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	NAPP2122432860
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party XTO Energy	OGRID 5380
Contact Name Shelby Pennington	Contact Telephone 281-723-9353
Contact email shelby.pennington@exxonmobil.com	Incident # *(assigned by OCD)*
Contact mailing address 6401 Holiday Hill Rd Bldg 5, Midland, Texas, 79707	

Location of Release Source

Latitude 32.20817 Longitude -103.78916
(NAD 83 in decimal degrees to 5 decimal places)

Site Name PLU 16 Twin Wells Ranch 122H	Site Type Production Well
Date Release Discovered 07/31/2021	API# *(if applicable)*

Unit Letter	Section	Township	Range	County
D	21	24S	31E	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)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 6.00	Volume Recovered (bbls) 4.00
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release: A check valve malfunctioned, causing fluid to release both inside and out of containment. A vac truck recovered standing fluids. A third-party contractor has been retained for remediation activities.

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2122432860
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release? N/A

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
N/A

Initial Response

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

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

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

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: Adrian Baker
Title: ~~SSHE Coordinator~~ Environmental Coordinator

Signature: Adrian Baker
Date: 8/11/21

email: adrian.baker@exxonmobil.com
Telephone: 432-236-3808

OCD Only

Received by: Ramona Marcus
Date: 8/13/2021

NAPP2122432860

Location:	PLU 16 TWR 122H	
Spill Date:	7/31/2021	
Area 1		
Approximate Area =	11.23	cu.ft.
VOLUME OF LEAK		
Total Crude Oil =	0.00	bbls
Total Produced Water =	2.00	bbls
Area 2		
Approximate Area =	3585.00	sq. ft.
Average Saturation (or depth) of spill =	1.25	inches

Average Porosity Factor =	0.03	

VOLUME OF LEAK		
Total Crude Oil =	0.00	bbls
Total Produced Water =	4.00	bbls

TOTAL VOLUME OF LEAK		
Total Crude Oil =	**0.00**	**bbls**
Total Produced Water =	**6.00**	**bbls**
TOTAL VOLUME RECOVERED		
Total Crude Oil =	**0.00**	**bbls**
Total Produced Water =	**4.00**	**bbls**

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 41590

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 41590
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
rmarcus	None	8/13/2021

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2122432860
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	>110 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

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

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

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

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

State of New Mexico
Oil Conservation Division

Incident ID	NAPP2122432860
District RP	
Facility ID	
Application ID	

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

Printed Name: _____Adrian Baker_____ Title: _____Environmental Coordinator_____

Signature:_____ Adrian Baker _____ Date: __10/29/21_____

email: _____adrian.baker@exxonmobil.com _____ Telephone: ____(432)-236-3808_____

OCD Only

Received by: _____ Date: _____

Incident ID	NAPP2122432860
District RP	
Facility ID	
Application ID	

Closure

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

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

☒ 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: Adrian Baker Title: Environmental Coordinator

Signature: Adrian Bakes Date: 10/29/2021

email: adrian.baker@exxonmobil.com Telephone: 432-236-3808

OCD Only

Received by: Chad Hensley Date: 12/15/2021

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

Closure Approved by: Chad Hensley Date: 12/15/2021

Printed Name: Chad Hensley Title: Environmental Specialist Advanced

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

October 29, 2021

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

RE: Closure Request
PLU 16 Twin Wells Ranch 122H
Incident Number NAPP2122432860
Eddy County, New Mexico

To Whom it May Concern:

WSP USA Inc. (WSP), on behalf of XTO Energy, Inc. (XTO), presents the following Closure Request detailing site assessment, soil sampling, and excavation activities at the Poker Lake Unit (PLU) Twin Wells Ranch 122H (Site) in Unit D, Section 21, Township 24 South, Range 31 East, in Eddy County, New Mexico (Figure 1). The purpose of the site assessment, soil sampling, and excavation activities was to address impacts to soil following a release of produced water at the Site. Based on the excavation activities and laboratory analytical results from the soil sampling events, XTO is submitting this Closure Request, describing remediation that has occurred and requesting no further action (NFA) for Incident Number NAPP2122432860.

RELEASE BACKGROUND

On July 31, 2021, a check valve malfunctioned, releasing produced water within and outside of a temporary lined containment. A total of 6 barrels (bbls) of produced water were released. A vacuum truck was immediately dispatched to the Site to recover freestanding fluids, approximately 4 bbls of produced water were recovered. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification Form C-141 (Form C-141) on August 11, 2021. The release was assigned Incident Number NAPP2122432860.

SITE CHARACTERIZATION

WSP characterized the Site according to Table 1, Closure Criteria for Soils Impacted by a Release, of Title 19, Chapter 15, Part 29, Section 12 (19.15.29.12) of the New Mexico Administrative Code (NMAC). Depth to groundwater at the Site is greater than 110 feet below ground surface (bgs) based on a recent soil boring drilled for determination of regional groundwater depth. During December 2020, WSP installed a soil boring (C-4499) within 0.5 miles of the Site utilizing a truck-mounted hollow stem auger rig. Soil boring C-4499 was drilled to a depth of 110 feet bgs. The

soil boring was located approximately 0.36 miles southwest of the Site and is provided on Figure 1. A WSP geologist logged and described soils continuously. The Well Record and Log is included in Attachment 1. The borehole was left open for over 72 hours to allow for potential slow infill of groundwater. After the 72-hour waiting period without observing groundwater, it was confirmed that groundwater beneath the Site is greater than 110 feet bgs. The borehole was properly abandoned utilizing hydrated bentonite chips. All wells used for depth to groundwater determination are depicted on Figure 1 and the associated well records are included in Attachment 1.

The closest continuously flowing water or significant watercourse to the Site is an emergent palustrine, located approximately 6,715 feet northwest of the Site. The Site is greater than 200 feet from a lakebed, sinkhole, or playa lake and greater than 300 feet from an occupied residence, school, hospital, institution, church, or wetland. The Site is greater than 1,000 feet to a freshwater well or spring and is not within a 100-year floodplain or overlying a subsurface mine. The Site is not underlain by unstable geology (low potential karst designation area). Site receptors are identified on Figure 1.

CLOSURE CRITERIA

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

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

SITE ASSESSMENT ACTIVITIES AND ANALYTICAL RESULTS

On August 24, 2021, WSP personnel visited the Site to evaluate the release extent based on information provided on the Form C-141 and visual observations. WSP personnel collected two preliminary assessment soil samples (SS01 and SS02) within the release extent, from a depth of approximately 0.5 feet bgs to assess the lateral extent of impacted soil. Soil from the preliminary soil samples was field screened for volatile aromatic hydrocarbons and chloride utilizing a calibrated photo-ionization detector (PID) and Hach® chloride QuanTab® test strips, respectively. The release extent and preliminary soil sample locations were mapped utilizing a handheld Global Positing System (GPS) and are presented on Figure 2. Photographic documentation was completed during the Site assessment and a photographic log is included in Attachment 2.

The preliminary soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, and method of analysis and immediately placed on ice. The soil samples were transported at or below 4 degrees Celsius (°C) under strict chain-of-custody (COC) procedures to Xenco Laboratories (Xenco) in Carlsbad, New Mexico, for analysis of BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-GRO, TPH-DRO, and TPH-oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0.

Laboratory analytical results indicated that benzene, BTEX, TPH-GRO/TPH-DRO, TPH, and chloride concentrations were compliant with the Closure Criteria in preliminary soil sample SS01. Laboratory analytical results indicated that TPH-GRO/TPH-DRO concentrations exceeded the Closure Criteria in preliminary soil sample SS02. Based on visible staining in the release area, elevated field screening results, and laboratory analytical results for the preliminary soil samples, excavation activities were warranted.

EXCAVATION SOIL SAMPLING ACTIVITIES

On October 5, 2021 WSP personnel were at the Site to oversee excavation activities as indicated by visible staining, field screening activities, and laboratory analytical results for the preliminary soil samples. Excavation activities were performed using a backhoe and transport vehicle. To direct excavation activities, WSP screened soil for volatile aromatic hydrocarbons and chloride utilizing a PID and Hach® chloride QuanTab® test strips, respectively. The excavation was completed to a depth of 1 foot bgs. Following removal of impacted soil, WSP collected 5-point composite soil samples every 200 square feet from the floor of the excavation. The 5-point composite samples were collected by placing five equivalent aliquots of soil into a 1-gallon, resealable plastic bag and homogenizing the samples by thoroughly mixing. Composite soil samples FS01 through FS05 were collected from the floor of the excavation. Due to the shallow depth of the excavation, the floor samples were also representative of the excavation sidewalls. The excavation soil samples were collected, handled, and analyzed as described above. The excavation extent and excavation soil sample locations are presented on Figure 3. Photos of the final excavation extent are included in Attachment 2.

The final excavation extent measured approximately 1,000 square feet. A total of approximately 42 cubic yards of impacted soil were removed during excavation activities. The impacted soil was transported and properly disposed of at the R360 Facility located in Hobbs, New Mexico. After the completion of confirmation sampling, the excavation was secured with fencing.

Laboratory analytical results for excavation floor samples FS01 through FS05, collected from the final excavation extent, indicated that benzene, BTEX, TPH-GRO/TPH-DRO, TPH, and chloride concentrations were compliant with the Closure Criteria. Laboratory analytical results are summarized in Table 1 and the laboratory analytical reports are included as Attachment 3.

CLOSURE REQUEST

Site assessment and excavation activities were conducted at the Site to address the July 31, 2021 release of produced water. Based on the laboratory analytical results for the preliminary soil samples, impacted soil was excavated. Laboratory analytical results for excavation soil samples, collected from the final excavation extent indicated that benzene, BTEX, TPH-GRO/TPH-DRO, TPH, and chloride concentrations were compliant with the Site Closure Criteria and compliant with the most stringent Table 1 Closure Criteria. Based on the soil sample analytical results, no further remediation was required. XTO backfilled the excavation with material purchased locally and recontoured the Site to match pre-existing site conditions.

Initial response efforts and excavation of impacted soil have mitigated impacts at this Site. As such, XTO respectfully requests NFA for Incident Number NAPP2122432860.

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

Sincerely,

WSP USA Inc.

Elliot Lee
Assistant Consultant, Environmental Scientist

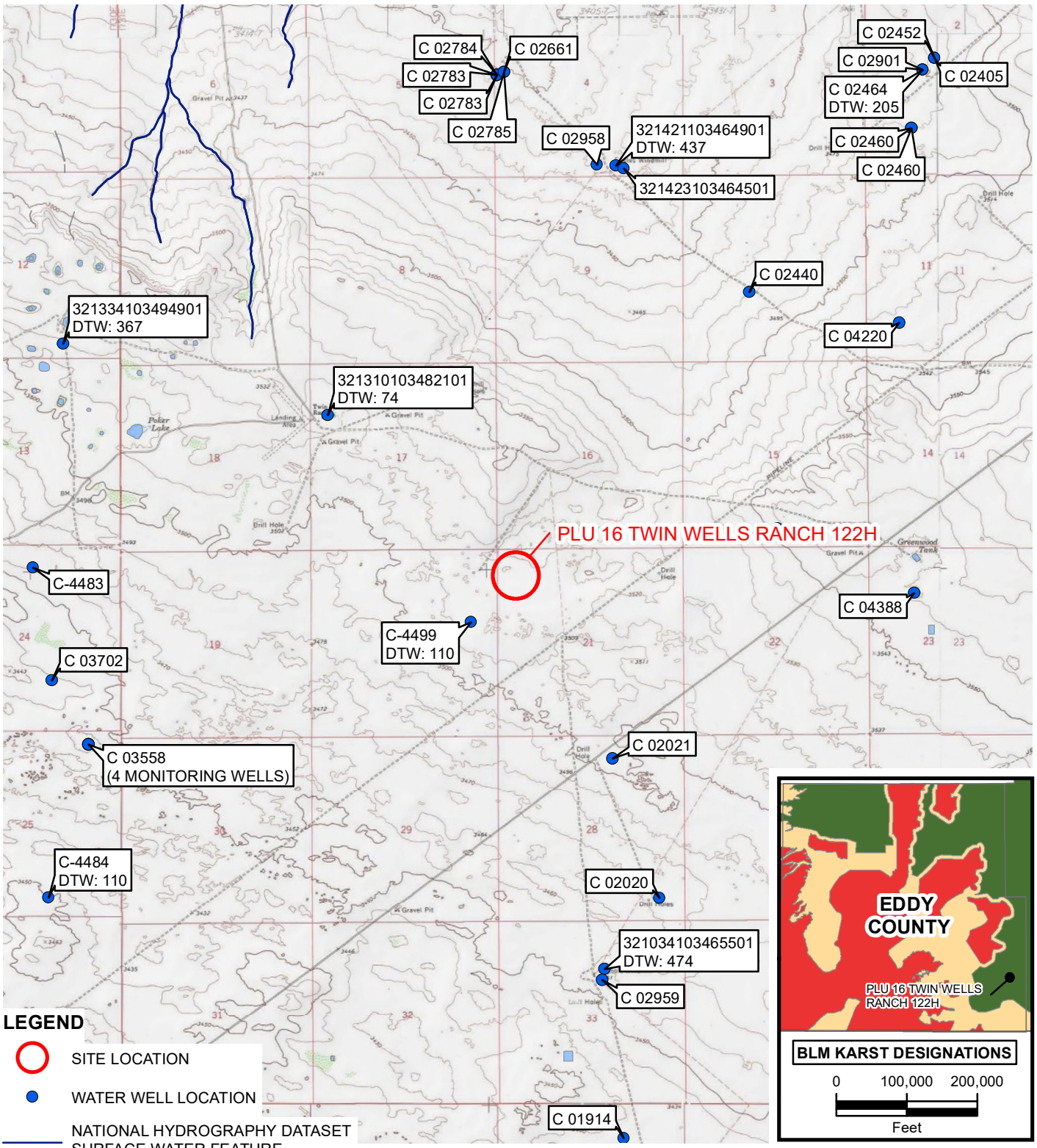
Ashley L. Ager, P.G.
Managing Director, Geologist

cc: Shelby Pennington, XTO
Adrian Baker, XTO
Bureau of Land Management

Attachments:

Figure 1	Site Location Map
Figure 2	Preliminary Soil Sample Locations
Figure 3	Excavation Soil Sample Locations
Table 1	Soil Analytical Results
Attachment 1	Referenced Well Records
Attachment 2	Photographic Log
Attachment 3	Laboratory Analytical Reports

FIGURES



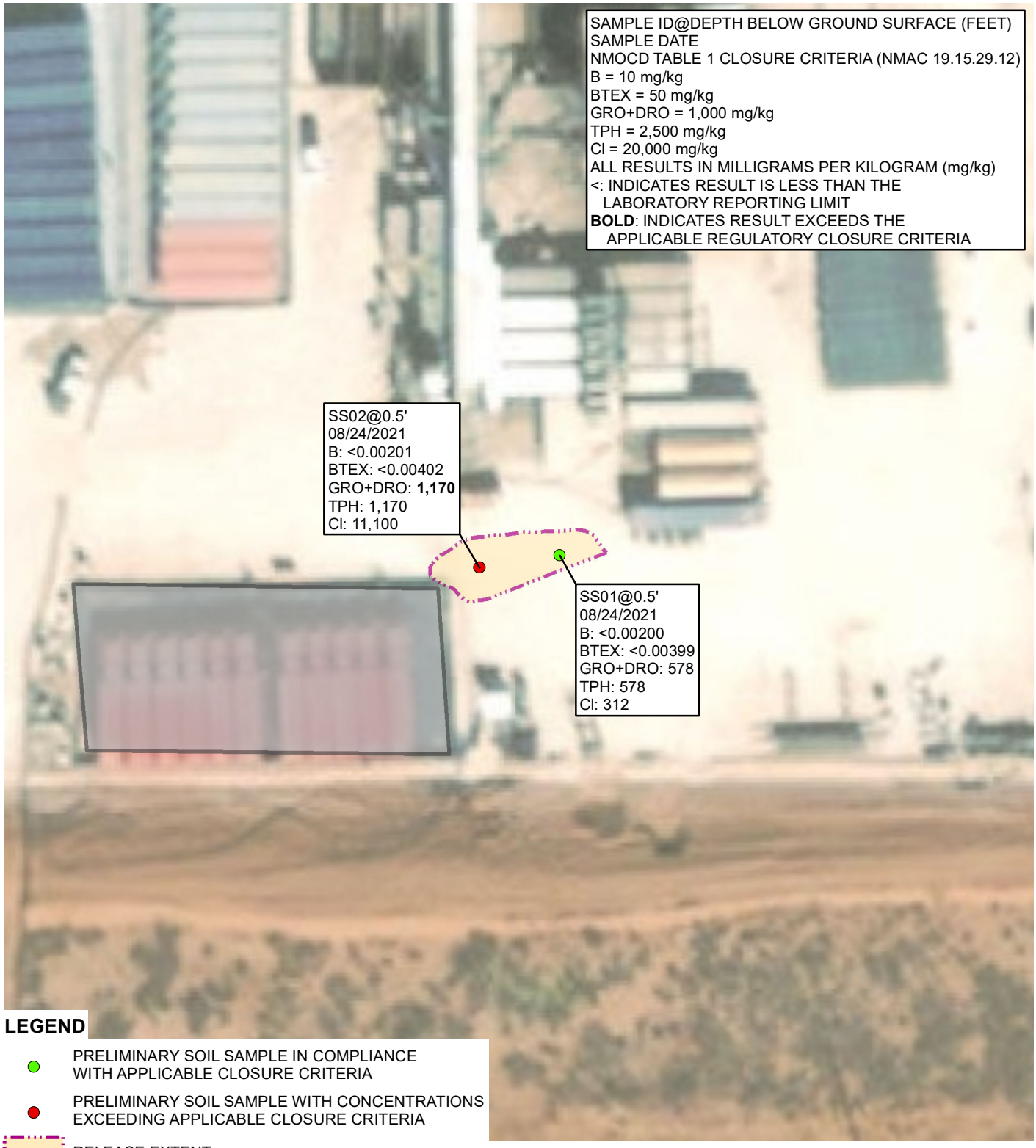
LEGEND

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

DTW: DEPTH TO WATER IN FEET
BLM: BUREAU OF LAND MANAGEMENT
TD: TOTAL DEPTH IN FEET
NOTE: INCIDENT NUMBER NAPP2122432860

FIGURE 1
SITE LOCATION MAP
PLU 16 TWIN WELLS RANCH 122H
UNIT D SEC 21 T24S R31E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC

P:\XTO Energy\GIS\31403236.020.0129.06_PLU 16 TWIN WELLS RANCH 122H\MXD\31403236.020.0129.06_FIG01_SL_RECEPTOR_2021.mxd

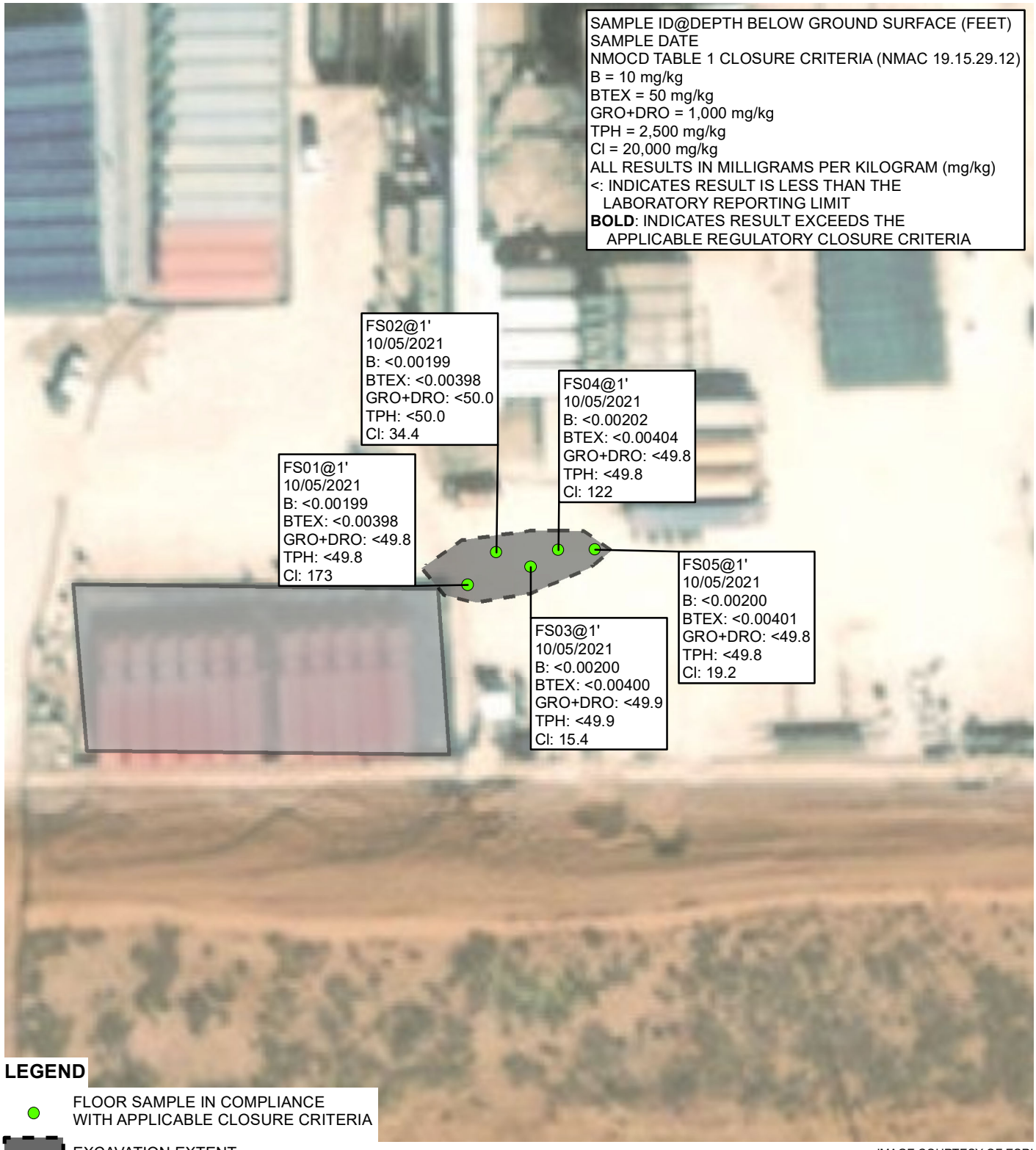


B: BENZENE
BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
GRO: GASOLINE RANGE ORGANICS
DRO: DIESEL RANGE ORGANICS
TPH: TOTAL PETROLEUM HYDROCARBONS
Cl: CHLORIDE
NMAC: NEW MEXICO ADMINISTRATIVE CODE
NMOCD: NEW MEXICO OIL CONSERVATION DIVISION
NOTE: INCIDENT NUMBER NAPP2122432860

FIGURE 2
PRELIMINARY SOIL SAMPLE LOCATIONS
PLU 16 TWIN WELLS RANCH 122H
UNIT D SEC 21 T24S R31E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

wsp

P:\XTO Energy\GIS\31403236.020.0129.06_PLU 16 TWIN WELLS RANCH 122H\MXD\31403236.020.0129.06_FIG02_PRELIMINARY_2021.mxd



B: BENZENE
BTEX: TOTAL BENZENE, TOLUENE, ETHYLBENZENE, AND TOTAL XYLENES
GRO: GASOLINE RANGE ORGANICS
DRO: DIESEL RANGE ORGANICS
TPH: TOTAL PETROLEUM HYDROCARBONS
Cl: CHLORIDE
NMAC: NEW MEXICO ADMINISTRATIVE CODE
NMOCD: NEW MEXICO OIL CONSERVATION DIVISION
NOTE: INCIDENT NUMBER NAPP2122432860

FIGURE 3
EXCAVATION SOIL SAMPLE LOCATIONS
PLU 16 TWIN WELLS RANCH 122H
UNIT D SEC 21 T24S R31E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

P:\XTO Energy\GIS\31403236.020.0129.06_PLU 16 TWIN WELLS RANCH 122H\MXD\31403236.020.0129.06_FIG03_EXCAVATION_2021.mxd

TABLES

Table 1

Soil Analytical Results
PLU 16 Twin Wells Ranch 122H
NAPP2122432860
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	8/24/2021	0.5	<0.00200	<0.00399	578	<49.8	<49.8	578	578	312
SS02	8/24/2021	0.5	<0.00201	<0.00402	1,170	<49.9	<49.9	**1,170**	1,170	11,100
Excavation Floor Samples										
FS01	10/05/2021	1'	<0.00199	<0.00398	<49.8	<49.8	<49.8	<49.8	<49.8	173
FS02	10/05/2022	1'	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	<50.0	34.4
FS03	10/05/2023	1'	<0.00200	<0.00400	<49.9	<49.9	<49.9	<49.9	<49.9	15.4
FS04	10/05/2024	1'	<0.00202	<0.00404	<49.8	<49.8	<49.8	<49.8	<49.8	122
FS05	10/05/2025	1'	<0.00200	<0.00401	<49.8	<49.8	<49.8	<49.8	<49.8	19.2

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

Released to Imaging: 12/15/2021 10:30:30 AM

ATTACHMENT 1: REFERENCED WELL RECORDS

Atkins
ENGINEERING ASSOCIATES INC.

2904 W 2nd St.
Roswell, NM 88201
voice: 575.624.2420
fax: 575.624.2421
www.atkinseng.com

01/20/2021

DII-NMOSE
1900 W 2nd Street
Roswell, NM 88201

Hand Delivered to the DII Office of the State Engineer

Re: Well Record C-4499 Pod1

To whom it may concern:

Attached please find a well record and a plugging record, in duplicate, for a one (1) soil borings, C-4499 Pod1.

If you have any questions, please contact me at 575.499.9244 or lucas@atkinseng.com.

Sincerely,

Lucas Middleton

Enclosures: as noted above

OSE DII JAN 27 2021 PM 3:24

PLUGGING RECORD

NOTE: A Well Plugging Plan of Operations shall be approved by the State Engineer prior to plugging - 19.27.4 NMAC

I. GENERAL / WELL OWNERSHIP:

State Engineer Well Number: C-4499-POD1

Well owner: XTO ENERGY (Kyle Littrell) Phone No.: 432.682.8873

Mailing address: 6401 Holiday Hill Dr.

City: Midland State: Texas Zip code: 79707

II. WELL PLUGGING INFORMATION:

1) Name of well drilling company that plugged well: Jackie D. Atkins (Atkins Engineering Associates Inc.)

