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	NAPP2120846562
District RP	
Facility ID	
Application ID	

### **Release Notification**

### **Responsible Party**

Responsible Party XTO Energy				OGRID 5	OGRID 5380		
Contact Name Shelby Pennington				Contact Te	Contact Telephone 281-723-9353		
Contact ema	il shelby.pen	nington@exxonm	obil.com	Incident #	(assigned by OCD)		
Contact mail	ing address	6401 Holiday Hill	Rd Bldg 5, Midlan	nd, Texas, 79707			
				of Release So	ource		
Latitude 32.2	25337			Longitude	-103.88211		
			(NAD 83 in deci	imal degrees to 5 decim	nal places)		
Site Name	PLU Remud	a Basin 4-24-30		Site Type T	ank Battery		
Date Release				API# (if app			
Unit Letter	Section	Township	Range	Coun	ty		
В	04	24S	30E	Eddy	у		
Surface Owner	r: State	🗷 Federal 🗌 Tr	ibal Private (N	Volume of F	Release		
	Materia			calculations or specific	justification for the volumes provided below)		
Crude Oil		Volume Release	1 (1 1 1 )		Volume Recovered (bbls)		
× Produced	Water	Volume Release	23.		Volume Recovered (bbls) 25.0		
			ion of total dissolv water >10,000 mg/	\ /	☐ Yes ☐ No		
Condensa	ite	Volume Release			Volume Recovered (bbls)		
Natural G	ias	Volume Release	d (Mcf)		Volume Recovered (Mcf)		
Other (describe) Volume/Weight Released (provide units)			Released (provide	units)	Volume/Weight Recovered (provide units)		
Cause of Rela	48-nou	r advance liner ins	pection notice was	sent to NMOCD L	g fluid into containment. All fluid was recovered. A District 2. Liner was inspected and determined not to be need for remediation activities.		

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Incident ID NAPP2120846562
District RP
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	If YES, for what reason(s) does the respor	sible party consider this a major release?
release as defined by	A release equal to or greater than 25 barrel	s.
19.15.29.7(A) NMAC?		
🗴 Yes 🗌 No		
If YES, was immediate not	tice given to the OCD? By whom? To wh	om? When and by what means (phone, email, etc)?
	ratcher, Mike, EMNRD; Venegas, Victoria	
	us on Friday, July 16, 2021 9:07 AM via	
	Initial Ro	esponse
The responsible pa	arty must undertake the following actions immediatel	vunless they could create a safety hazard that would result in injury
➤ The source of the release	se has been stopped.	
l <u> </u>	been secured to protect human health and	the environment.
	•	ikes, absorbent pads, or other containment devices.
★ All free liquids and rec	coverable materials have been removed and	l managed appropriately.
If all the actions described	above have <u>not</u> been undertaken, explain v	vhv:
NA		
11/1		
		emediation immediately after discovery of a release. If remediation efforts have been successfully completed or if the release occurred
U 1		lease attach all information needed for closure evaluation.
		pest of my knowledge and understand that pursuant to OCD rules and
		ications and perform corrective actions for releases which may endanger
		CD does not relieve the operator of liability should their operations have
		at to groundwater, surface water, human health or the environment. In responsibility for compliance with any other federal, state, or local laws
and/or regulations.		
Printed Name: Adrian Bak	ter 🔨	Title: SSHE Coordinator
	ian Baks	Date: 7/27/21
	•	
email: adrian.baker@exxo	nmobil.com	Telephone: 432-236-3808
OCD Only		
Received by: Ramona	a Marcus	Date: 7/30/2021

Location:	PLU Remuda Basin 4-24-30 Battery		
Spill Date:	7/15/2021		
	Area 1		
Approximate A	rea =	140.36	cu.ft.
	VOLUME OF LEAK		
Total Crude Oil	=	0.00	bbls
Total Produced Water = 25.00 bbls			bbls
	TOTAL VOLUME OF LEAK		-
<b>Total Crude Oi</b>	=	0.00	bbls
Total Produced	Water =	25.00	bbls
	TOTAL VOLUME RECOVERED		
<b>Total Crude Oi</b>	=	0.00	bbls
Total Produced	Water =	25.00	bbls

e of New Mexico

Incident ID	NAPP2120846562
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?	<u>&gt;100</u> (ft bgs)				
Did this release impact groundwater or surface water?					
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 <b>not</b> 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 ver contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.	tical extents of soil				
Characterization Report Checklist: Each of the following items must be included in the report.					
<ul> <li>Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring well Field data</li> <li>Data table of soil contaminant concentration data</li> <li>Depth to water determination</li> <li>Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release</li> <li>Boring or excavation logs</li> <li>Photographs including date and GIS information</li> <li>Topographic/Aerial maps</li> </ul>	ls.				

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.

□ Laboratory data including chain of custody

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Page 5 of 152 NAPP2120846562

Incident ID	NAPP2120846562	
District RP		
Facility ID		
Application ID		

I hereby certify that the information given above is true and complete to the regulations all operators are required to report and/or file certain release no public health or the environment. The acceptance of a C-141 report by the failed to adequately investigate and remediate contamination that pose a threaddition, OCD acceptance of a C-141 report does not relieve the operator of and/or regulations.	tifications and perform corrective actions for releases which may endanger OCD does not relieve the operator of liability should their operations have reat to groundwater, surface water, human health or the environment. In
Printed Name:Adrian Baker_	Title: Environmental Coordinator
Signature: Oddrion Base	Date:10/13/2021
email:Adrian.Baker@exxonmobil.com_	Telephone: <u>432-236-3808</u>
OCD Only	
Received by:	Date:

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Incident ID	NAPP2120846562
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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 19.15.29.1	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							
and regulations all operators are required to report and/or file certain may endanger public health or the environment. The acceptance of	ntions. The responsible party acknowledges they must substantially nditions that existed prior to the release or their final land use in DCD when reclamation and re-vegetation are complete.						
Signature:	Date:1 <u>0/13/202</u> 1						
email:Adrian.Baker@exxonmobil.com	Telephone:432-236-3808						
OCD Only							
Received by:	Date:						
remediate contamination that poses a threat to groundwater, surface party of compliance with any other federal, state, or local laws and	of liability should their operations have failed to adequately investigate and water, human health, or the environment nor does not relieve the responsible for regulations.						
Closure Approved by: Jennifer Nobili	Date: 03/09/2022						
Printed Name: Jennifer Nobui	Title:Environmental Specialist A						

wsp

WSP USA

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

October 13, 2021

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

**RE:** Closure Request

PLU Remuda Basin 4-24-30 Tank Battery
Incident Number NAPP2120034052 & NAPP2120846562

**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 and soil sampling activities at the Poker Lake Unit (PLU) Remuda Basin 4-24-30 Tank Battery (Site) in Unit B, Section 4, Township 24 South, Range 30 East, in Eddy County, New Mexico (Figure 1). The purpose of the site assessment and soil sampling activities was to assess for the presence or absence of impacts to soil following two releases of produced water at the Site. Based on field observations, field screening activities, and soil sample laboratory analytical results, XTO is submitting this Closure Request and requesting no further action (NFA) for Incident Numbers NAPP2120034052 and NAPP2120846562.

### **RELEASE BACKGROUND**

On July 7, 2021, corrosion on a heater treater water leg caused a pinhole leak and resulted in the release of 12.2 barrels (bbls) of produced water into the lined containment and onto the surface of the well pad. A vacuum truck was immediately dispatched to the Site to recover freestanding fluids; approximately 10 bbls of produced water were recovered. XTO reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification Form (Form C-141) on July 19, 2021. The release was assigned Incident Number NAPP2120034052.

On July 15, 2021, corrosion on a heater treater caused a pinhole leak and resulted in the release of approximately 25 bbls of produced water into the lined containment. A vacuum truck was immediately dispatched to the Site to recover free-standing fluids; all 25 bbls of produced water were recovered from within the lined containment. A 48-hour advance notice of liner inspection was provided via email to the NMOCD. A liner integrity inspection was conducted by XTO personnel following the fluid recovery and upon inspection, the liner was determined to be insufficient. XTO reported the release to the NMOCD via email on July 16, 2021 and submitted a Release Notification Form C-141 on July 27, 2021. The release was assigned Incident Number NAPP2120846562.



### 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 100 feet below ground surface (bgs) based on a recent soil boring drilled for determination of regional groundwater depth. The location of the borehole is approximately 0.6 miles southwest of the Site. Although this data point is greater than ½ mile from the Site, the presence of non-water bearing lithology observed in the borehole, the minimal difference of only 0.1 mile between the data point location and NMOCD's preferred radius, and depth to water information from other nearby wells is proposed to be sufficient for depth to water determination. During December 2020, WSP installed a soil boring (C-04497) utilizing a truck-mounted sonic drill rig. Soil boring C-04497 was drilled to a depth of 110 feet bgs. A WSP geologist logged and described soils continuously. No moisture or groundwater was encountered during drilling activities. 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. The borehole was properly abandoned with hydrated bentonite chips. The location of borehole C-04497 is provided on Figure 1. Water well data exists to the north and northeast of the Site and an additional eight data points indicate depth to water is greater than 400 feet bgs in the vicinity.

The closest continuously flowing water or significant watercourse to the Site is an intermittent riverine located approximately 7,339 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 extents based on information provided on the Form C-141s and visual observations. WSP personnel collected two preliminary assessment soil samples (SS01 and SS02) within the release extent associated with Incident Number NAPP2120034052 west of the containment, from a depth of approximately 0.5 feet bgs to assess the lateral extent of impacted soil. The release extended from the lined containment along the sloped berm to the edge of the pad. Preliminary soil samples SS01 and SS02 were collected from the sloped area of the pad. Soil from the preliminary soil samples was field screened for volatile aromatic hydrocarbons and chloride utilizing a calibrated photoionization detector (PID) and Hach® chloride QuanTab® test strips, respectively. While onsite, the location of the tear in the liner associated with Incident Number NAPP2120846562 was identified. The release extent, preliminary soil sample locations, and liner tear were mapped utilizing a handheld Global Positing System (GPS) and are presented on Figure 2.

On September 8, 2021, WSP personnel returned to the Site to advance one borehole (BH01) via hand auger near the location of the tear in the liner. Delineation soil samples were collected from borehole BH01 from depths of 0.5 feet and 1-foot bgs. Field screening results and observations for the borehole were logged on a lithologic/soil sampling log, which is included in Attachment 2.

The preliminary and delineation soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler name, and method of analysis and immediately placed on ice. The soil samples were transported at or below 4 degrees Celsius (°C) under strict chain-of-custody (COC) procedures to Eurofins Laboratories (Eurofins) in 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 samples SS01 and SS02 and borehole soil samples BH01 and BH01A. In order to confirm the absence of impacted soil, additional lateral and vertical delineation activities were warranted.

### **DELINEATION SOIL SAMPLING ACTIVITIES**

Between September 17, 2021 and October 4, 2021, WSP personnel were at the Site to oversee delineation activities as indicated by visual observations, field screening activities, and laboratory analytical results for preliminary soil samples SS01 and SS02 and borehole soil samples BH01 and BH01A.

Potholes PH01 through PH03 were advanced to a depth of 4 feet bgs via backhoe to the north, east, and south of the lined containment to confirm the presence or absence of impacts to soil



outside of the containment. Boreholes BH02 and BH03 were advanced via hand auger to a depth of 4 feet bgs at the location of preliminary soil samples SS01 and SS02, to confirm the absence of impacted soil in the release area west of the containment. Delineation soil samples were collected from the potholes and boreholes at depths ranging from 1 foot to 4 feet bgs. Soil from the potholes and boreholes was field screened for volatile aromatic hydrocarbons and chloride utilizing a PID and Hach© chloride QuanTab© test strips, respectively. Field screening results and observations were logged on lithologic/soil sampling logs, which are included in Attachment 2.

Two surface samples (SS03 and SS04) were collected in the pasture area west of the release extent to confirm the release did not impact soils off pad. The delineation and surface sample locations are presented on Figure 2. The soil samples were collected, handled, and analyzed as described above at Eurofins in Carlsbad, New Mexico. Photographic documentation was conducted during the Site visits. A photographic log is included in Attachment 3.

#### **SOIL ANALYTICAL RESULTS**

Laboratory analytical results for preliminary soil samples SS01 and SS02 and the delineation samples from boreholes BH01 through BH03 and potholes PH01 through PH03 indicated that benzene, BTEX, TPH-GRO/TPH-DRO, TPH, and chloride concentrations were compliant with the Closure Criteria.

Laboratory analytical results for surface soil samples SS03 and SS04 indicated that benzene, BTEX, TPH-GRO/TPH-DRO, TPH, and chloride concentrations were compliant with the strictest Table 1 Closure Criteria, confirming that the release did not reach off-pad soils. In addition, the terminal sample in potholes PH01 through PH03 and borehole BH03 provided vertical delineation to the strictest Table 1 Closure Criteria. The laboratory analytical results are summarized in Table 1 and the complete laboratory analytical reports are included in Attachment 4.

### **CLOSURE REQUEST**

Site assessment and delineation activities were conducted at the Site to assess for the presence or absence of impacted soil resulting from the July 7, 2021 and July 15, 2021 releases of produced water. Laboratory analytical results for the preliminary and delineation soil samples, collected within and around the release extent, indicated that benzene, BTEX, TPH-GRO/TPH-DRO, TPH, and chloride concentrations were compliant with the Closure Criteria. Based on the soil sample analytical results, no impacted soil was identified, and no further remediation was required. The tear in the liner was repaired. XTO respectfully requests NFA for Incident Numbers NAPP2120034052 & NAPP2120846562.



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

Sincerely,

WSP USA Inc.

Jeremy Hill

**Environmental Scientist** 

In the

Ashley L. Ager, P.G.

Ashley L. Ager

Managing Director, Geologist

Shelby Pennington, XTO cc:

Adrian Baker, XTO

Bureau of Land Management

### Attachments:

Figure 1 Site Location Map

Figure 2 **Soil Sample Locations** 

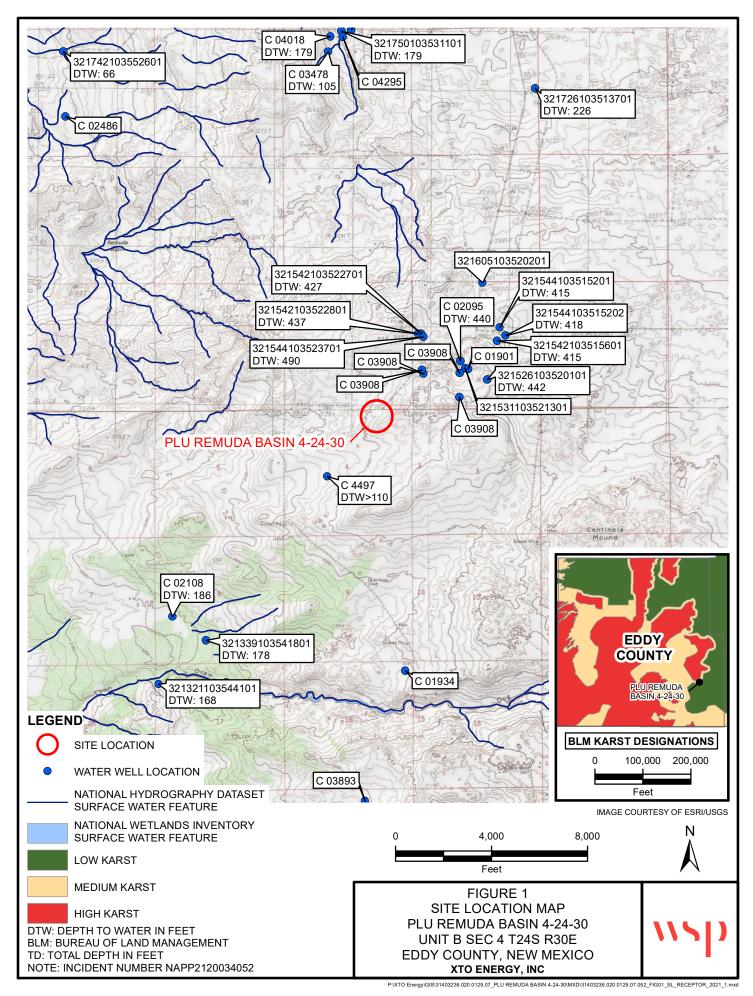
Table 1 Soil Analytical Results

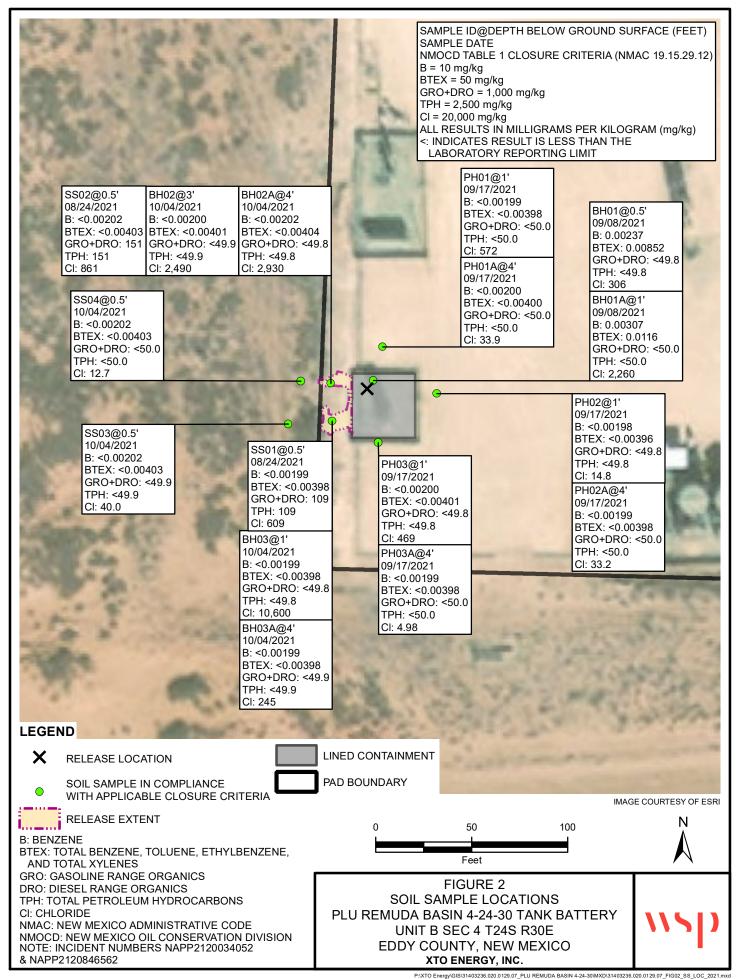
Attachment 1 Referenced Well Records

Attachment 2 Lithologic/Soil Sampling Logs

Attachment 3 Photographic Log

Attachment 4 Laboratory Analytical Reports





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Table 1

# Soil Analytical Results PLU Remuda Basin 4-24-30 Tank Battery Tank Battery

#### Incident Numbers NAPP2120034052 & NAPP2120846562

**Eddy County, New Mexico** 

Sample ID	Sample Date	Sample Depth (ft bgs)	Benzene (mg/kg)	BTEX (mg/kg)	TPH-GRO (mg/kg)	TPH-DRO (mg/kg)	TPH-ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 C	osure Criteria (NMA	C 19.15.29)	10	50	NE	NE	NE	1,000	2,500	20,000
Preliminary Soil Sa	mples									
SS01	08/24/2021	0.5	< 0.00199	< 0.00398	<49.9	109	<49.9	109	109	609
SS02	08/24/2021	0.5	< 0.00202	< 0.00403	<49.9	151	<49.9	151	151	861
SS03	10/04/2021	0.5	< 0.00202	< 0.00403	<49.9	<49.9	<49.9	<49.9	<49.9	40.0
SS04	10/04/2021	0.5	< 0.00202	< 0.00403	<50.0	<50.0	<50.0	<50.0	< 50.0	12.7
Delineation Soil San	nples									
BH01	09/08/2021	0.5	0.00237	0.00852	<49.8	<49.8	<49.8	<49.8	<49.8	306
BH01A	09/08/2021	1	0.00307	0.0116	<50.0	<50.0	<50.0	<50.0	< 50.0	2,260
BH02	10/04/2021	3	< 0.00200	< 0.00401	<49.9	<49.9	<49.9	<49.9	<49.9	2,490
BH02A	10/04/2021	4	< 0.00202	< 0.00404	<49.8	<49.8	<49.8	<49.8	<49.8	2,930
BH03	10/04/2021	1	< 0.00199	< 0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	10,600
BH03A	10/04/2021	4	< 0.00199	< 0.00398	<49.8	<49.8	<49.8	<49.8	<49.8	245
PH01	09/17/2021	1	< 0.00199	< 0.00398	<50.0	<50.0	<50.0	<50.0	< 50.0	572
PH01A	09/17/2021	4	< 0.00200	< 0.00400	<50.0	<50.0	<50.0	<50.0	< 50.0	33.9
PH02	09/17/2021	1	< 0.00198	< 0.00396	<49.8	<49.8	<49.8	<49.8	<49.8	14.8
PH02A	09/17/2021	4	< 0.00199	< 0.00398	<50.0	<50.0	<50.0	<50.0	< 50.0	33.2
PH03	09/17/2021	1	< 0.00200	< 0.00401	<49.8	<49.8	<49.8	<49.8	<49.8	469
PH03A	09/17/2021	4	< 0.00199	< 0.00398	<50.0	<50.0	<50.0	<50.0	< 50.0	4.98

ft - feet/foot

mg/kg - milligrams per kilograms

BTEX - benzene, toluene, ethylbenzene, and total xylenes

TPH - total petroleum hydrocarbons

DRO - diesel range organics

GRO - gasoline range organics

ORO - motor oil range organics

NMOCD - New Mexico Oil Conservation Division

NMAC - New Mexico Administrative Code

< - indicates result is less than the stated laboratory method practical quantitation limit

NE - Not Established

BOLD - indicates results exceed the higher of the background sample result or applicable regulatory standard

Greyed data represents samples that were excavated

\* - indicates sample was collected in area to be reclaimed after remediation is complete;

closure criteria for chloride concentration in the top 4 feet of soil is 600 mg/kg

# New Mexico Office of the State Engineer

# Point of Diversion Summary

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest)

(NAD83 UTM in meters)

Well Tag

POD Number

Q64 Q16 Q4 Sec Tws Rng

 $\mathbf{X}$ 

Y

NA

C 04497 POD1

24S

30E

604660

3568278



**Driller License:** 

1249

**Driller Company:** 

ATKINS ENGINEERING ASSOC. INC.

**Driller Name:** 

JACKIE D ATKINS

**Drill Start Date:** 

12/28/2020

**Drill Finish Date:** 

12/28/2020

Plug Date:

Log File Date:

01/28/2021

PCW Rcv Date:

Source:

Pump Type:

Pipe Discharge Size:

Estimated Yield: 0 GPM

Casing Size:

Depth Well:

110 feet

**Depth Water:** 

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

0/9/21 10:25 AM

POINT OF DIVERSION SUMMA

# 2021-1-15\_C-4497\_POD1\_OSE\_Well Record and Log\_plu320-forsign

Final Audit Report 2021-01-15

Created: 2021-01-15

By: Lucas Middleton (lucas@atkinseng.com)

Status: Signed

Transaction ID: CBJCHBCAABAAzOCc93aRyrJC5CsLdvdrv2ul-g9qO-bu

# "2021-1-15\_C-4497\_POD1\_OSE\_Well Record and Log\_plu320-f orsign" History

- Document created by Lucas Middleton (lucas@atkinseng.com) 2021-01-15 8:55:26 PM GMT- IP address: 69.21.248.123
- Document emailed to Jack Atkins (jack@atkinseng.com) for signature 2021-01-15 8:55:50 PM GMT
- Email viewed by Jack Atkins (jack@atkinseng.com) 2021-01-15 9:13:46 PM GMT- IP address: 74.50.153.115

DSE DI JAN 28 2021 M11:35

- Document e-signed by Jack Atkins (jack@atkinseng.com)

  Signature Date: 2021-01-15 9:16:24 PM GMT Time Source: server- IP address: 74.50.153.115
- Agreement completed. 2021-01-15 - 9:16:24 PM GMT



## PLUGGING RECORD



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

	GENERAL / WELL OWNERSHIP:					
Sta	State Engineer Well Number: C-4497-POD1  Well owner: XTO ENERGY (Kyle Littrell)		Pho	one No.: 432	2.682.8873	-
Ma	Mailing address: 6401 Holiday Hill Dr.			JIIC 140		
Cit	Midland	tate:	Texas		Zip code:	79707
	I. WELL PLUGGING INFORMATION:					
1)		ll: Jackie C	. Atkins ( Atkins	s Engineering	Associates In	ic.)
2)	New Mexico Well Driller License No.: 1249			Expira	ation Date: 04	4/30/21
3)	Well plugging activities were supervised by the Shane Eldridge	following w	ell driller(s)/rig	g supervisor(s	):	
4)	Date well plugging began: 1/19/2021	Da	te well pluggin	g concluded:	1/19/2021	
5)	GPS Well Location: Latitude: 32 Longitude: -104	deg, _ ldeg, _		n, 46.69 20.46	_ sec _ sec, WGS 8	44
6)	Depth of well confirmed at initiation of plugging by the following manner: weighted tape	g as:11	nt below g	ground level (	bgl),	
7)	Static water level measured at initiation of plugg	ging:n/:	a ft bgl			
8)	Date well plugging plan of operations was appro	oved by the	State Engineer:	12/1/2020	<del>-</del> 2	
9)	Were all plugging activities consistent with an a differences between the approved plugging plan	pproved plu and the wel	gging plan? _ l as it was plug	Yes ged (attach ac	_ If not, pl iditional page	lease describe s as needed):
				09E 011	JAN 28 202	1 PM11/35

Log of Plugging Activities - Label vertical scale with depths, and indicate separate plugging intervals with 10) 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 <u>Material Used</u> (include any additives used)	Volume of <u>Material Placed</u> (gallons)	Theoretical Volume of Borehole/ Casing (gallons)	Placement  Method (tremie pipe, other)	Comments ("casing perforated first", "open annular space also plugged", etc.)
; <b>-</b>	0-10' Hydrated Bentonite	Approx. 26 gallons	26 gallons	Augers	
-	10'-110' Drill Cuttings	Approx. 163 gallons	163 gallons	Boring	
-					
_					
-				OSE DII JA	N 28 2021 amii:35
-					
51s		MULTIPLY cubic feet x 7. cubic yards x 201.	BY AND OBTAIN 4805 = gallons 97 = gallons		

### III. SIGNATURE:

I, Jackie D. Atkins				familiar							
Engineer pertaining to the plugging of wells and that e	ach ar	nd all	of the	e stateme	nts in	this	Pluggi	ng Re	cord and	i attach	ments
are true to the best of my knowledge and belief.											
Jack A	tkins								01/2	21/202	1

Signature of Well Driller

Date

Version: September 8, 2009 Page 2 of 2

# 2020-1-15\_C-4497-POD1\_Plugging Record-forsign

Final Audit Report 2021-01-20

Created: 2021-01-20

By: Lucas Middleton (lucas@atkinseng.com)

Status: Signed

Transaction ID: CBJCHBCAABAA2Rqn6oNtoM5ZDkZKWtVZGKdBw28cFN6O

## "2020-1-15\_C-4497-POD1\_Plugging Record-forsign" History

- Document created by Lucas Middleton (lucas@atkinseng.com) 2021-01-20 4:19:21 PM GMT- IP address: 69.21.248.123
- Document emailed to Jack Atkins (jack@atkinseng.com) for signature 2021-01-20 4:19:39 PM GMT
- Email viewed by Jack Atkins (jack@atkinseng.com) 2021-01-20 4:27:42 PM GMT- IP address: 74.50.153.115
- Document e-signed by Jack Atkins (jack@atkinseng.com)

  Signature Date: 2021-01-20 4:29:06 PM GMT Time Source: server- IP address: 74.50.153.115
- Agreement completed. 2021-01-20 - 4:29:06 PM GMT

USE DJI JAN 28 2021 #11:35

### **DESCRIPTION:**

Latitude 32°15'45.42", Longitude 103°52'36.09" NAD83 Eddy County, New Mexico , Hydrologic Unit 13060011 Well depth: 518 feet

Land surface altitude: 3,413 feet above NAVD88.
Well completed in "Other aquifers" (N9999OTHER) national aquifer.
Well completed in "Rustler Formation" (312RSLR) local aquifer

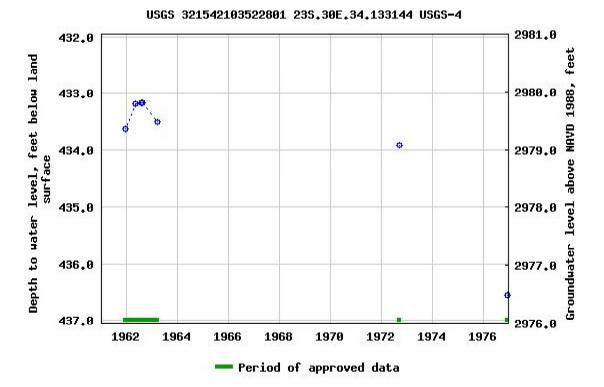
#### AVAILABLE DATA:

Data Type	Begin Date	End Date	Count
Field groundwater-level measurements	1961-12-12	1976-12-14	7
Revisions	Unavailable (	site:0) (times	eries: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

Received by OCD: 10/13/2021 2:52:32 PM



									BH or PH Name:		Date:
7			7		WS	P USA			BH01		9/8/2021
	11			5	08 West 9	Stevens C	Street		Site Name:		PLU Remuda Basin 4-24-30 TB
				Car	08 West S Isbad, Ne	w Mexico	88220		RP or Incident Numb	er.	NAPP2120034052, NAPP212084656
									WSP Job Number:	· · · · · · · · · · · · · · · · · · ·	31403236.020.0129
		I ITU		SIC / SOIL	SAMDI	INGLO	G			AC	Method: H. Auger
Lat/Lo	ua.	LIII	<u> </u>	JIO / JUIL	Field Scre				Hole Diameter:	,,,,	Total Depth:
LavLo	rig.				Hatch Chl		s, PID		3"		1'
Comm	ents:						-,		!		
	TD at 1 '	1			1						
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	(ft bgs)	USCS/Rock Symbol		L	_ithology/F	Remarks
						0					
D	370	0.8	N	BH01	0.5	0.5	GW	Well grade	d coarse gravel w/ Ca	aliche. Brown	n/Light Brown. No odor. No Plasiticity
D	2,413	0.6	Υ	BH01A	1	1	GW	Well grade	d coarse gravel w/ Ca	aliche Red/F	Brown. No odor. No Plasiticity
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	WSP USA  508 West Stevens Street Carlsbad, New Mexico 88220								BH or PH Name: BH Site Name:		Date: 10/4/2021 PLU Remuda Bas	
				Oui	iobad, No	WIVICAICO	00220		RP or Incident Nu WSP Job Numbe		31403236.020.01	2, NAPP2120846562 29
		LITH	OLOG	SIC / SOIL	SAMPL	ING LO	G		Logged By:	JH	Method:	H. Auger
Lat/Lo	ng:				Field Scre				Hole Diameter:		Total Depth:	
Comn	nents:				Hatch Chl	oride Strips	s, PID		3"		4'	
Comm	TD at 4 '											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol			Lithology/F	Remarks	
М	1,680	0.1	N			1 - -	SP	Poorly grad	ded, fine sand w/ c	aliche. Orange/l	Brown. No plasticity	v. No odor. Organics
М	2,128	0.0	Ν		- - -	- 2 -	SP	Poorly grad	ded, fine sand w/ c	aliche. Orange/l	Brown. No plasticity	v. No odor. Organics
М	2,404	0.0	N	BH02	3 _	3 -	SPSM	Poorly grad Organics.	ded fine sand w/ si	It and caliche. B	rown/Orange. No o	dor. No plasticity.
M	1,932	0.0	Z	BH02A	4	4		Poorly grad		It and caliche. B	srown. No odor. No	plasticity. Organics.

