.0	mg/Kg		04/29/21 10:18	05/01/21 15:35	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		04/29/21 10:18	05/01/21 15:35	1
Total TPH	<50.0	U	50.0	mg/Kg		04/29/21 10:18	05/01/21 15:35	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	140	S1+	70 - 130	04/29/21 10:18	05/01/21 15:35	1
o-Terphenyl	141	S1+	70 - 130	04/29/21 10:18	05/01/21 15:35	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	65.8		5.05	mg/Kg			04/29/21 23:09	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

Client Sample ID: PH16

Lab Sample ID: 890-585-7

Date Collected: 04/27/21 10:22

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 4.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 17:14	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 17:14	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 17:14	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		04/29/21 10:36	04/30/21 17:14	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 17:14	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		04/29/21 10:36	04/30/21 17:14	1
Total BTEX	<0.00401	U	0.00401	mg/Kg		04/29/21 10:36	04/30/21 17:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		70 - 130	04/29/21 10:36	04/30/21 17:14	1
1,4-Difluorobenzene (Surr)	94		70 - 130	04/29/21 10:36	04/30/21 17:14	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		04/29/21 10:18	05/01/21 15:56	1
Diesel Range Organics (Over C10-C28)	<50.0	U *	50.0	mg/Kg		04/29/21 10:18	05/01/21 15:56	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		04/29/21 10:18	05/01/21 15:56	1
Total TPH	<50.0	U	50.0	mg/Kg		04/29/21 10:18	05/01/21 15:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	118		70 - 130	04/29/21 10:18	05/01/21 15:56	1
o-Terphenyl	120		70 - 130	04/29/21 10:18	05/01/21 15:56	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	409		24.9	mg/Kg			04/29/21 23:14	5

Client Sample ID: PH16A

Lab Sample ID: 890-585-8

Date Collected: 04/27/21 10:27

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 5.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		04/29/21 10:36	04/30/21 17:34	1
Toluene	<0.00199	U	0.00199	mg/Kg		04/29/21 10:36	04/30/21 17:34	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		04/29/21 10:36	04/30/21 17:34	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		04/29/21 10:36	04/30/21 17:34	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		04/29/21 10:36	04/30/21 17:34	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		04/29/21 10:36	04/30/21 17:34	1
Total BTEX	<0.00398	U	0.00398	mg/Kg		04/29/21 10:36	04/30/21 17:34	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130	04/29/21 10:36	04/30/21 17:34	1
1,4-Difluorobenzene (Surr)	91		70 - 130	04/29/21 10:36	04/30/21 17:34	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

Client Sample ID: PH16A

Lab Sample ID: 890-585-8

Date Collected: 04/27/21 10:27

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 5.5

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		04/29/21 10:18	05/01/21 16:18	1
Diesel Range Organics (Over C10-C28)	<49.9	U *	49.9	mg/Kg		04/29/21 10:18	05/01/21 16:18	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		04/29/21 10:18	05/01/21 16:18	1
Total TPH	<49.9	U	49.9	mg/Kg		04/29/21 10:18	05/01/21 16:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	106		70 - 130	04/29/21 10:18	05/01/21 16:18	1
o-Terphenyl	107		70 - 130	04/29/21 10:18	05/01/21 16:18	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	406		50.0	mg/Kg			04/29/21 15:49	10

Client Sample ID: PH17

Lab Sample ID: 890-585-9

Date Collected: 04/27/21 10:41

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 4.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 17:55	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 17:55	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 17:55	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		04/29/21 10:36	04/30/21 17:55	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 17:55	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		04/29/21 10:36	04/30/21 17:55	1
Total BTEX	<0.00400	U	0.00400	mg/Kg		04/29/21 10:36	04/30/21 17:55	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		70 - 130	04/29/21 10:36	04/30/21 17:55	1
1,4-Difluorobenzene (Surr)	94		70 - 130	04/29/21 10:36	04/30/21 17:55	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		04/29/21 10:18	05/01/21 16:39	1
Diesel Range Organics (Over C10-C28)	<49.9	U *	49.9	mg/Kg		04/29/21 10:18	05/01/21 16:39	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		04/29/21 10:18	05/01/21 16:39	1
Total TPH	<49.9	U	49.9	mg/Kg		04/29/21 10:18	05/01/21 16:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	107		70 - 130	04/29/21 10:18	05/01/21 16:39	1
o-Terphenyl	102		70 - 130	04/29/21 10:18	05/01/21 16:39	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	239		5.03	mg/Kg			04/29/21 15:55	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

Client Sample ID: PH17A

Lab Sample ID: 890-585-10

Date Collected: 04/27/21 10:44

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 5.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 18:15	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 18:15	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 18:15	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		04/29/21 10:36	04/30/21 18:15	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 18:15	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		04/29/21 10:36	04/30/21 18:15	1
Total BTEX	<0.00400	U	0.00400	mg/Kg		04/29/21 10:36	04/30/21 18:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		70 - 130	04/29/21 10:36	04/30/21 18:15	1
1,4-Difluorobenzene (Surr)	99		70 - 130	04/29/21 10:36	04/30/21 18:15	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	<50.0	U	50.0	mg/Kg		04/29/21 10:18	05/01/21 17:00	1
Diesel Range Organics (Over C10-C28)	<50.0	U *	50.0	mg/Kg		04/29/21 10:18	05/01/21 17:00	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		04/29/21 10:18	05/01/21 17:00	1
Total TPH	<50.0	U	50.0	mg/Kg		04/29/21 10:18	05/01/21 17:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	108		70 - 130	04/29/21 10:18	05/01/21 17:00	1
o-Terphenyl	111		70 - 130	04/29/21 10:18	05/01/21 17:00	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	159		5.04	mg/Kg			04/29/21 16:00	1

Client Sample ID: PH18

Lab Sample ID: 890-585-11

Date Collected: 04/27/21 10:59

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 4.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 19:37	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 19:37	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 19:37	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		04/29/21 10:36	04/30/21 19:37	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 19:37	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		04/29/21 10:36	04/30/21 19:37	1
Total BTEX	<0.00399	U	0.00399	mg/Kg		04/29/21 10:36	04/30/21 19:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		70 - 130	04/29/21 10:36	04/30/21 19:37	1
1,4-Difluorobenzene (Surr)	91		70 - 130	04/29/21 10:36	04/30/21 19:37	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

Client Sample ID: PH18

Lab Sample ID: 890-585-11

Date Collected: 04/27/21 10:59

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 4.5

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		04/29/21 10:18	05/01/21 17:43	1
Diesel Range Organics (Over C10-C28)	<50.0	U *	50.0	mg/Kg		04/29/21 10:18	05/01/21 17:43	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		04/29/21 10:18	05/01/21 17:43	1
Total TPH	<50.0	U	50.0	mg/Kg		04/29/21 10:18	05/01/21 17:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	116		70 - 130	04/29/21 10:18	05/01/21 17:43	1
o-Terphenyl	118		70 - 130	04/29/21 10:18	05/01/21 17:43	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	170		4.95	mg/Kg			05/04/21 04:11	1