2) New Mexico Well Driller License No.: 1249 Expiration Date: 04/30/21

3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): Shane Eldridge

4) Date well plugging began: 1/19/2021 Date well plugging concluded: 1/19/2021

5) GPS Well Location: Latitude: 32 deg, 12 min, 15.89 sec
Longitude: -104 deg, 47 min, 36.29 sec, WGS 84

6) Depth of well confirmed at initiation of plugging as: 111 ft below ground level (bgl), by the following manner: weighted tape

7) Static water level measured at initiation of plugging: n/a ft bgl

8) Date well plugging plan of operations was approved by the State Engineer: 12/1/2020

9) Were all plugging activities consistent with an approved plugging plan? Yes If not, please describe differences between the approved plugging plan and the well as it was plugged (attach additional pages as needed):

Version: September 8, 2009
Page 1 of 2

OSE DIT JAN 27 2021 PM3:25

10) Log of Plugging Activities - Label vertical scale with depths, and indicate separate plugging intervals with horizontal lines as necessary to illustrate material or methodology changes. Attach additional pages if necessary.

For each interval plugged, describe within the following columns:

Depth (ft bgl)	Plugging Material Used (include any additives used)	Volume of Material Placed (gallons)	Theoretical Volume of Borehole/ Casing (gallons)	Placement Method (tremie pipe, other)	Comments ("casing perforated first", "open annular space also plugged", etc.)
	0-10' Hydrated Bentonite	Approx. 26 gallons	26 gallons	Augers	
	10'-110' Drill Cuttings	Approx. 163 gallons	163 gallons	Boring	

OSE DII JAN 27 2021 PM3:25

MULTIPLY		BY		AND OBTAIN
cubic feet	x	7.4805	=	gallons
cubic yards	x	201.97	=	gallons

III. SIGNATURE:

I, Jackie D. Atkins, say that I am familiar with the rules of the Office of the State Engineer pertaining to the plugging of wells and that each and all of the statements in this Plugging Record and attachments are true to the best of my knowledge and belief.

Jack Atkins — Signature of Well Driller

01/21/2021 — Date

Version: September 8, 2009
Page 2 of 2

2020-1-15_C-4499-POD1_Plugging Record-forsign

Final Audit Report 2021-01-20

Created:	2021-01-20
By:	Lucas Middleton (lucas@atkinseng.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAAAKYAlMzENwZcWpwbipfZabZszsWa5ksl

"2020-1-15_C-4499-POD1_Plugging Record-forsign" History

Document created by Lucas Middleton (lucas@atkinseng.com)
2021-01-20 - 4:18:16 PM GMT- IP address: 69.21.248.123

Document emailed to Jack Atkins (jack@atkinseng.com) for signature
2021-01-20 - 4:18:36 PM GMT

Email viewed by Jack Atkins (jack@atkinseng.com)
2021-01-20 - 4:24:48 PM GMT- IP address: 74.50.153.115

Document e-signed by Jack Atkins (jack@atkinseng.com)
Signature Date: 2021-01-20 - 4:27:30 PM GMT - Time Source: server- IP address: 74.50.153.115

Agreement completed.
2021-01-20 - 4:27:30 PM GMT

USE DIT JAN 27 2021 PM3:25

Adobe Sign

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.)	WELL TAG ID NO.	OSE FILE NO(S).
POD1 (MW-1)	n/a	C-4499

WELL OWNER NAME(S)	PHONE (OPTIONAL)
XTO Energy (Kyle Littrell)	

WELL OWNER MAILING ADDRESS	CITY	STATE	ZIP
6401 Holiday Hill Dr.	Midland	TX	79707

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32°	12'	15.89"	N
	LONGITUDE	-103°	47'	36.29"	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE

SE NE Sec. 20 T24S R31E

2. DRILLING & CASING INFORMATION

LICENSE NO.	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
1249	Jackie D. Atkins	Atkins Engineering Associates, Inc.

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
12/30/2020	12/30/2020	temporary well material	110	n/a

COMPLETED WELL IS: ☐ ARTESIAN ☑ DRY HOLE ☐ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): n/a

DRILLING FLUID: ☑ AIR ☐ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☐ ROTARY ☐ HAMMER ☐ CABLE TOOL ☑ OTHER – SPECIFY: Hollow Stem Auger

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	110	±8.5	Boring- HSA	--	--	--	--

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL	AMOUNT (cubic feet)	METHOD OF PLACEMENT

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/30/17)

FILE NO.	POD NO.	TRN NO.	
LOCATION		WELL TAG ID NO.	PAGE 1 OF 2

OSE DIT JAN 27 2021 PM3:25

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES (attach supplemental sheets to fully describe all units)	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	6	6	SAND, well graded, fine-to-large grain particles red-brown, dry	~~Y~~ ✓ N	
6	8	2	SAND, poorly graded, fine grained little clay mod. plasitcity, red-brown, moist	Y ✓ N	
8	11	3	CALICHE, mod. consolidated, some sand, medium /fine grain, white-tan, dry	Y ✓ N	
11	46	35	CALICHE, mod. consolidated, some sand, medium to fine grain, white-tan, dry.	Y ✓ N	
46	74	28	SAND, well-graded, medium grain,caliche gravel (1-4mm), light brown, dry.	Y ✓ N	
74	110	36	SAND, well-graded, fine/large grain, few clay, cohesive, red-brown, dry	Y ✓ N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

☐ PUMP ☐ AIR LIFT ☐ BAILER ☐ OTHER – SPECIFY:

TOTAL ESTIMATED WELL YIELD (gpm): 0.00

5. TEST; RIG SUPERVISION

WELL TEST: TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION: Temporary well materials removed and the soil boring backfilled using drill cuttings from total depth to ten feet below ground surface, then hydrated bentonite chips from ten feet below ground surface to surface. Logs adapted from WSP on-site geologist.

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

Shane Eldridge

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:

Jack Atkins — Jackie D. Atkins — 01/15/2021

SIGNATURE OF DRILLER / PRINT SIGNEE NAME — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 06/30/2017)

FILE NO.	POD NO.	TRN NO.	
LOCATION		WELL TAG ID NO.	PAGE 2 OF 2

RECEIVED JAN 27 2021

2021-1-15_C-4499_POD1_OSE_Well Record and Log_plu129-forsign

Final Audit Report 2021-01-15

Created:	2021-01-15
By:	Lucas Middleton (lucas@atkinseng.com)
Status:	Signed
Transaction ID:	CBJCHBCAABAAgs296c366oClflrLCiy9WDKJlrUnq-9u

"2021-1-15_C-4499_POD1_OSE_Well Record and Log_plu129-forsign" History

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2021-01-15 - 8:45:35 PM GMT

Email viewed by Jack Atkins (jack@atkinseng.com)
2021-01-15 - 9:05:13 PM GMT- IP address: 74.50.153.115

Document e-signed by Jack Atkins (jack@atkinseng.com)
Signature Date: 2021-01-15 - 9:13:18 PM GMT - Time Source: server- IP address: 74.50.153.115

Agreement completed.
2021-01-15 - 9:13:18 PM GMT

OSE OIL JAN 27 2021 PM3:25

Adobe Sign

USGS 321310103482101 24S.31E.17.13120

Available data for this site SUMMARY OF ALL AVAILABLE DATA GO

Well Site

DESCRIPTION:

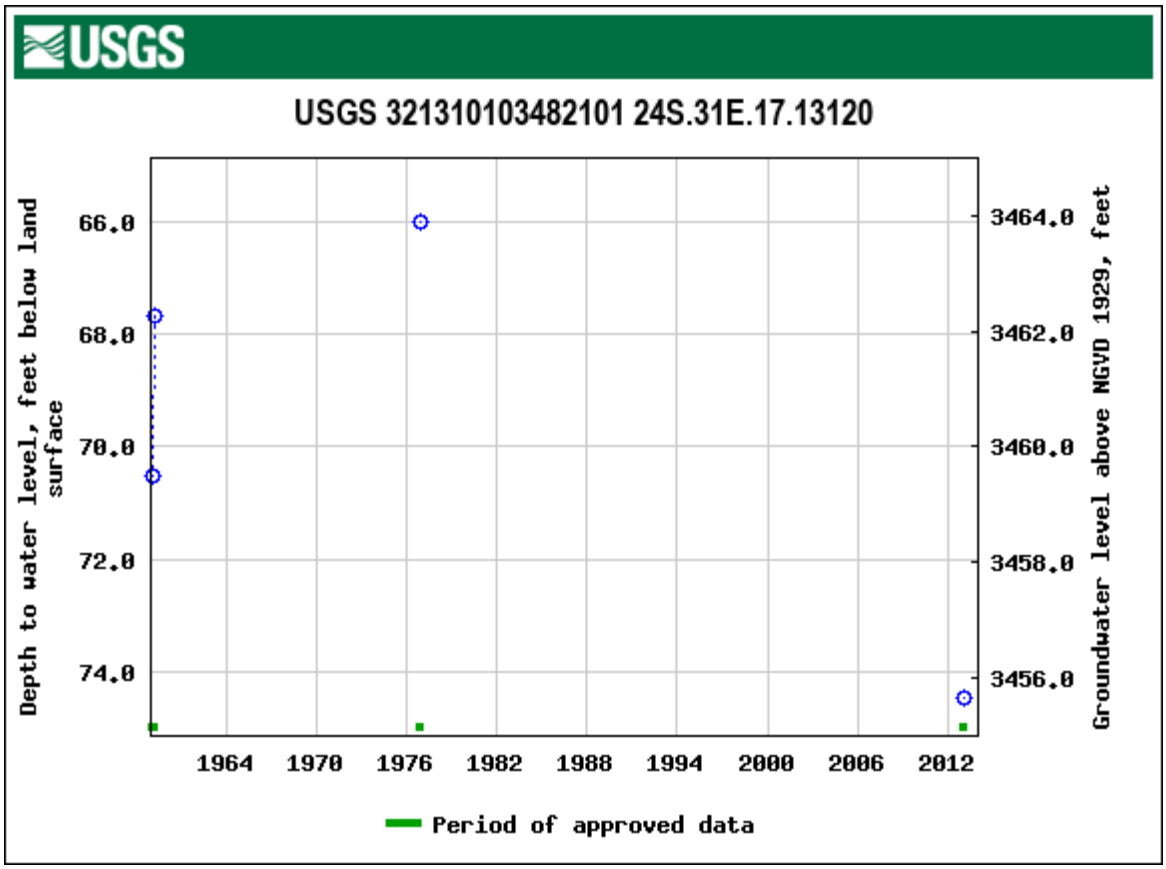
Latitude 32°13'14.1", Longitude 103°48'23.4" NAD83
Eddy County, New Mexico , Hydrologic Unit 13060011
Well depth: not determined.
Land surface altitude: 3,530.00 feet above NGVD29.
Well completed in "Other aquifers" (N9999OTHER) national aquifer.
Well completed in "Alluvium, Bolson Deposits and Other Surface Deposits" (110AVMB) local aquifer

AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1959-02-03	2013-01-17	4
Revisions	Unavailable (site:0) (timeseries:0)		

OPERATION:

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


USGS
USGS 321310103482101 24S.31E.17.13120
Depth to water level, feet below land surface
66.0
68.0
70.0
72.0
74.0
3464.0
3462.0
3460.0
3458.0
3456.0
Groundwater level above NGVD 1929, feet
1964
1970
1976
1982
1988
1994
2000
2006
2012
Period of approved data

ATTACHMENT 2: PHOTOGRAPHIC LOG

PHOTOGRAPHIC LOG		
XTO, Energy	PLU 16 Twin Wells Ranch 122H Eddy, County	NAPP2122432860

Photo No.	Date
1	August 24th, 2021

View of release extent facing south.

Photo No.	Date
2	August 24th, 2021

View of release extent facing east.

PHOTOGRAPHIC LOG		
XTO, Energy	PLU 16 Twin Wells Ranch 122H Eddy, County	NAPP2122432860

Photo No.	Date
3	October 5, 2021

Final excavation extent facing west.

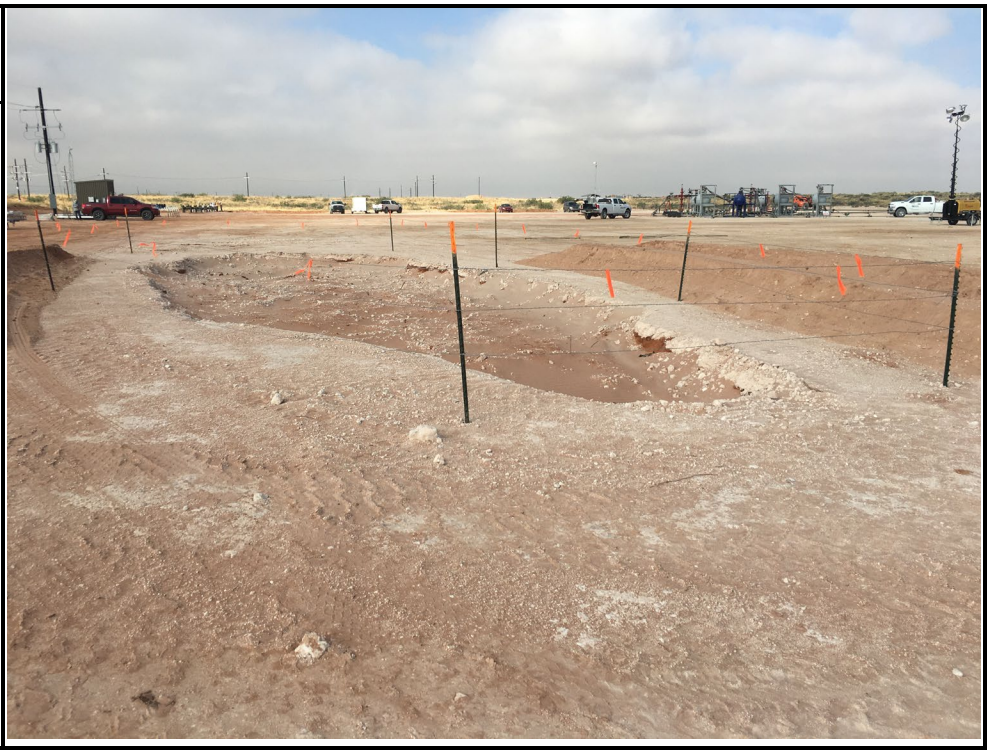


Photo No.	Date
4	October 22, 2021

View of backfilled excavation facing southeast.