11	5	)	5 Car		SP USA Stevens S w Mexico	Street 88220		BH or PH Name: BH0 Site Name: RP or Incident Nur		Date: 10/4/2021 PLU Remuda Basi NAPP2120034052	n 4-24-30 TB I, NAPP2120846562
								WSP Job Number:		31403236.020.012	29
	LITH	OLOG	SIC / SOIL			G		Logged By:	JH	Method:	H. Auger
Lat/Long:				Field Scre	ening: oride Strips	, DID		Hole Diameter: 3"		Total Depth: 4'	
Comments:				natch Chi	onde Sinps	5, PID		3		4	
TD at 4	. 1										
Moisture Content Chloride	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	(ft bgs)	USCS/Rock Symbol			Lithology/R	Remarks	
M 9,48	6 0.1	N	BH03	1 1 _ -	0 1	SW	Well gradeo	d, fine-medium san	d w/ caliche. O	range. No plasticity.	No odor. Organics
M 2,40	4 0.0	N		- - -	2	SPSM	Fine sand v	v/ silt and caliche g	ravel. Orange/E	Brown. No odor. No	plasticity. Organics.
M 2,40	4 0.3	N		- - -	3	SPSM	Fine sand v	v/ silt and caliche g	ravel. Brown/O	range. No odor. No	plasticity. Organics.
M 188	0.3	Z	вноза	4 -	4		Fine sand v		ravel. Brown/O	range. No odor. No	plasticity. Organics.

	<b>'''</b>	51	WSP USA  508 West Stevens Street Carlsbad, New Mexico 88220						BH or PH Name: PH Site Name: RP or Incident N WSP Job Numbe	d01 umber:		, NAPP2120846562
		LITH		SIC / SOIL	SAMPI	INGIO	G		Logged By:	LAD	31403236.020.012 Method:	9 Back Hoe
Lat/Lo	ong:		OLOC	7 0012	Field Scre				Hole Diameter:	LAD	Total Depth:	Back Floc
					Hatch Chl		s, PID		20"		4'	
Comm	nents: TD at 4 '											
Moisture Content		Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	(ft bgs)	USCS/Rock Symbol			Lithology/F	Remarks	
D	2,157	3.5	N	PH01	1 1 _ -	0 - 1 -	CCHE	Caliche w/	some gravel. So	me consolidation	n. Red/Brown. Odor.	No plasticity.
M	<156	0.0	N		- - -	2 -	SM	Fine, silty s	sand with caliche (	gravel. Light Bro	wn. No odor. No plas	sticity.
M	<156	0.9	N		- - -	3	SM	Fine, silty s	sand with caliche	gravel. Brown. N	o odor. No plasticity.	
M	<156	0.0	Z	PH01A	4	4 - 4		Poorly grad		Cohesive. Low F	Plasticity. Brown. No	odor.

									BH or PH Name:		Date:
7			7		WS	P USA			PH(	)2	9/17/2021
\	11			5	ins West 9	Stavens 9	Street		Site Name:		PLU Remuda Basin 4-24-30 TB
				Car	08 West State	w Mexico	88220		RP or Incident Nu	mber:	NAPP2120034052, NAPP2120846562
									WSP Job Number		31403236.020.0129
		LITH	OLOG	SIC / SOIL	SAMPL	ING LO	G		Logged By:	LAD	Method: Back Hoe
Lat/Lo	ng:				Field Scre				Hole Diameter:		Total Depth:
					Hatch Chl	oride Strip	s, PID		20"		4'
Comm	ents: TD at 4 '										
							×				
ure	ide n)	or n)	ing	# <u>e</u>	Sample	Depth	300 201				
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth	(ft bgs)	SS/I			Lithology/R	Remarks
ΣÓ	5	/ _	St	Sa	(ft bgs)	(****9*)	USCS/Rock Symbol				
						0					
						[					
D	<156	0.0	Ν	PH02	1 _	_ 1	CCHE	Caliche w/	some gravel. Som	e consolidation	. Red/Brown. Odor. No plasticity.
					_	<u> </u>					
					_	<b>†</b>					
M	<156	0.0	Ν		_	2	SM	Fine, silty s	and with caliche gr	ravel. Light Brov	wn. No odor. No plasticity.
					_	<u> </u>					
					_	<u>L</u>					
M	<156	0.0	Ν		_	3	SM	Fine, silty s	and with caliche gr	ravel. Brown. No	o odor. No plasticity.
					_	Ţ.					
					_	<u> </u>					
М	<156	0.1	N	PH02A	4	4	SC	Poorly grad	ed, clayey sand. C	Cohesive. Low P	Plasticity. Brown. No odor.
	1.00	011		1110271	_	<u> </u>		, , ,	, , . ,		,
					_		Т	D @ 4 fe	et		
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\	11	5	)	5 Car	<b>WS</b> 08 West S Isbad, Ne	P USA Stevens S	Street 88220		BH or PH Name: PHO Site Name: RP or Incident Nu		Date: 9/17/2021 PLU Remuda Basin	n 4-24-30 TB , NAPP2120846562
					,				WSP Job Number		31403236.020.012	
		LITH	OLOG	SIC / SOIL	SAMPL	ING LO	G		Logged By:	LAD	Method:	Back Hoe
Lat/Lo	ng:				Field Scre	_			Hole Diameter:		Total Depth:	
Comm	onto:				Hatch Chl	oride Strip	s, PID		20"		4'	
	TD at 4 '											
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	(ft bgs)	USCS/Rock Symbol			Lithology/F	Remarks	
D	454	0.0	N	PH03	1 1 _ -	1 - -	CCHE	Caliche w/s	some gravel. Som	ne consolidation	. Red/Brown. Odor.	No plasticity.
М	628	0.0	N		- - -	2	SM	Fine, silty s	and with caliche g	ravel. Light Brov	wn. No odor. No plas	sticity.
M	353	0.0	N		- - -	3	SM	Fine, silty s	and with caliche g	ravel. Light Brov	wn. No odor. No plas	sticity.
M	<156	0.3	Ν	PH03A	4	4		Poorly grad D @ 4 fee		Cohesive. Low P	Plasticity. Brown. No	odor.



	PHOTOGRAPHIC LOG	
XTO Energy, Inc.	PLU Remuda Basin 4-24-30 Tank Battery	NAPP2120034052 &
	Eddy County, NM	NAPP2120846562

Photo No.	Date						
1	August 24, 2021						
View of liner tear to the west.							



Photo No.	Date						
2	August 24, 2021						
View of west release extent to the							
north							





PHOTOGRAPHIC LOG			
XTO Energy, Inc.	PLU Remuda Basin 4-24-30 Tank Battery	NAPP2120034052 &	
	Eddy County, NM	NAPP2120846562	

Photo No.	Date		
3	September 17,		
3	2021		
View southeast of pothole for liner			
delineation to the north of			
containment.			



Photo No.	Date	
4	October 4, 2021	
View south of BH02 and BH03		
location.		





# **Environment Testing America**

## **ANALYTICAL REPORT**

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

Laboratory Job ID: 890-1153-1

Laboratory Sample Delivery Group: 31403236.020.0129

Client Project/Site: PLU Remuda Basin 4-24-30

For:

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

Attn: Dan Moir

MAMER

Authorized for release by: 8/30/2021 8:47:58 AM

Jessica Kramer, Project Manager (432)704-5440

jessica.kramer@eurofinset.com

LINKS .....

Review your project results through

**Have a Question?** 



Visit us at:

www.eurofinsus.com/Env

Released to Imaging: 3/9/2022 4:46:07 PM

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.

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Client: WSP USA Inc.
Project/Site: PLU Remuda Basin 4-24-30
SE

Laboratory Job ID: 890-1153-1 SDG: 31403236.020.0129

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# Definitions/Glossary

 Client: WSP USA Inc.
 Job ID: 890-1153-1

 Project/Site: PLU Remuda Basin 4-24-30
 SDG: 31403236.020.0129

**Qualifiers** 

**GC VOA** 

Qualifier Description

S1+ Surrogate recovery exceeds control limits, high biased.
U Indicates the analyte was analyzed for but not detected.

**GC Semi VOA** 

U Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier Qualifier Description

U Indicates the analyte was analyzed for but not detected.

**Glossary** 

Abbreviation These commonly used abbreviations may or may not be present in this report.

Listed under the "D" column to designate that the result is reported on a dry weight basis

%R Percent Recovery
CFL Contains Free Liquid
CFU Colony Forming Unit
CNF Contains No Free Liquid

DER Duplicate Error Ratio (normalized absolute difference)

Dil Fac Dilution Factor

DL Detection Limit (DoD/DOE)

DL, RA, RE, IN Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample

DLC Decision Level Concentration (Radiochemistry)

EDL Estimated Detection Limit (Dioxin)

LOD Limit of Detection (DoD/DOE)

LOQ Limit of Quantitation (DoD/DOE)

MCL EPA recommended "Maximum Contaminant Level"

MDA Minimum Detectable Activity (Radiochemistry)

MDC Minimum Detectable Concentration (Radiochemistry)

MDL Method Detection Limit
ML Minimum Level (Dioxin)
MPN Most Probable Number
MQL Method Quantitation Limit

NC Not Calculated

ND Not Detected at the reporting limit (or MDL or EDL if shown)

NEG Negative / Absent
POS Positive / Present
PQL Practical Quantitation Limit

PRES Presumptive
QC Quality Control

RER Relative Error Ratio (Radiochemistry)

RL Reporting Limit or Requested Limit (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points

TEF Toxicity Equivalent Factor (Dioxin)
TEQ Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

Eurofins Xenco, Carlsbad

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## **Case Narrative**

Client: WSP USA Inc.

Project/Site: PLU Remuda Basin 4-24-30

Job ID: 890-1153-1

SDG: 31403236.020.0129

Job ID: 890-1153-1

Laboratory: Eurofins Xenco, Carlsbad

Narrative

Job Narrative 890-1153-1

## 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: SS02 (890-1153-2). Evidence of matrix interferences is not obvious.

Method 8021B: Surrogate recovery for the following sample was outside control limits: (880-5425-A-1-A MS). Evidence of matrix interferences is not obvious.

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

## GC Semi VOA

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

## HPLC/IC

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

Client: WSP USA Inc.

Job ID: 890-1153-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

**Client Sample ID: SS01** 

Date Collected: 08/24/21 13:13 Date Received: 08/25/21 08:02

Sample Depth: 0.5

Lab Sample ID: 890-1153-1

Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		08/25/21 13:58	08/26/21 07:15	1
Toluene	<0.00199	U	0.00199	mg/Kg		08/25/21 13:58	08/26/21 07:15	1
Ethylbenzene	< 0.00199	U	0.00199	mg/Kg		08/25/21 13:58	08/26/21 07:15	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		08/25/21 13:58	08/26/21 07:15	1
o-Xylene	< 0.00199	U	0.00199	mg/Kg		08/25/21 13:58	08/26/21 07:15	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		08/25/21 13:58	08/26/21 07:15	1
Total BTEX	<0.00398	U	0.00398	mg/Kg		08/25/21 13:58	08/26/21 07:15	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	126		70 - 130			08/25/21 13:58	08/26/21 07:15	1
1,4-Difluorobenzene (Surr)	99		70 - 130			08/25/21 13:58	08/26/21 07:15	1
Method: 8015B NM - Diesel Rang		RO) (GC)						
T,4-Dilluorobenzene (Gurr)								
Method: 8015B NM - Diesel Rang Analyte	ge Organics (D	Qualifier	RL	Unit	<u>D</u>	Prepared	Analyzed	
Method: 8015B NM - Diesel Rang Analyte Gasoline Range Organics	ge Organics (D	Qualifier	<b>RL</b> 49.9	<mark>Unit</mark> mg/Kg	<u>D</u>	Prepared 08/26/21 09:55	Analyzed 08/26/21 18:54	
Method: 8015B NM - Diesel Rang Analyte Gasoline Range Organics (GRO)-C6-C10	ge Organics (D Result	Qualifier	49.9	mg/Kg	<u>D</u>	08/26/21 09:55	08/26/21 18:54	1
Method: 8015B NM - Diesel Rang Analyte Gasoline Range Organics	ge Organics (D	Qualifier			<u>D</u>	<u>·</u>		1
Method: 8015B NM - Diesel Rang Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	ge Organics (D Result	Qualifier U	49.9	mg/Kg	<u>D</u>	08/26/21 09:55	08/26/21 18:54	1
Method: 8015B NM - Diesel Rang Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	ge Organics (Di Result <49.9	Qualifier U	49.9	mg/Kg	<u>D</u>	08/26/21 09:55 08/26/21 09:55	08/26/21 18:54 08/26/21 18:54	1
Method: 8015B NM - Diesel Rang Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	ge Organics (D) Result <49.9  109 <49.9	Qualifier U	49.9 49.9 49.9	mg/Kg mg/Kg mg/Kg	<u>D</u>	08/26/21 09:55 08/26/21 09:55 08/26/21 09:55	08/26/21 18:54 08/26/21 18:54 08/26/21 18:54	1 1
Method: 8015B NM - Diesel Rang Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36) Total TPH	ge Organics (D) Result <49.9 109 <49.9	Qualifier U	49.9 49.9 49.9 49.9	mg/Kg mg/Kg mg/Kg	<u>D</u>	08/26/21 09:55 08/26/21 09:55 08/26/21 09:55 08/26/21 09:55	08/26/21 18:54 08/26/21 18:54 08/26/21 18:54 08/26/21 18:54	1 1 1 <i>Dil Fac</i>
Method: 8015B NM - Diesel Rang Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36) Total TPH Surrogate	ge Organics (D)  Result  <49.9  109  <49.9  109  %Recovery	Qualifier U	49.9 49.9 49.9 49.9 <b>Limits</b>	mg/Kg mg/Kg mg/Kg	<u> </u>	08/26/21 09:55 08/26/21 09:55 08/26/21 09:55 08/26/21 09:55 Prepared	08/26/21 18:54 08/26/21 18:54 08/26/21 18:54 08/26/21 18:54 Analyzed	1 1 1 1 Dil Fac
Method: 8015B NM - Diesel Rang Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36) Total TPH  Surrogate 1-Chlorooctane	ge Organics (D)  Result  <49.9  109  <49.9  109  **Recovery*  85  97	Qualifier  U  Qualifier	49.9 49.9 49.9 49.9 <b>Limits</b> 70 - 130	mg/Kg mg/Kg mg/Kg	<u>D</u>	08/26/21 09:55 08/26/21 09:55 08/26/21 09:55 08/26/21 09:55 <b>Prepared</b> 08/26/21 09:55	08/26/21 18:54  08/26/21 18:54  08/26/21 18:54  08/26/21 18:54  Analyzed  08/26/21 18:54	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

Client Sample ID: SS02 Lab Sample ID: 890-1153-2 Date Collected: 08/24/21 13:47

4.95

mg/Kg

609

Date Received: 08/25/21 08:02

Sample Depth: 0.5

Chloride

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		08/25/21 13:58	08/26/21 07:36	
Toluene	<0.00202	U	0.00202	mg/Kg		08/25/21 13:58	08/26/21 07:36	1
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		08/25/21 13:58	08/26/21 07:36	1
m-Xylene & p-Xylene	<0.00403	U	0.00403	mg/Kg		08/25/21 13:58	08/26/21 07:36	1
o-Xylene	<0.00202	U	0.00202	mg/Kg		08/25/21 13:58	08/26/21 07:36	1
Xylenes, Total	<0.00403	U	0.00403	mg/Kg		08/25/21 13:58	08/26/21 07:36	1
Total BTEX	<0.00403	U	0.00403	mg/Kg		08/25/21 13:58	08/26/21 07:36	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	138	S1+	70 - 130			08/25/21 13:58	08/26/21 07:36	1
1,4-Difluorobenzene (Surr)	96		70 - 130			08/25/21 13:58	08/26/21 07:36	1

08/27/21 19:18

**Matrix: Solid** 

Matrix: Solid

Lab Sample ID: 890-1153-2

# **Client Sample Results**

 Client: WSP USA Inc.
 Job ID: 890-1153-1

 Project/Site: PLU Remuda Basin 4-24-30
 SDG: 31403236.020.0129

Client Sample ID: SS02

Date Collected: 08/24/21 13:47 Date Received: 08/25/21 08:02

Sample Depth: 0.5

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<49.9	U	49.9	mg/Kg		08/26/21 09:55	08/26/21 19:15	1
(GRO)-C6-C10								
Diesel Range Organics (Over	151		49.9	mg/Kg		08/26/21 09:55	08/26/21 19:15	1
C10-C28)								
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		08/26/21 09:55	08/26/21 19:15	1
Total TPH	151		49.9	mg/Kg		08/26/21 09:55	08/26/21 19:15	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	85		70 - 130			08/26/21 09:55	08/26/21 19:15	1
o-Terphenyl	97		70 - 130			08/26/21 09:55	08/26/21 19:15	1
Method: 300.0 - Anions, Ion Chro	matography -	Soluble						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	861		5.05	mg/Kg			08/27/21 19:23	

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# **Surrogate Summary**

 Client: WSP USA Inc.
 Job ID: 890-1153-1

 Project/Site: PLU Remuda Basin 4-24-30
 SDG: 31403236.020.0129

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

				Percent Surrogate Reco
		BFB1	DFBZ1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
880-5425-A-1-A MS	Matrix Spike	134 S1+	93	
880-5425-A-1-B MSD	Matrix Spike Duplicate	116	104	
890-1153-1	SS01	126	99	
890-1153-2	SS02	138 S1+	96	
LCS 880-7057/1-A	Lab Control Sample	113	106	
LCSD 880-7057/2-A	Lab Control Sample Dup	109	93	
MB 880-7029/5-A	Method Blank	97	102	
MB 880-7057/5-A	Method Blank	109	97	

BFB = 4-Bromofluorobenzene (Surr)

DFBZ = 1,4-Difluorobenzene (Surr)

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

Matrix: Solid Prep Type: Total/NA

				Percent Surrogate Recovery (Acceptance Limits)
		1CO1	OTPH1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
880-5425-A-1-F MS	Matrix Spike	82	87	
880-5425-A-1-G MSD	Matrix Spike Duplicate	82	87	
890-1153-1	SS01	85	97	
890-1153-2	SS02	85	97	
_CS 880-7115/2-A	Lab Control Sample	85	90	
LCSD 880-7115/3-A	Lab Control Sample Dup	87	93	
MB 880-7115/1-A	Method Blank	86	98	

Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

Client: WSP USA Inc. Job ID: 890-1153-1 SDG: 31403236.020.0129 Project/Site: PLU Remuda Basin 4-24-30

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-7029/5-A

**Matrix: Solid** 

**Analysis Batch: 7042** 

Client	Sample	ID:	Method	Blank

**Prep Type: Total/NA** 

Prep Batch: 7029

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/24/21 16:46	08/25/21 12:54	1
Toluene	<0.00200	U	0.00200	mg/Kg		08/24/21 16:46	08/25/21 12:54	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		08/24/21 16:46	08/25/21 12:54	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		08/24/21 16:46	08/25/21 12:54	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		08/24/21 16:46	08/25/21 12:54	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		08/24/21 16:46	08/25/21 12:54	1
Total BTEX	<0.00400	U	0.00400	mg/Kg		08/24/21 16:46	08/25/21 12:54	1

MB MB

MD MD

Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	0	08/24/21 16:46	08/25/21 12:54	1
1,4-Difluorobenzene (Surr)	102		70 - 130	0	08/24/21 16:46	08/25/21 12:54	1

Lab Sample ID: MB 880-7057/5-A Client Sample ID: Method Blank Prep Type: Total/NA

**Matrix: Solid** 

**Analysis Batch: 7042** 

	MB	MB							
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Benzene	<0.00200	U	0.00200	mg/Kg		08/25/21 10:43	08/25/21 23:46	1	
Toluene	<0.00200	U	0.00200	mg/Kg		08/25/21 10:43	08/25/21 23:46	1	
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		08/25/21 10:43	08/25/21 23:46	1	
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		08/25/21 10:43	08/25/21 23:46	1	
o-Xylene	<0.00200	U	0.00200	mg/Kg		08/25/21 10:43	08/25/21 23:46	1	
Xylenes, Total	< 0.00400	U	0.00400	mg/Kg		08/25/21 10:43	08/25/21 23:46	1	

MB MB

<0.00400 U

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130	08/25/21 10:43	08/25/21 23:46	1
1,4-Difluorobenzene (Surr)	97		70 - 130	08/25/21 10:43	08/25/21 23:46	1

0.00400

mg/Kg

Lab Sample ID: LCS 880-7057/1-A

**Matrix: Solid** 

Total BTEX

**Analysis Batch: 7042** 

**Client Sample ID: Lab Control Sample** 

08/25/21 23:46

08/25/21 10:43

Prep Type: Total/NA

Prep Batch: 7057

Prep Batch: 7057

Spike	LCS	LCS				%Rec.	
Added	Result	Qualifier	Unit	D	%Rec	Limits	
0.100	0.08469		mg/Kg		85	70 - 130	
0.100	0.08501		mg/Kg		85	70 - 130	
0.100	0.08017		mg/Kg		80	70 - 130	
0.200	0.1686		mg/Kg		84	70 - 130	
0.100	0.08535		mg/Kg		85	70 - 130	
	Added 0.100 0.100 0.100 0.200	Added Result  0.100 0.08469  0.100 0.08501  0.100 0.08017  0.200 0.1686	Added         Result         Qualifier           0.100         0.08469           0.100         0.08501           0.100         0.08017           0.200         0.1686	Added         Result         Qualifier         Unit           0.100         0.08469         mg/Kg           0.100         0.08501         mg/Kg           0.100         0.08017         mg/Kg           0.200         0.1686         mg/Kg	Added         Result         Qualifier         Unit         D           0.100         0.08469         mg/Kg           0.100         0.08501         mg/Kg           0.100         0.08017         mg/Kg           0.200         0.1686         mg/Kg	Added         Result         Qualifier         Unit         D         %Rec           0.100         0.08469         mg/Kg         85           0.100         0.08501         mg/Kg         85           0.100         0.08017         mg/Kg         80           0.200         0.1686         mg/Kg         84	Added         Result         Qualifier         Unit         D         %Rec         Limits           0.100         0.08469         mg/Kg         85         70 - 130           0.100         0.08501         mg/Kg         85         70 - 130           0.100         0.08017         mg/Kg         80         70 - 130           0.200         0.1686         mg/Kg         84         70 - 130

LCS LCS

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

Client: WSP USA Inc. Job ID: 890-1153-1 SDG: 31403236.020.0129 Project/Site: PLU Remuda Basin 4-24-30

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

Lab Sample ID: LCSD 880-7057/2-A

**Matrix: Solid** 

Analysis Batch: 7042

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 7057

	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	0.100	0.07953		mg/Kg		80	70 - 130	6	35
Toluene	0.100	0.08027		mg/Kg		80	70 - 130	6	35
Ethylbenzene	0.100	0.07757		mg/Kg		78	70 - 130	3	35
m-Xylene & p-Xylene	0.200	0.1629		mg/Kg		81	70 - 130	3	35
o-Xylene	0.100	0.08198		mg/Kg		82	70 - 130	4	35

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	109		70 - 130
1,4-Difluorobenzene (Surr)	93		70 - 130

Lab Sample ID: 880-5425-A-1-A MS

**Matrix: Solid** 

**Analysis Batch: 7042** 

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 7057

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	<0.00198	U	0.0998	0.07239		mg/Kg		72	70 - 130	
Toluene	<0.00198	U	0.0998	0.09185		mg/Kg		90	70 - 130	
Ethylbenzene	<0.00198	U	0.0998	0.08219		mg/Kg		82	70 - 130	
m-Xylene & p-Xylene	<0.00397	U	0.200	0.1685		mg/Kg		84	70 - 130	
o-Xylene	<0.00198	U	0.0998	0.08876		mg/Kg		88	70 - 130	

MS MS

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	134	S1+	70 - 130
1,4-Difluorobenzene (Surr)	93		70 - 130

Lab Sample ID: 880-5425-A-1-B MSD

Matrix: Solid

**Analysis Batch: 7042** 

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 7057

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00198	U	0.0994	0.08393	-	mg/Kg		84	70 - 130	15	35
Toluene	<0.00198	U	0.0994	0.07659		mg/Kg		75	70 - 130	18	35
Ethylbenzene	<0.00198	U	0.0994	0.07062		mg/Kg		71	70 - 130	15	35
m-Xylene & p-Xylene	<0.00397	U	0.199	0.1472		mg/Kg		73	70 - 130	13	35
o-Xylene	<0.00198	U	0.0994	0.07509		mg/Kg		75	70 - 130	17	35

MSD MSD

Surrogate	%Recovery Qualifie	r Limits
4-Bromofluorobenzene (Surr)	116	70 - 130
1,4-Difluorobenzene (Surr)	104	70 - 130

Client: WSP USA Inc. Job ID: 890-1153-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

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

Lab Sample ID: MB 880-7115/1-A

**Matrix: Solid** 

**Analysis Batch: 7099** 

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 7115

	IVID	IVID						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<50.0	U	50.0	mg/Kg		08/26/21 09:55	08/26/21 11:28	1
(GRO)-C6-C10								
Diesel Range Organics (Over	<50.0	U	50.0	mg/Kg		08/26/21 09:55	08/26/21 11:28	1
C10-C28)								
OII Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		08/26/21 09:55	08/26/21 11:28	1
Total TPH	<50.0	U	50.0	mg/Kg		08/26/21 09:55	08/26/21 11:28	1

мв мв

MD MD

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	86		70 - 130	08/26/21 09:55	08/26/21 11:28	1
o-Terphenyl	98		70 - 130	08/26/21 09:55	08/26/21 11:28	1

Lab Sample ID: LCS 880-7115/2-A

**Client Sample ID: Lab Control Sample** Matrix: Solid Prep Type: Total/NA Prep Batch: 7115 **Analysis Batch: 7099** LCS LCS Spike %Rec.