Client Sample ID: PH18A

Lab Sample ID: 890-585-12

Date Collected: 04/27/21 11:02

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 5.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 19:58	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 19:58	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 19:58	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		04/29/21 10:36	04/30/21 19:58	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 19:58	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		04/29/21 10:36	04/30/21 19:58	1
Total BTEX	<0.00401	U	0.00401	mg/Kg		04/29/21 10:36	04/30/21 19:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	89		70 - 130	04/29/21 10:36	04/30/21 19:58	1
1,4-Difluorobenzene (Surr)	94		70 - 130	04/29/21 10:36	04/30/21 19:58	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		04/29/21 10:18	05/01/21 18:04	1
Diesel Range Organics (Over C10-C28)	<50.0	U *	50.0	mg/Kg		04/29/21 10:18	05/01/21 18:04	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		04/29/21 10:18	05/01/21 18:04	1
Total TPH	<50.0	U	50.0	mg/Kg		04/29/21 10:18	05/01/21 18:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	132	S1+	70 - 130	04/29/21 10:18	05/01/21 18:04	1
o-Terphenyl	133	S1+	70 - 130	04/29/21 10:18	05/01/21 18:04	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	111		5.00	mg/Kg			05/04/21 04:16	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

Client Sample ID: PH19

Lab Sample ID: 890-585-13

Date Collected: 04/27/21 12:15

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 4.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		04/29/21 10:36	04/30/21 20:18	1
Toluene	<0.00202	U	0.00202	mg/Kg		04/29/21 10:36	04/30/21 20:18	1
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		04/29/21 10:36	04/30/21 20:18	1
m-Xylene & p-Xylene	<0.00404	U	0.00404	mg/Kg		04/29/21 10:36	04/30/21 20:18	1
o-Xylene	<0.00202	U	0.00202	mg/Kg		04/29/21 10:36	04/30/21 20:18	1
Xylenes, Total	<0.00404	U	0.00404	mg/Kg		04/29/21 10:36	04/30/21 20:18	1
Total BTEX	<0.00404	U	0.00404	mg/Kg		04/29/21 10:36	04/30/21 20:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		70 - 130	04/29/21 10:36	04/30/21 20:18	1
1,4-Difluorobenzene (Surr)	92		70 - 130	04/29/21 10:36	04/30/21 20:18	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		04/29/21 10:18	05/01/21 18:25	1
Diesel Range Organics (Over C10-C28)	<50.0	U *	50.0	mg/Kg		04/29/21 10:18	05/01/21 18:25	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		04/29/21 10:18	05/01/21 18:25	1
Total TPH	<50.0	U	50.0	mg/Kg		04/29/21 10:18	05/01/21 18:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	128		70 - 130	04/29/21 10:18	05/01/21 18:25	1
o-Terphenyl	123		70 - 130	04/29/21 10:18	05/01/21 18:25	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	101		5.04	mg/Kg			04/29/21 23:30	1

Client Sample ID: PH19A

Lab Sample ID: 890-585-14

Date Collected: 04/27/21 12:19

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 5.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 20:38	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 20:38	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 20:38	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		04/29/21 10:36	04/30/21 20:38	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 20:38	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		04/29/21 10:36	04/30/21 20:38	1
Total BTEX	<0.00399	U	0.00399	mg/Kg		04/29/21 10:36	04/30/21 20:38	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	98		70 - 130	04/29/21 10:36	04/30/21 20:38	1
1,4-Difluorobenzene (Surr)	94		70 - 130	04/29/21 10:36	04/30/21 20:38	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

Client Sample ID: PH19A

Lab Sample ID: 890-585-14

Date Collected: 04/27/21 12:19

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 5.5

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		04/29/21 10:18	05/01/21 18:46	1
Diesel Range Organics (Over C10-C28)	<49.9	U *	49.9	mg/Kg		04/29/21 10:18	05/01/21 18:46	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		04/29/21 10:18	05/01/21 18:46	1
Total TPH	<49.9	U	49.9	mg/Kg		04/29/21 10:18	05/01/21 18:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	129		70 - 130	04/29/21 10:18	05/01/21 18:46	1
o-Terphenyl	126		70 - 130	04/29/21 10:18	05/01/21 18:46	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	46.2		4.97	mg/Kg			04/29/21 23:35	1

Client Sample ID: PH20

Lab Sample ID: 890-585-15

Date Collected: 04/27/21 12:33

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 4.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 20:59	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 20:59	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 20:59	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		04/29/21 10:36	04/30/21 20:59	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 20:59	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		04/29/21 10:36	04/30/21 20:59	1
Total BTEX	<0.00399	U	0.00399	mg/Kg		04/29/21 10:36	04/30/21 20:59	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	96		70 - 130	04/29/21 10:36	04/30/21 20:59	1
1,4-Difluorobenzene (Surr)	91		70 - 130	04/29/21 10:36	04/30/21 20:59	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		04/29/21 10:18	05/01/21 19:07	1
Diesel Range Organics (Over C10-C28)	<49.9	U *	49.9	mg/Kg		04/29/21 10:18	05/01/21 19:07	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		04/29/21 10:18	05/01/21 19:07	1
Total TPH	<49.9	U	49.9	mg/Kg		04/29/21 10:18	05/01/21 19:07	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	142	S1+	70 - 130	04/29/21 10:18	05/01/21 19:07	1
o-Terphenyl	136	S1+	70 - 130	04/29/21 10:18	05/01/21 19:07	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	147		4.95	mg/Kg			04/29/21 23:51	1

Eurofins Xenco, Carlsbad

Client Sample Results

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

Client Sample ID: PH20A

Lab Sample ID: 890-585-16

Date Collected: 04/27/21 12:37

Matrix: Solid

Date Received: 04/27/21 15:05

Sample Depth: - 5.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		04/29/21 10:36	04/30/21 21:19	1
Toluene	<0.00199	U	0.00199	mg/Kg		04/29/21 10:36	04/30/21 21:19	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		04/29/21 10:36	04/30/21 21:19	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		04/29/21 10:36	04/30/21 21:19	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		04/29/21 10:36	04/30/21 21:19	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		04/29/21 10:36	04/30/21 21:19	1
Total BTEX	<0.00398	U	0.00398	mg/Kg		04/29/21 10:36	04/30/21 21:19	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	04/29/21 10:36	04/30/21 21:19	1
1,4-Difluorobenzene (Surr)	89		70 - 130	04/29/21 10:36	04/30/21 21:19	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		04/29/21 10:18	05/01/21 19:28	1
Diesel Range Organics (Over C10-C28)	<49.9	U *	49.9	mg/Kg		04/29/21 10:18	05/01/21 19:28	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		04/29/21 10:18	05/01/21 19:28	1
Total TPH	<49.9	U	49.9	mg/Kg		04/29/21 10:18	05/01/21 19:28	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	134	S1+	70 - 130	04/29/21 10:18	05/01/21 19:28	1
o-Terphenyl	127		70 - 130	04/29/21 10:18	05/01/21 19:28	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	105		5.05	mg/Kg			04/30/21 12:45	1

Eurofins Xenco, Carlsbad

Surrogate Summary

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

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)
890-585-1	PH13	95	94
890-585-2	PH13A	97	93
890-585-3	PH14	105	94
890-585-4	PH14A	110	94
890-585-5	PH15	99	91
890-585-6	PH15A	90	91
890-585-7	PH16	101	94
890-585-8	PH16A	98	91
890-585-9	PH17	100	94
890-585-10	PH17A	110	99
890-585-11	PH18	93	91
890-585-12	PH18A	89	94
890-585-13	PH19	93	92
890-585-14	PH19A	98	94
890-585-15	PH20	96	91
890-585-16	PH20A	97	89
LCS 880-2461/1-A	Lab Control Sample	111	100
LCSD 880-2461/2-A	Lab Control Sample Dup	116	101
MB 880-2461/5-A	Method Blank	250 S1+	257 S1+