ATTACHMENT 3: LABORATORY ANALYTICAL REPORTS

eurofins | Environment Testing America

ANALYTICAL REPORT

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

Laboratory Job ID: 890-1152-1
Laboratory Sample Delivery Group: 31403236.020.0129
Client Project/Site: PLU 16 Twin Wells Ranch 122h

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

Attn: Dan Moir

JKramer

Authorized for release by:
8/30/2021 8:47:59 AM

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

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

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: PLU 16 Twin Wells Ranch 122h

Laboratory Job ID: 890-1152-1
SDG: 31403236.020.0129

Table of Contents

Definitions/Glossary

Client: WSP USA Inc. Job ID: 890-1152-1
Project/Site: PLU 16 Twin Wells Ranch 122h SDG: 31403236.020.0129

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Case Narrative

Client: WSP USA Inc. Job ID: 890-1152-1
Project/Site: PLU 16 Twin Wells Ranch 122h SDG: 31403236.020.0129

Job ID: 890-1152-1

Laboratory: Eurofins Xenco, Carlsbad

Narrative

Job Narrative
890-1152-1

Receipt
The samples were received on 8/25/2021 8:02 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.0°C

GC VOA
Method 8021B: Surrogate recovery for the following sample was outside control limits: (880-5423-A-1-E MSD). Evidence of matrix interferences is not obvious.

Method 8021B: Surrogate recovery for the following samples were outside control limits: (880-5485-A-1-B MS) and (880-5485-A-1-C MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-7126 and analytical batch 880-7136 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

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

HPLC/IC
Method 300_ORGFM_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-7090 and 880-7090 and analytical batch 880-7171 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

Client Sample Results

Client: WSP USA Inc.
Project/Site: PLU 16 Twin Wells Ranch 122h

Job ID: 890-1152-1
SDG: 31403236.020.0129

Client Sample ID: SS01

Lab Sample ID: 890-1152-1
Matrix: Solid

Date Collected: 08/24/21 11:00
Date Received: 08/25/21 08:02
Sample Depth: 0.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/26/21 11:37	08/26/21 18:21	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/26/21 11:37	08/26/21 18:21	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/26/21 11:37	08/26/21 18:21	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		08/26/21 11:37	08/26/21 18:21	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/26/21 11:37	08/26/21 18:21	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		08/26/21 11:37	08/26/21 18:21	1
Total BTEX	<0.00399	U	0.00399		mg/Kg		08/26/21 11:37	08/26/21 18:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*109*		*70 - 130*	*08/26/21 11:37*	*08/26/21 18:21*	*1*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*	*08/26/21 11:37*	*08/26/21 18:21*	*1*

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		08/25/21 14:14	08/26/21 04:08	1
Diesel Range Organics (Over C10-C28)	**578**		49.8		mg/Kg		08/25/21 14:14	08/26/21 04:08	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		08/25/21 14:14	08/26/21 04:08	1
Total TPH	**578**		49.8		mg/Kg		08/25/21 14:14	08/26/21 04:08	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*96*		*70 - 130*	*08/25/21 14:14*	*08/26/21 04:08*	*1*
o-Terphenyl	*97*		*70 - 130*	*08/25/21 14:14*	*08/26/21 04:08*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**312**		5.05		mg/Kg			08/27/21 22:51	1

Client Sample ID: SS02

Lab Sample ID: 890-1152-2
Matrix: Solid

Date Collected: 08/24/21 11:12
Date Received: 08/25/21 08:02
Sample Depth: 0.5

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		08/25/21 11:45	08/25/21 23:18	1
Toluene	<0.00201	U	0.00201		mg/Kg		08/25/21 11:45	08/25/21 23:18	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		08/25/21 11:45	08/25/21 23:18	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		08/25/21 11:45	08/25/21 23:18	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		08/25/21 11:45	08/25/21 23:18	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		08/25/21 11:45	08/25/21 23:18	1
Total BTEX	<0.00402	U	0.00402		mg/Kg		08/25/21 11:45	08/25/21 23:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*	*08/25/21 11:45*	*08/25/21 23:18*	*1*
1,4-Difluorobenzene (Surr)	*109*		*70 - 130*	*08/25/21 11:45*	*08/25/21 23:18*	*1*

Client Sample Results

Client: WSP USA Inc.
Project/Site: PLU 16 Twin Wells Ranch 122h

Job ID: 890-1152-1
SDG: 31403236.020.0129

Client Sample ID: SS02
Date Collected: 08/24/21 11:12
Date Received: 08/25/21 08:02
Sample Depth: 0.5

Lab Sample ID: 890-1152-2
Matrix: Solid

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		08/25/21 14:14	08/26/21 04:28	1
Diesel Range Organics (Over C10-C28)	**1170**		49.9		mg/Kg		08/25/21 14:14	08/26/21 04:28	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		08/25/21 14:14	08/26/21 04:28	1
Total TPH	**1170**		49.9		mg/Kg		08/25/21 14:14	08/26/21 04:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*92*		*70 - 130*	*08/25/21 14:14*	*08/26/21 04:28*	*1*
o-Terphenyl	*96*		*70 - 130*	*08/25/21 14:14*	*08/26/21 04:28*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**11100**		49.5		mg/Kg			08/27/21 22:56	10

Surrogate Summary

Client: WSP USA Inc.
Project/Site: PLU 16 Twin Wells Ranch 122h

Job ID: 890-1152-1
SDG: 31403236.020.0129

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-5423-A-1-D MS	Matrix Spike	110	105
880-5423-A-1-E MSD	Matrix Spike Duplicate	102	42 S1-
880-5471-A-1-F MS	Matrix Spike	99	101
880-5485-A-1-C MSD	Matrix Spike Duplicate	113	104
890-1152-1	SS01	109	101
890-1152-2	SS02	112	109
LCS 880-7058/1-A	Lab Control Sample	98	98
LCS 880-7125/1-A	Lab Control Sample	108	95
LCS 880-7126/1-A	Lab Control Sample	97	97
LCSD 880-7058/2-A	Lab Control Sample Dup	99	95
LCSD 880-7125/2-A	Lab Control Sample Dup	103	105
LCSD 880-7126/2-A	Lab Control Sample Dup	97	97
MB 880-7058/5-A	Method Blank	122	108
MB 880-7125/5-A	Method Blank	124	108

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DFBZ = 1,4-Difluorobenzene (Surr)

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-1147-A-1-C MS	Matrix Spike	86	75
890-1147-A-1-D MSD	Matrix Spike Duplicate	90	75
890-1152-1	SS01	96	97
890-1152-2	SS02	92	96
LCS 880-7068/2-A	Lab Control Sample	96	88
LCSD 880-7068/3-A	Lab Control Sample Dup	93	85
MB 880-7068/1-A	Method Blank	103	99

Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

QC Sample Results

Client: WSP USA Inc.
Project/Site: PLU 16 Twin Wells Ranch 122h

Job ID: 890-1152-1
SDG: 31403236.020.0129

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-7058/5-A
Matrix: Solid
Analysis Batch: 7060

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7058

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/25/21 11:45	08/25/21 14:52	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/25/21 11:45	08/25/21 14:52	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/25/21 11:45	08/25/21 14:52	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		08/25/21 11:45	08/25/21 14:52	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/25/21 11:45	08/25/21 14:52	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		08/25/21 11:45	08/25/21 14:52	1
Total BTEX	<0.00400	U	0.00400		mg/Kg		08/25/21 11:45	08/25/21 14:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*122*		*70 - 130*	*08/25/21 11:45*	*08/25/21 14:52*	*1*
1,4-Difluorobenzene (Surr)	*108*		*70 - 130*	*08/25/21 11:45*	*08/25/21 14:52*	*1*

Lab Sample ID: LCS 880-7058/1-A
Matrix: Solid
Analysis Batch: 7060

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7058

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			0.100	0.1071		mg/Kg		107	70 - 130		
Toluene			0.100	0.1054		mg/Kg		105	70 - 130		
Ethylbenzene			0.100	0.1051		mg/Kg		105	70 - 130		
m-Xylene & p-Xylene			0.200	0.1928		mg/Kg		96	70 - 130		
o-Xylene			0.100	0.09927		mg/Kg		99	70 - 130		

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

Lab Sample ID: LCSD 880-7058/2-A
Matrix: Solid
Analysis Batch: 7060

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 7058

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.100	0.1125		mg/Kg		113	70 - 130	5	35
Toluene			0.100	0.1129		mg/Kg		113	70 - 130	7	35
Ethylbenzene			0.100	0.1113		mg/Kg		111	70 - 130	6	35
m-Xylene & p-Xylene			0.200	0.2022		mg/Kg		101	70 - 130	5	35
o-Xylene			0.100	0.1014		mg/Kg		101	70 - 130	2	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*

Lab Sample ID: 880-5423-A-1-D MS
Matrix: Solid
Analysis Batch: 7060

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 7058

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	<0.00200	U	0.0998	0.09135		mg/Kg		92	70 - 130		

Eurofins Xenco, Carlsbad

QC Sample Results

Client: WSP USA Inc.
Project/Site: PLU 16 Twin Wells Ranch 122h

Job ID: 890-1152-1
SDG: 31403236.020.0129

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

Lab Sample ID: 880-5423-A-1-D MS — **Client Sample ID: Matrix Spike**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 7060 — **Prep Batch: 7058**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Toluene	<0.00200	U	0.0998	0.08347		mg/Kg		84	70 - 130
Ethylbenzene	<0.00200	U	0.0998	0.08350		mg/Kg		84	70 - 130
m-Xylene & p-Xylene	<0.00401	U	0.200	0.1553		mg/Kg		78	70 - 130
o-Xylene	<0.00200	U	0.0998	0.07783		mg/Kg		77	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*

Lab Sample ID: 880-5423-A-1-E MSD — **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 7060 — **Prep Batch: 7058**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.0994	0.1007		mg/Kg		101	70 - 130	10	35
Toluene	<0.00200	U	0.0994	0.09545		mg/Kg		96	70 - 130	13	35
Ethylbenzene	<0.00200	U	0.0994	0.09085		mg/Kg		91	70 - 130	8	35
m-Xylene & p-Xylene	<0.00401	U	0.199	0.1649		mg/Kg		83	70 - 130	6	35
o-Xylene	<0.00200	U	0.0994	0.08230		mg/Kg		82	70 - 130	6	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*
1,4-Difluorobenzene (Surr)	*42*	*S1-*	*70 - 130*

Lab Sample ID: MB 880-7125/5-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 7136 — **Prep Batch: 7125**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		08/26/21 11:37	08/26/21 17:32	1
Toluene	<0.00200	U	0.00200		mg/Kg		08/26/21 11:37	08/26/21 17:32	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		08/26/21 11:37	08/26/21 17:32	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		08/26/21 11:37	08/26/21 17:32	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		08/26/21 11:37	08/26/21 17:32	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		08/26/21 11:37	08/26/21 17:32	1
Total BTEX	<0.00400	U	0.00400		mg/Kg		08/26/21 11:37	08/26/21 17:32	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*124*		*70 - 130*	*08/26/21 11:37*	*08/26/21 17:32*	*1*
1,4-Difluorobenzene (Surr)	*108*		*70 - 130*	*08/26/21 11:37*	*08/26/21 17:32*	*1*

Lab Sample ID: LCS 880-7125/1-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 7136 — **Prep Batch: 7125**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene			0.100	0.1056		mg/Kg		106	70 - 130
Toluene			0.100	0.1020		mg/Kg		102	70 - 130

QC Sample Results

Client: WSP USA Inc. Job ID: 890-1152-1
Project/Site: PLU 16 Twin Wells Ranch 122h SDG: 31403236.020.0129

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

Lab Sample ID: LCS 880-7125/1-A **Client Sample ID: Lab Control Sample**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 7136 **Prep Batch: 7125**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Ethylbenzene			0.100	0.1075		mg/Kg		107	70 - 130		
m-Xylene & p-Xylene			0.200	0.1960		mg/Kg		98	70 - 130		
o-Xylene			0.100	0.1004		mg/Kg		100	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*

Lab Sample ID: LCSD 880-7125/2-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 7136 **Prep Batch: 7125**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.100	0.1162		mg/Kg		116	70 - 130	10	35
Toluene			0.100	0.1143		mg/Kg		114	70 - 130	11	35
Ethylbenzene			0.100	0.1112		mg/Kg		111	70 - 130	3	35
m-Xylene & p-Xylene			0.200	0.2058		mg/Kg		103	70 - 130	5	35
o-Xylene			0.100	0.1024		mg/Kg		102	70 - 130	2	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*