Analyte Added Result Qualifier Unit %Rec Limits Gasoline Range Organics 1000 894.7 89 70 - 130 mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over 1000 910.1 mg/Kg 91 70 - 130

C10-C28)

LCS LCS %Recovery Qualifier Surrogate Limits 1-Chlorooctane 85 70 - 130 o-Terphenyl 90 70 - 130

Lab Sample ID: LCSD 880-7115/3-A

**Matrix: Solid** 

**Analysis Batch: 7099** 

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 7115

	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics	1000	839.1		mg/Kg		84	70 - 130	6	20
(GRO)-C6-C10									
Diesel Range Organics (Over	1000	923.4		mg/Kg		92	70 - 130	1	20
C10-C28)									

LCSD LCSD

Surrogate	%Recovery Qualifier	Limits
1-Chlorooctane	87	70 - 130
o-Terphenyl	93	70 - 130

Lab Sample ID: 880-5425-A-1-F MS

**Matrix: Solid** 

**Analysis Batch: 7099** 

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 7115

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	995	879.7		mg/Kg		88	70 - 130	
Diesel Range Organics (Over C10-C28)	<50.0	U	995	857.5		mg/Kg		84	70 - 130	

Job ID: 890-1153-1

Client: WSP USA Inc. Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

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

Lab Sample ID: 880-5425-A-1-F MS Client Sample ID: Matrix Spike

**Matrix: Solid** Prep Type: Total/NA **Analysis Batch: 7099** Prep Batch: 7115

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	82		70 - 130
o-Terphenyl	87		70 - 130

Lab Sample ID: 880-5425-A-1-G MSD Client Sample ID: Matrix Spike Duplicate

**Matrix: Solid** Prep Type: Total/NA **Analysis Batch: 7099** Prep Batch: 7115

Sample Sample Spike MSD MSD %Rec. RPD Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits RPD Limit <50.0 U 998 838.7 84 70 - 1305 20 Gasoline Range Organics mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over 998 858.2 83 <50.0 U mg/Kg 70 - 1300 20

MSD MSD %Recovery Surrogate Qualifier Limits 82 70 - 130 1-Chlorooctane 87 70 - 130 o-Terphenyl

мв мв

# Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-7089/1-A Client Sample ID: Method Blank **Matrix: Solid** 

**Prep Type: Soluble** 

**Analysis Batch: 7168** 

C10-C28)

Analyte Result Qualifier RL Unit D Dil Fac Prepared Analyzed Chloride 5.00 <5.00 U mg/Kg 08/27/21 16:52

Lab Sample ID: LCS 880-7089/2-A Client Sample ID: Lab Control Sample **Matrix: Solid Prep Type: Soluble** 

**Analysis Batch: 7168** 

Spike LCS LCS %Rec. Added Analyte Result Qualifier Unit D %Rec Limits Chloride 250 272.5 mg/Kg 109 90 - 110

Lab Sample ID: LCSD 880-7089/3-A Client Sample ID: Lab Control Sample Dup **Matrix: Solid Prep Type: Soluble** 

**Analysis Batch: 7168** 

Spike LCSD LCSD %Rec. RPD Added Analyte Result Qualifier Unit D %Rec Limits RPD Limit Chloride 250 272.5 109 90 - 110 20 mg/Kg

Lab Sample ID: 890-1150-A-16-D MS Client Sample ID: Matrix Spike

**Matrix: Solid Prep Type: Soluble Analysis Batch: 7168** 

Spike MS MS %Rec. Sample Sample Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits

Chloride 362 248 606.3 mg/Kg 90 - 110

 Client: WSP USA Inc.
 Job ID: 890-1153-1

 Project/Site: PLU Remuda Basin 4-24-30
 SDG: 31403236.020.0129

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-1150-A-16-E MSD

Matrix: Solid

Client Sample ID: Matrix Spike Duplicate
Prep Type: Soluble

Analysis Batch: 7168

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	362		248	606.6		mg/Kg		99	90 - 110	0	20

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# **QC Association Summary**

Client: WSP USA Inc.

Project/Site: PLU Remuda Basin 4-24-30

Job ID: 890-1153-1

SDG: 31403236.020.0129

## **GC VOA**

## Prep Batch: 7029

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-7029/5-A	Method Blank	Total/NA	Solid	5035	

## Analysis Batch: 7042

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1153-1	SS01	Total/NA	Solid	8021B	7057
890-1153-2	SS02	Total/NA	Solid	8021B	7057
MB 880-7029/5-A	Method Blank	Total/NA	Solid	8021B	7029
MB 880-7057/5-A	Method Blank	Total/NA	Solid	8021B	7057
LCS 880-7057/1-A	Lab Control Sample	Total/NA	Solid	8021B	7057
LCSD 880-7057/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	7057
880-5425-A-1-A MS	Matrix Spike	Total/NA	Solid	8021B	7057
880-5425-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	7057

# Prep Batch: 7057

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1153-1	SS01	Total/NA	Solid	5035	
890-1153-2	SS02	Total/NA	Solid	5035	
MB 880-7057/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-7057/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-7057/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-5425-A-1-A MS	Matrix Spike	Total/NA	Solid	5035	
880-5425-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## **GC Semi VOA**

## **Analysis Batch: 7099**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1153-1	SS01	Total/NA	Solid	8015B NM	7115
890-1153-2	SS02	Total/NA	Solid	8015B NM	7115
MB 880-7115/1-A	Method Blank	Total/NA	Solid	8015B NM	7115
LCS 880-7115/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	7115
LCSD 880-7115/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	7115
880-5425-A-1-F MS	Matrix Spike	Total/NA	Solid	8015B NM	7115
880-5425-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	7115

## Prep Batch: 7115

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1153-1	SS01	Total/NA	Solid	8015NM Prep	
890-1153-2	SS02	Total/NA	Solid	8015NM Prep	
MB 880-7115/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-7115/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-7115/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-5425-A-1-F MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-5425-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## **HPLC/IC**

## Leach Batch: 7089

<b>Lab Sample ID</b> 890-1153-1	Client Sample ID SS01	Prep Type Soluble	Matrix Solid	Method DI Leach	Prep Batch
890-1153-2	SS02	Soluble	Solid	DI Leach	
MB 880-7089/1-A	Method Blank	Soluble	Solid	DI Leach	

Eurofins Xenco, Carlsbad

Page 13 of 22

# **QC Association Summary**

Client: WSP USA Inc. Job ID: 890-1153-1 Project/Site: PLU Remuda Basin 4-24-30

SDG: 31403236.020.0129

# **HPLC/IC (Continued)**

# Leach Batch: 7089 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 880-7089/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-7089/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-1150-A-16-D MS	Matrix Spike	Soluble	Solid	DI Leach	
890-1150-A-16-E MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

## **Analysis Batch: 7168**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1153-1	SS01	Soluble	Solid	300.0	7089
890-1153-2	SS02	Soluble	Solid	300.0	7089
MB 880-7089/1-A	Method Blank	Soluble	Solid	300.0	7089
LCS 880-7089/2-A	Lab Control Sample	Soluble	Solid	300.0	7089
LCSD 880-7089/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	7089
890-1150-A-16-D MS	Matrix Spike	Soluble	Solid	300.0	7089
890-1150-A-16-E MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	7089

# Lab Chronicle

 Client: WSP USA Inc.
 Job ID: 890-1153-1

 Project/Site: PLU Remuda Basin 4-24-30
 SDG: 31403236.020.0129

Client Sample ID: SS01

Lab Sample ID: 890-1153-1

Matrix: Solid

Date Collected: 08/24/21 13:13 Date Received: 08/25/21 08:02

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			7057	08/25/21 13:58	MR	XEN MID
Total/NA	Analysis	8021B		1	7042	08/26/21 07:15	KL	XEN MID
Total/NA	Prep	8015NM Prep			7115	08/26/21 09:55	DM	XEN MID
Total/NA	Analysis	8015B NM		1	7099	08/26/21 18:54	AJ	XEN MID
Soluble	Leach	DI Leach			7089	08/25/21 18:14	SC	XEN MID
Soluble	Analysis	300.0		1	7168	08/27/21 19:18	SC	XEN MID

Client Sample ID: SS02

Date Collected: 08/24/21 13:47

Lab Sample ID: 890-1153-2

Matrix: Solid

Date Collected: 08/24/21 13:47 Date Received: 08/25/21 08:02

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			7057	08/25/21 13:58	MR	XEN MID
Total/NA	Analysis	8021B		1	7042	08/26/21 07:36	KL	XEN MID
Total/NA	Prep	8015NM Prep			7115	08/26/21 09:55	DM	XEN MID
Total/NA	Analysis	8015B NM		1	7099	08/26/21 19:15	AJ	XEN MID
Soluble	Leach	DI Leach			7089	08/25/21 18:14	SC	XEN MID
Soluble	Analysis	300.0		1	7168	08/27/21 19:23	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: 890-1153-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

# Laboratory: Eurofins Xenco, Midland

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

Authority	Pr	ogram	Identification Number	<b>Expiration Date</b>
Texas	NE	ELAP	T104704400-20-21	06-30-22
The following analytes	are included in this report, but	t the laboratory is not certific	ed by the governing authority. This list ma	av include analytes for v
the agency does not of		,	, g	
the agency does not of Analysis Method		Matrix	Analyte	y moduce analytee for t
0 ,	fer certification.	,	, , ,	

# **Method Summary**

Client: WSP USA Inc.

Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

Job ID: 890-1153-1

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

Job ID: 890-1153-1

# **Sample Summary**

Client: WSP USA Inc.

Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-1153-1	SS01	Solid	08/24/21 13:13	08/25/21 08:02	0.5
890-1153-2	SS02	Solid	08/24/21 13:47	08/25/21 08:02	0.5

# Chain of Custody

Billitor is allerance   Myth Littrail   Work Order Comments	mrk Order C  P □ rownfi  ADaPT  ADaPT  y: (Signatur	Moland, TX (422.704-5440) EL Pasto, TX (915)585-5443 Lubbook, TX (905)794-1295   WWW.WERDG.QOM.	Revised Date 051418 Rev 2018 1			0					/8/
P ☐rownfi  ADaPT  ADaPT  Ag SiO2 N  163	mrk Order C  P □ rownfi  ADaPT  ADaPT  Ag SiO2 N  163	rk Order C  P ☐ frownfi  ADaPT  Ag SiO2 N  163				121	1		B	1/1	10. (Z
□ □ T/U ADaPT ADaPT 163	III ☐ T/U ADaPT ADaPT 163	## SiO2 N	Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time		: (Signature)	Received by		(Signature)
EQUEST    Continue the first started for the	EQUEST  EQUEST  Chain of Custody  Chain of Custody  The Pb Mg Mn Mo Ni K Se Ag SiO2 N Mo Ni Se Ag Ti U  Contraction from and conditions  Work Order C  Work Order C  Work Order C  Program: UST/PST	L (813-620-2000)  Work Order C  Work Order C  Program: UST/PST		nstances beyond the control previously negotiated.	y the client if such losses are due to circuly the client if such losses are due to circulyzed. These terms will be enforced unless	is or expenses incurred b	any losses	sume any responsibility for charge of \$5 for each samp	samples constitutes and shall not as ach project and a	ample	voice: signature or inis document and eninquisiment or stroke so that service. Xenco will be liable only for the cost of sample of Xenco. A minimum charge of X75.00 will be applied to a
Bill to: (if allieren)   Kyle Littrel    Work Order C	SAM (575-392-7550) Phoenix, AZ (480-385-0900) Altanta,GA (770-449-8800) Tampa.FL (813-620-2000)   Www.X8DCO.com   Work Order C	Moland TX (432-704-5440)   EL Paso,TX (9/5)595-3443   Lubbock,TX (806)794-1296	.1/7470 /7471 : Hg		d Cr Co Cu Pb Mn Mo Ni S	Sb As Ba Be Co	RCRA	:LP / SPLP 6010: 8	nalyzed TO	a	Circle Method(s) and Metal(s) to be analyzed
Bill to: (If allievent)   Kyle Lititrell   Work Order C	SAM   (575-392-7550)   Phoenix, AZ (480-385-0900)   Allania, GA (770-449-8800)   Tampa, FL (813-620-2000)   Work Order C	Moland, TX (432,704-5440) EL Paso, TX (915)565-3443 Lubbock, TX (806)794-1296		Mo Ni K Se Ag SiO2 Na	Cd Ca Cr Co Cu Fe Pb	Sh As Ba Be		13PPM	8BC		Total 200 7 / 6010 200 8 / 6020
Bill to: (I allieren)   Kyle Littrell   Work Order C	SAMP    Containers   Containe	Milling   Company   Company   Name:   XTO Energy   State of Project:   Company   Name:   Name   Name:   Name   Name:   Name   Name:   Name:									
Bill to: (I alleven)   Kyle Littrell   Work Order C	SMM (575-392-750)   Phoenix,AZ (480-355-0900)   Allania,GA (770-449-8800)   Tampa FL (819-820-2000)   Work Order C	Midland, TX (432-704-5440) EL Paso, TX (915)585-3443 Lubbook, TX (806)794-1296									
Bill to: (If dillerent)   Kyle Littrell   Work Order C	SAMM (575-392-7550) Phoenix AZ (480-355-0900) Atlania GA (770-449-8800) Tampa FL (813-820-2000)   Work Order C	Midland, TX (422:704-5440) EL Paso, TX (915)585-3443 Lubbook, TX (806)794-1296								1 1	
Bill to: (if different)   Kyle Littrell   Work Order C	SAMM (575-392-7550) Phoenix,AZ (480-355-0900) Allania,GA (770-449-8800) Tampa,FL (813-620-2000)   www.xenco.com   work Order C	Mioland,TX (332-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296								- 1 - 1	
Bill to: (if different)   Kyle Littrell   Work Order C	SAMM (575-392-7550)   Phoenix,AZ (480-355-0900)   Allania.GA (770-449-8800)   Tampa.FL (813-820-2000)   Work Order C	Midland, TX (432-704-5440) EL Paso, TX (915)585-3443 Lubbock, TX (806)794-1296								- 1	
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Work Order No:

1089 N Canal St

Eurofins Xenco, Carlsbad

Chain of Custody Record

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Environment Testing

Project Name PLU Remuda Basin 4-24-30 Empty Kit Relinquished by Vote: 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. SS02 (890-1153-2) SS01 (890-1153-1) Sample Identification - Client ID (Lab ID) State Zip TX, 79701 Deliverable Requested 1 II III IV Other (specify) Possible Hazard Identification 432-704-5440(Tel) Midland Carlsbad NM 88220 Phone 575-988-3199 Fax 575-988-3199 Shipping/Receiving Client Information (Sub Contract Lab) 1211 W Florida Ave Eurofins Xenco elinquished by: elinquished by linquished by: Custody Seals Intact. Yes ∆ No Custody Seal No Project #: 89000004 Date/Time Date/Time Primary Deliverable Rank Due Date Requested 8/31/2021 TAT Requested (days) 8/24/21 8/24/21 Time Date Mountain Mountain 13 47 13 13 G=grab) (C=comp, Sample Preservation Code: Type Company Company Matrix Solid Solid Kramer Jessica jessica kramer@eurofinset com E-Mail lime Field Filtered Sample (Yes or No) Accreditations Required (See note)
NELAP - Louisiana NELAP - Texas Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

| Disposal Part | Part Perform MS/MSD (Yes or No) Special Instructions/QC Requirements Cooler Temperature(s) °C and Other Remarks × × 8015MOD\_NM/8015NM\_S\_Prep Full TPH Received by Return To Client × × 300\_ORGFM\_28D/DI\_LEACH Chloride × × 8021B/6035FP\_Calc BTEX Analysis Requested Disposal By Lab State of Origin New Mexico Carrier Tracking No(s) Date/Time: Archive For Total Number of containers COC No. 890-367 1 ппосш≻ ≖ o 890-1153-1 Preservation Codes Page 1 of 1 Ice Ice CEDTA EDA NaOH

Zn Acetate

Nitric Acid

NaHSO4 MeOH Amchlor Special Instructions/Note M Hexane
N None
O AsNaO2
P Na2O4S
Q Na2SO3
R Na2SO3
R Na2SO3
T TSP Dodecahydrate
U Acetone
V MCAA ΝŞ Company Company Months other (specify)

Ver: 06/08/202

# **Login Sample Receipt Checklist**

Client: WSP USA Inc.

Job Number: 890-1153-1

SDG Number: 31403236.020.0129

Login Number: 1153 List Source: Eurofins Xenco, Carlsbad

List Number: 1 Creator: Clifton, Cloe

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: 890-1153-1

SDG Number: 31403236.020.0129

List Source: Eurofins Xenco, Midland

List Creation: 08/25/21 01:37 PM

Login Number: 1153 List Number: 2 Creator: Kramer, Jessica

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	N/A	

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<6mm (1/4").



# **Environment Testing America**

# **ANALYTICAL REPORT**

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

Laboratory Job ID: 890-1233-1

Laboratory Sample Delivery Group: 31403236.020.0129

Client Project/Site: PLU Remuda Basin 4-24-30

For:

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

Attn: Dan Moir

MAMER

Authorized for release by: 9/16/2021 9:03:30 AM

Jessica Kramer, Project Manager (432)704-5440

jessica.kramer@eurofinset.com

····· Links ·····

results through

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

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

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Client: WSP USA Inc.
Project/Site: PLU Remuda Basin 4-24-30
S

Laboratory Job ID: 890-1233-1 SDG: 31403236.020.0129

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# **Definitions/Glossary**

Client: WSP USA Inc. Job ID: 890-1233-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

# **Qualifiers**

<b>GC VOA</b>
Qualifier

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.

**Qualifier Description** 

Qualifier Description

#### **GC Semi VOA**

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

## HPLC/IC

Ouglifier

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

# Glossarv

MCL

MDA

MDC

MDL

MPN

MQL

NC

ND

NEG

POS

PQL **PRES** 

QC

ML

Ciossary	
Abbreviation	These commonly used abbreviations may or may not be present in this report.
n	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)

**Quality Control** RER Relative Error Ratio (Radiochemistry) RL Reporting Limit or Requested Limit (Radiochemistry)

Presumptive

Method Detection Limit

Minimum Level (Dioxin)

Most Probable Number

Not Calculated

Negative / Absent Positive / Present

Method Quantitation Limit

**Practical Quantitation Limit** 

EPA recommended "Maximum Contaminant Level"

Minimum Detectable Concentration (Radiochemistry)

Minimum Detectable Activity (Radiochemistry)

RPD Relative Percent Difference, a measure of the relative difference between two points TEF Toxicity Equivalent Factor (Dioxin)

Not Detected at the reporting limit (or MDL or EDL if shown)

**TEQ** Toxicity Equivalent Quotient (Dioxin)

TNTC Too Numerous To Count

Job ID: 890-1233-1

## **Case Narrative**

Client: WSP USA Inc.

Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

Job ID: 890-1233-1

Laboratory: Eurofins Xenco, Carlsbad

Narrative

Job Narrative 890-1233-1

#### Receipt

The samples were received on 9/8/2021 3:31 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.2°C

## **GC VOA**

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-7836 and analytical batch 880-7815 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.

Method 8021B: Surrogate recovery for the following samples were outside control limits: BH01A (890-1233-2) and (880-6047-A-1-B MSD). Evidence of matrix interferences is not obvious.

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

#### GC Semi VOA

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

## HPLC/IC

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

Matrix: Solid

Lab Sample ID: 890-1233-1

# **Client Sample Results**

Client: WSP USA Inc. Job ID: 890-1233-1 SDG: 31403236.020.0129

Project/Site: PLU Remuda Basin 4-24-30

**Client Sample ID: BH01** Date Collected: 09/08/21 10:30 Date Received: 09/08/21 15:31

Sample Depth: 0.5

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.00237		0.00201	mg/Kg		09/14/21 09:00	09/14/21 11:24	1
Toluene	<0.00201	U	0.00201	mg/Kg		09/14/21 09:00	09/14/21 11:24	1
Ethylbenzene	0.00615		0.00201	mg/Kg		09/14/21 09:00	09/14/21 11:24	1
m-Xylene & p-Xylene	<0.00402	U	0.00402	mg/Kg		09/14/21 09:00	09/14/21 11:24	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		09/14/21 09:00	09/14/21 11:24	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		09/14/21 09:00	09/14/21 11:24	1
Total BTEX	0.00852		0.00402	mg/Kg		09/14/21 09:00	09/14/21 11:24	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130			09/14/21 09:00	09/14/21 11:24	1
1,4-Difluorobenzene (Surr)	109		70 - 130			09/14/21 09:00	09/14/21 11:24	1

Method: 8015B NM - Diesel Rang	ge Organics (D	RO) (GC)						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8	mg/Kg		09/09/21 15:17	09/10/21 05:37	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8	mg/Kg		09/09/21 15:17	09/10/21 05:37	1
Oll Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		09/09/21 15:17	09/10/21 05:37	1
Total TPH	<49.8	U	49.8	mg/Kg		09/09/21 15:17	09/10/21 05:37	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	87		70 - 130			09/09/21 15:17	09/10/21 05:37	1
o-Terphenyl	93		70 - 130			09/09/21 15:17	09/10/21 05:37	1

Method: 300.0 - Anions, Ion Chromatography - Soluble								
	Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Chloride	306	4.99	mg/Kg			09/15/21 18:41	1

Client Sample ID: BH01A Lab Sample ID: 890-1233-2 Date Collected: 09/08/21 10:40 **Matrix: Solid** 

Date Received: 09/08/21 15:31

Sample Depth: 1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.00307		0.00200	mg/Kg		09/14/21 09:00	09/14/21 11:45	1
Toluene	0.00569		0.00200	mg/Kg		09/14/21 09:00	09/14/21 11:45	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/14/21 09:00	09/14/21 11:45	1
m-Xylene & p-Xylene	<0.00399	U	0.00399	mg/Kg		09/14/21 09:00	09/14/21 11:45	1
o-Xylene	0.00280		0.00200	mg/Kg		09/14/21 09:00	09/14/21 11:45	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		09/14/21 09:00	09/14/21 11:45	1
Total BTEX	0.0116		0.00399	mg/Kg		09/14/21 09:00	09/14/21 11:45	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		70 - 130			09/14/21 09:00	09/14/21 11:45	1
1,4-Difluorobenzene (Surr)	28	S1-	70 - 130			09/14/21 09:00	09/14/21 11:45	1

Matrix: Solid

Lab Sample ID: 890-1233-2

# **Client Sample Results**

Job ID: 890-1233-1 Client: WSP USA Inc. Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

Client Sample ID: BH01A

Date Collected: 09/08/21 10:40 Date Received: 09/08/21 15:31

Sample Depth: 1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<50.0	U	50.0	mg/Kg		09/09/21 15:17	09/10/21 05:58	1
(GRO)-C6-C10								
Diesel Range Organics (Over	<50.0	U	50.0	mg/Kg		09/09/21 15:17	09/10/21 05:58	1
C10-C28)								
OII Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/09/21 15:17	09/10/21 05:58	1
Total TPH	<50.0	U	50.0	mg/Kg		09/09/21 15:17	09/10/21 05:58	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	86		70 - 130			09/09/21 15:17	09/10/21 05:58	1
o-Terphenyl	98		70 - 130			09/09/21 15:17	09/10/21 05:58	1
Method: 300.0 - Anions, Ion Chro	omatography -	Soluble						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2260		25.0	mg/Kg			09/15/21 18:47	5

# **Surrogate Summary**

Job ID: 890-1233-1 Client: WSP USA Inc. Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

•				Percent Surrogate Reco
		BFB1	DFBZ1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
880-6047-A-1-A MS	Matrix Spike	119	89	
880-6047-A-1-B MSD	Matrix Spike Duplicate	177 S1+	80	
890-1233-1	BH01	97	109	
890-1233-2	BH01A	104	28 S1-	
LCS 880-7836/1-A	Lab Control Sample	122	84	
LCSD 880-7836/2-A	Lab Control Sample Dup	113	90	
MB 880-7801/5-A	Method Blank	126	98	
MB 880-7836/5-A	Method Blank	125	100	
Surrogate Legend				
BFB = 4-Bromofluorobenzene	e (Surr)			

DFBZ = 1,4-Difluorobenzene (Surr)

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

Matrix: Solid Prep Type: Total/NA

-			
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-5918-A-1-H MS	Matrix Spike	87	86
880-5918-A-1-I MSD	Matrix Spike Duplicate	90	91
890-1233-1	BH01	87	93
890-1233-2	BH01A	86	98
LCS 880-7710/2-A	Lab Control Sample	91	91
LCSD 880-7710/3-A	Lab Control Sample Dup	94	100
MB 880-7710/1-A	Method Blank	84	93

**Surrogate Legend** 

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

Client: WSP USA Inc. Job ID: 890-1233-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-7801/5-A

**Matrix: Solid** 

**Analysis Batch: 7815** 

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 7801

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/13/21 10:16	09/13/21 16:45	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/13/21 10:16	09/13/21 16:45	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/13/21 10:16	09/13/21 16:45	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/13/21 10:16	09/13/21 16:45	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/13/21 10:16	09/13/21 16:45	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/13/21 10:16	09/13/21 16:45	1
Total BTEX	<0.00400	U	0.00400	mg/Kg		09/13/21 10:16	09/13/21 16:45	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	126		70 - 130	09/13/21 10:16	09/13/21 16:45	1
1,4-Difluorobenzene (Surr)	98		70 - 130	09/13/21 10:16	09/13/21 16:45	1

Lab Sample ID: MB 880-7836/5-A

**Matrix: Solid** 

**Analysis Batch: 7815** 

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 7836

MB MB

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/13/21 16:00	09/14/21 03:41	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/13/21 16:00	09/14/21 03:41	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/13/21 16:00	09/14/21 03:41	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/13/21 16:00	09/14/21 03:41	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/13/21 16:00	09/14/21 03:41	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/13/21 16:00	09/14/21 03:41	1
Total BTEX	<0.00400	U	0.00400	mg/Kg		09/13/21 16:00	09/14/21 03:41	1

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Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	125		70 - 130	09/13/21 16:00	09/14/21 03:41	1
1,4-Difluorobenzene (Surr)	100		70 - 130	09/13/21 16:00	09/14/21 03:41	1

Lab Sample ID: LCS 880-7836/1-A

**Matrix: Solid** 

o-Xylene

**Analysis Batch: 7815** 

**Client Sample ID: Lab Control Sample** 

70 - 130

Prep Type: Total/NA Prep Batch: 7836

Spike LCS LCS %Rec. Added Result Qualifier %Rec Analyte Unit Limits 0.100 Benzene 0.08762 mg/Kg 88 70 - 130 Toluene 0.100 70 - 130 0.1026 mg/Kg 103 Ethylbenzene 0.100 0.1087 mg/Kg 109 70 - 130 m-Xylene & p-Xylene 0.200 70 - 130 0.1992 mg/Kg 100

0.09707

mg/Kg

0.100

LCS LCS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	122	70 - 130
1 4-Difluorobenzene (Surr)	84	70 - 130

Client: WSP USA Inc. Job ID: 890-1233-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

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

Lab Sample ID: LCSD 880-7836/2-A

**Matrix: Solid** 

**Analysis Batch: 7815** 

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 7836

	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	0.100	0.08024		mg/Kg		80	70 - 130	9	35
Toluene	0.100	0.09943		mg/Kg		99	70 - 130	3	35
Ethylbenzene	0.100	0.1019		mg/Kg		102	70 - 130	6	35
m-Xylene & p-Xylene	0.200	0.1990		mg/Kg		100	70 - 130	0	35
o-Xylene	0.100	0.09178		mg/Kg		92	70 - 130	6	35

LCSD LCSD

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

Lab Sample ID: 880-6047-A-1-A MS Client Sample ID: Matrix Spike

**Matrix: Solid** 

**Analysis Batch: 7815** 

Prep Type: Total/NA

Prep Batch: 7836

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	<0.00200	U F1	0.0990	0.02858	F1	mg/Kg		29	70 - 130	
Toluene	<0.00200	U F2 F1	0.0990	0.04647	F1	mg/Kg		47	70 - 130	
Ethylbenzene	<0.00200	U F2 F1	0.0990	0.04278	F1	mg/Kg		43	70 - 130	
m-Xylene & p-Xylene	<0.00400	U F2 F1	0.198	0.08167	F1	mg/Kg		41	70 - 130	
o-Xylene	<0.00200	U F2 F1	0.0990	0.04048	F1	mg/Kg		41	70 - 130	

MS MS

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	119		70 - 130
1.4-Difluorobenzene (Surr)	89		70 - 130