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)	
Lab Sample ID	Client Sample ID	BFB1	DFBZ1
890-585-1 MS	PH13		
890-585-1 MSD	PH13		

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)
890-585-1	PH13	109	112
890-585-1 MS	PH13	101	93
890-585-1 MSD	PH13	124	109
890-585-2	PH13A	107	112
890-585-3	PH14	97	101
890-585-4	PH14A	94	99
890-585-5	PH15	128	133 S1+
890-585-6	PH15A	140 S1+	141 S1+

Eurofins Xenco, Carlsbad

Surrogate Summary

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

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)
890-585-7	PH16	118	120
890-585-8	PH16A	106	107
890-585-9	PH17	107	102
890-585-10	PH17A	108	111
890-585-11	PH18	116	118
890-585-12	PH18A	132 S1+	133 S1+
890-585-13	PH19	128	123
890-585-14	PH19A	129	126
890-585-15	PH20	142 S1+	136 S1+
890-585-16	PH20A	134 S1+	127
LCS 880-2476/2-A	Lab Control Sample	120	112
LCS 880-2705/2-A	Lab Control Sample	111	107
LCS 880-2771/2-A	Lab Control Sample	105	105
LCSD 880-2476/3-A	Lab Control Sample Dup	123	111
LCSD 880-2705/3-A	Lab Control Sample Dup	112	107
LCSD 880-2771/3-A	Lab Control Sample Dup	105	104
MB 880-2476/1-A	Method Blank	114	121
MB 880-2705/1-A	Method Blank	107	110
MB 880-2771/1-A	Method Blank	96	105

Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

Eurofins Xenco, Carlsbad

QC Sample Results

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-2461/5-A

Matrix: Solid

Analysis Batch: 2544

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 2461

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 14:12	1
Toluene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 14:12	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 14:12	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		04/29/21 10:36	04/30/21 14:12	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		04/29/21 10:36	04/30/21 14:12	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		04/29/21 10:36	04/30/21 14:12	1
Total BTEX	<0.00400	U	0.00400	mg/Kg		04/29/21 10:36	04/30/21 14:12	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	250	S1+	70 - 130	04/29/21 10:36	04/30/21 14:12	1
1,4-Difluorobenzene (Surr)	257	S1+	70 - 130	04/29/21 10:36	04/30/21 14:12	1

Lab Sample ID: LCS 880-2461/1-A

Matrix: Solid

Analysis Batch: 2544

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 2461

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.1170		mg/Kg		117	70 - 130
Toluene	0.100	0.1110		mg/Kg		111	70 - 130
Ethylbenzene	0.100	0.1141		mg/Kg		114	70 - 130
m-Xylene & p-Xylene	0.200	0.2464		mg/Kg		123	70 - 130
o-Xylene	0.100	0.1228		mg/Kg		123	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		70 - 130
1,4-Difluorobenzene (Surr)	100		70 - 130

Lab Sample ID: LCSD 880-2461/2-A

Matrix: Solid

Analysis Batch: 2544

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 2461

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.100	0.1131		mg/Kg		113	70 - 130	3	35
Toluene	0.100	0.1073		mg/Kg		107	70 - 130	3	35
Ethylbenzene	0.100	0.1115		mg/Kg		112	70 - 130	2	35
m-Xylene & p-Xylene	0.200	0.2428		mg/Kg		121	70 - 130	1	35
o-Xylene	0.100	0.1210		mg/Kg		121	70 - 130	1	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	116		70 - 130
1,4-Difluorobenzene (Surr)	101		70 - 130

Lab Sample ID: 890-585-1 MS

Matrix: Solid

Analysis Batch: 2544

Client Sample ID: PH13

Prep Type: Total/NA

Prep Batch: 2461

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.00198	U	0.0992	0.09205		mg/Kg			

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QC Sample Results

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

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

Lab Sample ID: 890-585-1 MS

Matrix: Solid

Analysis Batch: 2544

Client Sample ID: PH13

Prep Type: Total/NA

Prep Batch: 2461

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Toluene	<0.00198	U	0.0992	0.08546		mg/Kg			
Ethylbenzene	<0.00198	U	0.0992	0.08608		mg/Kg			
m-Xylene & p-Xylene	<0.00396	U	0.198	0.1833		mg/Kg			
o-Xylene	<0.00198	U	0.0992	0.09109		mg/Kg			

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

Lab Sample ID: 890-585-1 MSD

Matrix: Solid

Analysis Batch: 2544

Client Sample ID: PH13

Prep Type: Total/NA

Prep Batch: 2461

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.00198	U	0.0994	0.09939		mg/Kg					
Toluene	<0.00198	U	0.0994	0.09362		mg/Kg					
Ethylbenzene	<0.00198	U	0.0994	0.09403		mg/Kg					
m-Xylene & p-Xylene	<0.00396	U	0.199	0.2022		mg/Kg					
o-Xylene	<0.00198	U	0.0994	0.1003		mg/Kg					

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

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

Lab Sample ID: MB 880-2476/1-A

Matrix: Solid

Analysis Batch: 2591

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 2476

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		04/29/21 10:18	05/01/21 11:38	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		04/29/21 10:18	05/01/21 11:38	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		04/29/21 10:18	05/01/21 11:38	1
Total TPH	<50.0	U	50.0	mg/Kg		04/29/21 10:18	05/01/21 11:38	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	114		70 - 130	04/29/21 10:18	05/01/21 11:38	1
o-Terphenyl	121		70 - 130	04/29/21 10:18	05/01/21 11:38	1

Lab Sample ID: LCS 880-2476/2-A

Matrix: Solid

Analysis Batch: 2591

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 2476

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1141		mg/Kg		114	70 - 130

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QC Sample Results

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

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

Lab Sample ID: LCS 880-2476/2-A

Matrix: Solid

Analysis Batch: 2591

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 2476

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Diesel Range Organics (Over C10-C28)			1000	1171		mg/Kg		117	70 - 130		
Surrogate	LCS %Recovery	LCS Qualifier	Limits								
1-Chlorooctane	120		70 - 130								
o-Terphenyl	112		70 - 130								

Lab Sample ID: LCSD 880-2476/3-A

Matrix: Solid

Analysis Batch: 2591

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 2476

Analyte			Spike	LCSD	LCSD	Unit	D	%Rec	%Rec.	RPD	RPD
			Added	Result	Qualifier			Limits	Limit		
Gasoline Range Organics (GRO)-C6-C10			1000	1192		mg/Kg		119	70 - 130	4	20
Diesel Range Organics (Over C10-C28)			1000	1423	*+	mg/Kg		142	70 - 130	19	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits								
1-Chlorooctane	123		70 - 130								
o-Terphenyl	111		70 - 130								

Lab Sample ID: 890-585-1 MS

Matrix: Solid

Analysis Batch: 2591

Client Sample ID: PH13

Prep Type: Total/NA

Prep Batch: 2476

Analyte	Sample	Sample	Spike	MS	MS	Unit	D	%Rec	%Rec.		
	Result	Qualifier	Added	Result	Qualifier				Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	998	1169		mg/Kg		115	70 - 130		
Diesel Range Organics (Over C10-C28)	58.5	*+	998	1056		mg/Kg		100	70 - 130		
Surrogate	MS %Recovery	MS Qualifier	Limits								
1-Chlorooctane	101		70 - 130								
o-Terphenyl	93		70 - 130								