Lab Sample ID: 880-5471-A-1-F MS **Client Sample ID: Matrix Spike**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 7136 **Prep Batch: 7125**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	<0.00200	U	0.100	0.09692		mg/Kg		96	70 - 130		
Toluene	<0.00200	U	0.100	0.09518		mg/Kg		95	70 - 130		
Ethylbenzene	<0.00200	U	0.100	0.09357		mg/Kg		93	70 - 130		
m-Xylene & p-Xylene	<0.00399	U	0.200	0.1765		mg/Kg		88	70 - 130		
o-Xylene	<0.00200	U	0.100	0.08733		mg/Kg		86	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Lab Sample ID: LCS 880-7126/1-A **Client Sample ID: Lab Control Sample**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 7136 **Prep Batch: 7126**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			0.100	0.1041		mg/Kg		104	70 - 130		
Toluene			0.100	0.1006		mg/Kg		101	70 - 130		
Ethylbenzene			0.100	0.1003		mg/Kg		100	70 - 130		
m-Xylene & p-Xylene			0.200	0.1836		mg/Kg		92	70 - 130		
o-Xylene			0.100	0.09217		mg/Kg		92	70 - 130		

QC Sample Results

Client: WSP USA Inc. Job ID: 890-1152-1
Project/Site: PLU 16 Twin Wells Ranch 122h SDG: 31403236.020.0129

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

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		70 - 130
1,4-Difluorobenzene (Surr)	97		70 - 130

Lab Sample ID: LCSD 880-7126/2-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 7136 **Prep Batch: 7126**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.100	0.1009		mg/Kg		101	70 - 130	3	35
Toluene			0.100	0.09994		mg/Kg		100	70 - 130	1	35
Ethylbenzene			0.100	0.09984		mg/Kg		100	70 - 130	0	35
m-Xylene & p-Xylene			0.200	0.1821		mg/Kg		91	70 - 130	1	35
o-Xylene			0.100	0.09338		mg/Kg		93	70 - 130	1	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		70 - 130
1,4-Difluorobenzene (Surr)	97		70 - 130

Lab Sample ID: 880-5485-A-1-C MSD **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 7136 **Prep Batch: 7126**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.00199	U F1	0.100	0.06954	F1	mg/Kg		69	70 - 130	25	35
Toluene	<0.00199	U F1	0.100	0.07764		mg/Kg		77	70 - 130	16	35
Ethylbenzene	<0.00199	U	0.100	0.07929		mg/Kg		79	70 - 130	3	35
m-Xylene & p-Xylene	<0.00398	U	0.200	0.1542		mg/Kg		77	70 - 130	5	35
o-Xylene	<0.00199	U	0.100	0.07891		mg/Kg		78	70 - 130	2	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	113		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

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

Lab Sample ID: MB 880-7068/1-A **Client Sample ID: Method Blank**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 7036 **Prep Batch: 7068**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		08/25/21 14:14	08/25/21 21:10	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		08/25/21 14:14	08/25/21 21:10	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		08/25/21 14:14	08/25/21 21:10	1
Total TPH	<50.0	U	50.0		mg/Kg		08/25/21 14:14	08/25/21 21:10	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	103		70 - 130	08/25/21 14:14	08/25/21 21:10	1
o-Terphenyl	99		70 - 130	08/25/21 14:14	08/25/21 21:10	1

QC Sample Results

Client: WSP USA Inc.
Project/Site: PLU 16 Twin Wells Ranch 122h

Job ID: 890-1152-1
SDG: 31403236.020.0129

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

Lab Sample ID: LCS 880-7068/2-A
Matrix: Solid
Analysis Batch: 7036

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7068

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	866.7		mg/Kg		87	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	947.8		mg/Kg		95	70 - 130		

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

Lab Sample ID: LCSD 880-7068/3-A
Matrix: Solid
Analysis Batch: 7036

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 7068

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	879.6		mg/Kg		88	70 - 130	1	20
Diesel Range Organics (Over C10-C28)			1000	926.2		mg/Kg		93	70 - 130	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*93*		*70 - 130*
o-Terphenyl	*85*		*70 - 130*

Lab Sample ID: 890-1147-A-1-C MS
Matrix: Solid
Analysis Batch: 7036

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 7068

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	995	872.7		mg/Kg		88	70 - 130		
Diesel Range Organics (Over C10-C28)	<50.0	U	995	857.9		mg/Kg		86	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
1-Chlorooctane	*86*		*70 - 130*
o-Terphenyl	*75*		*70 - 130*

Lab Sample ID: 890-1147-A-1-D MSD
Matrix: Solid
Analysis Batch: 7036

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 7068

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	998	956.6		mg/Kg		96	70 - 130	9	20
Diesel Range Organics (Over C10-C28)	<50.0	U	998	884.1		mg/Kg		89	70 - 130	3	20

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

QC Sample Results

Client: WSP USA Inc. Job ID: 890-1152-1
Project/Site: PLU 16 Twin Wells Ranch 122h SDG: 31403236.020.0129

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

Lab Sample ID: 890-1147-A-1-D MSD **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 7036 **Prep Batch: 7068**

Surrogate	MSD %Recovery	MSD Qualifier	Limits
o-Terphenyl	75		70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-7090/1-A **Client Sample ID: Method Blank**
Matrix: Solid **Prep Type: Soluble**
Analysis Batch: 7171

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			08/27/21 20:08	1

Lab Sample ID: LCS 880-7090/2-A **Client Sample ID: Lab Control Sample**
Matrix: Solid **Prep Type: Soluble**
Analysis Batch: 7171

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			250	273.9		mg/Kg		110	90 - 110		

Lab Sample ID: LCSD 880-7090/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid **Prep Type: Soluble**
Analysis Batch: 7171

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			250	275.0		mg/Kg		110	90 - 110	0	20

Lab Sample ID: 880-5445-A-11-B MS **Client Sample ID: Matrix Spike**
Matrix: Solid **Prep Type: Soluble**
Analysis Batch: 7171

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	1240		253	1442	4	mg/Kg		80	90 - 110		

Lab Sample ID: 880-5445-A-11-C MSD **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid **Prep Type: Soluble**
Analysis Batch: 7171

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	1240		253	1440	4	mg/Kg		80	90 - 110	0	20

QC Association Summary

Client: WSP USA Inc. Job ID: 890-1152-1
Project/Site: PLU 16 Twin Wells Ranch 122h SDG: 31403236.020.0129

GC VOA

Prep Batch: 7058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1152-2	SS02	Total/NA	Solid	5035	
MB 880-7058/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-7058/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-7058/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-5423-A-1-D MS	Matrix Spike	Total/NA	Solid	5035	
880-5423-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 7060

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1152-2	SS02	Total/NA	Solid	8021B	7058
MB 880-7058/5-A	Method Blank	Total/NA	Solid	8021B	7058
LCS 880-7058/1-A	Lab Control Sample	Total/NA	Solid	8021B	7058
LCSD 880-7058/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	7058
880-5423-A-1-D MS	Matrix Spike	Total/NA	Solid	8021B	7058
880-5423-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	7058

Prep Batch: 7125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1152-1	SS01	Total/NA	Solid	5035	
MB 880-7125/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-7125/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-7125/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-5471-A-1-F MS	Matrix Spike	Total/NA	Solid	5035	

Prep Batch: 7126

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 880-7126/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-7126/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-5485-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 7136

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1152-1	SS01	Total/NA	Solid	8021B	7125
MB 880-7125/5-A	Method Blank	Total/NA	Solid	8021B	7125
LCS 880-7125/1-A	Lab Control Sample	Total/NA	Solid	8021B	7125
LCS 880-7126/1-A	Lab Control Sample	Total/NA	Solid	8021B	7126
LCSD 880-7125/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	7125
LCSD 880-7126/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	7126
880-5471-A-1-F MS	Matrix Spike	Total/NA	Solid	8021B	7125
880-5485-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	7126

GC Semi VOA

Analysis Batch: 7036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1152-1	SS01	Total/NA	Solid	8015B NM	7068
890-1152-2	SS02	Total/NA	Solid	8015B NM	7068
MB 880-7068/1-A	Method Blank	Total/NA	Solid	8015B NM	7068
LCS 880-7068/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	7068
LCSD 880-7068/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	7068
890-1147-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	7068

QC Association Summary

Client: WSP USA Inc. Job ID: 890-1152-1
Project/Site: PLU 16 Twin Wells Ranch 122h SDG: 31403236.020.0129

GC Semi VOA (Continued)

Analysis Batch: 7036 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1147-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	7068

Prep Batch: 7068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1152-1	SS01	Total/NA	Solid	8015NM Prep	
890-1152-2	SS02	Total/NA	Solid	8015NM Prep	
MB 880-7068/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-7068/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-7068/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-1147-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-1147-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

HPLC/IC

Leach Batch: 7090

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1152-1	SS01	Soluble	Solid	DI Leach	
890-1152-2	SS02	Soluble	Solid	DI Leach	
MB 880-7090/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-7090/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-7090/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-5445-A-11-B MS	Matrix Spike	Soluble	Solid	DI Leach	
880-5445-A-11-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 7171

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1152-1	SS01	Soluble	Solid	300.0	7090
890-1152-2	SS02	Soluble	Solid	300.0	7090
MB 880-7090/1-A	Method Blank	Soluble	Solid	300.0	7090
LCS 880-7090/2-A	Lab Control Sample	Soluble	Solid	300.0	7090
LCSD 880-7090/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	7090
880-5445-A-11-B MS	Matrix Spike	Soluble	Solid	300.0	7090
880-5445-A-11-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	7090

Lab Chronicle

Client: WSP USA Inc.
Project/Site: PLU 16 Twin Wells Ranch 122h

Job ID: 890-1152-1
SDG: 31403236.020.0129

Client Sample ID: SS01

Lab Sample ID: 890-1152-1
Matrix: Solid
Date Collected: 08/24/21 11:00
Date Received: 08/25/21 08:02

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			7125	08/26/21 11:37	MR	XEN MID
Total/NA	Analysis	8021B		1	7136	08/26/21 18:21	KL	XEN MID
Total/NA	Prep	8015NM Prep			7068	08/25/21 14:14	DM	XEN MID
Total/NA	Analysis	8015B NM		1	7036	08/26/21 04:08	AJ	XEN MID
Soluble	Leach	DI Leach			7090	08/25/21 18:17	SC	XEN MID
Soluble	Analysis	300.0		1	7171	08/27/21 22:51	SC	XEN MID

Client Sample ID: SS02

Lab Sample ID: 890-1152-2
Matrix: Solid
Date Collected: 08/24/21 11:12
Date Received: 08/25/21 08:02

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			7058	08/25/21 11:45	MR	XEN MID
Total/NA	Analysis	8021B		1	7060	08/25/21 23:18	KL	XEN MID
Total/NA	Prep	8015NM Prep			7068	08/25/21 14:14	DM	XEN MID
Total/NA	Analysis	8015B NM		1	7036	08/26/21 04:28	AJ	XEN MID
Soluble	Leach	DI Leach			7090	08/25/21 18:17	SC	XEN MID
Soluble	Analysis	300.0		10	7171	08/27/21 22:56	SC	XEN MID

Laboratory References:

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

Accreditation/Certification Summary

Client: WSP USA Inc.
Job ID: 890-1152-1
Project/Site: PLU 16 Twin Wells Ranch 122h
SDG: 31403236.020.0129

Laboratory: Eurofins Xenco, Midland

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

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

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

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

Method Summary

Client: WSP USA Inc.
Project/Site: PLU 16 Twin Wells Ranch 122h

Job ID: 890-1152-1
SDG: 31403236.020.0129

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

Protocol References:

ASTM = ASTM International

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

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

Laboratory References:

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

Sample Summary

Client: WSP USA Inc.
Project/Site: PLU 16 Twin Wells Ranch 122h

Job ID: 890-1152-1
SDG: 31403236.020.0129

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-1152-1	SS01	Solid	08/24/21 11:00	08/25/21 08:02	0.5
890-1152-2	SS02	Solid	08/24/21 11:12	08/25/21 08:02	0.5

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Chain of Custody

XENCO LABORATORIES

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: _____

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Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littrell
Company Name:	WSP 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:	Elliot.Lee@wsp.com, Tacoma.Morrissey@wsp.com

Work Order Comments

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

Project Name:	PLU 16 Twin Wells Ranch 122H	Turn Around	
Project Number:	31403236.020.0129	Routine	☑
P.O. Number:		Rush:	
Sampler's Name:	Elliot Lee	Due Date:	

SAMPLE RECEIPT				
Temp Blank:	(Yes) No	Wet Ice:	(Yes) No	
Temperature (°C):	4.3/4.0	Thermometer ID	T-NM-007	
Received Intact:	(Yes) No			
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2	
Sample Custody Seals:	Yes No (N/A)	Total Containers:	2	

ANALYSIS REQUEST

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)	Sample Comments
SS01	S	8/24/2021	11:00	0.5'	1	X	X	X	DISCRETE
SS02	S	8/24/2021	11:12	0.5'	1	X	X	X	DISCRETE

890-1152 Chain of Custody

Work Order Notes

AFE: DD.2017.04430.CAP.CMP.01
Incident # NAPP2122432860

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

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 Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **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		N. Ota	8/25/21 8:02	2		
3				4		
5				6		