Lab Sample ID: 880-6047-A-1-B MSD

**Matrix: Solid** 

**Analysis Batch: 7815** 

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 7836

Sample Sample MSD MSD RPD Spike %Rec. Result Qualifier Limits Analyte Result Qualifier Added RPD Limit Unit %Rec Benzene <0.00200 UF1 0.0998 0.04031 F1 mg/Kg 40 70 - 130 34 35 Toluene <0.00200 U F2 F1 0.0998 0.09007 F2 mg/Kg 90 70 - 130 64 35 Ethylbenzene <0.00200 U F2 F1 0.0998 0.09953 F2 mg/Kg 100 70 - 130 80 35 m-Xylene & p-Xylene <0.00400 U F2 F1 0.200 0.2007 F2 mg/Kg 101 70 - 130 84 35 0.0998 o-Xylene <0.00200 U F2 F1 0.08753 F2 mg/Kg 70 - 130 35

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	177	S1+	70 - 130
1,4-Difluorobenzene (Surr)	80		70 - 130

Client: WSP USA Inc. Job ID: 890-1233-1 SDG: 31403236.020.0129 Project/Site: PLU Remuda Basin 4-24-30

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

Lab Sample ID: MB 880-7710/1-A

**Matrix: Solid** 

**Analysis Batch: 7687** 

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 7710

	MB	MR						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<50.0	U	50.0	mg/Kg		09/09/21 15:17	09/09/21 21:14	1
(GRO)-C6-C10								
Diesel Range Organics (Over	<50.0	U	50.0	mg/Kg		09/09/21 15:17	09/09/21 21:14	1
C10-C28)								
OII Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/09/21 15:17	09/09/21 21:14	1
Total TPH	<50.0	U	50.0	mg/Kg		09/09/21 15:17	09/09/21 21:14	1

мв мв

MD MD

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	84		70 - 130	09/09/21 15:17	09/09/21 21:14	1
o-Terphenyl	93		70 - 130	09/09/21 15:17	09/09/21 21:14	1

Lab Sample ID: LCS 880-7710/2-A

**Matrix: Solid** 

**Analysis Batch: 7687** 

**Client Sample ID: Lab Control Sample** Prep Type: Total/NA

Prep Batch: 7710

	Spike	LCS LCS				%Rec.	
Analyte	Added	Result Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics	1000	935.8	mg/Kg		94	70 - 130	
(GRO)-C6-C10							
Diesel Range Organics (Over	1000	870.6	mg/Kg		87	70 - 130	
C10-C28)							

LCS LCS

Surrogate	%Recovery Qualifi	ier Limits
1-Chlorooctane	91	70 - 130
o-Terphenyl	91	70 - 130

Lab Sample ID: LCSD 880-7710/3-A

Matrix: Solid

**Analysis Batch: 7687** 

Client	Sample	ID: Lab	Control	Sample	Dun
Ollelit	Januare	ID. Lab	COLLIG	Jailible	Dub

Prep Type: Total/NA

Prep Batch: 7710

Spike LCSD LCSD %Rec. RPD Added Result Qualifier Limit Analyte Unit %Rec Limits **RPD** 1000 1024 102 70 - 130 20 Gasoline Range Organics 9 mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over 1000 942.9 mg/Kg 94 70 - 130 20 C10-C28)

LCSD LCSD

Surrogate	%Recovery C	Qualifier	Limits
1-Chlorooctane	94		70 - 130
o-Terphenyl	100		70 - 130

Lab Sample ID: 880-5918-A-1-H MS

Released to Imaging: 3/9/2022 4:46:07 PM

**Matrix: Solid** 

**Analysis Batch: 7687** 

Client Sample	ID: Matrix Spike
---------------	------------------

Prep Type: Total/NA

Prep Batch: 7710

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	997	817.9		mg/Kg		82	70 - 130	 
Diesel Range Organics (Over C10-C28)	<49.8	U	997	759.6		mg/Kg		76	70 - 130	

Job ID: 890-1233-1

Client: WSP USA Inc. Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

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

MS MS

Lab Sample ID: 880-5918-A-1-H MS

**Matrix: Solid** 

**Analysis Batch: 7687** 

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 7710

Surrogate %Recovery Qualifier Limits 1-Chlorooctane 87 70 - 130 o-Terphenyl 86 70 - 130

Lab Sample ID: 880-5918-A-1-I MSD Client Sample ID: Matrix Spike Duplicate

**Matrix: Solid** 

**Analysis Batch: 7687** 

Prep Type: Total/NA

Prep Batch: 7710

RPD

Sample Sample Spike MSD MSD %Rec. Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits **RPD** Limit <49.8 U 999 801.2 80 70 - 1302 20 Gasoline Range Organics mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over 999 797.1 80 <49.8 U mg/Kg 70 - 13020 5 C10-C28)

MSD MSD

%Recovery Surrogate Qualifier Limits 70 - 130 1-Chlorooctane 90 91 70 - 130 o-Terphenyl

# Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-7740/1-A Client Sample ID: Method Blank

**Matrix: Solid Prep Type: Soluble** 

**Analysis Batch: 7838** 

мв мв

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

Lab Sample ID: LCS 880-7740/2-A Client Sample ID: Lab Control Sample **Prep Type: Soluble** 

**Matrix: Solid** 

**Analysis Batch: 7838** 

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

Lab Sample ID: LCSD 880-7740/3-A Client Sample ID: Lab Control Sample Dup **Prep Type: Soluble** 

**Matrix: Solid** 

**Analysis Batch: 7838** 

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

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

**Matrix: Solid** 

**Analysis Batch: 7838** 

7 mm, y 0.10 = 0.10 m . 1 0 0 0									
	Sample	Sample	Spike	MS	MS				%Rec.
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Chloride	1790		1240	3128		mg/Kg		108	90 - 110

Client: WSP USA Inc. Job ID: 890-1233-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

Method: 300.0 - Anions, Ion Chromatography (Continued)

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

**Matrix: Solid** 

**Analysis Batch: 7838** 

Analysis Daton. 7000											
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	1790		1240	3129		mg/Kg		108	90 - 110	0	20

# **QC Association Summary**

Client: WSP USA Inc.

Project/Site: PLU Remuda Basin 4-24-30

Job ID: 890-1233-1

SDG: 31403236.020.0129

## **GC VOA**

## Prep Batch: 7801

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-7801/5-A	Method Blank	Total/NA	Solid	5035	

## Analysis Batch: 7815

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1233-1	BH01	Total/NA	Solid	8021B	7836
890-1233-2	BH01A	Total/NA	Solid	8021B	7836
MB 880-7801/5-A	Method Blank	Total/NA	Solid	8021B	7801
MB 880-7836/5-A	Method Blank	Total/NA	Solid	8021B	7836
LCS 880-7836/1-A	Lab Control Sample	Total/NA	Solid	8021B	7836
LCSD 880-7836/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	7836
880-6047-A-1-A MS	Matrix Spike	Total/NA	Solid	8021B	7836
880-6047-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	7836

## Prep Batch: 7836

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1233-1	BH01	Total/NA	Solid	5035	
890-1233-2	BH01A	Total/NA	Solid	5035	
MB 880-7836/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-7836/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-7836/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-6047-A-1-A MS	Matrix Spike	Total/NA	Solid	5035	
880-6047-A-1-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

## **GC Semi VOA**

## **Analysis Batch: 7687**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1233-1	BH01	Total/NA	Solid	8015B NM	7710
890-1233-2	BH01A	Total/NA	Solid	8015B NM	7710
MB 880-7710/1-A	Method Blank	Total/NA	Solid	8015B NM	7710
LCS 880-7710/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	7710
LCSD 880-7710/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	7710
880-5918-A-1-H MS	Matrix Spike	Total/NA	Solid	8015B NM	7710
880-5918-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	7710

## Prep Batch: 7710

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1233-1	BH01	Total/NA	Solid	8015NM Prep	
890-1233-2	BH01A	Total/NA	Solid	8015NM Prep	
MB 880-7710/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-7710/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-7710/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-5918-A-1-H MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-5918-A-1-I MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

## **HPLC/IC**

## Leach Batch: 7740

<b>Lab Sample ID</b> 890-1233-1	Client Sample ID BH01	Prep Type Soluble	Matrix Solid	Method DI Leach	Prep Batch
890-1233-2	BH01A	Soluble	Solid	DI Leach	
MB 880-7740/1-A	Method Blank	Soluble	Solid	DI Leach	

Eurofins Xenco, Carlsbad

Page 13 of 22

# **QC Association Summary**

Client: WSP USA Inc. Job ID: 890-1233-1 Project/Site: PLU Remuda Basin 4-24-30

SDG: 31403236.020.0129

# HPLC/IC (Continued)

# Leach Batch: 7740 (Continued)

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

## **Analysis Batch: 7838**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1233-1	BH01	Soluble	Solid	300.0	7740
890-1233-2	BH01A	Soluble	Solid	300.0	7740
MB 880-7740/1-A	Method Blank	Soluble	Solid	300.0	7740
LCS 880-7740/2-A	Lab Control Sample	Soluble	Solid	300.0	7740
LCSD 880-7740/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	7740
880-5950-A-8-B MS	Matrix Spike	Soluble	Solid	300.0	7740
880-5950-A-8-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	7740

# **Lab Chronicle**

Client: WSP USA Inc. Job ID: 890-1233-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

**Client Sample ID: BH01** 

Lab Sample ID: 890-1233-1

Matrix: Solid

Date Collected: 09/08/21 10:30 Date Received: 09/08/21 15:31

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	7815	09/14/21 11:24	KL	XEN MID
Total/NA	Prep	8015NM Prep			7710	09/09/21 15:17	DM	XEN MID
Total/NA	Analysis	8015B NM		1	7687	09/10/21 05:37	AJ	XEN MID
Soluble	Leach	DI Leach			7740	09/13/21 09:42	CH	XEN MID
Soluble	Analysis	300.0		1	7838	09/15/21 18:41	CH	XEN MID

Client Sample ID: BH01A Lab Sample ID: 890-1233-2 Date Collected: 09/08/21 10:40 **Matrix: Solid** 

Date Received: 09/08/21 15:31

Prep Type	Batch Type	Batch	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
		Method						
Total/NA	Prep	5035			7836	09/14/21 09:00	KL	XEN MID
Total/NA	Analysis	8021B		1	7815	09/14/21 11:45	KL	XEN MID
Total/NA	Prep	8015NM Prep			7710	09/09/21 15:17	DM	XEN MID
Total/NA	Analysis	8015B NM		1	7687	09/10/21 05:58	AJ	XEN MID
Soluble	Leach	DI Leach			7740	09/13/21 09:42	СН	XEN MID
Soluble	Analysis	300.0		5	7838	09/15/21 18:47	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: 890-1233-1 Project/Site: PLU Remuda Basin 4-24-30

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	T104704400-21-22	06-30-22

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

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

#### **Method Summary**

Client: WSP USA Inc.

Project/Site: PLU Remuda Basin 4-24-30

Job ID: 890-1233-1

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
3015NM 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

Eurofins Xenco, Carlsbad

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#### **Sample Summary**

Client: WSP USA Inc.

Project/Site: PLU Remuda Basin 4-24-30

Job ID: 890-1233-1

SDG: 31403236.020.0129

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-1233-1	BH01	Solid	09/08/21 10:30	09/08/21 15:31	0.5
890-1233-2	BH01A	Solid	09/08/21 10:40	09/08/21 15:31	1

Company Name:

Phone:

City, State ZIP:

Address:

# 4567

Chain of Custody

13 14

Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 50

WSP USA Midland, TX 79705 (432) 236-3849 3300 North A Street Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-Email: Alexis.Castro@wsp.com Tacoma.Morrissey@wsp.com Bill to: (if different) City, State ZIP: Company Name: Carlsbad, NM 88220 522 W. Mermod St Adrian Baker XTO Energy

ANALYSIS REQUEST

**Work Order Notes** 

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			Work Order Comments	mments		
		Program: UST/PS	Program: UST/PST ☐PRP ☐Brownfields ☐RC ☐uperfund ☐	ields □RRC	□uperfund	
		State of Project:	ct:			
		Reporting:Level II	Reporting:Level III UST/UST RRP	JST RRP	[]evel IV	
		Deliverables: EDD	O ADaPT	☐ Other:	. n	

Sample Custody Seals: Project Number Project Name: Cooler Custody Seals: Sampler's Name: Received Intact: P.O. Number: Temperature (°C): SAMPLE RECEIPT service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated. Xenco. A minimum charge of \$75.00 will silice: Signature of this document and relinquishment of samples constitutes a valid purchase order from elient company to Xenco, its affiliates and subcontractors. It assigns standard ferms and conditions Relinquished by; (Signature) Total 200.7 / 6010 Circle Method(s) and Metal(s) to be analyzed Sample Identification BH01A **BH01** PLU Remuda Basin 4-24-30 200.8 / 6020: Yes No Yes 31403236.020.0129 Temp Blank: No / N/A Alexis Castro 4.2 7/15/2021 S S Matrix Z X Sampled Yes)No Received by: (Signature) 9/8/2021 9/8/2021 Date Correction Factor: Total Containers: 8RCRA 13PPM Texas 11 Al TCLP / SPLP 6010: 8RCRA Thermometer ID Sampled NM COL 1040 1030 Time Wet Ice: ( Yes) Due Date: Rush: Routine Turn Around 70.2 0.5 Depth **Number of Containers** Sb As Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Tl U Date/Time TPH (EPA 8015) Ba Be BTEX (EPA 0=8021) 1529 Chloride (EPA 300.0) Φ Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Relinquished by: (Signature) 890-1233 Chain of Custody Received by: (Signature) Z ス Se Ą SiO2 Na Sr Tl Sn U V Zn 1631 / 245.1 / 7470 / 7471 : Hg CC:2124871001 INC:NAPP2120846562 TAT starts the day recevied by the lab, if received by 4:30pm Sample Comments DISCRETE DISCRETE Date/Time Page 19 of 22

Work Order No:

Revised Date 051418 Rev 2018

**Eurofins Xenco, Carlsbad** 

# **Chain of Custody Record**

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Client Information (Sub Contract Lab)	Sampler			Lab PM Krame	Lab PM Kramer Jessica	sica				ı		Carrier Tracking No(s)	r Trac	king	\o(s)				<sub>ම</sub> ව	COC No 890-400 1	
	Phone:			E-Mail jessic	E-Mail Jessica.kramer@eurofinset.com	ier@e	urofir	set.c	ă			State of Origin New Mexico	Mex of Oni	g z					Page Page	Page 1 of 1	
Company Eurofins Xenco					Accreditations Required (See note) NELAP - Louisiana NELAP -	Lou-Lou	Require	NE (See	AP.	Texas	<i>i</i>							- 1	အ ရှိ	Job #. 890-1233-1	
Address 1211 W Florida Ave	Due Date Requested 9/14/2021	٥						$\lfloor  \rfloor$	Analy		sis Requested	ues	ed						핗	Preservation Codes	<i>\$</i> 7
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State Zip TX 79701																			m o c		O AsNaO2 P Na2O4S Q Na2SO3
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		Sample	Sample Type	Matrix (W=water S=solid,	d Filtered orm MS/N	MOD_NM/8	ORGFM_28 					****						l Number			
Sample Identification - Client ID (Lab ID)	Sample Date	Time	G=grab) <sub>B</sub>	<u>ٿ</u>	2000000	<u>ريا</u>	4		1							Contraction of the Contraction o		Tol		Special Inst	Special Instructions/Note
ВН01 (890-1233-1)	9/8/21	10 30	Solid	Solid	$\exists$	×	× ×	$\mathbb{H}$						1				4 5			
BH01A (890-1233-2)	9/8/21	10 40		Solid		×	×	$\widehat{+}$	$\dashv$									<b>A</b> .	سالمصن		
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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.	laces the ownership o eing analyzed the sar signed Chain of Cust	if method, analy nples must be s tody attesting to	te & accreditat shipped back to said complica	tion compliance the Eurofins ) nce to Eurofins	kenco LL	it subc C labo	ontract ratory c	labora	instru	This s	ample vill be	shipm provid	ent is	forwa	ange	unde s to a	r cha	n-of- itatio	custo n sta	ody If the laboratory	y does not currently ht to Eurofins Xenco LLC
Possible Hazard Identification Unconfirmed					San	nple L Rei	Sample Disposal ( A fee	sal (	a fee	may	∐ <sub>C</sub>	assessed if san Disposal By Lah	sed B	fsa	, <u>a</u>	Sa		Arc	e e	may be assessed if samples are retained longer than 1 m	month)
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Ver 06/08/2021

#### **Login Sample Receipt Checklist**

Client: WSP USA Inc.

Job Number: 890-1233-1

SDG Number: 31403236.020.0129

List Source: Eurofins Xenco, Carlsbad

Login Number: 1233 List Number: 1 Creator: Clifton, Cloe

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	

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#### **Login Sample Receipt Checklist**

Client: WSP USA Inc.

Job Number: 890-1233-1

SDG Number: 31403236.020.0129

List Source: Eurofins Xenco, Midland

List Creation: 09/09/21 11:31 AM

Creator: Copeland, Tatiana

Login Number: 1233

List Number: 2

<6mm (1/4").

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	2.1 / 2.6
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	True	

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# **Environment Testing America**

### **ANALYTICAL REPORT**

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

Laboratory Job ID: 890-1285-1

Laboratory SDG: 31403236.020.0129 Task 07.02 Client Project/Site: PLU Remuda Basin 4-24-30

For:

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

Attn: Tacoma Morrissey

LAMER

Authorized for release by: 9/28/2021 8:48:31 AM

Jessica Kramer, Project Manager (432)704-5440

jessica.kramer@eurofinset.com

·····LINKS ·······

**Review your project** results through

**Have a Question?** 



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www.eurofinsus.com/Env Released to Imaging: 3/9/2022 4:46:07 PM

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 Remuda Basin 4-24-30 Laboratory Job ID: 890-1285-1 SDG: 31403236.020.0129 Task 07.02

# **Table of Contents**

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#### **Definitions/Glossary**

Client: WSP USA Inc. Job ID: 890-1285-1 Project/Site: PLU Remuda Basin 4-24-30

SDG: 31403236.020.0129 Task 07.02

**Qualifiers** 

GC	VOA	
Qual	lifier	

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.

**Qualifier Description** 

#### **GC Semi VOA**

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.
1101 0/10	

#### HPLC/IC

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

RER

RPD

TEF

TEQ

TNTC

RL

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

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Relative Error Ratio (Radiochemistry)

Toxicity Equivalent Factor (Dioxin)

Too Numerous To Count

Toxicity Equivalent Quotient (Dioxin)

Reporting Limit or Requested Limit (Radiochemistry)

Relative Percent Difference, a measure of the relative difference between two points

Job ID: 890-1285-1

#### Case Narrative

Client: WSP USA Inc.

Project/Site: PLU Remuda Basin 4-24-30

SDG: 31403236.020.0129 Task 07.02

Job ID: 890-1285-1

Laboratory: Eurofins Xenco, Carlsbad

Narrative

Job Narrative 890-1285-1

#### Receipt

The samples were received on 9/20/2021 12:49 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.0°C

#### GC VOA

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-8263 and analytical batch 880-8262 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.

Method 8021B: Surrogate recovery for the following sample was outside control limits: PH03A (890-1285-2). 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 880-8251 and analytical batch 880-8299 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 and precision for preparation batch 880-8255 and analytical batch 880-8391 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

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

Project/Site: PLU Remuda Basin 4-24-30

Client: WSP USA Inc.

Job ID: 890-1285-1

09/21/21 14:36

09/21/21 14:36

09/21/21 21:21

SDG: 31403236.020.0129 Task 07.02

**Client Sample ID: PH03** 

Date Collected: 09/17/21 14:44 Date Received: 09/20/21 12:49

Sample Depth: 1

Lab Sample ID: 890-1285-1

Matrix: Solid

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/22/21 09:52	09/24/21 07:06	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/22/21 09:52	09/24/21 07:06	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/22/21 09:52	09/24/21 07:06	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		09/22/21 09:52	09/24/21 07:06	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/22/21 09:52	09/24/21 07:06	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		09/22/21 09:52	09/24/21 07:06	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130			09/22/21 09:52	09/24/21 07:06	1
1,4-Difluorobenzene (Surr)	87		70 - 130			09/22/21 09:52	09/24/21 07:06	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC) Analyte Result Qualifier RL Unit Prepared Analyzed Dil Fac <49.8 U Gasoline Range Organics 49.8 mg/Kg 09/21/21 14:36 09/21/21 21:21 (GRO)-C6-C10 49.8 Diesel Range Organics (Over <49.8 U mg/Kg 09/21/21 14:36 09/21/21 21:21 C10-C28) Oll Range Organics (Over C28-C36) <49.8 U 49.8 mg/Kg 09/21/21 14:36 09/21/21 21:21 Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 70 - 130 09/21/21 14:36 09/21/21 21:21 1-Chlorooctane 107

Method: 300.0 - Anions, Ion Chromatography - Soluble								
	Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Chloride	469	4.99	mg/Kg			09/25/21 20:46	1

70 - 130

Client Sample ID: PH03A Lab Sample ID: 890-1285-2 Date Collected: 09/17/21 14:59 Matrix: Solid

122

<50.0 U

Date Received: 09/20/21 12:49

Diesel Range Organics (Over

Released to Imaging: 3/9/2022 4:46:07 PM

C10-C28)

Sample Depth: 4

o-Terphenyl

	<0.00199 <0.00199		0.00199	mg/Kg				
Ethylbenzene		11 52 54		mg/itg		09/22/21 13:16	09/24/21 03:45	1
		U FZ F I	0.00199	mg/Kg		09/22/21 13:16	09/24/21 03:45	1
	<0.00199	U F1	0.00199	mg/Kg		09/22/21 13:16	09/24/21 03:45	1
m-Xylene & p-Xylene	<0.00398	U F2 F1	0.00398	mg/Kg		09/22/21 13:16	09/24/21 03:45	1
o-Xylene	<0.00199	U F1	0.00199	mg/Kg		09/22/21 13:16	09/24/21 03:45	1
Xylenes, Total	<0.00398	U F2 F1	0.00398	mg/Kg		09/22/21 13:16	09/24/21 03:45	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	131	S1+	70 - 130			09/22/21 13:16	09/24/21 03:45	1
1,4-Difluorobenzene (Surr)	75		70 - 130			09/22/21 13:16	09/24/21 03:45	1
Method: 8015B NM - Diesel Range O	ganics (D	RO) (GC)						
Analyte	•	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<50.0	U	50.0	mg/Kg		09/21/21 14:36	09/21/21 22:22	1

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09/21/21 22:22

50.0

mg/Kg

Matrix: Solid

Lab Sample ID: 890-1285-2

#### **Client Sample Results**

Client: WSP USA Inc.

Job ID: 890-1285-1

Project/Gife: PLU Berryde Resig 4 24 20

SPC: 24402220 020 0420 Tests 07 02

Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129 Task 07.02

Client Sample ID: PH03A Date Collected: 09/17/21 14:59

Date Received: 09/20/21 12:49

Sample Depth: 4

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/21/21 14:36	09/21/21 22:22	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	92		70 - 130			09/21/21 14:36	09/21/21 22:22	1
o-Terphenyl	101		70 - 130			09/21/21 14:36	09/21/21 22:22	1
Method: 300.0 - Anions, Ion Chro	omatography -	Soluble						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4.98	-	4.95	mg/Kg			09/25/21 20:53	1

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#### **Surrogate Summary**

Client: WSP USA Inc. Job ID: 890-1285-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129 Task 07.02

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

		BFB1	DFBZ1	Percent Surrogate Recovery (Acceptance Limits)
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	. —— —— —— —— —
880-6278-A-71-D MS	Matrix Spike	0 S1-	0 S1-	
880-6278-A-71-E MSD	Matrix Spike Duplicate	0 S1-	0 S1-	
890-1285-1	PH03	99	87	
890-1285-2	PH03A	131 S1+	75	
890-1285-2 MS	PH03A	123	64 S1-	
890-1285-2 MSD	PH03A	123	81	
890-1289-A-1-F MSD	Matrix Spike Duplicate	130	80	
LCS 880-8243/1-A	Lab Control Sample	125	76	
LCS 880-8251/1-A	Lab Control Sample	101	88	
LCS 880-8263/1-A	Lab Control Sample	128	71	
LCSD 880-8243/2-A	Lab Control Sample Dup	123	100	
LCSD 880-8251/2-A	Lab Control Sample Dup	104	86	
LCSD 880-8263/2-A	Lab Control Sample Dup	129	79	
MB 880-8209/5-A	Method Blank	109	79	
MB 880-8243/5-A	Method Blank	108	71	
MB 880-8251/5-A	Method Blank	122	102	
	Method Blank	101	78	

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)	
890-1285-1	PH03	107	122	
890-1285-1 MS	PH03	100	100	
890-1285-1 MSD	PH03	90	89	
890-1285-2	PH03A	92	101	
LCS 880-8211/2-A	Lab Control Sample	104	103	
LCSD 880-8211/3-A	Lab Control Sample Dup	106	109	
MB 880-8211/1-A	Method Blank	96	114	

Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

Client: WSP USA Inc. Job ID: 890-1285-1 SDG: 31403236.020.0129 Task 07.02 Project/Site: PLU Remuda Basin 4-24-30

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-8209/5-A

**Matrix: Solid** 

Analysis Batch: 8262

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 8209

	MB	MR						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fa
Benzene	<0.00200	U	0.00200	mg/Kg		09/22/21 09:00	09/23/21 16:32	
Toluene	<0.00200	U	0.00200	mg/Kg		09/22/21 09:00	09/23/21 16:32	
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/22/21 09:00	09/23/21 16:32	
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/22/21 09:00	09/23/21 16:32	
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/22/21 09:00	09/23/21 16:32	
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/22/21 09:00	09/23/21 16:32	

MB MB

Surrogate	%Recovery Qualifier	Limits	
4-Bromofluorobenzene (Surr)	109	70 - 130	
1,4-Difluorobenzene (Surr)	79	70 - 130	

09/23/21 16:32 09/22/21 09:00 09/23/21 16:32

Analyzed

Prepared

09/22/21 09:00

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

Prep Batch: 8243

**Analysis Batch: 8299** 

Matrix: Solid

Lab Sample ID: MB 880-8243/5-A

мв мв

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/22/21 08:59	09/23/21 12:09	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/22/21 08:59	09/23/21 12:09	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/22/21 08:59	09/23/21 12:09	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/22/21 08:59	09/23/21 12:09	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/22/21 08:59	09/23/21 12:09	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/22/21 08:59	09/23/21 12:09	1

мв мв

Surrogate	%Recovery	Qualifier	Limits	Pro	epared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	108		70 - 130	09/22	2/21 08:59	09/23/21 12:09	1
1,4-Difluorobenzene (Surr)	71		70 - 130	09/22	2/21 08:59	09/23/21 12:09	1

Lab Sample ID: LCS 880-8243/1-A

**Matrix: Solid** 

**Analysis Batch: 8299** 

**Client Sample ID: Lab Control Sample** 

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA Prep Batch: 8243

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	0.100	0.08174		mg/Kg		82	70 - 130	
Toluene	0.100	0.1089		mg/Kg		109	70 - 130	
Ethylbenzene	0.100	0.1095		mg/Kg		110	70 - 130	
m-Xylene & p-Xylene	0.200	0.2051		mg/Kg		103	70 - 130	
o-Xylene	0.100	0.09630		mg/Kg		96	70 - 130	

LCS LCS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	125	70 - 130
1.4-Difluorobenzene (Surr)	76	70 - 130

Lab Sample ID: LCSD 880-8243/2-A

**Matrix: Solid** 

Analysis Batch: 8299								Prep Batch: 824			
	Spike	LCSD	LCSD				%Rec.		RPD		
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit		
Benzene	0.100	0.07326		mg/Kg		73	70 - 130	11	35		

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Prep Type: Total/NA

Dil Fac

Client: WSP USA Inc. Job ID: 890-1285-1 Project/Site: PLU Remuda Basin 4-24-30

SDG: 31403236.020.0129 Task 07.02

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

Lab Sample ID: LCSD 880-8243/2-A Client Sample ID: Lab Control Sample Dup **Matrix: Solid** 

Prep Type: Total/NA Prep Batch: 8243

	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Toluene	0.100	0.1012		mg/Kg		101	70 - 130	7	35
Ethylbenzene	0.100	0.1052		mg/Kg		105	70 - 130	4	35
m-Xylene & p-Xylene	0.200	0.1915		mg/Kg		96	70 - 130	7	35
o-Xylene	0.100	0.09459		mg/Kg		95	70 - 130	2	35

LCSD LCSD %Recovery Qualifier Limits

Surrogate 70 - 130 4-Bromofluorobenzene (Surr) 123 1,4-Difluorobenzene (Surr) 100 70 - 130