Lab Sample ID: 890-585-1 MSD

Matrix: Solid

Analysis Batch: 2591

Client Sample ID: PH13

Prep Type: Total/NA

Prep Batch: 2476

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	998	1101		mg/Kg		108	70 - 130	6	20
Diesel Range Organics (Over C10-C28)	58.5	*+	998	1292		mg/Kg		124	70 - 130	20	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane	124		70 - 130								
o-Terphenyl	109		70 - 130								

Eurofins Xenco, Carlsbad

QC Sample Results

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

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

Lab Sample ID: MB 880-2705/1-A

Matrix: Solid

Analysis Batch: 2715

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 2705

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		05/05/21 09:09	05/06/21 00:46	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		05/05/21 09:09	05/06/21 00:46	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		05/05/21 09:09	05/06/21 00:46	1
Total TPH	<50.0	U	50.0	mg/Kg		05/05/21 09:09	05/06/21 00:46	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	107		70 - 130	05/05/21 09:09	05/06/21 00:46	1
o-Terphenyl	110		70 - 130	05/05/21 09:09	05/06/21 00:46	1

Lab Sample ID: LCS 880-2705/2-A

Matrix: Solid

Analysis Batch: 2715

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 2705

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	1000	976.9		mg/Kg		98	70 - 130
Diesel Range Organics (Over C10-C28)	1000	827.9		mg/Kg		83	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	111		70 - 130
o-Terphenyl	107		70 - 130

Lab Sample ID: LCSD 880-2705/3-A

Matrix: Solid

Analysis Batch: 2715

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 2705

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	908.1		mg/Kg		91	70 - 130	7	20
Diesel Range Organics (Over C10-C28)	1000	838.9		mg/Kg		84	70 - 130	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	112		70 - 130
o-Terphenyl	107		70 - 130

Lab Sample ID: MB 880-2771/1-A

Matrix: Solid

Analysis Batch: 2795

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 2771

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		05/06/21 11:32	05/06/21 21:36	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		05/06/21 11:32	05/06/21 21:36	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		05/06/21 11:32	05/06/21 21:36	1
Total TPH	<50.0	U	50.0	mg/Kg		05/06/21 11:32	05/06/21 21:36	1

Eurofins Xenco, Carlsbad

QC Sample Results

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

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

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	96		70 - 130	05/06/21 11:32	05/06/21 21:36	1
o-Terphenyl	105		70 - 130	05/06/21 11:32	05/06/21 21:36	1

Lab Sample ID: LCS 880-2771/2-A

Matrix: Solid

Analysis Batch: 2795

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 2771

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	1000	830.9		mg/Kg		83	70 - 130
Diesel Range Organics (Over C10-C28)	1000	1091		mg/Kg		109	70 - 130

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

Lab Sample ID: LCSD 880-2771/3-A

Matrix: Solid

Analysis Batch: 2795

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 2771

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	866.9		mg/Kg		87	70 - 130	4	20
Diesel Range Organics (Over C10-C28)	1000	1079		mg/Kg		108	70 - 130	1	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	105		70 - 130
o-Terphenyl	104		70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-2479/1-A

Matrix: Solid

Analysis Batch: 2498

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			04/29/21 13:24	1

Lab Sample ID: LCS 880-2479/2-A

Matrix: Solid

Analysis Batch: 2498

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250	249.0		mg/Kg		100	90 - 110

Lab Sample ID: LCSD 880-2479/3-A

Matrix: Solid

Analysis Batch: 2498

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	247.0		mg/Kg		99	90 - 110	1	20

Eurofins Xenco, Carlsbad

QC Sample Results

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-2488/1-A

Matrix: Solid

Analysis Batch: 2512

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			04/29/21 21:46	1

Lab Sample ID: LCS 880-2488/2-A

Matrix: Solid

Analysis Batch: 2512

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250	244.8		mg/Kg		98	90 - 110

Lab Sample ID: LCSD 880-2488/3-A

Matrix: Solid

Analysis Batch: 2512

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	245.0		mg/Kg		98	90 - 110	0	20

Lab Sample ID: 890-585-7 MS

Matrix: Solid

Analysis Batch: 2512

Client Sample ID: PH16

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	409		1250	1620		mg/Kg		97	90 - 110

Lab Sample ID: 890-585-7 MSD

Matrix: Solid

Analysis Batch: 2512

Client Sample ID: PH16

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	409		1250	1619		mg/Kg		97	90 - 110	0	20

Lab Sample ID: MB 880-2494/1-A

Matrix: Solid

Analysis Batch: 2660

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			05/04/21 01:42	1

Lab Sample ID: LCS 880-2494/2-A

Matrix: Solid

Analysis Batch: 2660

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250	247.0		mg/Kg		99	90 - 110

Lab Sample ID: LCSD 880-2494/3-A

Matrix: Solid

Analysis Batch: 2660

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	247.0		mg/Kg		99	90 - 110	0	20

Eurofins Xenco, Carlsbad

QC Association Summary

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

GC VOA

Prep Batch: 2461

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-585-1	PH13	Total/NA	Solid	5035	
890-585-2	PH13A	Total/NA	Solid	5035	
890-585-3	PH14	Total/NA	Solid	5035	
890-585-4	PH14A	Total/NA	Solid	5035	
890-585-5	PH15	Total/NA	Solid	5035	
890-585-6	PH15A	Total/NA	Solid	5035	
890-585-7	PH16	Total/NA	Solid	5035	
890-585-8	PH16A	Total/NA	Solid	5035	
890-585-9	PH17	Total/NA	Solid	5035	
890-585-10	PH17A	Total/NA	Solid	5035	
890-585-11	PH18	Total/NA	Solid	5035	
890-585-12	PH18A	Total/NA	Solid	5035	
890-585-13	PH19	Total/NA	Solid	5035	
890-585-14	PH19A	Total/NA	Solid	5035	
890-585-15	PH20	Total/NA	Solid	5035	
890-585-16	PH20A	Total/NA	Solid	5035	
MB 880-2461/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-2461/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-2461/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-585-1 MS	PH13	Total/NA	Solid	5035	
890-585-1 MSD	PH13	Total/NA	Solid	5035	

Analysis Batch: 2544

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-585-1	PH13	Total/NA	Solid	8021B	2461
890-585-2	PH13A	Total/NA	Solid	8021B	2461
890-585-3	PH14	Total/NA	Solid	8021B	2461
890-585-4	PH14A	Total/NA	Solid	8021B	2461
890-585-5	PH15	Total/NA	Solid	8021B	2461
890-585-6	PH15A	Total/NA	Solid	8021B	2461
890-585-7	PH16	Total/NA	Solid	8021B	2461
890-585-8	PH16A	Total/NA	Solid	8021B	2461
890-585-9	PH17	Total/NA	Solid	8021B	2461
890-585-10	PH17A	Total/NA	Solid	8021B	2461
890-585-11	PH18	Total/NA	Solid	8021B	2461
890-585-12	PH18A	Total/NA	Solid	8021B	2461
890-585-13	PH19	Total/NA	Solid	8021B	2461
890-585-14	PH19A	Total/NA	Solid	8021B	2461
890-585-15	PH20	Total/NA	Solid	8021B	2461
890-585-16	PH20A	Total/NA	Solid	8021B	2461
MB 880-2461/5-A	Method Blank	Total/NA	Solid	8021B	2461
LCS 880-2461/1-A	Lab Control Sample	Total/NA	Solid	8021B	2461
LCSD 880-2461/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	2461
890-585-1 MS	PH13	Total/NA	Solid	8021B	2461
890-585-1 MSD	PH13	Total/NA	Solid	8021B	2461