Revised Date 051418 Rev. 2018 1

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Received by OCD: 10/29/2021 1:48:22 PM

Released to Imaging: 12/15/2021 10:30:30 AM

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler	Lab PM: Kramer Jessica	Carrier Tracking No(s)	COC No: 890-367 1
Client Contact: Shipping/Receiving	Phone	E-Mail: jessica kramer@eurofinset com	State of Origin: New Mexico	Page: Page 1 of 1
Company: Eurofins Xenco		Accreditations Required (See note): NELAP - Louisiana NELAP - Texas		Job #: 890-1152-1
Address: 1211 W Florida Ave	Due Date Requested: 8/31/2021			
City: Midland	TAT Requested (days):			
State Zip: TX 79701				
Phone: 432-704-5440(Tel)	PO #:			
Email	WO #:			
Project Name: PLU 16 Twin Wells Ranch 122h	Project #: 89000004			
Site	SSOW#:			

Analysis Requested

Preservation Codes

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	8016MOD_NM/8016NM_S_Prep Full TPH	300_ORGFM_28D/DI_LEACH Chloride	8021B/5035FP_Calc BTEX	Total Number of containers	Special Instructions/Note:
			Preservation Code:								
SS01 (890-1152-1)	8/24/21	11 00 Mountain		Solid			X	X	X	1	
SS02 (890-1152-2)	8/24/21	11 12 Mountain		Solid			X	X	X	1	

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

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

Empty Kit Relinquished by:	Date	Time	Method of Shipment:

	Relinquished by	Date/Time	Company	Received by	Date/Time	Company
1	Relinquished by: 8.25.21	Date/Time:	Company	Received by: Kramer	Date/Time: 8.25 21	Company
2	Relinquished by:	Date/Time:	Company	Received by:	Date/Time	Company
3	Relinquished by:	Date/Time	Company	Received by:	Date/Time	Company

Custody Seals Intact	Custody Seal No	Cooler Temperature(s) °C and Other Remarks
Δ Yes Δ No		2.3/2.8

Ver: 06/08/2021

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Received by OCD: 10/29/2021 1:48:22 PM
8/30/2021
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Released to Imaging: 12/15/2021 10:30:30 AM

Login Sample Receipt Checklist

Client: WSP USA Inc.

Job Number: 890-1152-1
SDG Number: 31403236.020.0129

Login Number: 1152
List Number: 1
Creator: Clifton, Cloe

List Source: Eurofins Xenco, Carlsbad

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

Login Sample Receipt Checklist

Client: WSP USA Inc.

Job Number: 890-1152-1
SDG Number: 31403236.020.0129

Login Number: 1152
List Number: 2
Creator: Kramer, Jessica

List Source: Eurofins Xenco, Midland
List Creation: 08/25/21 01:37 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	2.3/2.8
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").	N/A	

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ANALYTICAL REPORT

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

Laboratory Job ID: 890-1368-1
Laboratory Sample Delivery Group: 31403236.010.0129
Client Project/Site: PLU 16 Twin Wells Ranch 122h

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

Attn: Tacoma Morrissey

JKramer

Authorized for release by:
10/15/2021 3:58:11 PM

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

LINKS

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Have a Question? Ask The Expert

Visit us at: www.eurofinsus.com/Env

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: PLU 16 Twin Wells Ranch 122h

Laboratory Job ID: 890-1368-1
SDG: 31403236.010.0129

Table of Contents

Definitions/Glossary

Client: WSP USA Inc. Job ID: 890-1368-1
Project/Site: PLU 16 Twin Wells Ranch 122h SDG: 31403236.010.0129

Qualifiers

GC VOA

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

GC Semi VOA

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

HPLC/IC

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

Glossary

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

Case Narrative

Client: WSP USA Inc. Job ID: 890-1368-1
Project/Site: PLU 16 Twin Wells Ranch 122h SDG: 31403236.010.0129

Job ID: 890-1368-1

Laboratory: Eurofins Xenco, Carlsbad

Narrative

Job Narrative
890-1368-1

Receipt
The samples were received on 10/6/2021 8:24 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.8°C

GC VOA
Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-9203 and analytical batch 880-9437 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

GC Semi VOA
Method 8015MOD_NM: The laboratory control sample (LCS) associated with preparation batch 880-9433 and analytical batch 880-9426 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.

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

Client Sample Results

Client: WSP USA Inc.
Project/Site: PLU 16 Twin Wells Ranch 122h

Job ID: 890-1368-1
SDG: 31403236.010.0129

Client Sample ID: FS01

Lab Sample ID: 890-1368-1
Matrix: Solid

Date Collected: 10/05/21 12:45
Date Received: 10/06/21 08:24
Sample Depth: 1

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U *1 F1 F2	0.00199		mg/Kg		10/11/21 11:51	10/15/21 00:44	1
Toluene	<0.00199	U F1 F2	0.00199		mg/Kg		10/11/21 11:51	10/15/21 00:44	1
Ethylbenzene	<0.00199	U F1 F2	0.00199		mg/Kg		10/11/21 11:51	10/15/21 00:44	1
m-Xylene & p-Xylene	<0.00398	U F1	0.00398		mg/Kg		10/11/21 11:51	10/15/21 00:44	1
o-Xylene	<0.00199	U F1 F2	0.00199		mg/Kg		10/11/21 11:51	10/15/21 00:44	1
Xylenes, Total	<0.00398	U F1	0.00398		mg/Kg		10/11/21 11:51	10/15/21 00:44	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*	*10/11/21 11:51*	*10/15/21 00:44*	*1*
1,4-Difluorobenzene (Surr)	*109*		*70 - 130*	*10/11/21 11:51*	*10/15/21 00:44*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			10/14/21 15:26	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8		mg/Kg			10/13/21 14:23	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U *-	49.8		mg/Kg		10/14/21 08:43	10/14/21 15:02	1
Diesel Range Organics (Over C10-C28)	<49.8	U *-	49.8		mg/Kg		10/14/21 08:43	10/14/21 15:02	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/14/21 08:43	10/14/21 15:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*78*		*70 - 130*	*10/14/21 08:43*	*10/14/21 15:02*	*1*
o-Terphenyl	*80*		*70 - 130*	*10/14/21 08:43*	*10/14/21 15:02*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**173**	**F1**	4.98		mg/Kg			10/15/21 10:07	1

Client Sample ID: FS02

Lab Sample ID: 890-1368-2
Matrix: Solid

Date Collected: 10/05/21 13:00
Date Received: 10/06/21 08:24
Sample Depth: 1

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U *1	0.00199		mg/Kg		10/11/21 11:51	10/15/21 01:04	1
Toluene	<0.00199	U	0.00199		mg/Kg		10/11/21 11:51	10/15/21 01:04	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		10/11/21 11:51	10/15/21 01:04	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		10/11/21 11:51	10/15/21 01:04	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		10/11/21 11:51	10/15/21 01:04	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		10/11/21 11:51	10/15/21 01:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*70*		*70 - 130*	*10/11/21 11:51*	*10/15/21 01:04*	*1*

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Client Sample Results

Client: WSP USA Inc. Job ID: 890-1368-1
Project/Site: PLU 16 Twin Wells Ranch 122h SDG: 31403236.010.0129

Client Sample ID: FS02 — Lab Sample ID: 890-1368-2

Date Collected: 10/05/21 13:00 **Matrix: Solid**
Date Received: 10/06/21 08:24
Sample Depth: 1

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

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,4-Difluorobenzene (Surr)	*81*		*70 - 130*	*10/11/21 11:51*	*10/15/21 01:04*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			10/14/21 15:26	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0	mg/Kg			10/13/21 14:23	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		10/14/21 08:43	10/14/21 15:23	1
Diesel Range Organics (Over C10-C28)	<50.0	U *-	50.0	mg/Kg		10/14/21 08:43	10/14/21 15:23	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		10/14/21 08:43	10/14/21 15:23	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*87*		*70 - 130*	*10/14/21 08:43*	*10/14/21 15:23*	*1*
o-Terphenyl	*89*		*70 - 130*	*10/14/21 08:43*	*10/14/21 15:23*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**34.4**		5.00	mg/Kg			10/15/21 10:24	1

Client Sample ID: FS03 — Lab Sample ID: 890-1368-3

Date Collected: 10/05/21 13:20 **Matrix: Solid**
Date Received: 10/06/21 08:24
Sample Depth: 1

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U *1	0.00200	mg/Kg		10/11/21 11:51	10/15/21 01:25	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/11/21 11:51	10/15/21 01:25	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/11/21 11:51	10/15/21 01:25	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/11/21 11:51	10/15/21 01:25	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/11/21 11:51	10/15/21 01:25	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/11/21 11:51	10/15/21 01:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*98*		*70 - 130*	*10/11/21 11:51*	*10/15/21 01:25*	*1*
1,4-Difluorobenzene (Surr)	*107*		*70 - 130*	*10/11/21 11:51*	*10/15/21 01:25*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00400	U	0.00400	mg/Kg			10/14/21 15:26	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9	mg/Kg			10/13/21 14:23	1

Client Sample Results

Client: WSP USA Inc.
Project/Site: PLU 16 Twin Wells Ranch 122h

Job ID: 890-1368-1
SDG: 31403236.010.0129

Client Sample ID: FS03

Lab Sample ID: 890-1368-3
Matrix: Solid
Date Collected: 10/05/21 13:20
Date Received: 10/06/21 08:24
Sample Depth: 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		10/14/21 08:43	10/14/21 15:45	1
Diesel Range Organics (Over C10-C28)	<49.9	U *-	49.9		mg/Kg		10/14/21 08:43	10/14/21 15:45	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		10/14/21 08:43	10/14/21 15:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*79*		*70 - 130*	*10/14/21 08:43*	*10/14/21 15:45*	*1*
o-Terphenyl	*83*		*70 - 130*	*10/14/21 08:43*	*10/14/21 15:45*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**15.4**		4.95		mg/Kg			10/15/21 10:29	1

Client Sample ID: FS04

Lab Sample ID: 890-1368-4
Matrix: Solid
Date Collected: 10/05/21 13:50
Date Received: 10/06/21 08:24
Sample Depth: 1

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U *1	0.00202		mg/Kg		10/11/21 11:51	10/15/21 01:45	1
Toluene	<0.00202	U	0.00202		mg/Kg		10/11/21 11:51	10/15/21 01:45	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		10/11/21 11:51	10/15/21 01:45	1
m-Xylene & p-Xylene	<0.00404	U	0.00404		mg/Kg		10/11/21 11:51	10/15/21 01:45	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		10/11/21 11:51	10/15/21 01:45	1
Xylenes, Total	<0.00404	U	0.00404		mg/Kg		10/11/21 11:51	10/15/21 01:45	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*	*10/11/21 11:51*	*10/15/21 01:45*	*1*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*	*10/11/21 11:51*	*10/15/21 01:45*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00404	U	0.00404		mg/Kg			10/14/21 15:26	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8		mg/Kg			10/13/21 14:23	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U *-	49.8		mg/Kg		10/14/21 08:43	10/14/21 16:06	1
Diesel Range Organics (Over C10-C28)	<49.8	U *-	49.8		mg/Kg		10/14/21 08:43	10/14/21 16:06	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/14/21 08:43	10/14/21 16:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*84*		*70 - 130*	*10/14/21 08:43*	*10/14/21 16:06*	*1*
o-Terphenyl	*87*		*70 - 130*	*10/14/21 08:43*	*10/14/21 16:06*	*1*

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Client Sample Results

Client: WSP USA Inc.
Project/Site: PLU 16 Twin Wells Ranch 122h

Job ID: 890-1368-1
SDG: 31403236.010.0129

Client Sample ID: FS04

Lab Sample ID: 890-1368-4
Matrix: Solid
Date Collected: 10/05/21 13:50
Date Received: 10/06/21 08:24
Sample Depth: 1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	122		5.05		mg/Kg			10/15/21 11:23	1

Client Sample ID: FS05

Lab Sample ID: 890-1368-5
Matrix: Solid
Date Collected: 10/05/21 14:25
Date Received: 10/06/21 08:24
Sample Depth: 1

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U *1	0.00200		mg/Kg		10/11/21 11:51	10/15/21 02:06	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/11/21 11:51	10/15/21 02:06	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/11/21 11:51	10/15/21 02:06	1
m-Xylene & p-Xylene	<0.00401	U	0.00401		mg/Kg		10/11/21 11:51	10/15/21 02:06	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/11/21 11:51	10/15/21 02:06	1
Xylenes, Total	<0.00401	U	0.00401		mg/Kg		10/11/21 11:51	10/15/21 02:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*117*		*70 - 130*	*10/11/21 11:51*	*10/15/21 02:06*	*1*
1,4-Difluorobenzene (Surr)	*110*		*70 - 130*	*10/11/21 11:51*	*10/15/21 02:06*	*1*

Method: Total BTEX - Total BTEX Calculation

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00401	U	0.00401		mg/Kg			10/14/21 15:26	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8		mg/Kg			10/13/21 14:23	1

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

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U *-	49.8		mg/Kg		10/14/21 08:43	10/14/21 16:28	1
Diesel Range Organics (Over C10-C28)	<49.8	U *-	49.8		mg/Kg		10/14/21 08:43	10/14/21 16:28	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		10/14/21 08:43	10/14/21 16:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*76*		*70 - 130*	*10/14/21 08:43*	*10/14/21 16:28*	*1*
o-Terphenyl	*79*		*70 - 130*	*10/14/21 08:43*	*10/14/21 16:28*	*1*