Lab Sample ID: 890-1289-A-1-F MSD Client Sample ID: Matrix Spike Duplicate

**Analysis Batch: 8299** 

**Analysis Batch: 8299** 

**Matrix: Solid** Prep Type: Total/NA Prep Batch: 8243

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00200	U F1	0.101	0.03211	F1	mg/Kg		32	70 - 130	15	35
Toluene	<0.00200	U F1	0.101	0.04330	F1	mg/Kg		43	70 - 130	17	35
Ethylbenzene	<0.00200	U F1	0.101	0.04349	F1	mg/Kg		43	70 - 130	19	35
m-Xylene & p-Xylene	<0.00400	U F1 F2	0.201	0.04392	F1 F2	mg/Kg		22	70 - 130	36	35
o-Xylene	<0.00200	U F1	0.101	0.04119	F1	mg/Kg		41	70 - 130	13	35
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MSD MSD Surrogate %Recovery Qualifier Limits 70 - 130 4-Bromofluorobenzene (Surr) 130 70 - 130 1,4-Difluorobenzene (Surr) 80

Lab Sample ID: MB 880-8251/5-A Client Sample ID: Method Blank

**Matrix: Solid** Prep Type: Total/NA Prep Batch: 8251 **Analysis Batch: 8299** мв мв

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/22/21 09:52	09/23/21 23:10	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/22/21 09:52	09/23/21 23:10	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/22/21 09:52	09/23/21 23:10	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/22/21 09:52	09/23/21 23:10	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/22/21 09:52	09/23/21 23:10	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/22/21 09:52	09/23/21 23:10	1

MR MR Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 70 - 130 09/22/21 09:52 09/23/21 23:10 4-Bromofluorobenzene (Surr) 122 09/22/21 09:52 09/23/21 23:10 1,4-Difluorobenzene (Surr) 102 70 - 130

Lab Sample ID: LCS 880-8251/1-A Client Sample ID: Lab Control Sample **Matrix: Solid** Prep Type: Total/NA

**Analysis Batch: 8299** 

Prep Batch: 8251 LCS LCS %Rec. Spike Analyte Added Result Qualifier Unit D %Rec Limits Benzene 0.100 0.07269 mg/Kg 73 70 - 130 Toluene 0.100 0.09456 mg/Kg 95 70 - 130 Ethylbenzene 0.100 0.09602 mg/Kg 96 70 - 130

Client: WSP USA Inc. Job ID: 890-1285-1 Project/Site: PLU Remuda Basin 4-24-30

SDG: 31403236.020.0129 Task 07.02

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

Lab Sample ID: LCS 880-8251/1-A Client Sample ID: Lab Control Sample **Matrix: Solid** Prep Type: Total/NA **Analysis Batch: 8299** Prep Batch: 8251

	<b>Spike</b>	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
m-Xylene & p-Xylene	0.200	0.1732		mg/Kg		87	70 - 130	
o-Xylene	0.100	0.08407		mg/Kg		84	70 - 130	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	88		70 - 130

Lab Sample ID: LCSD 880-8251/2-A Client Sample ID: Lab Control Sample Dup

**Matrix: Solid** Prep Type: Total/NA **Analysis Batch: 8299** Prep Batch: 8251

	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	0.100	0.07313		mg/Kg		73	70 - 130	1	35
Toluene	0.100	0.09644		mg/Kg		96	70 - 130	2	35
Ethylbenzene	0.100	0.09878		mg/Kg		99	70 - 130	3	35
m-Xylene & p-Xylene	0.200	0.1767		mg/Kg		88	70 - 130	2	35
o-Xylene	0.100	0.08640		mg/Kg		86	70 - 130	3	35

LCSD LCSD %Recovery Qualifier Limits Surrogate 70 - 130 4-Bromofluorobenzene (Surr) 104 70 - 130 1,4-Difluorobenzene (Surr) 86

Lab Sample ID: 880-6278-A-71-D MS Client Sample ID: Matrix Spike Prep Type: Total/NA

**Matrix: Solid** 

**Analysis Batch: 8299** 

%Rec. Spike MS MS Sample Sample Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits <0.00201 UF1 Benzene <0.00200 U F1 0.100 70 - 130 mg/Kg 0 Toluene <0.00200 UF1 0.100 <0.00201 UF1 mg/Kg 0 70 - 130 Ethylbenzene <0.00200 UF1 0.100 <0.00201 UF1 mg/Kg 0 70 - 130 m-Xylene & p-Xylene <0.00400 UF1 0.201 <0.00402 UF1 mg/Kg 0 70 - 130 o-Xylene <0.00200 UF1 0.100 <0.00201 UF1 mg/Kg 70 - 130

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	0	S1-	70 - 130
1.4-Difluorobenzene (Surr)	0	S1-	70 - 130

Lab Sample ID: 880-6278-A-71-E MSD Client Sample ID: Matrix Spike Duplicate

**Matrix: Solid** Prep Type: Total/NA **Analysis Batch: 8299** Prep Batch: 8251

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00200	U F1	0.101	NR	F1	ug/L		0	70 - 130	NC	35
Toluene	<0.00200	U F1	0.101	<0.00202	U F1	mg/Kg		0	70 - 130	NC	35
Ethylbenzene	<0.00200	U F1	0.101	<0.00202	U F1	mg/Kg		0	70 - 130	NC	35
m-Xylene & p-Xylene	<0.00400	U F1	0.202	<0.00403	U F1	mg/Kg		0	70 - 130	NC	35
o-Xylene	<0.00200	U F1	0.101	<0.00202	U F1	mg/Kg		0	70 - 130	NC	35

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Prep Batch: 8251

Job ID: 890-1285-1 Client: WSP USA Inc. Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129 Task 07.02

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

Lab Sample ID: 880-6278-A-71-E MSD

**Matrix: Solid** 

**Analysis Batch: 8299** 

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 8251

MSD MSD

%Recovery Qualifier Surrogate Limits 4-Bromofluorobenzene (Surr) 0 S1-70 - 130 1,4-Difluorobenzene (Surr) 0 S1-70 - 130

Lab Sample ID: MB 880-8263/5-A Client Sample ID: Method Blank

**Matrix: Solid** 

Analysis Batch: 8262

Prep Type: Total/NA

Prep Batch: 8263

мв мв

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/22/21 13:16	09/24/21 03:24	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/22/21 13:16	09/24/21 03:24	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/22/21 13:16	09/24/21 03:24	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/22/21 13:16	09/24/21 03:24	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/22/21 13:16	09/24/21 03:24	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/22/21 13:16	09/24/21 03:24	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		70 - 130	09/22/21 13:16	09/24/21 03:24	1
1,4-Difluorobenzene (Surr)	78		70 - 130	09/22/21 13:16	09/24/21 03:24	1

Lab Sample ID: LCS 880-8263/1-A

**Matrix: Solid** 

Analysis Batch: 8262

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA Prep Batch: 8263

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	0.100	0.09072		mg/Kg		91	70 - 130	
Toluene	0.100	0.09667		mg/Kg		97	70 - 130	
Ethylbenzene	0.100	0.1013		mg/Kg		101	70 - 130	
m-Xylene & p-Xylene	0.200	0.2132		mg/Kg		107	70 - 130	
o-Xylene	0.100	0.1075		mg/Kg		108	70 - 130	

LCS LCS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	128	70 - 130
1,4-Difluorobenzene (Surr)	71	70 - 130

Lab Sample ID: LCSD 880-8263/2-A

**Matrix: Solid** 

**Analysis Batch: 8262** 

Client Sample ID: Lab Control Sample Dup

Prep Batch: 8263

	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	0.100	0.08034		mg/Kg		80	70 - 130	12	35
Toluene	0.100	0.08706		mg/Kg		87	70 - 130	10	35
Ethylbenzene	0.100	0.09732		mg/Kg		97	70 - 130	4	35
m-Xylene & p-Xylene	0.200	0.2042		mg/Kg		102	70 - 130	4	35
o-Xylene	0.100	0.1036		mg/Kg		104	70 - 130	4	35

LCSD LCSD

Surrogate	%Recovery Qualifie	er Limits
4-Bromofluorobenzene (Surr)	129	70 - 130

Eurofins Xenco, Carlsbad

Prep Type: Total/NA

Client: WSP USA Inc. Job ID: 890-1285-1 Project/Site: PLU Remuda Basin 4-24-30

SDG: 31403236.020.0129 Task 07.02

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

Lab Sample ID: LCSD 880-8263/2-A **Matrix: Solid** 

**Analysis Batch: 8262** 

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 8263

LCSD LCSD

Surrogate %Recovery Qualifier Limits 1,4-Difluorobenzene (Surr) 79 70 - 130

Lab Sample ID: 890-1285-2 MS

**Matrix: Solid** 

**Analysis Batch: 8262** 

Client Sample ID: PH03A Prep Type: Total/NA

Prep Batch: 8263

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	<0.00199	U F2 F1	0.100	0.03895	F1	mg/Kg		39	70 - 130	
Toluene	<0.00199	U F2 F1	0.100	0.04917	F1	mg/Kg		49	70 - 130	
Ethylbenzene	<0.00199	U F1	0.100	0.05776	F1	mg/Kg		58	70 - 130	
m-Xylene & p-Xylene	<0.00398	U F2 F1	0.200	0.1141	F1	mg/Kg		57	70 - 130	
o-Xylene	<0.00199	U F1	0.100	0.05958	F1	mg/Kg		60	70 - 130	

MS MS

Sample Sample

<0.00199 U F2 F1

<0.00398 U F2 F1

<0.00199 UF1

<0.00199 U F1

<0.00199

Result Qualifier

U F2 F1

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	123	70 - 130
1,4-Difluorobenzene (Surr)	64 S1-	70 - 130

Lab Sample ID: 890-1285-2 MSD Client Sample ID: PH03A

Spike

Added

0.0998

0.0998

0.0998

0.200

0.0998

**Matrix: Solid** 

Analyte

Benzene

Toluene

o-Xylene

Ethylbenzene

m-Xylene & p-Xylene

**Analysis Batch: 8262** 

Prep Type: Total/NA Prep Batch: 8263

MSD MSD %Rec. **RPD** Result Qualifier Unit D %Rec Limits **RPD** Limit 0.07229 F2 72 70 - 130 35 mg/Kg 60 0.07795 F2 78 70 - 130 45 35 mg/Kg 0.08024 mg/Kg 80 70 - 130 33 35 0.1664 F2 mg/Kg 83 70 - 130 37 35 0.08481 mg/Kg 70 - 130 35 35

MSD MSD Surrogate %Recovery Qualifier Limits 4-Bromofluorobenzene (Surr) 123 70 - 130 1,4-Difluorobenzene (Surr) 81 70 - 130

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

Lab Sample ID: MB 880-8211/1-A

**Matrix: Solid** 

**Analysis Batch: 8177** 

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

Prep Batch: 8211

	IVID	IVID						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<50.0	U	50.0	mg/Kg		09/21/21 14:36	09/21/21 20:21	1
(GRO)-C6-C10								
Diesel Range Organics (Over	<50.0	U	50.0	mg/Kg		09/21/21 14:36	09/21/21 20:21	1
C10-C28)								
OII Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/21/21 14:36	09/21/21 20:21	1

мв мв

MD MD

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	96		70 - 130	09/21/21 14:36	09/21/21 20:21	1
o-Terphenyl	114		70 - 130	09/21/21 14:36	09/21/21 20:21	1

Lab Sample ID: LCSD 880-8211/3-A

**Matrix: Solid** 

#### **QC Sample Results**

 Client: WSP USA Inc.
 Job ID: 890-1285-1

 Project/Site: PLU Remuda Basin 4-24-30
 SDG: 31403236.020.0129 Task 07.02

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

Lab Sample ID: LCS 880-8211/2-A Client Sar

Matrix: Solid
Analysis Batch: 8177

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 8211

Spike LCS LCS Added Analyte Result Qualifier Unit %Rec Limits Gasoline Range Organics 1000 1046 mg/Kg 105 70 - 130 (GRO)-C6-C10 1000 Diesel Range Organics (Over 1026 mg/Kg 103 70 - 130 C10-C28)

 Surrogate
 %Recovery
 Qualifier
 Limits

 1-Chlorooctane
 104
 70 - 130

 o-Terphenyl
 103
 70 - 130

Client Sample ID: Lab Control Sample Dup

Prep Batch: 8211

**Analysis Batch: 8177** Spike LCSD LCSD %Rec. RPD Analyte Added Result Qualifier Unit D %Rec Limits **RPD** Limit 1000 1034 103 Gasoline Range Organics mg/Kg 70 - 130 20 (GRO)-C6-C10 Diesel Range Organics (Over 1000 1071 mg/Kg 107 70 - 130 4 20 C10-C28)

 Surrogate
 %Recovery
 Qualifier
 Limits

 1-Chlorooctane
 106
 70 - 130

 o-Terphenyl
 109
 70 - 130

Lab Sample ID: 890-1285-1 MS

Matrix: Solid

Client Sample ID: PH03

Prep Type: Total/NA

Analysis Batch: 8177 Prep Batch: 8211

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	997	905.8		mg/Kg		88	70 - 130	 
Diesel Range Organics (Over C10-C28)	<49.8	U	997	897.8		mg/Kg		88	70 - 130	

 Surrogate
 %Recovery
 Qualifier
 Limits

 1-Chlorooctane
 100
 70 - 130

 o-Terphenyl
 100
 70 - 130

Lab Sample ID: 890-1285-1 MSD

Matrix: Solid

Client Sample ID: PH03

Prep Type: Total/NA

Analysis Batch: 8177 Prep Batch: 8211

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	999	1026		mg/Kg		100	70 - 130	12	20	
Diesel Range Organics (Over C10-C28)	<49.8	U	999	807.2		mg/Kg		79	70 - 130	11	20	
	MSD	MSD										

 Surrogate
 %Recovery
 Qualifier
 Limits

 1-Chlorooctane
 90
 70 - 130

Lab Sample ID: 890-1285-1 MSD

#### QC Sample Results

Client: WSP USA Inc. Job ID: 890-1285-1 Project/Site: PLU Remuda Basin 4-24-30

SDG: 31403236.020.0129 Task 07.02

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

**Matrix: Solid** 

**Analysis Batch: 8177** 

**Client Sample ID: PH03** Prep Type: Total/NA Prep Batch: 8211

MSD MSD

Surrogate %Recovery Qualifier Limits o-Terphenyl 70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-8255/1-A Client Sample ID: Method Blank Matrix: Solid **Prep Type: Soluble** 

**Analysis Batch: 8391** 

MB MB

Analyte Result Qualifier RL Unit D Dil Fac Prepared Analyzed 5.00 Chloride <5.00 09/25/21 19:13 U mg/Kg

Lab Sample ID: LCS 880-8255/2-A Client Sample ID: Lab Control Sample **Matrix: Solid Prep Type: Soluble** 

**Analysis Batch: 8391** 

LCS LCS Spike %Rec. Added Result Qualifier Analyte Unit %Rec Limits Chloride 250 268.0 mg/Kg 107 90 - 110

Lab Sample ID: LCSD 880-8255/3-A Client Sample ID: Lab Control Sample Dup **Matrix: Solid Prep Type: Soluble** 

**Analysis Batch: 8391** 

Spike LCSD LCSD %Rec. RPD Analyte Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 250 268.2 90 - 110 mg/Kg 107 20

Lab Sample ID: 880-6300-A-1-C MS Client Sample ID: Matrix Spike **Prep Type: Soluble** 

**Matrix: Solid** 

**Analysis Batch: 8391** 

Sample Sample Spike MS MS %Rec. Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits Chloride 2660 F1 1240 4255 F1 128 90 - 110 mg/Kg

Lab Sample ID: 880-6300-A-1-D MSD

Client Sample ID: Matrix Spike Duplicate **Matrix: Solid** 

**Analysis Batch: 8391** 

Sample Sample Spike MSD MSD %Rec. RPD Analyte Qualifier Added Qualifier Limits RPD Limit Result Result Unit %Rec Chloride 1240 F1 4182 F1 122 90 - 110 2660 20 mg/Kg

Eurofins Xenco, Carlsbad

**Prep Type: Soluble** 

#### **QC Association Summary**

Job ID: 890-1285-1 Client: WSP USA Inc. Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129 Task 07.02

#### **GC VOA**

#### Prep Batch: 8209

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-8209/5-A	Method Blank	Total/NA	Solid	5035	

#### Prep Batch: 8243

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-8243/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-8243/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-8243/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-1289-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

#### Prep Batch: 8251

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1285-1	PH03	Total/NA	Solid	5035	
MB 880-8251/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-8251/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-8251/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-6278-A-71-D MS	Matrix Spike	Total/NA	Solid	5035	
880-6278-A-71-E MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

#### Analysis Batch: 8262

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1285-2	PH03A	Total/NA	Solid	8021B	8263
MB 880-8209/5-A	Method Blank	Total/NA	Solid	8021B	8209
MB 880-8263/5-A	Method Blank	Total/NA	Solid	8021B	8263
LCS 880-8263/1-A	Lab Control Sample	Total/NA	Solid	8021B	8263
LCSD 880-8263/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	8263
890-1285-2 MS	PH03A	Total/NA	Solid	8021B	8263
890-1285-2 MSD	PH03A	Total/NA	Solid	8021B	8263

#### Prep Batch: 8263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1285-2	PH03A	Total/NA	Solid	5035	
MB 880-8263/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-8263/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-8263/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-1285-2 MS	PH03A	Total/NA	Solid	5035	
890-1285-2 MSD	PH03A	Total/NA	Solid	5035	

#### Analysis Batch: 8299

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1285-1	PH03	Total/NA	Solid	8021B	8251
MB 880-8243/5-A	Method Blank	Total/NA	Solid	8021B	8243
MB 880-8251/5-A	Method Blank	Total/NA	Solid	8021B	8251
LCS 880-8243/1-A	Lab Control Sample	Total/NA	Solid	8021B	8243
LCS 880-8251/1-A	Lab Control Sample	Total/NA	Solid	8021B	8251
LCSD 880-8243/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	8243
LCSD 880-8251/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	8251
880-6278-A-71-D MS	Matrix Spike	Total/NA	Solid	8021B	8251
880-6278-A-71-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	8251
890-1289-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	8243

#### **QC Association Summary**

 Client: WSP USA Inc.
 Job ID: 890-1285-1

 Project/Site: PLU Remuda Basin 4-24-30
 SDG: 31403236.020.0129 Task 07.02

GC Semi VOA

#### **Analysis Batch: 8177**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1285-1	PH03	Total/NA	Solid	8015B NM	8211
890-1285-2	PH03A	Total/NA	Solid	8015B NM	8211
MB 880-8211/1-A	Method Blank	Total/NA	Solid	8015B NM	8211
LCS 880-8211/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	8211
LCSD 880-8211/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	8211
890-1285-1 MS	PH03	Total/NA	Solid	8015B NM	8211
890-1285-1 MSD	PH03	Total/NA	Solid	8015B NM	8211

#### Prep Batch: 8211

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1285-1	PH03	Total/NA	Solid	8015NM Prep	
890-1285-2	PH03A	Total/NA	Solid	8015NM Prep	
MB 880-8211/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-8211/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-8211/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-1285-1 MS	PH03	Total/NA	Solid	8015NM Prep	
890-1285-1 MSD	PH03	Total/NA	Solid	8015NM Prep	

**HPLC/IC** 

#### Leach Batch: 8255

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1285-1	PH03	Soluble	Solid	DI Leach	
890-1285-2	PH03A	Soluble	Solid	DI Leach	
MB 880-8255/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-8255/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-8255/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-6300-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
880-6300-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

#### Analysis Batch: 8391

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1285-1	PH03	Soluble	Solid	300.0	8255
890-1285-2	PH03A	Soluble	Solid	300.0	8255
MB 880-8255/1-A	Method Blank	Soluble	Solid	300.0	8255
LCS 880-8255/2-A	Lab Control Sample	Soluble	Solid	300.0	8255
LCSD 880-8255/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	8255
880-6300-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	8255
880-6300-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	8255

Eurofins Xenco, Carlsbad

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#### **Lab Chronicle**

Client: WSP USA Inc. Job ID: 890-1285-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129 Task 07.02

**Client Sample ID: PH03** 

Date Collected: 09/17/21 14:44 Date Received: 09/20/21 12:49

Lab Sample ID: 890-1285-1

Matrix: Solid

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			8251	09/22/21 09:52	KL	XEN MID
Total/NA	Analysis	8021B		1	8299	09/24/21 07:06	MR	XEN MID
Total/NA	Prep	8015NM Prep			8211	09/21/21 14:36	DM	XEN MID
Total/NA	Analysis	8015B NM		1	8177	09/21/21 21:21	AJ	XEN MID
Soluble	Leach	DI Leach			8255	09/22/21 10:00	СН	XEN MID
Soluble	Analysis	300.0		1	8391	09/25/21 20:46	CH	XEN MID

Client Sample ID: PH03A Lab Sample ID: 890-1285-2 Date Collected: 09/17/21 14:59 **Matrix: Solid** 

Date Received: 09/20/21 12:49

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			8263	09/22/21 13:16	KL	XEN MID
Total/NA	Analysis	8021B		1	8262	09/24/21 03:45	MR	XEN MID
Total/NA	Prep	8015NM Prep			8211	09/21/21 14:36	DM	XEN MID
Total/NA	Analysis	8015B NM		1	8177	09/21/21 22:22	AJ	XEN MID
Soluble	Leach	DI Leach			8255	09/22/21 10:00	CH	XEN MID
Soluble	Analysis	300.0		1	8391	09/25/21 20:53	CH	XEN MID

Laboratory References:

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

#### **Accreditation/Certification Summary**

Job ID: 890-1285-1 Client: WSP USA Inc. Project/Site: PLU Remuda Basin 4-24-30

SDG: 31403236.020.0129 Task 07.02

#### **Laboratory: Eurofins Xenco, Midland**

The accreditations/certifications listed below are applicable to this report.

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

#### **Method Summary**

Client: WSP USA Inc. Job ID: 890-1285-1 Project/Site: PLU Remuda Basin 4-24-30

SDG: 31403236.020.0129 Task 07.02

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
3015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
035	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 Remuda Basin 4-24-30

Job ID: 890-1285-1

SDG: 31403236.020.0129 Task 07.02

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-1285-1	PH03	Solid	09/17/21 14:44	09/20/21 12:49	1
890-1285-2	PH03A	Solid	09/17/21 14:59	09/20/21 12:49	4

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Chain of Custody

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**Eurofins Xenco, Carlsbad** 

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**Chain of Custody Record** 

Custody Seals Intact: Custody Seal No  ^ Yes ^ No	Relinquished by:	•	Relinquished by (Low Cush 9.20.21	Empty Kit Relinquished by	Deliverable Requested I II III IV Other (specify)	Possible Hazard Identification Unconfirmed	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/lests/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.					PH03A (890-1285-2)	PH03 (890-1285-1)		Sample Identification - Client ID (Lab ID)	Site	Project Name: PLU Remuda Basin 4-24-30	Email	Phone. 432-704-5440(TeI)	State Zip TX, 79701	City: Midland	1211 W Florida Ave	Eurofins Xenco	Shipping/Receiving	Client Information (Sub Contract Lab)	1089 N Canal St Carlsbad NM 88220 Phone 575-988-3199 Fax 575-988-3199
	Date/Time	Date/Time:	Date/Time		Primary Deliverable Rank 2		places the ownershi being analyzed the s he signed Chain of C					9/17/21	9/17/21	X	Sample Date	SSOW#:	Project #: 89000004	WO#:	PO#:		TAT Requested (days):	9/24/2021		Phone	Sampler	_
				Date	rable Rank		o of method an samples must b ustody attesting				•	14 59 Mountain	14 44 Mountain	X	Sample Time						lays):	ied				Chain
					2		alyte & accredi e shipped back to said compli							Preserva	Sample Type (C=comp, G=grab)											Chain of Custody Record
	Company	Company	Company				tation compliar to the Eurofin cance to Eurofi					Solid	Solid	Preservation Code:	Matrix (w=water S=solid, O=waste/oll, BT=Tissue, A=Air									Jessic	Lab PM Kramer	tody R
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Cooler Temperature(s) °C	d by:	d by	d by.		structio	le Disposal ( A fo Return To Client	ntract lak atory or o					×	×		8021B/5035FP_								quired (S	rofinse		
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and Other Remarks.					Requirements	be as □ <sub>Di</sub>	sample s will be p															Requested	SS	20	0	
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#### **Login Sample Receipt Checklist**

Client: WSP USA Inc. Job Number: 890-1285-1

SDG Number: 31403236.020.0129 Task 07.02

Login Number: 1285 List Source: Eurofins Xenco, Carlsbad

List Number: 1 Creator: Clifton, Cloe

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	

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#### **Login Sample Receipt Checklist**

Client: WSP USA Inc. Job Number: 890-1285-1

SDG Number: 31403236.020.0129 Task 07.02

Login Number: 1285 List Source: Eurofins Xenco, Midland List Number: 2 List Creation: 09/21/21 11:35 AM

Creator: Lowe, Katie

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	True	

<6mm (1/4").

# **Environment Testing America**

## **ANALYTICAL REPORT**

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

Laboratory Job ID: 890-1286-1

Laboratory SDG: 31403236.020.0129 Task 07.02 Client Project/Site: PLU Remuda Basin 4-24-30

For:

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

Attn: Tacoma Morrissey

RAMER

Authorized for release by: 9/28/2021 8:48:53 AM

Jessica Kramer, Project Manager (432)704-5440

jessica.kramer@eurofinset.com

·····LINKS ·······

**Review your project** results through

**Have a Question?** 



Visit us at:

www.eurofinsus.com/Env Released to Imaging: 3/9/2022 4:46:07 PM

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 Remuda Basin 4-24-30 Laboratory Job ID: 890-1286-1 SDG: 31403236.020.0129 Task 07.02

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#### **Definitions/Glossary**

Client: WSP USA Inc. Job ID: 890-1286-1

SDG: 31403236.020.0129 Task 07.02 Project/Site: PLU Remuda Basin 4-24-30

#### **Qualifiers**

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G	٠ ١	/U	А

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

#### **GC Semi VOA**

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

#### HPI C/IC

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

#### Glossarv

LOQ

MCL

MDA

Ciossary	
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)

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)

Limit of Quantitation (DoD/DOE)

EPA recommended "Maximum Contaminant Level"

Minimum Detectable Activity (Radiochemistry)

NEG Negative / Absent Positive / Present POS **Practical Quantitation Limit** PQL

**PRES** Presumptive **Quality Control** QC

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

Released to Imaging: 3/9/2022 4:46:07 PM

Job ID: 890-1286-1

#### **Case Narrative**

Client: WSP USA Inc.

Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129 Task 07.02

Job ID: 890-1286-1

Laboratory: Eurofins Xenco, Carlsbad

Narrative

Job Narrative 890-1286-1

#### Receipt

The samples were received on 9/20/2021 12:49 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.0°C

#### **GC VOA**

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-8132 and analytical batch 880-8212 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.

Method 8021B: Surrogate recovery for the following samples were outside control limits: PH02A (890-1286-4) and (880-6276-A-11-D). Evidence of matrix interferences is not obvious.

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 matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-8210 and analytical batch 880-8175 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.

#### HPLC/IC

Method 300\_ORGFM\_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-8255 and analytical batch 880-8391 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

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

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Matrix: Solid

Lab Sample ID: 890-1286-1

Client: WSP USA Inc.

Job ID: 890-1286-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129 Task 07.02

**Client Sample ID: PH01** 

Date Collected: 09/17/21 13:11 Date Received: 09/20/21 12:49

Sample Depth: 1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		09/21/21 09:30	09/22/21 12:45	1
Toluene	<0.00199	U	0.00199	mg/Kg		09/21/21 09:30	09/22/21 12:45	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		09/21/21 09:30	09/22/21 12:45	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		09/21/21 09:30	09/22/21 12:45	1
o-Xylene	< 0.00199	U	0.00199	mg/Kg		09/21/21 09:30	09/22/21 12:45	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		09/21/21 09:30	09/22/21 12:45	1

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	126	70 - 130	09/21/21 09:30	09/22/21 12:45	1
1 4-Difluorobenzene (Surr)	78	70 130	09/21/21 09:30	09/22/21 12:45	1

Method: 8015B NM - Diesel Range Orga	nics	(DR	O) (GC	)
	_			

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<50.0	U	50.0	mg/Kg		09/21/21 14:14	09/22/21 03:03	1
(GRO)-C6-C10								
Diesel Range Organics (Over	<50.0	U	50.0	mg/Kg		09/21/21 14:14	09/22/21 03:03	1
C10-C28)								
Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/21/21 14:14	09/22/21 03:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	104		70 - 130	09/21/21 14:14	09/22/21 03:03	1
o-Terphenyl	103		70 - 130	09/21/21 14:14	09/22/21 03:03	1

Method: 300.0 - Anions, Ion Chromatography - Soluble								
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	572 F1	25.0	mg/Kg			09/27/21 17:36	5	

Client Sample ID: PH01A Lab Sample ID: 890-1286-2 Date Collected: 09/17/21 13:53 **Matrix: Solid** 

Date Received: 09/20/21 12:49

Sample Depth: 4

Welliou. 602 16 - Volatile Orga	wethou. 802 TB - volatile Organic Compounds (GC)									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac		
Benzene	<0.00200	U	0.00200	mg/Kg		09/21/21 09:30	09/22/21 11:44	1		
Toluene	<0.00200	U	0.00200	mg/Kg		09/21/21 09:30	09/22/21 11:44	1		
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/21/21 09:30	09/22/21 11:44	1		
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/21/21 09:30	09/22/21 11:44	1		
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/21/21 09:30	09/22/21 11:44	1		
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/21/21 09:30	09/22/21 11:44	1		
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac		
4-Bromofluorobenzene (Surr)	130		70 - 130			09/21/21 09:30	09/22/21 11:44	1		
1,4-Difluorobenzene (Surr)	83		70 - 130			09/21/21 09:30	09/22/21 11:44	1		

Method: 8015P	NIM Disco	Donas Organia	· · (DDO) (CC)
- Melliou: ou lan	NIVI - IJIESE	rance Organic	SHARDING

Method: 8015B NM - Diesel Rang	ethod: 8015B NM - Diesel Range Organics (DRO) (GC)								
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Gasoline Range Organics	<50.0	U	50.0	mg/Kg		09/21/21 14:14	09/22/21 03:23	1	
(GRO)-C6-C10									
Diesel Range Organics (Over	<50.0	U	50.0	mg/Kg		09/21/21 14:14	09/22/21 03:23	1	
C10-C28)									

Matrix: Solid

Lab Sample ID: 890-1286-2

Client: WSP USA Inc.