GC Semi VOA

Prep Batch: 2476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-585-1	PH13	Total/NA	Solid	8015NM Prep	

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QC Association Summary

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

GC Semi VOA (Continued)

Prep Batch: 2476 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-585-2	PH13A	Total/NA	Solid	8015NM Prep	
890-585-5	PH15	Total/NA	Solid	8015NM Prep	
890-585-6	PH15A	Total/NA	Solid	8015NM Prep	
890-585-7	PH16	Total/NA	Solid	8015NM Prep	
890-585-8	PH16A	Total/NA	Solid	8015NM Prep	
890-585-9	PH17	Total/NA	Solid	8015NM Prep	
890-585-10	PH17A	Total/NA	Solid	8015NM Prep	
890-585-11	PH18	Total/NA	Solid	8015NM Prep	
890-585-12	PH18A	Total/NA	Solid	8015NM Prep	
890-585-13	PH19	Total/NA	Solid	8015NM Prep	
890-585-14	PH19A	Total/NA	Solid	8015NM Prep	
890-585-15	PH20	Total/NA	Solid	8015NM Prep	
890-585-16	PH20A	Total/NA	Solid	8015NM Prep	
MB 880-2476/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-2476/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-2476/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-585-1 MS	PH13	Total/NA	Solid	8015NM Prep	
890-585-1 MSD	PH13	Total/NA	Solid	8015NM Prep	

Analysis Batch: 2591

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-585-1	PH13	Total/NA	Solid	8015B NM	2476
890-585-2	PH13A	Total/NA	Solid	8015B NM	2476
890-585-5	PH15	Total/NA	Solid	8015B NM	2476
890-585-6	PH15A	Total/NA	Solid	8015B NM	2476
890-585-7	PH16	Total/NA	Solid	8015B NM	2476
890-585-8	PH16A	Total/NA	Solid	8015B NM	2476
890-585-9	PH17	Total/NA	Solid	8015B NM	2476
890-585-10	PH17A	Total/NA	Solid	8015B NM	2476
890-585-11	PH18	Total/NA	Solid	8015B NM	2476
890-585-12	PH18A	Total/NA	Solid	8015B NM	2476
890-585-13	PH19	Total/NA	Solid	8015B NM	2476
890-585-14	PH19A	Total/NA	Solid	8015B NM	2476
890-585-15	PH20	Total/NA	Solid	8015B NM	2476
890-585-16	PH20A	Total/NA	Solid	8015B NM	2476
MB 880-2476/1-A	Method Blank	Total/NA	Solid	8015B NM	2476
LCS 880-2476/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	2476
LCSD 880-2476/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	2476
890-585-1 MS	PH13	Total/NA	Solid	8015B NM	2476
890-585-1 MSD	PH13	Total/NA	Solid	8015B NM	2476

Prep Batch: 2705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-2705/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-2705/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-2705/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	

Analysis Batch: 2715

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-2705/1-A	Method Blank	Total/NA	Solid	8015B NM	2705
LCS 880-2705/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	2705

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QC Association Summary

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

GC Semi VOA (Continued)

Analysis Batch: 2715 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-2705/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	2705

Prep Batch: 2771

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-585-3	PH14	Total/NA	Solid	8015NM Prep	
890-585-4	PH14A	Total/NA	Solid	8015NM Prep	
MB 880-2771/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-2771/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-2771/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	

Analysis Batch: 2795

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-585-3	PH14	Total/NA	Solid	8015B NM	2771
890-585-4	PH14A	Total/NA	Solid	8015B NM	2771
MB 880-2771/1-A	Method Blank	Total/NA	Solid	8015B NM	2771
LCS 880-2771/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	2771
LCSD 880-2771/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	2771

HPLC/IC

Leach Batch: 2479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-585-8	PH16A	Soluble	Solid	DI Leach	
890-585-9	PH17	Soluble	Solid	DI Leach	
890-585-10	PH17A	Soluble	Solid	DI Leach	
MB 880-2479/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-2479/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-2479/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

Leach Batch: 2488

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-585-1	PH13	Soluble	Solid	DI Leach	
890-585-2	PH13A	Soluble	Solid	DI Leach	
890-585-3	PH14	Soluble	Solid	DI Leach	
890-585-4	PH14A	Soluble	Solid	DI Leach	
890-585-5	PH15	Soluble	Solid	DI Leach	
890-585-6	PH15A	Soluble	Solid	DI Leach	
890-585-7	PH16	Soluble	Solid	DI Leach	
890-585-13	PH19	Soluble	Solid	DI Leach	
890-585-14	PH19A	Soluble	Solid	DI Leach	
890-585-15	PH20	Soluble	Solid	DI Leach	
890-585-16	PH20A	Soluble	Solid	DI Leach	
MB 880-2488/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-2488/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-2488/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-585-7 MS	PH16	Soluble	Solid	DI Leach	
890-585-7 MSD	PH16	Soluble	Solid	DI Leach	

Leach Batch: 2494

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-585-11	PH18	Soluble	Solid	DI Leach	

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QC Association Summary

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

HPLC/IC (Continued)

Leach Batch: 2494 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-585-12	PH18A	Soluble	Solid	DI Leach	
MB 880-2494/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-2494/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-2494/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

Analysis Batch: 2498

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-585-8	PH16A	Soluble	Solid	300.0	2479
890-585-9	PH17	Soluble	Solid	300.0	2479
890-585-10	PH17A	Soluble	Solid	300.0	2479
MB 880-2479/1-A	Method Blank	Soluble	Solid	300.0	2479
LCS 880-2479/2-A	Lab Control Sample	Soluble	Solid	300.0	2479
LCSD 880-2479/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	2479

Analysis Batch: 2512

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-585-1	PH13	Soluble	Solid	300.0	2488
890-585-2	PH13A	Soluble	Solid	300.0	2488
890-585-3	PH14	Soluble	Solid	300.0	2488
890-585-4	PH14A	Soluble	Solid	300.0	2488
890-585-5	PH15	Soluble	Solid	300.0	2488
890-585-6	PH15A	Soluble	Solid	300.0	2488
890-585-7	PH16	Soluble	Solid	300.0	2488
890-585-13	PH19	Soluble	Solid	300.0	2488
890-585-14	PH19A	Soluble	Solid	300.0	2488
890-585-15	PH20	Soluble	Solid	300.0	2488
890-585-16	PH20A	Soluble	Solid	300.0	2488
MB 880-2488/1-A	Method Blank	Soluble	Solid	300.0	2488
LCS 880-2488/2-A	Lab Control Sample	Soluble	Solid	300.0	2488
LCSD 880-2488/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	2488
890-585-7 MS	PH16	Soluble	Solid	300.0	2488
890-585-7 MSD	PH16	Soluble	Solid	300.0	2488

Analysis Batch: 2660

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-585-11	PH18	Soluble	Solid	300.0	2494
890-585-12	PH18A	Soluble	Solid	300.0	2494
MB 880-2494/1-A	Method Blank	Soluble	Solid	300.0	2494
LCS 880-2494/2-A	Lab Control Sample	Soluble	Solid	300.0	2494
LCSD 880-2494/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	2494