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	19.2		4.97		mg/Kg			10/15/21 11:28	1

Surrogate Summary

Client: WSP USA Inc. Job ID: 890-1368-1
Project/Site: PLU 16 Twin Wells Ranch 122h SDG: 31403236.010.0129

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)
890-1368-1	FS01	98	109
890-1368-1 MS	FS01	1186 S1+	49 S1-
890-1368-1 MSD	FS01	124	10 S1-
890-1368-2	FS02	70	81
890-1368-3	FS03	98	107
890-1368-4	FS04	93	104
890-1368-5	FS05	117	110
LCS 880-9203/1-A	Lab Control Sample	87	80
LCSD 880-9203/2-A	Lab Control Sample Dup	85	100
MB 880-9203/5-A	Method Blank	101	104
MB 880-9306/5-A	Method Blank	100	106

Surrogate Legend

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

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

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

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-6945-A-171-B MS	Matrix Spike	79	80
880-6945-A-171-C MSD	Matrix Spike Duplicate	77	75
890-1368-1	FS01	78	80
890-1368-2	FS02	87	89
890-1368-3	FS03	79	83
890-1368-4	FS04	84	87
890-1368-5	FS05	76	79
LCS 880-9433/2-A	Lab Control Sample	75	75
LCSD 880-9433/3-A	Lab Control Sample Dup	79	84
MB 880-9433/1-A	Method Blank	83	90

Surrogate Legend

1CO = 1-Chlorooctane
OTPH = o-Terphenyl

QC Sample Results

Client: WSP USA Inc.
Project/Site: PLU 16 Twin Wells Ranch 122h

Job ID: 890-1368-1
SDG: 31403236.010.0129

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-9203/5-A
Matrix: Solid
Analysis Batch: 9437

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 9203

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/11/21 11:51	10/15/21 00:15	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/11/21 11:51	10/15/21 00:15	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/11/21 11:51	10/15/21 00:15	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/11/21 11:51	10/15/21 00:15	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/11/21 11:51	10/15/21 00:15	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/11/21 11:51	10/15/21 00:15	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*70 - 130*	*10/11/21 11:51*	*10/15/21 00:15*	*1*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*	*10/11/21 11:51*	*10/15/21 00:15*	*1*

Lab Sample ID: LCS 880-9203/1-A
Matrix: Solid
Analysis Batch: 9437

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 9203

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			0.100	0.07006		mg/Kg		70	70 - 130		
Toluene			0.100	0.07910		mg/Kg		79	70 - 130		
Ethylbenzene			0.100	0.08412		mg/Kg		84	70 - 130		
m-Xylene & p-Xylene			0.200	0.1588		mg/Kg		79	70 - 130		
o-Xylene			0.100	0.08688		mg/Kg		87	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*87*		*70 - 130*
1,4-Difluorobenzene (Surr)	*80*		*70 - 130*

Lab Sample ID: LCSD 880-9203/2-A
Matrix: Solid
Analysis Batch: 9437

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 9203

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.100	0.1032	*1	mg/Kg		103	70 - 130	38	35
Toluene			0.100	0.1035		mg/Kg		103	70 - 130	27	35
Ethylbenzene			0.100	0.1105		mg/Kg		110	70 - 130	27	35
m-Xylene & p-Xylene			0.200	0.2112		mg/Kg		106	70 - 130	28	35
o-Xylene			0.100	0.1090		mg/Kg		109	70 - 130	23	35

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*85*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: 890-1368-1 MS
Matrix: Solid
Analysis Batch: 9437

Client Sample ID: FS01
Prep Type: Total/NA
Prep Batch: 9203

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	<0.00199	U *1 F1 F2	0.100	0.1553	F1	mg/Kg		155	70 - 130		

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QC Sample Results

Client: WSP USA Inc. Job ID: 890-1368-1
Project/Site: PLU 16 Twin Wells Ranch 122h SDG: 31403236.010.0129

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

Lab Sample ID: 890-1368-1 MS **Client Sample ID: FS01**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 9437 **Prep Batch: 9203**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Toluene	<0.00199	U F1 F2	0.100	0.06144	F1	mg/Kg		61	70 - 130		
Ethylbenzene	<0.00199	U F1 F2	0.100	0.03870	F1	mg/Kg		39	70 - 130		
m-Xylene & p-Xylene	<0.00398	U F1	0.201	0.05344	F1	mg/Kg		27	70 - 130		
o-Xylene	<0.00199	U F1 F2	0.100	0.06883	F1	mg/Kg		69	70 - 130		

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*1186*	*S1+*	*70 - 130*
1,4-Difluorobenzene (Surr)	*49*	*S1-*	*70 - 130*

Lab Sample ID: 890-1368-1 MSD **Client Sample ID: FS01**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 9437 **Prep Batch: 9203**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.00199	U *1 F1 F2	0.0990	0.006864	F1 F2	mg/Kg		7	70 - 130	183	35
Toluene	<0.00199	U F1 F2	0.0990	0.002203	F1 F2	mg/Kg		2	70 - 130	186	35
Ethylbenzene	<0.00199	U F1 F2	0.0990	0.01848	F1 F2	mg/Kg		19	70 - 130	71	35
m-Xylene & p-Xylene	<0.00398	U F1	0.198	0.05743	F1	mg/Kg		29	70 - 130	7	35
o-Xylene	<0.00199	U F1 F2	0.0990	0.03581	F1 F2	mg/Kg		36	70 - 130	63	35

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*124*		*70 - 130*
1,4-Difluorobenzene (Surr)	*10*	*S1-*	*70 - 130*

Lab Sample ID: MB 880-9306/5-A **Client Sample ID: Method Blank**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 9437 **Prep Batch: 9306**

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		10/12/21 12:26	10/14/21 12:41	1
Toluene	<0.00200	U	0.00200		mg/Kg		10/12/21 12:26	10/14/21 12:41	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		10/12/21 12:26	10/14/21 12:41	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		10/12/21 12:26	10/14/21 12:41	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		10/12/21 12:26	10/14/21 12:41	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		10/12/21 12:26	10/14/21 12:41	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*	*10/12/21 12:26*	*10/14/21 12:41*	*1*
1,4-Difluorobenzene (Surr)	*106*		*70 - 130*	*10/12/21 12:26*	*10/14/21 12:41*	*1*

QC Sample Results

Client: WSP USA Inc. Job ID: 890-1368-1
Project/Site: PLU 16 Twin Wells Ranch 122h SDG: 31403236.010.0129

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

Lab Sample ID: MB 880-9433/1-A **Client Sample ID: Method Blank**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 9426 **Prep Batch: 9433**

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		10/14/21 08:43	10/14/21 12:54	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		10/14/21 08:43	10/14/21 12:54	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		10/14/21 08:43	10/14/21 12:54	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1-Chlorooctane	*83*		*70 - 130*	*10/14/21 08:43*	*10/14/21 12:54*	*1*
o-Terphenyl	*90*		*70 - 130*	*10/14/21 08:43*	*10/14/21 12:54*	*1*

Lab Sample ID: LCS 880-9433/2-A **Client Sample ID: Lab Control Sample**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 9426 **Prep Batch: 9433**

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO)-C6-C10			1000	722.0		mg/Kg		72	70 - 130		
Diesel Range Organics (Over C10-C28)			1000	696.5		mg/Kg		70	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
1-Chlorooctane	*75*		*70 - 130*
o-Terphenyl	*75*		*70 - 130*

Lab Sample ID: LCSD 880-9433/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 9426 **Prep Batch: 9433**

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10			1000	694.2	*-	mg/Kg		69	70 - 130	4	20
Diesel Range Organics (Over C10-C28)			1000	689.2	*-	mg/Kg		69	70 - 130	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
1-Chlorooctane	*79*		*70 - 130*
o-Terphenyl	*84*		*70 - 130*

Lab Sample ID: 880-6945-A-171-B MS **Client Sample ID: Matrix Spike**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 9426 **Prep Batch: 9433**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (GRO)-C6-C10	<49.9	U *-	997	789.3		mg/Kg		79	70 - 130		
Diesel Range Organics (Over C10-C28)	<49.9	U *-	997	741.6		mg/Kg		73	70 - 130		

QC Sample Results

Client: WSP USA Inc. Job ID: 890-1368-1
Project/Site: PLU 16 Twin Wells Ranch 122h SDG: 31403236.010.0129

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

Lab Sample ID: 880-6945-A-171-B MS **Client Sample ID: Matrix Spike**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 9426 **Prep Batch: 9433**

Surrogate	MS %Recovery	MS Qualifier	Limits
1-Chlorooctane	79		70 - 130
o-Terphenyl	80		70 - 130

Lab Sample ID: 880-6945-A-171-C MSD **Client Sample ID: Matrix Spike Duplicate**
Matrix: Solid **Prep Type: Total/NA**
Analysis Batch: 9426 **Prep Batch: 9433**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U *-	1000	754.8		mg/Kg		75	70 - 130	4	20
Diesel Range Organics (Over C10-C28)	<49.9	U *-	1000	722.9		mg/Kg		70	70 - 130	3	20

Surrogate	MSD %Recovery	MSD Qualifier	Limits
1-Chlorooctane	77		70 - 130
o-Terphenyl	75		70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-9409/1-A **Client Sample ID: Method Blank**
Matrix: Solid **Prep Type: Soluble**
Analysis Batch: 9528

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			10/15/21 09:50	1

Lab Sample ID: LCS 880-9409/2-A **Client Sample ID: Lab Control Sample**
Matrix: Solid **Prep Type: Soluble**
Analysis Batch: 9528

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride			250	255.4		mg/Kg		102	90 - 110		

Lab Sample ID: LCSD 880-9409/3-A **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid **Prep Type: Soluble**
Analysis Batch: 9528

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			250	256.1		mg/Kg		102	90 - 110	0	20

Lab Sample ID: 890-1368-1 MS **Client Sample ID: FS01**
Matrix: Solid **Prep Type: Soluble**
Analysis Batch: 9528

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	173	F1	249	389.0	F1	mg/Kg		87	90 - 110		

QC Sample Results

Client: WSP USA Inc.
Project/Site: PLU 16 Twin Wells Ranch 122h

Job ID: 890-1368-1
SDG: 31403236.010.0129

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-1368-1 MSD
Matrix: Solid
Analysis Batch: 9528

Client Sample ID: FS01
Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	173	F1	249	390.5	F1	mg/Kg		87	90 - 110	0	20

QC Association Summary

Client: WSP USA Inc. Job ID: 890-1368-1
Project/Site: PLU 16 Twin Wells Ranch 122h SDG: 31403236.010.0129

GC VOA

Prep Batch: 9203

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1368-1	FS01	Total/NA	Solid	5035	
890-1368-2	FS02	Total/NA	Solid	5035	
890-1368-3	FS03	Total/NA	Solid	5035	
890-1368-4	FS04	Total/NA	Solid	5035	
890-1368-5	FS05	Total/NA	Solid	5035	
MB 880-9203/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-9203/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-9203/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-1368-1 MS	FS01	Total/NA	Solid	5035	
890-1368-1 MSD	FS01	Total/NA	Solid	5035	

Prep Batch: 9306

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-9306/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 9437

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1368-1	FS01	Total/NA	Solid	8021B	9203
890-1368-2	FS02	Total/NA	Solid	8021B	9203
890-1368-3	FS03	Total/NA	Solid	8021B	9203
890-1368-4	FS04	Total/NA	Solid	8021B	9203
890-1368-5	FS05	Total/NA	Solid	8021B	9203
MB 880-9203/5-A	Method Blank	Total/NA	Solid	8021B	9203
MB 880-9306/5-A	Method Blank	Total/NA	Solid	8021B	9306
LCS 880-9203/1-A	Lab Control Sample	Total/NA	Solid	8021B	9203
LCSD 880-9203/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	9203
890-1368-1 MS	FS01	Total/NA	Solid	8021B	9203
890-1368-1 MSD	FS01	Total/NA	Solid	8021B	9203

Analysis Batch: 9497

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1368-1	FS01	Total/NA	Solid	Total BTEX	
890-1368-2	FS02	Total/NA	Solid	Total BTEX	
890-1368-3	FS03	Total/NA	Solid	Total BTEX	
890-1368-4	FS04	Total/NA	Solid	Total BTEX	
890-1368-5	FS05	Total/NA	Solid	Total BTEX	

GC Semi VOA

Analysis Batch: 9387

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1368-1	FS01	Total/NA	Solid	8015 NM	
890-1368-2	FS02	Total/NA	Solid	8015 NM	
890-1368-3	FS03	Total/NA	Solid	8015 NM	
890-1368-4	FS04	Total/NA	Solid	8015 NM	
890-1368-5	FS05	Total/NA	Solid	8015 NM	

Analysis Batch: 9426

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1368-1	FS01	Total/NA	Solid	8015B NM	9433
890-1368-2	FS02	Total/NA	Solid	8015B NM	9433

QC Association Summary

Client: WSP USA Inc. Job ID: 890-1368-1
Project/Site: PLU 16 Twin Wells Ranch 122h SDG: 31403236.010.0129

GC Semi VOA (Continued)