Job ID: 890-1286-1

Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129 Task 07.02

Client Sample ID: PH01A

Date Collected: 09/17/21 13:53 Date Received: 09/20/21 12:49

Sample Depth: 4

Method: 8015B NM - Diesel Rang	ge Organics (D	RO) (GC) (C	Continued)					
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/21/21 14:14	09/22/21 03:23	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	107		70 - 130			09/21/21 14:14	09/22/21 03:23	1
o Ternhenyl	105		70 130			00/21/21 11:11	00/22/21 02:22	1

Method: 300.0 - Anions, Ion Chron	natography - Soluble						
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	33.9	5.02	mg/Kg			09/25/21 21:17	1

Client Sample ID: PH02

Lab Sample ID: 890-1286-3

Date Collected: 09/17/21 14:11

Matrix: Solid

Date Collected: 09/17/21 14:11 Date Received: 09/20/21 12:49

Sample Depth: 1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fa
Benzene	<0.00198	U	0.00198	mg/Kg		09/21/21 09:30	09/22/21 12:04	
Toluene	<0.00198	U	0.00198	mg/Kg		09/21/21 09:30	09/22/21 12:04	
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		09/21/21 09:30	09/22/21 12:04	
m-Xylene & p-Xylene	<0.00396	U	0.00396	mg/Kg		09/21/21 09:30	09/22/21 12:04	
o-Xylene	<0.00198	U	0.00198	mg/Kg		09/21/21 09:30	09/22/21 12:04	
Xylenes, Total	< 0.00396	U	0.00396	mg/Kg		09/21/21 09:30	09/22/21 12:04	

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	125		70 - 130	09/21/21 09:30	09/22/21 12:04	1
1,4-Difluorobenzene (Surr)	79		70 - 130	09/21/21 09:30	09/22/21 12:04	1

Method: 8015B NM - Diesel Range	Organics (Di	KU) (GC)						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<49.8	U	49.8	mg/Kg		09/21/21 14:14	09/22/21 03:43	1
(GRO)-C6-C10								
Diesel Range Organics (Over	<49.8	U	49.8	mg/Kg		09/21/21 14:14	09/22/21 03:43	1
C10-C28)								
Oll Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		09/21/21 14:14	09/22/21 03:43	1

	Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
	1-Chlorooctane	103		70 - 130	09/21/21 14:14	09/22/21 03:43	1
Į	o-Terphenyl	101		70 - 130	09/21/21 14:14	09/22/21 03:43	1

Method: 300.0 - Anions, Ion Chromato	graphy -	Soluble						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	14.8		4.98	mg/Kg			09/25/21 21:23	1

Eurofins Xenco, Carlsbad

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Matrix: Solid

Lab Sample ID: 890-1286-4

# **Client Sample Results**

Job ID: 890-1286-1 Client: WSP USA Inc.

Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129 Task 07.02

**Client Sample ID: PH02A** Date Collected: 09/17/21 14:22

Date Received: 09/20/21 12:49

Method: 8021B - Volatile Organic	c Compounds (	GC)						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		09/21/21 09:30	09/22/21 12:24	1
Toluene	<0.00199	U	0.00199	mg/Kg		09/21/21 09:30	09/22/21 12:24	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		09/21/21 09:30	09/22/21 12:24	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		09/21/21 09:30	09/22/21 12:24	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		09/21/21 09:30	09/22/21 12:24	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		09/21/21 09:30	09/22/21 12:24	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	133	S1+	70 - 130			09/21/21 09:30	09/22/21 12:24	1
1,4-Difluorobenzene (Surr)	77		70 - 130			09/21/21 09:30	09/22/21 12:24	1
Method: 8015B NM - Diesel Ran	ge Organics (DI	RO) (GC)						
Mathed 0045D NM Discal Day		DO) (OO)						
Analyte	Result	Qualifier	RL	Unit	<u>D</u>	Prepared	Analyzed	Dil Fac
Analyte Gasoline Range Organics	• • •	Qualifier	RL 50.0	Unit mg/Kg	<u>D</u>	Prepared 09/21/21 14:14	Analyzed 09/22/21 04:04	Dil Fac
Analyte Gasoline Range Organics (GRO)-C6-C10	Result < 50.0	Qualifier U	50.0	mg/Kg	<u>D</u>	09/21/21 14:14	09/22/21 04:04	Dil Fac
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Result	Qualifier U			<u>D</u>			Dil Fac
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	Result < 50.0	Qualifier U	50.0	mg/Kg	<u> </u>	09/21/21 14:14	09/22/21 04:04	Dil Fac 1 1
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	Result <50.0 <50.0 <50.0	Qualifier U U U	50.0	mg/Kg	<u>D</u>	09/21/21 14:14 09/21/21 14:14 09/21/21 14:14	09/22/21 04:04 09/22/21 04:04 09/22/21 04:04	1 1
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate	Result <50.0 <50.0	Qualifier U U U	50.0 50.0 50.0	mg/Kg	<u>D</u>	09/21/21 14:14	09/22/21 04:04 09/22/21 04:04	1 1
Method: 8015B NM - Diesel Rang Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	Result   <50.0   <50.0   <50.0   <50.0	Qualifier  U  U	50.0 50.0 50.0 <b>Limits</b>	mg/Kg	<u>D</u>	09/21/21 14:14 09/21/21 14:14 09/21/21 14:14  Prepared	09/22/21 04:04 09/22/21 04:04 09/22/21 04:04  Analyzed	1 1
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	Result	Qualifier  U  U  Qualifier	50.0 50.0 50.0 <b>Limits</b> 70 - 130	mg/Kg	<u>D</u>	09/21/21 14:14  09/21/21 14:14  09/21/21 14:14  Prepared  09/21/21 14:14	09/22/21 04:04 09/22/21 04:04 09/22/21 04:04 Analyzed 09/22/21 04:04	1 1 1 1 1 Dil Fac
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	Result	Qualifier  U  U  Qualifier	50.0 50.0 50.0 <b>Limits</b> 70 - 130	mg/Kg	<u>D</u>	09/21/21 14:14  09/21/21 14:14  09/21/21 14:14  Prepared  09/21/21 14:14	09/22/21 04:04 09/22/21 04:04 09/22/21 04:04 Analyzed 09/22/21 04:04	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1

# **Surrogate Summary**

Client: WSP USA Inc. Job ID: 890-1286-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129 Task 07.02

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

		BFB1	DFBZ1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
880-6276-A-11-B MS	Matrix Spike	119	79
880-6276-A-11-C MSD	Matrix Spike Duplicate	117	76
890-1286-1	PH01	126	78
890-1286-2	PH01A	130	83
890-1286-3	PH02	125	79
890-1286-4	PH02A	133 S1+	77
LCS 880-8132/1-B	Lab Control Sample	112	73
LCSD 880-8132/2-B	Lab Control Sample Dup	111	81
MB 880-8102/5-B	Method Blank	109	75
MB 880-8132/5-B	Method Blank	119	78

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)	
890-1267-A-1-I MS	Matrix Spike	93	90	
390-1267-A-1-J MSD	Matrix Spike Duplicate	96	94	
390-1286-1	PH01	104	103	
390-1286-2	PH01A	107	105	
390-1286-3	PH02	103	101	
390-1286-4	PH02A	104	103	
_CS 880-8210/2-A	Lab Control Sample	93	86	
_CSD 880-8210/3-A	Lab Control Sample Dup	95	88	
MB 880-8210/1-A	Method Blank	93	92	

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

Client: WSP USA Inc. Job ID: 890-1286-1 SDG: 31403236.020.0129 Task 07.02 Project/Site: PLU Remuda Basin 4-24-30

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-8102/5-B

**Matrix: Solid** 

Analysis Batch: 8212

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 8102

	MB	MR						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/21/21 09:40	09/21/21 18:03	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/21/21 09:40	09/21/21 18:03	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/21/21 09:40	09/21/21 18:03	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/21/21 09:40	09/21/21 18:03	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/21/21 09:40	09/21/21 18:03	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/21/21 09:40	09/21/21 18:03	1

MB MB

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	109		70 - 130
1,4-Difluorobenzene (Surr)	75		70 - 130

09/21/21 18:03 Client Sample ID: Method Blank

Analyzed

09/21/21 18:03

Prepared

09/21/21 09:40

09/21/21 09:40

Prep Type: Total/NA

Prep Batch: 8132

Lab Sample ID: MB 880-8132/5-B **Matrix: Solid** 

**Analysis Batch: 8212** 

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/21/21 09:30	09/22/21 04:54	
Toluene	<0.00200	U	0.00200	mg/Kg		09/21/21 09:30	09/22/21 04:54	
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/21/21 09:30	09/22/21 04:54	
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		09/21/21 09:30	09/22/21 04:54	
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/21/21 09:30	09/22/21 04:54	•
Yylonos Total	<0.00400	11	0.00400	ma/Ka		00/21/21 00:30	00/22/21 04:54	

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prep	pared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	119		70 - 130	09/21/2	21 09:30	09/22/21 04:54	1
1,4-Difluorobenzene (Surr)	78		70 - 130	09/21/2	21 09:30	09/22/21 04:54	1

Lab Sample ID: LCS 880-8132/1-B

**Matrix: Solid** 

**Analysis Batch: 8212** 

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA Prep Batch: 8132

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	0.100	0.08695		mg/Kg		87	70 - 130	
Toluene	0.100	0.08872		mg/Kg		89	70 - 130	
Ethylbenzene	0.100	0.08942		mg/Kg		89	70 - 130	
m-Xylene & p-Xylene	0.200	0.1865		mg/Kg		93	70 - 130	
o-Xylene	0.100	0.09687		mg/Kg		97	70 - 130	

LCS LCS

Surrogate	%Recovery Qualifie	r Limits
4-Bromofluorobenzene (Surr)	112	70 - 130
1.4-Difluorobenzene (Surr)	73	70 - 130

Lab Sample ID: LCSD 880-8132/2-B

**Matrix: Solid** 

**Analysis Batch: 8212** 

Client	Sample	ID:	Lab	Contr	ol	San	ıple	Dup
				D	<b>-</b>		<b>-</b>	I/NI A

Prep Type: Total/NA

Prep Batch: 8132

	Spike	LCSD LCSD				%Rec.		RPD
Analyte	Added	Result Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	0.100	0.08927	mg/Kg		89	70 - 130	3	35

Eurofins Xenco, Carlsbad

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Dil Fac

Client: WSP USA Inc. Job ID: 890-1286-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129 Task 07.02

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

Lab Sample ID: LCSD 880-8132/2-B **Matrix: Solid** 

**Analysis Batch: 8212** 

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA Prep Batch: 8132

	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Toluene	0.100	0.09043		mg/Kg		90	70 - 130	2	35
Ethylbenzene	0.100	0.09260		mg/Kg		93	70 - 130	3	35
m-Xylene & p-Xylene	0.200	0.1933		mg/Kg		97	70 - 130	4	35
o-Xylene	0.100	0.1002		mg/Kg		100	70 - 130	3	35

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		70 - 130
1,4-Difluorobenzene (Surr)	81		70 - 130

Lab Sample ID: 880-6276-A-11-B MS Client Sample ID: Matrix Spike

**Matrix: Solid** Prep Type: Total/NA **Analysis Batch: 8212** Prep Batch: 8132

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	<0.00200	U F1	0.0990	0.06772	F1	mg/Kg		68	70 - 130	
Toluene	<0.00200	U F1	0.0990	0.06664	F1	mg/Kg		67	70 - 130	
Ethylbenzene	<0.00200	U F1	0.0990	0.06261	F1	mg/Kg		63	70 - 130	
m-Xylene & p-Xylene	<0.00399	U F1	0.198	0.1325	F1	mg/Kg		67	70 - 130	
o-Xylene	<0.00200	U F1	0.0990	0.06732	F1	mg/Kg		68	70 - 130	

MS MS

<0.00399 UF1

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	119	70 - 130
1,4-Difluorobenzene (Surr)	79	70 - 130

Lab Sample ID: 880-6276-A-11-C MSD

**Matrix: Solid** 

m-Xylene & p-Xylene

**Analysis Batch: 8212** 

Client Sample ID: Matrix Spike Duplicate

%Rec.

70 - 130

70 - 130

70

Prep Type: Total/NA Prep Batch: 8132

RPD

35

35

Spike Sample Sample Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits RPD Limit Benzene <0.00200 U F1 0.0996 0.06978 mg/Kg 70 70 - 130 3 35 Toluene <0.00200 UF1 0.0996 0.06999 mg/Kg 70 70 - 130 5 35 Ethylbenzene <0.00200 UF1 0.0996 0.06560 F1 mg/Kg 66 70 - 130 35

0.199

0.0996

MSD MSD

mg/Kg

mq/Kq

0.1391

0.07017

o-Xylene <0.00200 UF1 MSD MSD

Surrogate	%Recovery Q	ualifier	Limits
4-Bromofluorobenzene (Surr)			70 - 130
1,4-Difluorobenzene (Surr)	76		70 - 130

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

Lab Sample ID: MB 880-8210/1-A

**Matrix: Solid** 

**Analysis Batch: 8175** 

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

Prep Batch: 8210

MB MB Analyte Result Qualifier RL Unit Prepared Analyzed <50.0 U 50.0 mg/Kg 09/21/21 14:14 09/21/21 20:21 Gasoline Range Organics

(GRO)-C6-C10

Client: WSP USA Inc. Job ID: 890-1286-1 Project/Site: PLU Remuda Basin 4-24-30

SDG: 31403236.020.0129 Task 07.02

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

Lab Sample ID: MB 880-8210/1-A **Matrix: Solid Analysis Batch: 8175** 

MB MB

MB MB

93

92

Qualifier

%Recovery

Client Sample ID: Method Blank Prep Type: Total/NA Prep Batch: 8210

> Analyzed Dil Fac

Analyte Result Qualifier RL Unit Prepared <50.0 U 50.0 09/21/21 14:14 09/21/21 20:21 Diesel Range Organics (Over mg/Kg C10-C28) 50.0 09/21/21 20:21 Oll Range Organics (Over C28-C36) <50.0 U mg/Kg 09/21/21 14:14

Limits

70 - 130

70 - 130

Prepared Analyzed Dil Fac 09/21/21 14:14 09/21/21 20:21 09/21/21 14:14 09/21/21 20:21

Client Sample ID: Lab Control Sample Dup

Lab Sample ID: LCS 880-8210/2-A Client Sample ID: Lab Control Sample **Matrix: Solid** Prep Type: Total/NA **Analysis Batch: 8175** Prep Batch: 8210

LCS LCS Spike %Rec. Analyte Added Result Qualifier Unit D %Rec Limits Gasoline Range Organics 1000 862.4 86 70 - 130 mg/Kg (GRO)-C6-C10 1000 855.3 Diesel Range Organics (Over 86 70 - 130mg/Kg C10-C28)

LCS LCS Qualifier Surrogate %Recovery Limits 1-Chlorooctane 70 - 130 93 o-Terphenyl 86 70 - 130

Lab Sample ID: LCSD 880-8210/3-A

Analysis Batch: 8175

**Matrix: Solid** 

C10-C28)

Surrogate

o-Terphenyl

1-Chlorooctane

Analysis Daton. 0175						i iep batcii. 02 iu					
	Spike	LCSD	LCSD				%Rec.		RPD		
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit		
Gasoline Range Organics	1000	816.1		mg/Kg		82	70 - 130	6	20		
(GRO)-C6-C10											
Diesel Range Organics (Over	1000	876.2		ma/Ka		88	70 - 130	2	20		

LCSD LCSD Surrogate %Recovery Qualifier Limits 1-Chlorooctane 95 70 - 130 o-Terphenyl 88 70 - 130

Lab Sample ID: 890-1267-A-1-I MS

**Matrix: Solid** 

**Analysis Batch: 8175** 

Client Sample I	D: Matrix	Spike
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Prep Type: Total/NA Prep Batch: 8210

Prep Type: Total/NA

Prop Batch: 8210

MS MS %Rec. Sample Sample Spike Result Qualifier Added Result Qualifier %Rec Analyte Unit Limits <49.8 U F1 997 <49.9 U F1 Gasoline Range Organics 0.4 70 - 130mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over <49.8 UF1 997 <49.9 UF1 mg/Kg 0.5 70 - 130

C10-C28)

	IVIS	IVIS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	93		70 - 130
o-Terphenyl	90		70 - 130

Client: WSP USA Inc. Job ID: 890-1286-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129 Task 07.02

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

Lab Sample ID: 890-1267-A-1-J MSD Client Sample ID: Matrix Spike Duplicate

**Matrix: Solid** 

Prep Type: Total/NA Prep Batch: 8210

Client Sample ID: Lab Control Sample Dup

**Prep Type: Soluble** 

Client Sample ID: PH01

**Client Sample ID: PH01** 

**Prep Type: Soluble** 

**Prep Type: Soluble** 

**Analysis Batch: 8175** Sample Sample MSD MSD RPD Spike RPD Limit Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits D Gasoline Range Organics <49.8 UF1 999 <50.0 UF1 mg/Kg 8.0 70 - 130 14 20

C10-C28)

(GRO)-C6-C10

999 <50.0 U F1 70 - 130Diesel Range Organics (Over <49.8 U F1 mg/Kg 0.7 8 20

%Recovery Qualifier Limits Surrogate 1-Chlorooctane 70 - 130 96 o-Terphenyl 94 70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-8255/1-A Client Sample ID: Method Blank **Prep Type: Soluble** 

**Matrix: Solid** 

**Analysis Batch: 8391** 

MB MB

MSD MSD

Result Qualifier RL Unit Analyte D Prepared Analyzed Dil Fac Chloride <5.00 5.00 mg/Kg 09/25/21 19:13

Lab Sample ID: LCS 880-8255/2-A **Client Sample ID: Lab Control Sample Prep Type: Soluble** 

**Matrix: Solid** 

**Analysis Batch: 8391** 

Spike LCS LCS %Rec. Analyte Added Result Qualifier Unit D %Rec Limits Chloride 250 268.0 107 90 - 110 mg/Kg

Lab Sample ID: LCSD 880-8255/3-A

**Matrix: Solid** 

**Analysis Batch: 8391** 

Spike LCSD LCSD RPD %Rec. Analyte Added Result Qualifier Unit %Rec RPD Limit Chloride 250 268.2 107 90 - 110 mg/Kg 0

Lab Sample ID: 890-1286-1 MS

**Matrix: Solid** 

**Analysis Batch: 8391** 

Sample Sample Spike MS MS %Rec. Qualifier Added Qualifier Analyte Result Result Unit %Rec Limits 572 F1 Chloride 50000 F1 90 - 110 1988 mg/Kg

Lab Sample ID: 890-1286-1 MSD

Matrix: Solid

**Analysis Batch: 8391** Sample Sample Spike MSD MSD %Rec. RPD Result Qualifier Added Analyte Result Qualifier %Rec Limits RPD Limit Unit 572 F1 1250 Chloride 1968 F1 112 90 - 110 20 mg/Kg

Job ID: 890-1286-1 Client: WSP USA Inc. Project/Site: PLU Remuda Basin 4-24-30

SDG: 31403236.020.0129 Task 07.02

# **GC VOA**

#### Prep Batch: 8102

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-8102/5-B	Method Blank	Total/NA	Solid	5035	

#### Prep Batch: 8132

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1286-1	PH01	Total/NA	Solid	5035	
890-1286-2	PH01A	Total/NA	Solid	5035	
890-1286-3	PH02	Total/NA	Solid	5035	
890-1286-4	PH02A	Total/NA	Solid	5035	
MB 880-8132/5-B	Method Blank	Total/NA	Solid	5035	
LCS 880-8132/1-B	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-8132/2-B	Lab Control Sample Dup	Total/NA	Solid	5035	
880-6276-A-11-B MS	Matrix Spike	Total/NA	Solid	5035	
880-6276-A-11-C MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

#### **Analysis Batch: 8212**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1286-1	PH01	Total/NA	Solid	8021B	8132
890-1286-2	PH01A	Total/NA	Solid	8021B	8132
890-1286-3	PH02	Total/NA	Solid	8021B	8132
890-1286-4	PH02A	Total/NA	Solid	8021B	8132
MB 880-8102/5-B	Method Blank	Total/NA	Solid	8021B	8102
MB 880-8132/5-B	Method Blank	Total/NA	Solid	8021B	8132
LCS 880-8132/1-B	Lab Control Sample	Total/NA	Solid	8021B	8132
LCSD 880-8132/2-B	Lab Control Sample Dup	Total/NA	Solid	8021B	8132
880-6276-A-11-B MS	Matrix Spike	Total/NA	Solid	8021B	8132
880-6276-A-11-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	8132

#### **GC Semi VOA**

#### **Analysis Batch: 8175**

Г					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1286-1	PH01	Total/NA	Solid	8015B NM	8210
890-1286-2	PH01A	Total/NA	Solid	8015B NM	8210
890-1286-3	PH02	Total/NA	Solid	8015B NM	8210
890-1286-4	PH02A	Total/NA	Solid	8015B NM	8210
MB 880-8210/1-A	Method Blank	Total/NA	Solid	8015B NM	8210
LCS 880-8210/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	8210
LCSD 880-8210/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	8210
890-1267-A-1-I MS	Matrix Spike	Total/NA	Solid	8015B NM	8210
890-1267-A-1-J MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	8210

#### Prep Batch: 8210

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1286-1	PH01	Total/NA	Solid	8015NM Prep	
890-1286-2	PH01A	Total/NA	Solid	8015NM Prep	
890-1286-3	PH02	Total/NA	Solid	8015NM Prep	
890-1286-4	PH02A	Total/NA	Solid	8015NM Prep	
MB 880-8210/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-8210/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-8210/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-1267-A-1-I MS	Matrix Spike	Total/NA	Solid	8015NM Prep	

Job ID: 890-1286-1 Client: WSP USA Inc. Project/Site: PLU Remuda Basin 4-24-30

SDG: 31403236.020.0129 Task 07.02

# **GC Semi VOA (Continued)**

#### Prep Batch: 8210 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1267-A-1-J MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

#### HPLC/IC

#### Leach Batch: 8255

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1286-1	PH01	Soluble	Solid	DI Leach	
890-1286-2	PH01A	Soluble	Solid	DI Leach	
890-1286-3	PH02	Soluble	Solid	DI Leach	
890-1286-4	PH02A	Soluble	Solid	DI Leach	
MB 880-8255/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-8255/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-8255/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-1286-1 MS	PH01	Soluble	Solid	DI Leach	
890-1286-1 MSD	PH01	Soluble	Solid	DI Leach	

#### **Analysis Batch: 8391**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1286-1	PH01	Soluble	Solid	300.0	8255
890-1286-2	PH01A	Soluble	Solid	300.0	8255
890-1286-3	PH02	Soluble	Solid	300.0	8255
890-1286-4	PH02A	Soluble	Solid	300.0	8255
MB 880-8255/1-A	Method Blank	Soluble	Solid	300.0	8255
LCS 880-8255/2-A	Lab Control Sample	Soluble	Solid	300.0	8255
LCSD 880-8255/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	8255
890-1286-1 MS	PH01	Soluble	Solid	300.0	8255
890-1286-1 MSD	PH01	Soluble	Solid	300.0	8255

#### Lab Chronicle

Client: WSP USA Inc. Job ID: 890-1286-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129 Task 07.02

**Client Sample ID: PH01** 

Date Received: 09/20/21 12:49

Lab Sample ID: 890-1286-1 Date Collected: 09/17/21 13:11

**Matrix: Solid** 

Batch Batch Dilution Batch Prepared Prep Type Туре Method Run Factor Number or Analyzed Analyst Total/NA Prep 5035 8132 09/21/21 09:30 KL XEN MID Total/NA Analysis 8021B 1 8212 09/22/21 12:45 KL XEN MID Total/NA Prep 8015NM Prep 8210 09/21/21 14:14 DM XEN MID Total/NA Analysis 8015B NM 1 8175 09/22/21 03:03 AJ**XEN MID** Soluble Leach DI Leach 8255 09/22/21 10:00 СН XEN MID Soluble Analysis 300.0 5 8391 09/27/21 17:36 CH XEN MID

Client Sample ID: PH01A Lab Sample ID: 890-1286-2 Date Collected: 09/17/21 13:53 Matrix: Solid

Date Received: 09/20/21 12:49

Batch Batch Dilution Batch Prepared Prep Type Туре Method Run Factor Number or Analyzed Analyst Lab Total/NA Prep 5035 8132 09/21/21 09:30 KL XEN MID 8021B Total/NA 8212 09/22/21 11:44 XEN MID Analysis 1 KL Total/NA XEN MID Prep 8015NM Prep 8210 09/21/21 14:14 DM Total/NA 8015B NM XEN MID Analysis 1 8175 09/22/21 03:23 AJXEN MID Soluble Leach DI Leach 8255 09/22/21 10:00 СН XEN MID Soluble Analysis 300.0 1 8391 09/25/21 21:17 CH

**Client Sample ID: PH02** Lab Sample ID: 890-1286-3

Date Collected: 09/17/21 14:11 **Matrix: Solid** Date Received: 09/20/21 12:49

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			8132	09/21/21 09:30	KL	XEN MID
Total/NA	Analysis	8021B		1	8212	09/22/21 12:04	KL	XEN MID
Total/NA	Prep	8015NM Prep			8210	09/21/21 14:14	DM	XEN MID
Total/NA	Analysis	8015B NM		1	8175	09/22/21 03:43	AJ	XEN MID
Soluble	Leach	DI Leach			8255	09/22/21 10:00	СН	XEN MID
Soluble	Analysis	300.0		1	8391	09/25/21 21:23	CH	XEN MID

Client Sample ID: PH02A Lab Sample ID: 890-1286-4 Date Collected: 09/17/21 14:22

Date Received: 09/20/21 12:49

_	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			8132	09/21/21 09:30	KL	XEN MID
Total/NA	Analysis	8021B		1	8212	09/22/21 12:24	KL	XEN MID
Total/NA	Prep	8015NM Prep			8210	09/21/21 14:14	DM	XEN MID
Total/NA	Analysis	8015B NM		1	8175	09/22/21 04:04	AJ	XEN MID
Soluble	Leach	DI Leach			8255	09/22/21 10:00	СН	XEN MID
Soluble	Analysis	300.0		1	8391	09/25/21 21:42	CH	XEN MID

**Laboratory References:** 

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

Eurofins Xenco, Carlsbad

Matrix: Solid

# **Accreditation/Certification Summary**

Client: WSP USA Inc. Job ID: 890-1286-1 Project/Site: PLU Remuda Basin 4-24-30

SDG: 31403236.020.0129 Task 07.02

#### **Laboratory: Eurofins Xenco, Midland**

The accreditations/certifications listed below are applicable to this report.

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

# **Method Summary**

Client: WSP USA Inc.

Job ID: 890-1286-1

Project/Gife: PLU Berryde Resig 4 24 20

SPC: 24402220 020 0420 Tests 07 02

Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129 Task 07.02

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
3015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
035	Closed System Purge and Trap	SW846	XEN MID
015NM Prep	Microextraction	SW846	XEN MID
Ol 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

Eurofins Xenco, Carlsbad

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# **Sample Summary**

Client: WSP USA Inc.