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Lab Chronicle

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

Client Sample ID: PH13

Lab Sample ID: 890-585-1

Date Collected: 04/27/21 09:29

Matrix: Solid

Date Received: 04/27/21 15:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			2461	04/29/21 10:36	KL	XM
Total/NA	Analysis	8021B		1	2544	04/30/21 14:34	KL	XM
Total/NA	Prep	8015NM Prep			2476	04/29/21 10:18	DM	XM
Total/NA	Analysis	8015B NM		1	2591	05/01/21 13:05	AJ	XM
Soluble	Leach	DI Leach			2488	04/29/21 11:24	SC	XM
Soluble	Analysis	300.0		1	2512	04/29/21 22:33	SC	XM

Client Sample ID: PH13A

Lab Sample ID: 890-585-2

Date Collected: 04/27/21 09:37

Matrix: Solid

Date Received: 04/27/21 15:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			2461	04/29/21 10:36	KL	XM
Total/NA	Analysis	8021B		1	2544	04/30/21 14:54	KL	XM
Total/NA	Prep	8015NM Prep			2476	04/29/21 10:18	DM	XM
Total/NA	Analysis	8015B NM		1	2591	05/01/21 14:09	AJ	XM
Soluble	Leach	DI Leach			2488	04/29/21 11:24	SC	XM
Soluble	Analysis	300.0		1	2512	04/29/21 22:48	SC	XM

Client Sample ID: PH14

Lab Sample ID: 890-585-3

Date Collected: 04/27/21 09:46

Matrix: Solid

Date Received: 04/27/21 15:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			2461	04/29/21 10:36	KL	XM
Total/NA	Analysis	8021B		1	2544	04/30/21 15:15	KL	XM
Total/NA	Prep	8015NM Prep			2771	05/06/21 11:32	DM	XM
Total/NA	Analysis	8015B NM		1	2795	05/07/21 05:56	AJ	XM
Soluble	Leach	DI Leach			2488	04/29/21 11:24	SC	XM
Soluble	Analysis	300.0		1	2512	04/29/21 22:54	SC	XM

Client Sample ID: PH14A

Lab Sample ID: 890-585-4

Date Collected: 04/27/21 09:50

Matrix: Solid

Date Received: 04/27/21 15:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			2461	04/29/21 10:36	KL	XM
Total/NA	Analysis	8021B		1	2544	04/30/21 15:35	KL	XM
Total/NA	Prep	8015NM Prep			2771	05/06/21 11:32	DM	XM
Total/NA	Analysis	8015B NM		1	2795	05/07/21 06:17	AJ	XM
Soluble	Leach	DI Leach			2488	04/29/21 11:24	SC	XM
Soluble	Analysis	300.0		1	2512	04/29/21 22:59	SC	XM

Eurofins Xenco, Carlsbad

Lab Chronicle

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

Client Sample ID: PH15

Lab Sample ID: 890-585-5

Date Collected: 04/27/21 10:04

Matrix: Solid

Date Received: 04/27/21 15:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			2461	04/29/21 10:36	KL	XM
Total/NA	Analysis	8021B		1	2544	04/30/21 16:33	KL	XM
Total/NA	Prep	8015NM Prep			2476	04/29/21 10:18	DM	XM
Total/NA	Analysis	8015B NM		1	2591	05/01/21 15:14	AJ	XM
Soluble	Leach	DI Leach			2488	04/29/21 11:24	SC	XM
Soluble	Analysis	300.0		1	2512	04/29/21 23:04	SC	XM

Client Sample ID: PH15A

Lab Sample ID: 890-585-6

Date Collected: 04/27/21 10:09

Matrix: Solid

Date Received: 04/27/21 15:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			2461	04/29/21 10:36	KL	XM
Total/NA	Analysis	8021B		1	2544	04/30/21 16:54	KL	XM
Total/NA	Prep	8015NM Prep			2476	04/29/21 10:18	DM	XM
Total/NA	Analysis	8015B NM		1	2591	05/01/21 15:35	AJ	XM
Soluble	Leach	DI Leach			2488	04/29/21 11:24	SC	XM
Soluble	Analysis	300.0		1	2512	04/29/21 23:09	SC	XM

Client Sample ID: PH16

Lab Sample ID: 890-585-7

Date Collected: 04/27/21 10:22

Matrix: Solid

Date Received: 04/27/21 15:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			2461	04/29/21 10:36	KL	XM
Total/NA	Analysis	8021B		1	2544	04/30/21 17:14	KL	XM
Total/NA	Prep	8015NM Prep			2476	04/29/21 10:18	DM	XM
Total/NA	Analysis	8015B NM		1	2591	05/01/21 15:56	AJ	XM
Soluble	Leach	DI Leach			2488	04/29/21 11:24	SC	XM
Soluble	Analysis	300.0		5	2512	04/29/21 23:14	SC	XM

Client Sample ID: PH16A

Lab Sample ID: 890-585-8

Date Collected: 04/27/21 10:27

Matrix: Solid

Date Received: 04/27/21 15:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			2461	04/29/21 10:36	KL	XM
Total/NA	Analysis	8021B		1	2544	04/30/21 17:34	KL	XM
Total/NA	Prep	8015NM Prep			2476	04/29/21 10:18	DM	XM
Total/NA	Analysis	8015B NM		1	2591	05/01/21 16:18	AJ	XM
Soluble	Leach	DI Leach			2479	04/29/21 10:46	SC	XM
Soluble	Analysis	300.0		10	2498	04/29/21 15:49	SC	XM

Eurofins Xenco, Carlsbad

Lab Chronicle

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

Client Sample ID: PH17

Lab Sample ID: 890-585-9

Date Collected: 04/27/21 10:41

Matrix: Solid

Date Received: 04/27/21 15:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			2461	04/29/21 10:36	KL	XM
Total/NA	Analysis	8021B		1	2544	04/30/21 17:55	KL	XM
Total/NA	Prep	8015NM Prep			2476	04/29/21 10:18	DM	XM
Total/NA	Analysis	8015B NM		1	2591	05/01/21 16:39	AJ	XM
Soluble	Leach	DI Leach			2479	04/29/21 10:46	SC	XM
Soluble	Analysis	300.0		1	2498	04/29/21 15:55	SC	XM

Client Sample ID: PH17A

Lab Sample ID: 890-585-10

Date Collected: 04/27/21 10:44

Matrix: Solid

Date Received: 04/27/21 15:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			2461	04/29/21 10:36	KL	XM
Total/NA	Analysis	8021B		1	2544	04/30/21 18:15	KL	XM
Total/NA	Prep	8015NM Prep			2476	04/29/21 10:18	DM	XM
Total/NA	Analysis	8015B NM		1	2591	05/01/21 17:00	AJ	XM
Soluble	Leach	DI Leach			2479	04/29/21 10:46	SC	XM
Soluble	Analysis	300.0		1	2498	04/29/21 16:00	SC	XM

Client Sample ID: PH18

Lab Sample ID: 890-585-11

Date Collected: 04/27/21 10:59

Matrix: Solid

Date Received: 04/27/21 15:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			2461	04/29/21 10:36	KL	XM
Total/NA	Analysis	8021B		1	2544	04/30/21 19:37	KL	XM
Total/NA	Prep	8015NM Prep			2476	04/29/21 10:18	DM	XM
Total/NA	Analysis	8015B NM		1	2591	05/01/21 17:43	AJ	XM
Soluble	Leach	DI Leach			2494	04/29/21 11:41	CH	XM
Soluble	Analysis	300.0		1	2660	05/04/21 04:11	WP	XM