Analysis Batch: 9426 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1368-3	FS03	Total/NA	Solid	8015B NM	9433
890-1368-4	FS04	Total/NA	Solid	8015B NM	9433
890-1368-5	FS05	Total/NA	Solid	8015B NM	9433
MB 880-9433/1-A	Method Blank	Total/NA	Solid	8015B NM	9433
LCS 880-9433/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	9433
LCSD 880-9433/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	9433
880-6945-A-171-B MS	Matrix Spike	Total/NA	Solid	8015B NM	9433
880-6945-A-171-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	9433

Prep Batch: 9433

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1368-1	FS01	Total/NA	Solid	8015NM Prep	
890-1368-2	FS02	Total/NA	Solid	8015NM Prep	
890-1368-3	FS03	Total/NA	Solid	8015NM Prep	
890-1368-4	FS04	Total/NA	Solid	8015NM Prep	
890-1368-5	FS05	Total/NA	Solid	8015NM Prep	
MB 880-9433/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-9433/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-9433/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-6945-A-171-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-6945-A-171-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

HPLC/IC

Leach Batch: 9409

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1368-1	FS01	Soluble	Solid	DI Leach	
890-1368-2	FS02	Soluble	Solid	DI Leach	
890-1368-3	FS03	Soluble	Solid	DI Leach	
890-1368-4	FS04	Soluble	Solid	DI Leach	
890-1368-5	FS05	Soluble	Solid	DI Leach	
MB 880-9409/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-9409/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-9409/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-1368-1 MS	FS01	Soluble	Solid	DI Leach	
890-1368-1 MSD	FS01	Soluble	Solid	DI Leach	

Analysis Batch: 9528

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1368-1	FS01	Soluble	Solid	300.0	9409
890-1368-2	FS02	Soluble	Solid	300.0	9409
890-1368-3	FS03	Soluble	Solid	300.0	9409
890-1368-4	FS04	Soluble	Solid	300.0	9409
890-1368-5	FS05	Soluble	Solid	300.0	9409
MB 880-9409/1-A	Method Blank	Soluble	Solid	300.0	9409
LCS 880-9409/2-A	Lab Control Sample	Soluble	Solid	300.0	9409
LCSD 880-9409/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	9409
890-1368-1 MS	FS01	Soluble	Solid	300.0	9409
890-1368-1 MSD	FS01	Soluble	Solid	300.0	9409

Lab Chronicle

Client: WSP USA Inc. Job ID: 890-1368-1
Project/Site: PLU 16 Twin Wells Ranch 122h SDG: 31403236.010.0129

Client Sample ID: FS01 Lab Sample ID: 890-1368-1

Date Collected: 10/05/21 12:45 **Matrix: Solid**
Date Received: 10/06/21 08:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			9203	10/11/21 11:51	KL	XEN MID
Total/NA	Analysis	8021B		1	9437	10/15/21 00:44	MR	XEN MID
Total/NA	Analysis	Total BTEX		1	9497	10/14/21 15:26	MR	XEN MID
Total/NA	Analysis	8015 NM		1	9387	10/13/21 14:23	AJ	XEN MID
Total/NA	Prep	8015NM Prep			9433	10/14/21 08:43	DM	XEN MID
Total/NA	Analysis	8015B NM		1	9426	10/14/21 15:02	AJ	XEN MID
Soluble	Leach	DI Leach			9409	10/13/21 18:21	CA	XEN MID
Soluble	Analysis	300.0		1	9528	10/15/21 10:07	CH	XEN MID

Client Sample ID: FS02 Lab Sample ID: 890-1368-2

Date Collected: 10/05/21 13:00 **Matrix: Solid**
Date Received: 10/06/21 08:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			9203	10/11/21 11:51	KL	XEN MID
Total/NA	Analysis	8021B		1	9437	10/15/21 01:04	MR	XEN MID
Total/NA	Analysis	Total BTEX		1	9497	10/14/21 15:26	MR	XEN MID
Total/NA	Analysis	8015 NM		1	9387	10/13/21 14:23	AJ	XEN MID
Total/NA	Prep	8015NM Prep			9433	10/14/21 08:43	DM	XEN MID
Total/NA	Analysis	8015B NM		1	9426	10/14/21 15:23	AJ	XEN MID
Soluble	Leach	DI Leach			9409	10/13/21 18:21	CA	XEN MID
Soluble	Analysis	300.0		1	9528	10/15/21 10:24	CH	XEN MID

Client Sample ID: FS03 Lab Sample ID: 890-1368-3

Date Collected: 10/05/21 13:20 **Matrix: Solid**
Date Received: 10/06/21 08:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			9203	10/11/21 11:51	KL	XEN MID
Total/NA	Analysis	8021B		1	9437	10/15/21 01:25	MR	XEN MID
Total/NA	Analysis	Total BTEX		1	9497	10/14/21 15:26	MR	XEN MID
Total/NA	Analysis	8015 NM		1	9387	10/13/21 14:23	AJ	XEN MID
Total/NA	Prep	8015NM Prep			9433	10/14/21 08:43	DM	XEN MID
Total/NA	Analysis	8015B NM		1	9426	10/14/21 15:45	AJ	XEN MID
Soluble	Leach	DI Leach			9409	10/13/21 18:21	CA	XEN MID
Soluble	Analysis	300.0		1	9528	10/15/21 10:29	CH	XEN MID

Client Sample ID: FS04 Lab Sample ID: 890-1368-4

Date Collected: 10/05/21 13:50 **Matrix: Solid**
Date Received: 10/06/21 08:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			9203	10/11/21 11:51	KL	XEN MID
Total/NA	Analysis	8021B		1	9437	10/15/21 01:45	MR	XEN MID
Total/NA	Analysis	Total BTEX		1	9497	10/14/21 15:26	MR	XEN MID

Eurofins Xenco, Carlsbad

Lab Chronicle

Client: WSP USA Inc. Job ID: 890-1368-1
Project/Site: PLU 16 Twin Wells Ranch 122h SDG: 31403236.010.0129

Client Sample ID: FS04 Lab Sample ID: 890-1368-4

Date Collected: 10/05/21 13:50 **Matrix: Solid**
Date Received: 10/06/21 08:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1	9387	10/13/21 14:23	AJ	XEN MID
Total/NA	Prep	8015NM Prep			9433	10/14/21 08:43	DM	XEN MID
Total/NA	Analysis	8015B NM		1	9426	10/14/21 16:06	AJ	XEN MID
Soluble	Leach	DI Leach			9409	10/13/21 18:21	CA	XEN MID
Soluble	Analysis	300.0		1	9528	10/15/21 11:23	CH	XEN MID

Client Sample ID: FS05 Lab Sample ID: 890-1368-5

Date Collected: 10/05/21 14:25 **Matrix: Solid**
Date Received: 10/06/21 08:24

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			9203	10/11/21 11:51	KL	XEN MID
Total/NA	Analysis	8021B		1	9437	10/15/21 02:06	MR	XEN MID
Total/NA	Analysis	Total BTEX		1	9497	10/14/21 15:26	MR	XEN MID
Total/NA	Analysis	8015 NM		1	9387	10/13/21 14:23	AJ	XEN MID
Total/NA	Prep	8015NM Prep			9433	10/14/21 08:43	DM	XEN MID
Total/NA	Analysis	8015B NM		1	9426	10/14/21 16:28	AJ	XEN MID
Soluble	Leach	DI Leach			9409	10/13/21 18:21	CA	XEN MID
Soluble	Analysis	300.0		1	9528	10/15/21 11:28	CH	XEN MID

Laboratory References:

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

Accreditation/Certification Summary

Client: WSP USA Inc. Job ID: 890-1368-1
Project/Site: PLU 16 Twin Wells Ranch 122h SDG: 31403236.010.0129

Laboratory: Eurofins Xenco, Midland

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

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

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

Analysis Method	Prep Method	Matrix	Analyte
8015 NM		Solid	Total TPH
Total BTEX		Solid	Total BTEX

Method Summary

Client: WSP USA Inc.
Project/Site: PLU 16 Twin Wells Ranch 122h

Job ID: 890-1368-1
SDG: 31403236.010.0129

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

Protocol References:

ASTM = ASTM International

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

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

TAL SOP = TestAmerica Laboratories, Standard Operating Procedure

Laboratory References:

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

Sample Summary

Client: WSP USA Inc.
Project/Site: PLU 16 Twin Wells Ranch 122h

Job ID: 890-1368-1
SDG: 31403236.010.0129

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-1368-1	FS01	Solid	10/05/21 12:45	10/06/21 08:24	1
890-1368-2	FS02	Solid	10/05/21 13:00	10/06/21 08:24	1
890-1368-3	FS03	Solid	10/05/21 13:20	10/06/21 08:24	1
890-1368-4	FS04	Solid	10/05/21 13:50	10/06/21 08:24	1
890-1368-5	FS05	Solid	10/05/21 14:25	10/06/21 08:24	1

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Chain of Custody

XENCO LABORATORIES

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: _____

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10/15/2021

Project Manager:	Tacoma Morrissey	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:	Alexis.Castro@wsp.com Tacoma.Morrissey@wsp.com

Work Order Comments

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

Project Name:	PLU 16 Twin Wells Ranch 122H	Turn Around	
Project Number:	31403236.010.0129	Routine	✓
P.O. Number:	7/31/2021	Rush:	
Sampler's Name:	Alexis Castro	Due Date:	

SAMPLE RECEIPT			
Temp Blank:	Yes No	Wet Ice:	Yes No
Temperature (°C):	3.0/2.8	Thermometer ID	NM-007
Received Intact:	Yes No		
Cooler Custody Seals:	Yes No N/A	Correction Factor:	-0.2
Sample Custody Seals:	Yes No N/A	Total Containers:	

ANALYSIS REQUEST

890-1368 Chain of Custody

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	TPH (EPA 8015)	BTEX (EPA 0=8021)	Chloride (EPA 300.0)	Sample Comments
FS01	S	10/05/21	1245	1'	1	x	x	x	COMPOSITE
FS02	S	10/05/21	1300	1'	1	x	x	x	COMPOSITE
FS03	S	10/05/21	1320	1'	1	x	x	x	COMPOSITE
FS04	S	10/05/21	1350	1'	1	x	x	x	COMPOSITE
FS05	S	10/05/21	1425	1'	1	x	x	x	COMPOSITE

Work Order Notes

ID: NAPP2122432860
API: 30-015-47372
AFE: DD.2017.04430.CAP.CMP.01

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

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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 Tl Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed **TCLP / SPLP 6010**: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U **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		10-6-21 0816	2		
3			4		
5			6		

Revised Date 051418 Rev. 2018.1

Received by OCD: 10/29/2021 1:48:22 PM

Released to Imaging: 12/15/2021 10:30:30 AM

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

Chain of Custody Record

eurofins | Environment Testing America

Client Information (Sub Contract Lab)	Sampler	Lab PM: Kramer Jessica	Carrier Tracking No(s)	COC No: 890-450 1
Client Contact: Shipping/Receiving	Phone	E-Mail: jessica kramer@eurofinset com	State of Origin: New Mexico	Page: Page 1 of 1
Company: Eurofins Xenco		Accreditations Required (See note): NELAP - Louisiana NELAP - Texas		Job #: 890-1368-1
Address: 1211 W Florida Ave,	Due Date Requested: 10/12/2021			
City: Midland	TAT Requested (days):			
State, Zip: TX 79701				
Phone: 432-704-5440(Tel)	PO #:			
Email	WO #:			
Project Name: PLU 16 Twin Wells Ranch 122h	Project #: 89000004			
Site	SSOW#:			

Analysis Requested

Preservation Codes

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

Other:

Sample Identification - Client ID (Lab ID)	Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	300_ORGFM_28D/DI_LEACH Chloride	8015MOD_NM/8015NM_S_Prep (MOD) Full TPH	8016MOD_Calc	8021B/5035FP_Calc (MOD) BTEX	Total_BTEX_GCV	Total Number of containers	Special Instructions/Note:
			Preservation Code:										
FS01 (890-1368-1)	10/5/21	12 45 Mountain		Solid			X	X	X	X	X	1	
FS02 (890-1368-2)	10/5/21	13 00 Mountain		Solid			X	X	X	X	X	1	
FS03 (890-1368-3)	10/5/21	13 20 Mountain		Solid			X	X	X	X	X	1	
FS04 (890-1368-4)	10/5/21	13 50 Mountain		Solid			X	X	X	X	X	1	
FS05 (890-1368-5)	10/5/21	14 25 Mountain		Solid			X	X	X	X	X	1	

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

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

Empty Kit Relinquished by	Date	Time	Method of Shipment:

Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Clue Cut 10.6.21	10/6/21 14:00	Xenco			
Relinquished by	Date/Time	Company	Received by	Date/Time	Company
Relinquished by	Date/Time	Company	Received by	Date/Time	Company

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

Ver 06/08/2021

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Released to Imaging: 12/15/2021 10:30:30 AM

Login Sample Receipt Checklist

Client: WSP USA Inc.

Job Number: 890-1368-1
SDG Number: 31403236.010.0129

Login Number: 1368
List Number: 1
Creator: Clifton, Cloe

List Source: Eurofins Xenco, Carlsbad

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

Login Sample Receipt Checklist

Client: WSP USA Inc.

Job Number: 890-1368-1
SDG Number: 31403236.010.0129

Login Number: 1368
List Number: 2
Creator: Lowe, Katie

List Source: Eurofins Xenco, Midland
List Creation: 10/13/21 01:49 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 58672

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 58672
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
chensley	None	12/15/2021