Project/Site: PLU Remuda Basin 4-24-30

Job ID: 890-1286-1

SDG: 31403236.020.0129 Task 07.02

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-1286-1	PH01	Solid	09/17/21 13:11	09/20/21 12:49	1
890-1286-2	PH01A	Solid	09/17/21 13:53	09/20/21 12:49	4
890-1286-3	PH02	Solid	09/17/21 14:11	09/20/21 12:49	1
890-1286-4	PH02A	Solid	09/17/21 14:22	09/20/21 12:49	4

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						$\Omega$	Chain of Custody	0	$\overline{\Omega}$	1St	8	<							Vo	Work Order No:	ord	¥ Z	<u></u>						
X				Houston,T	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	00 Dall	as,TX (	214) 9( 7X (915	)2-030(	San ,	Antonic bbock	∵X (2 7X (80	10) 509 6)794-	1296															
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roject Manager:	Tacoma Morrissey	еу			Bill to: (if different)	3	Kyle Littrell	ittrell							Τ_					Vor	Ş	der (	om	Work Order Comments	ŝ				
	WSP USA Inc.				Company Name:	Įĕ.	XTO Energy	nergy							<u> </u>	Program: UST/PST	⊒: C:	ST/P		PRP PRE		nwo	PRPβrownfields	ς []	ਨ੍ਹ		uperfund	bn	
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	432.236.3849			Email:	Email:  uis.delval@wsp.com; tacoma.morrissey@wsp.com	vsp.c	om; ta	coma	.morri	ssey(	gwsp	.com			Г	Deliverables: EDD	ables	 ED	_	╽┖	\ \ \	DaP	ADaPT 🗆	_	Other:	- P			
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ampler's Name:	Luis Del Val			Due Date	ate:							-												z	NAPP2120034052	212C	034	052	
SAMPLE RECEIPT		Temp Blank:	Yes No	Wet Ice:	(es)No				-								▋												
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ample Custody Seals:	Yes		Total	Total Containers:		r of	A 80	PA (	e (EP					_										lab,	lab, if received by 4:30pm	eived	by 4:	30pm	
Sample Identification	fication	Matrix	Date Sampled	Time Sampled	Depth	Numbe	TPH (E	BTEX (I	Chlorid															Sa	Sample Comments	ိုင္ပ	) B	ents	
PH01		S	9/17/2021	1311	1	_	×	×	×			$\vdash$	-	$\vdash$	-	<u> </u>			$\dagger$	$\vdash$	<u> </u>								
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otice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.	cument and relinquible only for the cost	shment of s t of samples	samples constitus and shall not as	tes a valid purch ssume any respo	hase order from consibility for any reach sample su	lient co	er expe	to Xend	o, its at curred t	filiates y the cl yzed. T	and sut lent if s hese te	contra uch los	ctors. I	t assign due to orced t	ssigns standard terms and condi ue to circumstances beyond the c ced unless previously negotiated	dard t nstanc previo	erms a	ind co ond th igotiat	nditior e cont	ro Is									
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Eurofins Xenco, Carlsbad 1089 N Canal St.

# **Chain of Custody Record**

Sampler	
Lab PM	•
Carrier Tracking No(s):	
COC No	America

& eurofins Environment Testing

Carlsbad NM 88220 Phone. 575-988-3199 Fax: 575-988-3199	,	) I a II C	oi cusi	custody Record	600	2												America
Client Information (Sub Contract Lab)	Sampler			Lab PM Krame	<sub>Lab PM</sub> Kramer Jessica	sica					Carrie	Carrier Tracking No(s):	ng No(	*		$\perp$	COC No 890-419 1	
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Company Eurofins Xenco					Accredit	ations R	equired	Accreditations Required (See note): NELAP - Louisiana, NELAP	e): P - Texas	<sup>2</sup>	Ī		ľ			$\perp$	Job #: 890-1286-1	
Address 1211 W Florida Ave	Due Date Requested 9/24/2021	ă					ĺ	Anal	7 1	/sis Requested	uest	a					Preservation Codes	&S
City Midland	TAT Requested (days):	ys)·											$\dashv$	$\neg$		SateRhouse		M Hexane N None
State Zip TX, 79701					e de Maria Maria	TPH										- Anti-Organia	Nitric Acid NaHSO4	P - Na2O4S Q Na2SO3
Phone 432-704-5440(TeI)	PO#						le			************		<del></del>				otostilisektos	MeOH - Amchlor	R - Na2S2O3 S H2SO4
Email	WO#				SERVICE VIOLES											i San a katerataa	l Ice J DI Water	U Acetone V - MCAA
Project Name: PLU Remuda Basın 4-24-30	Project # 89000004				96./**********											ainer		W pH 4-5 Z other (specify)
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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.	laces the ownership or signed Chain of Cus	of method anal mples must be stody attesting to	yte & accredita shipped back to said complica	tion compliance the Eurofins ince to Eurofin	e upon oi Xenco LL s Xenco I	ut subco .C labor LLC.	ontract I	aboratorie r other ins	es. This	sample s will be	shipm	entisfo ed. An	nwarde / chanç	es to a	er chaii	1-of-cı tation	ustody If the laborato status should be brou	איץ does not currently ight to Eurofins Xenco LLC
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Custody Seals Intact Custody Seal No						Cooler	Temper	Cooler Temperature(s) °C		and Other Remarks	marks							

Ver: 06/08/2021

# **Login Sample Receipt Checklist**

Client: WSP USA Inc.

Job Number: 890-1286-1

SDG Number: 31403236.020.0129 Task 07.02

List Source: Eurofins Xenco, Carlsbad

Login Number: 1286 List Number: 1 Creator: Clifton, Cloe

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: 890-1286-1

SDG Number: 31403236.020.0129 Task 07.02

Login Number: 1286 List Source: Eurofins Xenco, Midland List Number: 2

List Creation: 09/21/21 11:35 AM

List itali		
Creator:	Lowe,	Katie

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

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# **Environment Testing America**

# **ANALYTICAL REPORT**

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

Laboratory Job ID: 890-1353-1

Laboratory Sample Delivery Group: 31403236.020.0129

Client Project/Site: PLU Remuda Basin 4-24-30

Revision: 1

For:

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

Attn: Dan Moir

J KRAMER

Authorized for release by: 10/13/2021 8:20:59 AM

Jessica Kramer, Project Manager (432)704-5440

jessica.kramer@eurofinset.com

.....LINKS

Review your project results through

**Have a Question?** 



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www.eurofinsus.com/Env

Released to Imaging: 3/9/2022 4:46:07 PM

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.

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Client: WSP USA Inc.

Project/Site: PLU Remuda Basin 4-24-30

Laboratory Job ID: 890-1353-1

SDG: 31403236.020.0129

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# **Definitions/Glossary**

Client: WSP USA Inc. Job ID: 890-1353-1 Project/Site: PLU Remuda Basin 4-24-30

SDG: 31403236.020.0129

**Qualifiers** 

**GC VOA** 

Qualifier **Qualifier Description** 

Surrogate recovery exceeds control limits, low biased. S1-U Indicates the analyte was analyzed for but not detected.

GC Semi VOA

**Qualifier Description** Qualifier

U Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier **Qualifier Description** 

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)

**Dilution Factor** Dil Fac

Detection Limit (DoD/DOE) DΙ

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: 890-1353-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

Job ID: 890-1353-1

Laboratory: Eurofins Xenco, Carlsbad

**Narrative** 

Job Narrative 890-1353-1

#### REVISION

The report being provided is a revision of the original report sent on 10/11/2021. The report (revision 1) is being revised due to Per client email, corrected sample depth for BH03A from .0 to 4.0.

Report revision history

#### Receipt

The samples were received on 10/4/2021 1:57 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.2°C

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

#### GC Semi VOA

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

#### HPLC/IC

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

**Matrix: Solid** 

Lab Sample ID: 890-1353-1

# **Client Sample Results**

Client: WSP USA Inc.

Job ID: 890-1353-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

**Client Sample ID: BH03** 

Date Collected: 10/04/21 09:13 Date Received: 10/04/21 13:57

Sample Depth: 1.0

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		10/07/21 14:40	10/08/21 06:38	1
Toluene	< 0.00199	U	0.00199	mg/Kg		10/07/21 14:40	10/08/21 06:38	1
Ethylbenzene	< 0.00199	U	0.00199	mg/Kg		10/07/21 14:40	10/08/21 06:38	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		10/07/21 14:40	10/08/21 06:38	1
o-Xylene	< 0.00199	U	0.00199	mg/Kg		10/07/21 14:40	10/08/21 06:38	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		10/07/21 14:40	10/08/21 06:38	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130			10/07/21 14:40	10/08/21 06:38	1
1,4-Difluorobenzene (Surr)	77		70 - 130			10/07/21 14:40	10/08/21 06:38	1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			10/07/21 12:47	1
Mathadi 2045 NM Diagal D		- (DDO) (C	•••					

Method: 8015 NW - Diesei Ranç	ge Organics (DRO) (GC	•)					
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9 U	49.9	mg/Kg			10/07/21 09:20	1

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		10/09/21 13:16	10/11/21 11:54	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		10/09/21 13:16	10/11/21 11:54	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		10/09/21 13:16	10/11/21 11:54	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	97		70 - 130			10/09/21 13:16	10/11/21 11:54	1

Method: 300.0 - Anions, Ion Cl	hromatography - Solub	le					
Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	10600	101	mg/Kg			10/08/21 09:16	20

70 - 130

110

**Client Sample ID: BH03A** Lab Sample ID: 890-1353-2 Date Collected: 10/04/21 09:20 **Matrix: Solid** 

Date Received: 10/04/21 13:57

Sample Depth: 4.0

o-Terphenyl

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		10/07/21 14:40	10/08/21 06:58	1
Toluene	<0.00199	U	0.00199	mg/Kg		10/07/21 14:40	10/08/21 06:58	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		10/07/21 14:40	10/08/21 06:58	1
m-Xylene & p-Xylene	<0.00398	U	0.00398	mg/Kg		10/07/21 14:40	10/08/21 06:58	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		10/07/21 14:40	10/08/21 06:58	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		10/07/21 14:40	10/08/21 06:58	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)			70 - 130			10/07/21 14:40	10/08/21 06:58	1

Eurofins Xenco, Carlsbad

10/09/21 13:16 10/11/21 11:54

**Matrix: Solid** 

Lab Sample ID: 890-1353-2

# **Client Sample Results**

Client: WSP USA Inc.

Job ID: 890-1353-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

Client Sample ID: BH03A

Date Collected: 10/04/21 09:20 Date Received: 10/04/21 13:57

Sample Depth: 4.0

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

Surrogate	%Recovery Qu	ualifier Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	82	70 - 13	0 10/07/21 14:40	10/08/21 06:58	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			10/07/21 12:47	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			10/07/21 09:20	1

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8	mg/Kg		10/09/21 13:16	10/11/21 18:42	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8	mg/Kg		10/09/21 13:16	10/11/21 18:42	1
Oll Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		10/09/21 13:16	10/11/21 18:42	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac

Surrogate	%Recovery Qua	alifier Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	95	70 - 130	10/09/21 13:16	10/11/21 18:42	1
o-Terphenyl	105	70 - 130	10/09/21 13:16	10/11/21 18:42	1

# Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	245	4.99	mg/Kg			10/08/21 09:33	1

Lab Sample ID: 890-1353-3 **Client Sample ID: BH02 Matrix: Solid** 

Date Collected: 10/04/21 09:51 Date Received: 10/04/21 13:57

Sample Depth: 3.0

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

Welliou. Ouz ID - Volatile O	rgariic Compo	unus (GC)						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/07/21 14:40	10/08/21 07:19	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/07/21 14:40	10/08/21 07:19	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/07/21 14:40	10/08/21 07:19	1
m-Xylene & p-Xylene	<0.00401	U	0.00401	mg/Kg		10/07/21 14:40	10/08/21 07:19	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/07/21 14:40	10/08/21 07:19	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		10/07/21 14:40	10/08/21 07:19	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	118		70 - 130			10/07/21 14:40	10/08/21 07:19	1
1 4-Difluorobenzene (Surr)	79		70 - 130			10/07/21 14:40	10/08/21 07:19	1

lothod:	Total	DTEV	Total	DTEV	Calculation	n

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	< 0.00401	U	0.00401	mg/Kg			10/07/21 12:47	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	_		10/07/21 09:20	1

Client: WSP USA Inc. Job ID: 890-1353-1 SDG: 31403236.020.0129

Project/Site: PLU Remuda Basin 4-24-30

**Client Sample ID: BH02** Lab Sample ID: 890-1353-3 Date Collected: 10/04/21 09:51 **Matrix: Solid** Date Received: 10/04/21 13:57

Sample Depth: 3.0

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		10/09/21 13:16	10/11/21 19:02	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		10/09/21 13:16	10/11/21 19:02	1
Oll Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		10/09/21 13:16	10/11/21 19:02	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	97		70 - 130			10/09/21 13:16	10/11/21 19:02	1
o-Terphenyl	109		70 - 130			10/09/21 13:16	10/11/21 19:02	1

Method: 300.0 - Anions, Ion Chromatography - Soluble Analyte Result Qualifier RL Unit Analyzed Dil Fac Prepared Chloride 24.8 10/08/21 09:38 2490 mg/Kg

**Client Sample ID: BH02A** Lab Sample ID: 890-1353-4 Date Collected: 10/04/21 09:54 **Matrix: Solid** 

Date Received: 10/04/21 13:57

Sample Depth: 4.0

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		10/07/21 14:40	10/08/21 07:39	
Toluene	<0.00202	U	0.00202	mg/Kg		10/07/21 14:40	10/08/21 07:39	1
Ethylbenzene	< 0.00202	U	0.00202	mg/Kg		10/07/21 14:40	10/08/21 07:39	1
m-Xylene & p-Xylene	<0.00404	U	0.00404	mg/Kg		10/07/21 14:40	10/08/21 07:39	1
o-Xylene	< 0.00202	U	0.00202	mg/Kg		10/07/21 14:40	10/08/21 07:39	•
Xylenes, Total	<0.00404	U	0.00404	mg/Kg		10/07/21 14:40	10/08/21 07:39	•
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fa
4-Bromofluorobenzene (Surr)	119		70 - 130			10/07/21 14:40	10/08/21 07:39	
1,4-Difluorobenzene (Surr)	77		70 - 130			10/07/21 14:40	10/08/21 07:39	
Method: 8015 NM - Diesel Rar	nge Organic	s (DRO) (0	GC)					
Analyte		Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fa
Total TPH	<49.8	U	49.8	mg/Kg			10/07/21 09:20	
Method: 8015B NM - Diesel R	ange Organi	ics (DRO)	(GC)					
Analyte	_	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fa
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8	mg/Kg		10/09/21 13:16	10/11/21 19:23	
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8	mg/Kg		10/09/21 13:16	10/11/21 19:23	•
Oll Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		10/09/21 13:16	10/11/21 19:23	
	0/5	0 1:5:	I invite			Duamanad	A a l a al	D:/ F-
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fa

Eurofins Xenco, Carlsbad

10/09/21 13:16 10/11/21 19:23

70 - 130

111

o-Terphenyl

# **Client Sample Results**

Client: WSP USA Inc.

Project/Site: PLU Remuda Basin 4-24-30

Job ID: 890-1353-1

SDG: 31403236.020.0129

Client Sample ID: BH02A

Date Collected: 10/04/21 09:54 Date Received: 10/04/21 13:57

Lab Sample ID: 890-1353-4 Matrix: Solid

Sample Depth: 4.0

Method: 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	2930		25.2	mg/Kg			10/08/21 09:44	5	

**Client Sample ID: SS03** Lab Sample ID: 890-1353-5 Matrix: Solid

Date Collected: 10/04/21 11:31 Date Received: 10/04/21 13:57

Sample Depth: 0.5

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		10/07/21 14:40	10/08/21 07:59	1
Toluene	<0.00202	U	0.00202	mg/Kg		10/07/21 14:40	10/08/21 07:59	1
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		10/07/21 14:40	10/08/21 07:59	1
m-Xylene & p-Xylene	<0.00403	U	0.00403	mg/Kg		10/07/21 14:40	10/08/21 07:59	1
o-Xylene	<0.00202	U	0.00202	mg/Kg		10/07/21 14:40	10/08/21 07:59	1
Xylenes, Total	<0.00403	U	0.00403	mg/Kg		10/07/21 14:40	10/08/21 07:59	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)			70 - 130			10/07/21 14:40	10/08/21 07:59	1
1,4-Difluorobenzene (Surr)	76		70 - 130			10/07/21 14:40	10/08/21 07:59	1

Method: Total BTEX - Total BT	EX Calcula	tion						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00403	U	0.00403	mg/Kg			10/07/21 12:47	1

Method: 8015 NM - Diesei Rang Analyte	, ,	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	<u>U</u>	49.9	mg/Kg			10/07/21 09:20	1
Method: 8015B NM - Diesel Rai	nge Organ	ics (DRO) (GC	)					
		A 11.01			_			

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		10/09/21 13:16	10/11/21 19:43	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		10/09/21 13:16	10/11/21 19:43	1
Oll Range Organics (Over C28-C3	6) <49.9	U	49.9	mg/Kg		10/09/21 13:16	10/11/21 19:43	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	96		70 - 130			10/09/21 13:16	10/11/21 19:43	1
o-Terphenyl	106		70 - 130			10/09/21 13:16	10/11/21 19:43	1

Method: 300.0 - Anions, Ion Chromatography - Soluble									
	Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
	Chloride	40.0		5.04	mg/Kg			10/08/21 09:50	1

Date Received: 10/04/21 13:57

# **Client Sample Results**

Client: WSP USA Inc. Job ID: 890-1353-1 SDG: 31403236.020.0129

Project/Site: PLU Remuda Basin 4-24-30

**Client Sample ID: SS04** Lab Sample ID: 890-1353-6 Date Collected: 10/04/21 11:39 Matrix: Solid

Sample Depth: 0.5

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		10/07/21 14:40	10/08/21 08:20	
Toluene	<0.00202	U	0.00202	mg/Kg		10/07/21 14:40	10/08/21 08:20	
Ethylbenzene	< 0.00202	U	0.00202	mg/Kg		10/07/21 14:40	10/08/21 08:20	
m-Xylene & p-Xylene	< 0.00403	U	0.00403	mg/Kg		10/07/21 14:40	10/08/21 08:20	
o-Xylene	< 0.00202	U	0.00202	mg/Kg		10/07/21 14:40	10/08/21 08:20	
Xylenes, Total	<0.00403	U	0.00403	mg/Kg		10/07/21 14:40	10/08/21 08:20	
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fa
4-Bromofluorobenzene (Surr)	92		70 - 130			10/07/21 14:40	10/08/21 08:20	
1,4-Difluorobenzene (Surr)	63	S1-	70 - 130			10/07/21 14:40	10/08/21 08:20	
Method: Total BTEX - Total B	TEX Calcula	tion						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fa
Total BTEX	<0.00403	U	0.00403	mg/Kg			10/07/21 12:47	
Method: 8015 NM - Diesel Ra			SC)					
Method: 8015 NM - Diesel Ra Analyte		s (DRO) (G Qualifier	C)	Unit	D	Prepared	Analyzed	Dil Fa
		Qualifier		Unit mg/Kg	D	Prepared	Analyzed 10/07/21 09:20	Dil Fa
Analyte Total TPH	Result < 50.0	Qualifier U	50.0 FL		<u>D</u>	Prepared		Dil Fa
Analyte	Result <50.0	Qualifier U	50.0 FL		<u>D</u>	Prepared Prepared		
Analyte Total TPH  Method: 8015B NM - Diesel R Analyte Gasoline Range Organics	Result <50.0	Qualifier U ics (DRO) Qualifier	RL 50.0	mg/Kg	_ =	<u> </u>	10/07/21 09:20	
Analyte Total TPH  Method: 8015B NM - Diesel R Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Result <50.0 ange Organ Result	Qualifier U ics (DRO) Qualifier U	RL 50.0 (GC)	mg/Kg	_ =	Prepared 10/09/21 13:16	10/07/21 09:20  Analyzed	Dil Fa
Analyte Total TPH  Method: 8015B NM - Diesel R Analyte  Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	<pre>Result &lt;50.0  ange Organ Result &lt;50.0</pre>	Qualifier U ics (DRO) Qualifier U	(GC) RL 50.0	mg/Kg  Unit mg/Kg	_ =	Prepared 10/09/21 13:16 10/09/21 13:16	10/07/21 09:20  Analyzed 10/11/21 14:25	Dil Fa
Analyte Total TPH  Method: 8015B NM - Diesel R Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	Result   <50.0	Qualifier U  ics (DRO) Qualifier U  U	RL 50.0 (GC) RL 50.0 50.0	mg/Kg  Unit mg/Kg  mg/Kg	_ =	Prepared 10/09/21 13:16 10/09/21 13:16	Analyzed 10/11/21 14:25 10/11/21 14:25	Dil Fa
Analyte Total TPH  Method: 8015B NM - Diesel R Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate	Result   <50.0	Qualifier U  ics (DRO) Qualifier U  U	RL 50.0  (GC) RL 50.0  50.0  50.0	mg/Kg  Unit mg/Kg  mg/Kg	_ =	Prepared 10/09/21 13:16 10/09/21 13:16 10/09/21 13:16	Analyzed 10/11/21 14:25 10/11/21 14:25 10/11/21 14:25	Dil Fa
Analyte Total TPH  Method: 8015B NM - Diesel R Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	Result   <50.0	Qualifier U  ics (DRO) Qualifier U  U	RL 50.0  (GC) RL 50.0  50.0  50.0  Limits	mg/Kg  Unit mg/Kg  mg/Kg	_ =	Prepared 10/09/21 13:16 10/09/21 13:16 10/09/21 13:16 Prepared 10/09/21 13:16	Analyzed 10/11/21 14:25 10/11/21 14:25 10/11/21 14:25 Analyzed	Dil Fa
Analyte Total TPH  Method: 8015B NM - Diesel R	Result	Qualifier U  ics (DRO) Qualifier U  U  Qualifier	RL 50.0  (GC)  RL 50.0  50.0  50.0  Limits  70 - 130  70 - 130	mg/Kg  Unit mg/Kg  mg/Kg	_ =	Prepared 10/09/21 13:16 10/09/21 13:16 10/09/21 13:16 Prepared 10/09/21 13:16	Analyzed 10/11/21 14:25 10/11/21 14:25 10/11/21 14:25 Analyzed 10/11/21 14:25	Dil Fa
Analyte Total TPH  Method: 8015B NM - Diesel R Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	Result	Qualifier U  ics (DRO) Qualifier U  U  Qualifier	RL 50.0  (GC)  RL 50.0  50.0  50.0  Limits  70 - 130  70 - 130	mg/Kg  Unit mg/Kg  mg/Kg	_ =	Prepared 10/09/21 13:16 10/09/21 13:16 10/09/21 13:16 Prepared 10/09/21 13:16	Analyzed 10/11/21 14:25 10/11/21 14:25 10/11/21 14:25 Analyzed 10/11/21 14:25	Dil Fac

# **Surrogate Summary**

Client: WSP USA Inc. Job ID: 890-1353-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

Method: 8021B - Volatile Organic Compounds (GC)

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

		BFB1	DFBZ1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
890-1353-1	BH03	106	77	
890-1353-1 MS	BH03	127	83	
890-1353-1 MSD	BH03	118	85	
890-1353-2	BH03A	117	82	
890-1353-3	BH02	118	79	
890-1353-4	BH02A	119	77	
890-1353-5	SS03	113	76	
890-1353-6	SS04	92	63 S1-	
LCS 880-9069/1-A	Lab Control Sample	113	87	
LCSD 880-9069/2-A	Lab Control Sample Dup	123	86	
MB 880-9035/5-A	Method Blank	103	80	
MB 880-9069/5-A	Method Blank	103	80	

BFB = 4-Bromofluorobenzene (Surr)

DFBZ = 1,4-Difluorobenzene (Surr)

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

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

			Percent Sui	rogate Recovery (Acceptance Limits)
		1CO1	OTPH1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
890-1353-1	BH03	97	110	
890-1353-1 MS	BH03	99	100	
890-1353-1 MSD	BH03	93	93	
890-1353-2	BH03A	95	105	
890-1353-3	BH02	97	109	
890-1353-4	BH02A	99	111	
890-1353-5	SS03	96	106	
890-1353-6	SS04	92	98	
LCS 880-9164/2-A	Lab Control Sample	91	88	
LCSD 880-9164/3-A	Lab Control Sample Dup	83	81	
MB 880-9164/1-A	Method Blank	102	119	

**Surrogate Legend** 

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

Client: WSP USA Inc. Job ID: 890-1353-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-9035/5-A **Matrix: Solid** 

**Analysis Batch: 9047** 

**Client Sample ID: Method Blank** 

Prep Type: Total/NA Prep Batch: 9035

	MB	MR						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		10/07/21 08:49	10/07/21 19:22	1
Toluene	<0.00200	U	0.00200	mg/Kg		10/07/21 08:49	10/07/21 19:22	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		10/07/21 08:49	10/07/21 19:22	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/Kg		10/07/21 08:49	10/07/21 19:22	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		10/07/21 08:49	10/07/21 19:22	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		10/07/21 08:49	10/07/21 19:22	1

MB MB

Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 4-Bromofluorobenzene (Surr) 103 70 - 130 10/07/21 08:49 10/07/21 19:22 1,4-Difluorobenzene (Surr) 80 70 - 130 10/07/21 08:49 10/07/21 19:22

Lab Sample ID: MB 880-9069/5-A Client Sample ID: Method Blank **Matrix: Solid** Prep Type: Total/NA Prep Batch: 9069

MB MB

**Analysis Batch: 9047** 

Analyte Result Qualifier RL Unit Prepared Analyzed Dil Fac Benzene 10/07/21 14:40 10/08/21 06:16 <0.00200 U 0.00200 mg/Kg Toluene mg/Kg 10/07/21 14:40 10/08/21 06:16 <0.00200 U 0.00200 Ethylbenzene mg/Kg 10/07/21 14:40 10/08/21 06:16 <0.00200 U 0.00200 m-Xylene & p-Xylene <0.00400 U 0.00400 mg/Kg 10/07/21 14:40 10/08/21 06:16 o-Xylene <0.00200 U 0.00200 mg/Kg 10/07/21 14:40 10/08/21 06:16 Xylenes, Total <0.00400 U 0.00400 10/07/21 14:40 10/08/21 06:16 mg/Kg

мв мв

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		70 - 130	10/07/21 14:40	0/08/21 06:16	1
1,4-Difluorobenzene (Surr)	80		70 - 130	10/07/21 14:40 10	0/08/21 06:16	1

Lab Sample ID: LCS 880-9069/1-A

**Matrix: Solid** 

**Analysis Batch: 9047** 

**Client Sample ID: Lab Control Sample** Prep Type: Total/NA

**Client Sample ID: Lab Control Sample Dup** 

Prep Batch: 9069

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	0.100	0.09126		mg/Kg	_	91	70 - 130	
Toluene	0.100	0.08742		mg/Kg		87	70 - 130	
Ethylbenzene	0.100	0.09064		mg/Kg		91	70 - 130	
m-Xylene & p-Xylene	0.200	0.1872		mg/Kg		94	70 - 130	
o-Xylene	0.100	0.09372		mg/Kg		94	70 - 130	
	Benzene Toluene Ethylbenzene m-Xylene & p-Xylene	Analyte         Added           Benzene         0.100           Toluene         0.100           Ethylbenzene         0.100           m-Xylene & p-Xylene         0.200	Analyte         Added         Result           Benzene         0.100         0.09126           Toluene         0.100         0.08742           Ethylbenzene         0.100         0.09064           m-Xylene & p-Xylene         0.200         0.1872	Analyte         Added Benzene         Result 0.100         Qualifier           Toluene         0.100         0.09126           Ethylbenzene         0.100         0.08742           m-Xylene & p-Xylene         0.200         0.1872	Analyte         Added         Result Qualifier         Unit           Benzene         0.100         0.09126         mg/Kg           Toluene         0.100         0.08742         mg/Kg           Ethylbenzene         0.100         0.09064         mg/Kg           m-Xylene & p-Xylene         0.200         0.1872         mg/Kg	Analyte         Added         Result         Qualifier         Unit         D           Benzene         0.100         0.09126         mg/Kg           Toluene         0.100         0.08742         mg/Kg           Ethylbenzene         0.100         0.09064         mg/Kg           m-Xylene & p-Xylene         0.200         0.1872         mg/Kg	Analyte         Added         Result Qualifier         Unit         D         %Rec           Benzene         0.100         0.09126         mg/Kg         91           Toluene         0.100         0.08742         mg/Kg         87           Ethylbenzene         0.100         0.09064         mg/Kg         91           m-Xylene & p-Xylene         0.200         0.1872         mg/Kg         94	Analyte         Added         Result Qualifier         Unit         D         %Rec Limits           Benzene         0.100         0.09126         mg/Kg         91         70 - 130           Toluene         0.100         0.08742         mg/Kg         87         70 - 130           Ethylbenzene         0.100         0.09064         mg/Kg         91         70 - 130           m-Xylene & p-Xylene         0.200         0.1872         mg/Kg         94         70 - 130

LCS LCS

Surrogate	%Recovery Qualifier	' Limits
4-Bromofluorobenzene (Surr)	113	70 - 130
1,4-Difluorobenzene (Surr)	87	70 - 130