Client Sample ID: PH18A

Lab Sample ID: 890-585-12

Date Collected: 04/27/21 11:02

Matrix: Solid

Date Received: 04/27/21 15:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			2461	04/29/21 10:36	KL	XM
Total/NA	Analysis	8021B		1	2544	04/30/21 19:58	KL	XM
Total/NA	Prep	8015NM Prep			2476	04/29/21 10:18	DM	XM
Total/NA	Analysis	8015B NM		1	2591	05/01/21 18:04	AJ	XM
Soluble	Leach	DI Leach			2494	04/29/21 11:41	CH	XM
Soluble	Analysis	300.0		1	2660	05/04/21 04:16	WP	XM

Eurofins Xenco, Carlsbad

Lab Chronicle

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

Client Sample ID: PH19

Lab Sample ID: 890-585-13

Date Collected: 04/27/21 12:15

Matrix: Solid

Date Received: 04/27/21 15:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			2461	04/29/21 10:36	KL	XM
Total/NA	Analysis	8021B		1	2544	04/30/21 20:18	KL	XM
Total/NA	Prep	8015NM Prep			2476	04/29/21 10:18	DM	XM
Total/NA	Analysis	8015B NM		1	2591	05/01/21 18:25	AJ	XM
Soluble	Leach	DI Leach			2488	04/29/21 11:24	SC	XM
Soluble	Analysis	300.0		1	2512	04/29/21 23:30	SC	XM

Client Sample ID: PH19A

Lab Sample ID: 890-585-14

Date Collected: 04/27/21 12:19

Matrix: Solid

Date Received: 04/27/21 15:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			2461	04/29/21 10:36	KL	XM
Total/NA	Analysis	8021B		1	2544	04/30/21 20:38	KL	XM
Total/NA	Prep	8015NM Prep			2476	04/29/21 10:18	DM	XM
Total/NA	Analysis	8015B NM		1	2591	05/01/21 18:46	AJ	XM
Soluble	Leach	DI Leach			2488	04/29/21 11:24	SC	XM
Soluble	Analysis	300.0		1	2512	04/29/21 23:35	SC	XM

Client Sample ID: PH20

Lab Sample ID: 890-585-15

Date Collected: 04/27/21 12:33

Matrix: Solid

Date Received: 04/27/21 15:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			2461	04/29/21 10:36	KL	XM
Total/NA	Analysis	8021B		1	2544	04/30/21 20:59	KL	XM
Total/NA	Prep	8015NM Prep			2476	04/29/21 10:18	DM	XM
Total/NA	Analysis	8015B NM		1	2591	05/01/21 19:07	AJ	XM
Soluble	Leach	DI Leach			2488	04/29/21 11:24	SC	XM
Soluble	Analysis	300.0		1	2512	04/29/21 23:51	SC	XM

Client Sample ID: PH20A

Lab Sample ID: 890-585-16

Date Collected: 04/27/21 12:37

Matrix: Solid

Date Received: 04/27/21 15:05

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			2461	04/29/21 10:36	KL	XM
Total/NA	Analysis	8021B		1	2544	04/30/21 21:19	KL	XM
Total/NA	Prep	8015NM Prep			2476	04/29/21 10:18	DM	XM
Total/NA	Analysis	8015B NM		1	2591	05/01/21 19:28	AJ	XM
Soluble	Leach	DI Leach			2488	04/29/21 11:24	SC	XM
Soluble	Analysis	300.0		1	2512	04/30/21 12:45	SC	XM

Laboratory References:

XM = 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: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

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	06-30-21

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

Eurofins Xenco, Carlsbad

Method Summary

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

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

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:

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

Eurofins Xenco, Carlsbad

Sample Summary

Client: WSP USA Inc.
Project/Site: Wolverine SWD Riser

Job ID: 890-585-1
SDG: TE012920091

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-585-1	PH13	Solid	04/27/21 09:29	04/27/21 15:05	- 4.5
890-585-2	PH13A	Solid	04/27/21 09:37	04/27/21 15:05	- 5.5
890-585-3	PH14	Solid	04/27/21 09:46	04/27/21 15:05	- 4.5
890-585-4	PH14A	Solid	04/27/21 09:50	04/27/21 15:05	- 5.5
890-585-5	PH15	Solid	04/27/21 10:04	04/27/21 15:05	- 4.5
890-585-6	PH15A	Solid	04/27/21 10:09	04/27/21 15:05	- 5.5
890-585-7	PH16	Solid	04/27/21 10:22	04/27/21 15:05	- 4.5
890-585-8	PH16A	Solid	04/27/21 10:27	04/27/21 15:05	- 5.5
890-585-9	PH17	Solid	04/27/21 10:41	04/27/21 15:05	- 4.5
890-585-10	PH17A	Solid	04/27/21 10:44	04/27/21 15:05	- 5.5
890-585-11	PH18	Solid	04/27/21 10:59	04/27/21 15:05	- 4.5
890-585-12	PH18A	Solid	04/27/21 11:02	04/27/21 15:05	- 5.5
890-585-13	PH19	Solid	04/27/21 12:15	04/27/21 15:05	- 4.5
890-585-14	PH19A	Solid	04/27/21 12:19	04/27/21 15:05	- 5.5
890-585-15	PH20	Solid	04/27/21 12:33	04/27/21 15:05	- 4.5
890-585-16	PH20A	Solid	04/27/21 12:37	04/27/21 15:05	- 5.5

Eurofins Xenco, Carlsbad



Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
Midland, TX (432-704-5440) EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
Hobbs, NM (575-392-7550) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813-620-2000)

Chain of Custody

Work Order No: _____

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Page 1 of 2

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littlell
Company Name:	WSP USA Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	
City, State ZIP:	Midland, TX 79705	City, State ZIP:	
Phone:	(432) 236-3849	Email:	will.mather@wsp.com, dan.moir@wsp.com

Program: UST/PST <input type="checkbox"/> RP <input type="checkbox"/> Brownfields <input type="checkbox"/> RC <input type="checkbox"/> Superfund <input type="checkbox"/>	
State of Project:	
Reporting Level: I <input type="checkbox"/> Level II <input type="checkbox"/> Level III <input type="checkbox"/> ST/UST <input type="checkbox"/> RP <input type="checkbox"/> Level IV <input type="checkbox"/>	
Deliverables: EDD <input type="checkbox"/> ADAPT <input type="checkbox"/> Other: _____	

Project Name:	Wolverine SWD Riser	Turn Around:	✓
Project Number:	TE012920091	Route:	
P.O. Number:	Eddy	Rush:	
Sampler's Name:	William Mather	Due Date:	

SAMPLE RECEIPT		Temp Blank:	<input checked="" type="radio"/> Yes <input type="radio"/> No	Wet Ice:	<input checked="" type="radio"/> Yes <input type="radio"/> No
Temperature (°C):	5.2/5.0	Thermometer ID:	20M007		
Received intact:	<input checked="" type="radio"/> Yes <input type="radio"/> No	Correction Factor:			
Cooler Custody Seals:	<input checked="" type="radio"/> Yes <input type="radio"/> No	Total Containers:			
Sample Custody Seals:	<input checked="" type="radio"/> Yes <input type="radio"/> No				