Lab Sample ID: LCSD 880-9069/2-A

Matrix: Solid

Matrix. Solid							Fieb is	pe. ioi	ai/ivA
Analysis Batch: 9047							Prep	<b>Batch:</b>	9069
	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	0.100	0.1017		mg/Kg		102	70 - 130	11	35

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Prop Type: Total/NA

Client: WSP USA Inc. Job ID: 890-1353-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

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

Lab Sample ID: LCSD 880-9069/2-A

**Matrix: Solid** 

**Analysis Batch: 9047** 

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

Prep Batch: 9069

LCSD LCSD Spike **RPD** %Rec. Analyte Added Result Qualifier Unit D %Rec Limits RPD Limit Toluene 0.100 0.09904 mg/Kg 99 70 - 130 12 35 Ethylbenzene 0.100 0.1056 mg/Kg 106 70 - 130 15 35 m-Xylene & p-Xylene 0.200 0.2182 mg/Kg 109 70 - 130 15 35 0.100 35 o-Xylene 0.1101 mg/Kg 110 70 - 130 16

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	123		70 - 130
1,4-Difluorobenzene (Surr)	86		70 - 130

Lab Sample ID: 890-1353-1 MS

**Matrix: Solid** 

**Analysis Batch: 9047** 

**Client Sample ID: BH03** Prep Type: Total/NA

Prep Batch: 9069

Sample Sample Spike MS MS %Rec. Result Qualifier Analyte Added Result Qualifier D %Rec Limits Unit Benzene <0.00199 U 0.0990 0.09688 98 70 - 130 mg/Kg Toluene <0.00199 U 0.0990 0.09928 mg/Kg 100 70 - 130 Ethylbenzene <0.00199 U 0.0990 0.1059 mg/Kg 107 70 - 130 m-Xylene & p-Xylene <0.00398 U 0.198 0.2199 mg/Kg 111 70 - 130 o-Xylene <0.00199 U 0.0990 0.1119 mg/Kg 113 70 - 130

MS MS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	127	70 - 130
1,4-Difluorobenzene (Surr)	83	70 - 130

Lab Sample ID: 890-1353-1 MSD

**Matrix: Solid** 

**Analysis Batch: 9047** 

Client Sample ID: BH03

Prep Type: Total/NA

Prep Batch: 9069

_	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00199	U	0.101	0.09552		mg/Kg		95	70 - 130	1	35
Toluene	<0.00199	U	0.101	0.09546		mg/Kg		95	70 - 130	4	35
Ethylbenzene	<0.00199	U	0.101	0.1006		mg/Kg		100	70 - 130	5	35
m-Xylene & p-Xylene	<0.00398	U	0.202	0.2099		mg/Kg		104	70 - 130	5	35
o-Xylene	<0.00199	U	0.101	0.1060		mg/Kg		105	70 - 130	5	35

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	118		70 - 130
1,4-Difluorobenzene (Surr)	85		70 - 130

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

Lab Sample ID: MB 880-9164/1-A

**Matrix: Solid** 

**Analysis Batch: 9176** 

**Client Sample ID: Method Blank** Prep Type: Total/NA Prep Batch: 9164

	MB N	MB						
Analyte	Result (	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<50.0 U	U _	50.0	mg/Kg		10/09/21 13:16	10/11/21 10:51	1

(GRO)-C6-C10

Client: WSP USA Inc. Job ID: 890-1353-1 Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

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

Lab Sample ID: MB 880-9164/1-A Client Sample ID: Method Blank Matrix: Solid **Prep Type: Total/NA** Prep Batch: 9164 **Analysis Batch: 9176** 

	MB	MB						
Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		10/09/21 13:16	10/11/21 10:51	1
Oll Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		10/09/21 13:16	10/11/21 10:51	1
	MB	MB						
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane	102		70 - 130			10/09/21 13:16	10/11/21 10:51	

o-Terphenyl		119	70 - 130				10/0	09/21 13:1	6 10/11/21 10:51	1 1
Lab Sample ID: LCS 880-	9164/2-A					Clier	nt Sai	mple ID	: Lab Control	l Sample
Matrix: Solid Analysis Batch: 9176									Prep Type: Prep Bate	
			Spike	LCS	LCS				%Rec.	
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics			1000	1167		mg/Kg		117	70 - 130	
(GRO)-C6-C10										
Diesel Range Organics (Over			1000	878.9		mg/Kg		88	70 - 130	
C10-C28)										
	LCS	LCS								
Surrogate	%Recovery	Qualifier	Limits							
1-Chlorooctane	91		70 - 130							
o-Terphenyl	88		70 - 130							

Lab Sample ID: LCSD 880-9164/3-A			•	Jilent Sai	mpie	ID: Lai	Control	Sampi	∌ Dup
Matrix: Solid							Prep Ty	pe: Tot	al/NA
Analysis Batch: 9176							Prep	Batch:	9164
	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1075		mg/Kg		108	70 - 130	8	20
Diesel Range Organics (Over C10-C28)	1000	865.7		mg/Kg		87	70 - 130	2	20
LCSD LCSD									

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	83		70 - 130
o-Terphenyl	81		70 - 130

Lab Sample ID: 890-1353 Matrix: Solid Analysis Batch: 9176		Sample	Spike	MS	MS			C	Prep Typ	ole ID: BH03 oe: Total/NA Batch: 9164
Analyte	•	Qualifier	Added	_	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	997	1170		mg/Kg		114	70 - 130	
Diesel Range Organics (Over C10-C28)	<49.9	U	997	915.8		mg/Kg		90	70 - 130	
	MS	MS								
Surrogate	%Recovery	Qualifier	Limits							
1-Chlorooctane	99		70 - 130							
o-Terphenyl	100		70 - 130							

Client: WSP USA Inc. Job ID: 890-1353-1 SDG: 31403236.020.0129 Project/Site: PLU Remuda Basin 4-24-30

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

Lab Sample ID: 890-1353-1 MSD Client Sample ID: BH03

**Matrix: Solid Analysis Batch: 9176**  Prep Type: Total/NA Prep Batch: 9164

_	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	1000	1210		mg/Kg		117	70 - 130	3	20
Diesel Range Organics (Over	<49.9	U	1000	859.0		mg/Kg		84	70 - 130	6	20

C10-C28)

MSD MSD Surrogate %Recovery Qualifier Limits 70 - 130 1-Chlorooctane 93 93 70 - 130 o-Terphenyl

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-9095/1-A **Client Sample ID: Method Blank** 

**Matrix: Solid** 

**Analysis Batch: 9098** 

**Prep Type: Soluble** 

MB MB Result Qualifier RL Unit Analyte Prepared Analyzed Dil Fac 5.00 Chloride <5.00 U mg/Kg 10/08/21 08:59

Lab Sample ID: LCS 880-9095/2-A **Client Sample ID: Lab Control Sample Prep Type: Soluble** 

**Matrix: Solid** 

**Analysis Batch: 9098** 

LCS LCS Spike %Rec. Analyte Added Result Qualifier Limits Unit D %Rec Chloride 250 247.1 mg/Kg 99 90 - 110

**Client Sample ID: Lab Control Sample Dup** Lab Sample ID: LCSD 880-9095/3-A **Matrix: Solid Prep Type: Soluble** 

**Analysis Batch: 9098** 

	Spike	LCSD	LCSD				%Rec.		RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Chloride	250	247.6		mg/Kg	_	99	90 - 110	0	20	

Lab Sample ID: 890-1353-1 MS Client Sample ID: BH03 **Prep Type: Soluble** 

**Matrix: Solid** 

**Analysis Batch: 9098** 

MS MS Sample Sample Spike %Rec. Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits Chloride 10600 5050 15860 mg/Kg 105 90 - 110

Lab Sample ID: 890-1353-1 MSD **Client Sample ID: BH03 Prep Type: Soluble** 

**Matrix: Solid** 

**Analysis Batch: 9098** 

MSD MSD %Rec. **RPD** Sample Sample Spike Added Analyte Result Qualifier Result Qualifier Unit D %Rec Limits RPD Limit 5050 Chloride 10600 15920 106 90 - 110 mg/Kg

 Client: WSP USA Inc.
 Job ID: 890-1353-1

 Project/Site: PLU Remuda Basin 4-24-30
 SDG: 31403236.020.0129

**GC VOA** 

Prep Batch: 9035

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-9035/5-A	Method Blank	Total/NA	Solid	5035	

**Analysis Batch: 9047** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1353-1	BH03	Total/NA	Solid	8021B	9069
890-1353-2	BH03A	Total/NA	Solid	8021B	9069
890-1353-3	BH02	Total/NA	Solid	8021B	9069
890-1353-4	BH02A	Total/NA	Solid	8021B	9069
890-1353-5	SS03	Total/NA	Solid	8021B	9069
890-1353-6	SS04	Total/NA	Solid	8021B	9069
MB 880-9035/5-A	Method Blank	Total/NA	Solid	8021B	9035
MB 880-9069/5-A	Method Blank	Total/NA	Solid	8021B	9069
LCS 880-9069/1-A	Lab Control Sample	Total/NA	Solid	8021B	9069
LCSD 880-9069/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	9069
890-1353-1 MS	BH03	Total/NA	Solid	8021B	9069
890-1353-1 MSD	BH03	Total/NA	Solid	8021B	9069

**Analysis Batch: 9062** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1353-1	BH03	Total/NA	Solid	Total BTEX	
890-1353-2	BH03A	Total/NA	Solid	Total BTEX	
890-1353-3	BH02	Total/NA	Solid	Total BTEX	
890-1353-4	BH02A	Total/NA	Solid	Total BTEX	
890-1353-5	SS03	Total/NA	Solid	Total BTEX	
890-1353-6	SS04	Total/NA	Solid	Total BTEX	

Prep Batch: 9069

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1353-1	BH03	Total/NA	Solid	5035	<del></del>
890-1353-2	BH03A	Total/NA	Solid	5035	
890-1353-3	BH02	Total/NA	Solid	5035	
890-1353-4	BH02A	Total/NA	Solid	5035	
890-1353-5	SS03	Total/NA	Solid	5035	
890-1353-6	SS04	Total/NA	Solid	5035	
MB 880-9069/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-9069/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-9069/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-1353-1 MS	BH03	Total/NA	Solid	5035	
890-1353-1 MSD	BH03	Total/NA	Solid	5035	

**GC Semi VOA** 

**Analysis Batch: 9044** 

<b>Lab Sample ID</b> 890-1353-1	Client Sample ID BH03	Prep Type Total/NA	Matrix Solid	Method 8015 NM	Prep Batch
890-1353-2	ВН03А	Total/NA	Solid	8015 NM	
890-1353-3	BH02	Total/NA	Solid	8015 NM	
890-1353-4	BH02A	Total/NA	Solid	8015 NM	
890-1353-5	SS03	Total/NA	Solid	8015 NM	
890-1353-6	SS04	Total/NA	Solid	8015 NM	

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Job ID: 890-1353-1 Client: WSP USA Inc. Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

# **GC Semi VOA**

# Prep Batch: 9164

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1353-1	BH03	Total/NA	Solid	8015NM Prep	
890-1353-2	BH03A	Total/NA	Solid	8015NM Prep	
890-1353-3	BH02	Total/NA	Solid	8015NM Prep	
890-1353-4	BH02A	Total/NA	Solid	8015NM Prep	
890-1353-5	SS03	Total/NA	Solid	8015NM Prep	
890-1353-6	SS04	Total/NA	Solid	8015NM Prep	
MB 880-9164/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-9164/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-9164/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-1353-1 MS	BH03	Total/NA	Solid	8015NM Prep	
890-1353-1 MSD	BH03	Total/NA	Solid	8015NM Prep	

# **Analysis Batch: 9176**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1353-1	BH03	Total/NA	Solid	8015B NM	9164
890-1353-2	BH03A	Total/NA	Solid	8015B NM	9164
890-1353-3	BH02	Total/NA	Solid	8015B NM	9164
890-1353-4	BH02A	Total/NA	Solid	8015B NM	9164
890-1353-5	SS03	Total/NA	Solid	8015B NM	9164
890-1353-6	SS04	Total/NA	Solid	8015B NM	9164
MB 880-9164/1-A	Method Blank	Total/NA	Solid	8015B NM	9164
LCS 880-9164/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	9164
LCSD 880-9164/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	9164
890-1353-1 MS	BH03	Total/NA	Solid	8015B NM	9164
890-1353-1 MSD	BH03	Total/NA	Solid	8015B NM	9164

# HPLC/IC

#### Leach Batch: 9095

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1353-1	BH03	Soluble	Solid	DI Leach	
890-1353-2	BH03A	Soluble	Solid	DI Leach	
890-1353-3	BH02	Soluble	Solid	DI Leach	
890-1353-4	BH02A	Soluble	Solid	DI Leach	
890-1353-5	SS03	Soluble	Solid	DI Leach	
890-1353-6	SS04	Soluble	Solid	DI Leach	
MB 880-9095/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-9095/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-9095/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-1353-1 MS	BH03	Soluble	Solid	DI Leach	
890-1353-1 MSD	BH03	Soluble	Solid	DI Leach	

# **Analysis Batch: 9098**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1353-1	BH03	Soluble	Solid	300.0	9095
890-1353-2	BH03A	Soluble	Solid	300.0	9095
890-1353-3	BH02	Soluble	Solid	300.0	9095
890-1353-4	BH02A	Soluble	Solid	300.0	9095
890-1353-5	SS03	Soluble	Solid	300.0	9095
890-1353-6	SS04	Soluble	Solid	300.0	9095
MB 880-9095/1-A	Method Blank	Soluble	Solid	300.0	9095

Job ID: 890-1353-1 Client: WSP USA Inc. Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

# **HPLC/IC (Continued)**

# **Analysis Batch: 9098 (Continued)**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCS 880-9095/2-A	Lab Control Sample	Soluble	Solid	300.0	9095
LCSD 880-9095/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	9095
890-1353-1 MS	BH03	Soluble	Solid	300.0	9095
890-1353-1 MSD	BH03	Soluble	Solid	300.0	9095

Job ID: 890-1353-1 SDG: 31403236.020.0129

**Client Sample ID: BH03** 

Lab Sample ID: 890-1353-1

Date Collected: 10/04/21 09:13 Date Received: 10/04/21 13:57

Matrix: Solid

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			9069	10/07/21 14:40	KL	XEN MID
Total/NA	Analysis	8021B		1	9047	10/08/21 06:38	KL	XEN MID
Total/NA	Analysis	Total BTEX		1	9062	10/07/21 12:47	KL	XEN MID
Total/NA	Analysis	8015 NM		1	9044	10/07/21 09:20	AJ	XEN MID
Total/NA	Prep	8015NM Prep			9164	10/09/21 13:16	DM	XEN MID
Total/NA	Analysis	8015B NM		1	9176	10/11/21 11:54	AJ	XEN MID
Soluble	Leach	DI Leach			9095	10/08/21 08:10	СН	XEN MID
Soluble	Analysis	300.0		20	9098	10/08/21 09:16	СН	XEN MID

Lab Sample ID: 890-1353-2

Client Sample ID: BH03A Date Collected: 10/04/21 09:20

**Matrix: Solid** 

Date Received: 10/04/21 13:57

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			9069	10/07/21 14:40	KL	XEN MID
Total/NA	Analysis	8021B		1	9047	10/08/21 06:58	KL	XEN MID
Total/NA	Analysis	Total BTEX		1	9062	10/07/21 12:47	KL	XEN MID
Total/NA	Analysis	8015 NM		1	9044	10/07/21 09:20	AJ	XEN MID
Total/NA	Prep	8015NM Prep			9164	10/09/21 13:16	DM	XEN MID
Total/NA	Analysis	8015B NM		1	9176	10/11/21 18:42	AJ	XEN MID
Soluble	Leach	DI Leach			9095	10/08/21 08:10	СН	XEN MID
Soluble	Analysis	300.0		1	9098	10/08/21 09:33	CH	XEN MID

**Client Sample ID: BH02** Lab Sample ID: 890-1353-3 Date Collected: 10/04/21 09:51 **Matrix: Solid** 

Date Received: 10/04/21 13:57

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			9069	10/07/21 14:40	KL	XEN MID
Total/NA	Analysis	8021B		1	9047	10/08/21 07:19	KL	XEN MID
Total/NA	Analysis	Total BTEX		1	9062	10/07/21 12:47	KL	XEN MID
Total/NA	Analysis	8015 NM		1	9044	10/07/21 09:20	AJ	XEN MID
Total/NA	Prep	8015NM Prep			9164	10/09/21 13:16	DM	XEN MID
Total/NA	Analysis	8015B NM		1	9176	10/11/21 19:02	AJ	XEN MID
Soluble	Leach	DI Leach			9095	10/08/21 08:10	CH	XEN MID
Soluble	Analysis	300.0		5	9098	10/08/21 09:38	CH	XEN MID

Client Sample ID: BH02A Lab Sample ID: 890-1353-4 Date Collected: 10/04/21 09:54 Matrix: Solid

Date Received: 10/04/21 13:57

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			9069	10/07/21 14:40	KL	XEN MID
Total/NA	Analysis	8021B		1	9047	10/08/21 07:39	KL	XEN MID
Total/NA	Analysis	Total BTEX		1	9062	10/07/21 12:47	KL	XEN MID

# Lab Chronicle

Client: WSP USA Inc. Job ID: 890-1353-1 Project/Site: PLU Remuda Basin 4-24-30

SDG: 31403236.020.0129

Client Sample ID: BH02A

Date Collected: 10/04/21 09:54 Date Received: 10/04/21 13:57

Lab Sample ID: 890-1353-4

**Matrix: Solid** 

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1	9044	10/07/21 09:20	AJ	XEN MID
Total/NA	Prep	8015NM Prep			9164	10/09/21 13:16	DM	XEN MID
Total/NA	Analysis	8015B NM		1	9176	10/11/21 19:23	AJ	XEN MID
Soluble	Leach	DI Leach			9095	10/08/21 08:10	CH	XEN MID
Soluble	Analysis	300.0		5	9098	10/08/21 09:44	CH	XEN MID

Lab Sample ID: 890-1353-5 **Client Sample ID: SS03** 

Date Collected: 10/04/21 11:31 **Matrix: Solid** 

Date Received: 10/04/21 13:57

	Batch	Batch		Dilution	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			9069	10/07/21 14:40	KL	XEN MID
Total/NA	Analysis	8021B		1	9047	10/08/21 07:59	KL	XEN MID
Total/NA	Analysis	Total BTEX		1	9062	10/07/21 12:47	KL	XEN MID
Total/NA	Analysis	8015 NM		1	9044	10/07/21 09:20	AJ	XEN MID
Total/NA	Prep	8015NM Prep			9164	10/09/21 13:16	DM	XEN MID
Total/NA	Analysis	8015B NM		1	9176	10/11/21 19:43	AJ	XEN MID
Soluble	Leach	DI Leach			9095	10/08/21 08:10	СН	XEN MID
Soluble	Analysis	300.0		1	9098	10/08/21 09:50	CH	XEN MID

**Client Sample ID: SS04** Lab Sample ID: 890-1353-6 Date Collected: 10/04/21 11:39 **Matrix: Solid** 

Date Received: 10/04/21 13:57

Batch **Batch** Dilution **Batch** Prepared **Prep Type** Type Method Run **Factor** Number or Analyzed Analyst Lab Total/NA Prep 5035 9069 10/07/21 14:40 KL XEN MID Total/NA Analysis 8021B 1 9047 10/08/21 08:20 KL XEN MID Total/NA Analysis Total BTEX 9062 10/07/21 12:47 KL XEN MID 1 Total/NA 8015 NM XEN MID Analysis 1 9044 10/07/21 09:20 AJ Total/NA Prep 8015NM Prep 9164 10/09/21 13:16 DM XEN MID Total/NA Analysis 8015B NM 1 9176 10/11/21 14:25 AJ XEN MID Soluble Leach DI Leach 9095 10/08/21 08:10 CH **XEN MID** Soluble Analysis 300.0 1 9098 10/08/21 10:07 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: 890-1353-1

 Project/Site: PLU Remuda Basin 4-24-30
 SDG: 31403236.020.0129

# **Laboratory: Eurofins Xenco, Midland**

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

Authority	Pr	ogram	Identification Number	Expiration Date		
Texas	NE	ELAP	T104704400-21-22	06-30-22		
The following analyte	e are included in this reno	art but the laboratory is r	ant nortified by the governing outbarity	This list may include analytee for w		
the agency does not	offer certification.	•	not certified by the governing authority.	This list may include analytes for v		
	•	Matrix	Analyte	This list may include analytes for v		
the agency does not	offer certification.	•	, , ,	This list may include analytes for v		

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Job ID: 890-1353-1

# **Method Summary**

Client: WSP USA Inc.

Project/Site: PLU Remuda Basin 4-24-30 SDG: 31403236.020.0129

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 Remuda Basin 4-24-30

Job ID: 890-1353-1

SDG: 31403236.020.0129

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-1353-1	BH03	Solid	10/04/21 09:13	10/04/21 13:57	1.0
890-1353-2	BH03A	Solid	10/04/21 09:20	10/04/21 13:57	4.0
890-1353-3	BH02	Solid	10/04/21 09:51	10/04/21 13:57	3.0
890-1353-4	BH02A	Solid	10/04/21 09:54	10/04/21 13:57	4.0
890-1353-5	SS03	Solid	10/04/21 11:31	10/04/21 13:57	0.5
890-1353-6	SS04	Solid	10/04/21 11:39	10/04/21 13:57	0.5

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				Chain of	Chain of Custody		Worl	Work Order No:		
X			Houston, TX (281) 240-	Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210)	2-0300 San Antonio,T	X (210) 509-3334			•	
LAB	BORATORIES	Hobbs, NM	Midland,TX (432-704- (575-392-7550) Phoeni	Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296 75-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (8	)585-3443 Lubbock,TX lanta,GA (770-449-880)	Midland,TX (432-704-5440) EL Paso,TX (915)585-3443 Lubbock,TX (806)794-1296 Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)		www.xenco.com F	Page of	_
Project Manager:	Dan Moir		Bill to: (if different)	Hyle Littrell				Work Order Comments	nents	
	WSP USA		Company Name:	me: XTO Energy		Prog	Program: UST/PST	□RP □rownfields	□RC	
	3300 North A Street		Address:	522 W. Mermod St.	od St.	(0)	State of Project:			
te ZIP:	Midland, TX 79705		City, State ZIP:	P: Carlsbad, NM 88220	88220	Rep	Reporting:Level II	∏evel III ☐\$T/UST	∏RP Upvel IV	
	(432) 236-3849		Email: Jeremy.Hill@wsp.com.	wsp.com, Dan.Moir@wsp.com	wsp.com	Deliv	Deliverables: EDD	ADaPT [	Other:	
Name:	PLU Beach Bon	m 4-24-30	Turn Around		ANA	ANALYSIS REQUEST			Work Order Notes	S
Project Number:	31403724.020.0112	20.0112	Routine 1				_	SON	,	
P.O. Number:	NAPP 3120034052	4 50489	Rush:			_		30	30-015-40160	
Sampler's Name:	Jere	Jeremy Hill	Due Date:			_			11671	
SAMPLE RECEIPT		Temp Blank: Yes No V	Wet Ice: Yes No	5				0	9134071001	
Temperature (°C):	4.4/4	2 Them	Thermometer ID		D)					
Received Intact:	(Yes) N	Nua Correction Eactor	Factor: CO.	5)	300.	890-1353 Chain of Custody		<u> </u>		
Sample Custody Seals	Yes No			PA 80	e (EP		-	-	lab, if received by 4:30pm	m ii
Sample Identification		Matrix Sampled Sar	Time Depth	Numb TPH (E BTEX (	Chlorid				Sample Comments	ঠ
BH63		10-4-21 S	0413 1.0	XXI	X				discrete	
D1403 D	D	1 00	0420 4.0							
40419	~	0.0							-	
COMOS	P	0								
5025			139 0.5	4						_
Total 200.7 / 6010 Circle Method(s) a	otal 200.7 / 6010 200.8 / 6020: Circle Method(s) and Metal(s) to be analyzed	œ	RCRA 13PPM Texas 11 A	Sb As	Ba Be B Cd Ca Cr Ba Be Cd Cr Co Cu	Cr Co Cu Fe Pb Mg Mn Cu Pb Mn Mo Ni Se Ag	Mo Ni K Se TI U	Ag SiO2 Na Sr Tl Sn U V 1631 / 245.1 / 7470	. Na Sr Tl Sn ∪ V Zn 1631 / 245.1 / 7470 / 7471 : Hg	: 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.	ocument and relinquishm able only for the cost of a	ent of samples constitutes samples and shall not assu	a valid purchase order from a valid purchase order from me any responsibility for each sample of \$5 for each sample.	om client company to Xen any losses or expenses in e submitted to Xenco, but	co, its affiliates and subc curred by the client if su not analyzed. These terr	ontractors. It assigns stand th losses are due to circum ns will be enforced unless p	rs. It assigns standard terms and condition is are due to circumstances beyond the cont is enforced unless previously negotiated.	rol		
Relinquished by: (Signature)	(Signature)	Received by: (Signature)	Signature)	Date/Time	Relinquist	Relinquished by: (Signature)	Received	Received by: (Signature)	Date/Time	Ф
	M	offere any.		1042 1855	200					
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C					6					

Yes

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Midland

**Eurofins Xenco, Carlsbad** 1089 N Canal St.

Chain of Custody Record

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**Environment Testing** 

State Zip: TX 79701 SS03 (890-1353-5) BH02A (890-1353-4 BH02 (890-1353-3) BH03A (890-1353-2) BH03 (890-1353-1) PLU Remuda Bar 4-24-30 SS04 (890-1353-6) Sample Identification - Client ID (Lab ID) ossible Hazard Identification 432-704-5440(Tel) ote: 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 laintain 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 laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Xenco LLC. Carlsbad NM 88220 Phone: 575-988-3199 Fax 575-988-3199 hipping/Receiving 211 W Florida Ave eliverable Requested I, II III IV Other (specify) Custody Seals Intact: linquished by inquished by npty Kit Relinquished by rofins Xenco lient Information (Sub Contract Lab) nquished by: Custody Seal No witten 12.4.21 Date/Time Primary Deliverable Rank Due Date Requested 10/8/2021 Phone: 39000004 TAT Requested (days) ate/Time ate/Time Sample Date oject #: 10/4/21 10/4/21 10/4/21 10/4/21 10/4/21 10/4/21 Mountain 11 39 Mountain 11 31 Mountain 09 54 Mountain 09 51 Mountain 09 20 Mountain Sample 09 13 (C=comp, G=grab) Sample Type Preservation Code: Company Solid Solid Solid Solid Solid Solid Kramer Jessica jessica.kramer@eurofinset com NELAP - Louisiana, NELAP - Texas Ime Perform MS/MSD (Yes or No) Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)

Return To Client Disposal By Lab Archive For Mon Special Instructions/QC Requirements Received by 8015MOD\_NM/8015NM\_S\_Prep (MOD) Full TPH × × ×  $\times$ × Cooler Temperature(s) °C and Other Remarks × × × × × 8015MOD\_Calc × 800\_ORGFM\_28D/DI\_LEACH Chloride × 8021B/5035FP\_Calc (MOD) BTEX × × × × × Analysis Requested × Total\_BTEX\_GCV × × × × × State of Origin. New Mexico arrier Tracking No(s) Method of Shipment Date/Time )ate/Time a<del>lle</del> -→ Total Number of containers. e de la J DI Water K EDTA L EDA A HCL
B NaOH
C D Aitric Acid
E NaHSO4
F MeOH
G Amchlor
H Ascorbic Acid COC No 890-444 1 Preservation 890-1353-1 Page 1 of 1 M Hexane
N None
O AsNaO2
P Na2O4S
P Na2O4S
R Na2SC3
R Na2SC3
S H2SO4
T TSP Dodecahydrate
U Acctone
V MCAA
V pH 4-5 Company Company Months other (specify)

Ver: 06/08/2021

# **Login Sample Receipt Checklist**

 Client: WSP USA Inc.
 Job Number: 890-1353-1

 SDG Number: 31403236.020.0129

List Source: Eurofins Xenco, Carlsbad

Login Number: 1353 List Number: 1 Creator: Clifton, Cloe

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	

Page 25 of 26

# **Login Sample Receipt Checklist**

Client: WSP USA Inc.

Job Number: 890-1353-1

SDG Number: 31403236.020.0129

Login Number: 1353
List Source: Eurofins Xenco, Midland
List Number: 2
List Creation: 10/05/21 02:03 PM

Creator: Lowe, Katie

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

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 55790

#### **CONDITIONS**

Operator:	OGRID:
XTO ENERGY, INC	5380
6401 Holiday Hill Road	Action Number:
Midland, TX 79707	55790
	Action Type:
	[C-141] Release Corrective Action (C-141)

#### CONDITIONS

Created By	Condition	Condition Date
jnobui	Closure Report Approved. Going forward, please submit with Closure Report photos of intact liner.	3/9/2022