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0-8021)	Chloride (EPA 300.0)	ANALYSIS REQUEST	Work Order Notes	Sample Comments
PH13	S	4/27/2021	9:29	4.5'	1	X	X	X		AFE: EW 2020 03865 EXP 01 Cost center 1083761001 Incident Number: NR M2016460654	Discrete
PH13A	S	4/27/2021	9:37	5.5'	1	X	X	X			Discrete
PH14	S	4/27/2021	9:46	4.5'	1	X	X	X			Discrete
PH14A	S	4/27/2021	9:50	5.5'	1	X	X	X			Discrete
PH15	S	4/27/2021	10:04	4.5'	1	X	X	X			Discrete
PH15A	S	4/27/2021	10:09	5.5'	1	X	X	X			Discrete
PH16	S	4/27/2021	10:22	4.5'	1	X	X	X			Discrete
PH16A	S	4/27/2021	10:27	5.5'	1	X	X	X			Discrete
PH17	S	4/27/2021	10:41	4.5'	1	X	X	X			Discrete
PH17A	S	4/27/2021	10:44	5.5'	1	X	X	X			Discrete

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Pb Mn Mo Ni K Se Ag SiO2 Na Sr Ti 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 Ti U

Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. 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 Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to 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
<i>[Signature]</i>	<i>[Signature]</i>	4-27-21 1505			



Chain of Custody

Work Order No:



Work Order Comments				
Program: UST/PST	<input type="checkbox"/> RP	<input type="checkbox"/> Grownfields	<input type="checkbox"/> RC	<input type="checkbox"/> \$perfund
State of Project:				
Reporting Level II	<input type="checkbox"/> level III	<input type="checkbox"/> ST/UST	<input type="checkbox"/> RP	<input type="checkbox"/> level IV
Deliverables: EDD	<input type="checkbox"/>	ADaPT	<input type="checkbox"/>	Other:

ANALYSIS REQUEST							
						Work Order Notes	
Project Name:		Wolverine SWD Riser		Turn Around		A/E: EWJ2020.03865.EXP.01 Cost center 1083761001 Incident Number:NRMZ016460654	
Project Number:		TE012920091		Routine			
P.O. Number:		Eddy		Rush:			
Sampler's Name:		William Mather		Due Date:			
SAMPLE RECEIPT		Temp Blank:		Yes	No	Wellser Yes No	
Temperature (°C):				Thermometer ID			
Received In tact:		Yes	No	HSAI			
Cooler Custody Seals:		Yes	No	N/A	Correction Factor:		
Sample Custody Seals:		Yes	No	N/A	Total Containers:		
Number of Containers							
(PA 8015)							
(EPA 0-8021)							
(le EPA 300.0)							
TAT starts the day received by the lab, if received by 4:30pm							

[illegible]

Circle Method(s) and Metal(s) to be analyzed	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 SiO2 Na Sr Ti Sn U V Zn		
TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U		1631 / 245.1 / 7470 / 7471 - Hg

Notice: Signature of this document is a **confirmation of sample commitment** to Xencio. Its affiliates and subcontractors. It assigns standard terms and conditions of service. Xencio 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 the client. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xencio, 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
		4-23-21 1505			

Download Date: 05/14/18 Dow 2018

Eurofins Xenco, Carlsbad

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

Chain of Custody Record



Environment Testing
America

Client Information (Sub Contract Lab)		Sampler	Lab PM	Carrier Tracking No(s):	COC No:
Client Contact:	Phone	Kramer, Jessica			890-188 1
Shipping/Receiving	E-Mail	Jessica.kramer@eurofins.com	State of Origin	Page:	Page 1 of 2
Company	Address:	Accreditations Required (See note)	NECLAP - Louisiana, NECLAP - Texas	Job #:	890-585-1
Eurofins Xenco	1211 W Florida Ave	Due Date Requested		5/3/2021	
City	Midland	TAT Requested (days)			
State, Zip	TX, 79701	PO #:			
Phone	432-704-5440(Tel)	WO #:			
Email		Project #:		89000004	
Project Name:	Wolverine SWD Riser	SSOW#:			
Site:		Field Filtered Sample (Yes or No)			
Perform MS/MSD (Yes or No)		8015MOD_NM/8015NM_S_Prep Full TPH			
		300_ORGFMM_28D/DI_LEACH Chloride			
		8021B/5035FP_Calc BTEX			
		Total Number of containers		1	
Special Instructions/Note:		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 Dodecylhydrate I. Ice U. Acetone J. DI Water V. MCAA K. EDTA W. pH 4.5 L. EDTA 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=soil, BT=tissue, A=air)
PH13 (890-585-1)	4/27/21	09 29	Mountain		Solid
PH13A (890-585-2)	4/27/21	09 37	Mountain		Solid
PH14 (890-585-3)	4/27/21	09 46	Mountain		Solid
PH14A (890-585-4)	4/27/21	09 50	Mountain		Solid
PH15 (890-585-5)	4/27/21	10 04	Mountain		Solid
PH15A (890-585-6)	4/27/21	10 09	Mountain		Solid
PH16 (890-585-7)	4/27/21	10 22	Mountain		Solid
PH16A (890-585-8)	4/27/21	10 27	Mountain		Solid
PH17 (890-585-9)	4/27/21	10 41	Mountain		Solid
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/test/method, 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					
Unconfirmed					
Deliverable Requested I II III IV Other (specify)					
Primary Deliverable Rank 2					
Special Instructions/QC Requirements.					
Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) <input type="checkbox"/> Return To Client <input type="checkbox"/> Disposal By Lab <input type="checkbox"/> Archive For _____ Months					
Empty Kit Relinquished by		Date	Time	Method of Shipment:	
Relinquished by		Date/Time:	Company	Received by	
Relinquished by		Date/Time:	Company	Received by	
Relinquished by		Date/Time:	Company	Received by	
Custody Seals Intact:		Custody Seal No		Cooler Temperature(s) °C and Other Remarks	
Δ Yes Δ No					

Bottle Order Information

Bottle Order
 Bottle Order #
 Request From Client 4/28/2021
 Date Order Posted
 Order Status Ready To Process
 Prepared By
 Deliver By Date: 4/28/2021 11:59:00PM
 Lab Project Number

Order Completion Information

Creator Cloe Clifton
 Filled by
 Sent Date
 Sent Via
 Tracking #

Sets	Bottles/Set	Qty	Bottle Type Description	Preservative	Method	Matrix	Sample Type	Comments	Lot #
------	-------------	-----	-------------------------	--------------	--------	--------	-------------	----------	-------

Notes to Field Staff:

Scan QR code for field
 sampler instructions

Health and Safety Notes:

Preservative

Comment

Relinquished By/	Company	Date	Time	Received By	Company	Seal #
Relinquished By	Company	Date	Time	Received By	Company	Seal #

Please notify your PM immediately if an error is found in shipment. When returning samples, please return all provided QC samples.

Login Sample Receipt Checklist

Client: WSP USA Inc.

Job Number: 890-585-1

SDG Number: TE012920091

Login Number: 585**List Number: 1****Creator: Clifton, Cloe****List Source: Eurofins 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: 890-585-1
SDG Number: TE012920091**Login Number: 585****List Number: 2****Creator: Copeland, Tatiana****List Source: Eurofins Midland****List Creation: 04/28/21 04:06 PM**

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	

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 31715

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 31715
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
chensley	Due to special circumstances, variance to close incident is approved.	7/13/2021