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	nAPP2124349541
District RP	
Facility ID	
Application ID	

## **Release Notification**

## **Responsible Party**

Responsible Party: WP2	K Energy Permian,	LLC	OGRID: 246289					
Contact Name: Jim Rale	ey		Contact Telephone: 575-689-7597					
Contact email: jim.raley	@dvn.com			Incident # (assigned by OCD) nAPP2124349541				
Contact mailing address 88220	: 5315 Buena Vista	a Dr., Carlsbad N	NM					
		Location	n of Re	elease So	ource			
Latitude 32.0224686		(NAD 83 in a		ongitude -	-103.8895416 mal places)			
Site Name: RDX FEDER	RAL 21 #042			Site Type:	Oil Production Facility			
Date Release Discovered	l: Aug 30 <sup>th</sup> , 2021			API# (if app	plicable) 30-015-40643			
Unit Letter Section	Township	Range		Coun	nty			
N 21	26S	30E	Eddy					
Materia  Crude Oil  Produced Water	al(s) Released (Select a Volume Release Volume Release	ed (bbls) 4			Release  i justification for the volumes provided below)  Volume Recovered (bbls) 4  Volume Recovered (bbls) 250			
Z Troduced water		tion of dissolved	chloride i	in the	Yes □ No			
	produced water							
Condensate	Volume Release				Volume Recovered (bbls)			
☐ Natural Gas	Volume Release	ed (Mcf)			Volume Recovered (Mcf)			
Other (describe)	Volume/Weight	Released (provi	ide units)		Volume/Weight Recovered (provide units)			
Cause of Release: Hose Fluids fully recovered by BBL Estimate = Recove	y Vac Truck.	oump disconnecte	ed from pu	allowi	ing fluids to drain into lined secondary containment.			

Received by OCD: 11/24/2021 12:02:45 PM Form C-141 State of New Mexico Page 2 Oil Conservation Division

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Was this a major release as defined by 19.15.29.7(A) NMAC?	If YES, for what reason(s) does the responsible party consider this a major release? Volume exceeded 25 bbls.
⊠ Yes □ No	
	otice given to the OCD? By whom? To whom? When and by what means (phone, email, etc) ail 8/31/2021 to Mike Bratcher and Emily Hernanadez.
	Initial Response
The responsible p	party must undertake the following actions immediately unless they could create a safety hazard that would result in injury
The source of the rele	ease has been stopped.
The impacted area ha	s been secured to protect human health and the environment.
Released materials ha	we been contained via the use of berms or dikes, absorbent pads, or other containment devices.
All free liquids and re	ecoverable materials have been removed and managed appropriately.
If all the actions described	d above have <u>not</u> been undertaken, explain why:
D 10.15.20.0 D (4) ND	
has begun, please attach	AC the responsible party may commence remediation immediately after discovery of a release. If remediation a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred at area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.
regulations all operators are public health or the environr failed to adequately investig	rmation given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and required to report and/or file certain release notifications and perform corrective actions for releases which may endanger ment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have atte and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In f a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws
Printed Name:James	s Raley Title: Environmental Specialist
Į,	PL.
Signature:	Date:09/02/2021
email:jim.raley@dvn	.com Telephone:575-689-7597
OCD Only	
Received by:Ramona	Marcus Date: 9/10/2021

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## Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?  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?  Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?  Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?  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?  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?	
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?  Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?  Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?  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?  Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?  Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh	(s)
watercourse?  Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?  Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?  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?  Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?  □ Yes □ No  □ Yes □ No  Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?  □ Yes □ No  □ Yes □ No	
ordinary high-water mark)?  Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?  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?  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 1000 feet of any other fresh water well or spring?  □ Yes □ No	
or church?  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?  Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?  Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh  Yes  No	
by less than five households for domestic or stock watering purposes?  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  Yes  No	
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh  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 vertical extents of s contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.	oil
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 wells.</li> <li>✓ Field data</li> </ul>	
Data table of soil contaminant concentration data	
Depth to water determination  Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release	
Boring or excavation logs	
Photographs including date and GIS information	
<ul> <li>✓ Topographic/Aerial maps</li> <li>✓ Laboratory data including chain of custody</li> </ul>	

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.

Received by O	OCD: 11/24/2	State of New Mexico
Fqrm C-141	2	1 State of New Mexico
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I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. Title: Environmental Specialist James Raley Printed Name: Date: \_\_\_\_\_\_\_ Signature: email: jim.raley@dvn.com Telephone: 575-689-7597 **OCD Only** Received by: Date:

Ρ

e of New Mexico Incident ID nAPP2124349541

Incident ID nAPP2124349541

District RP
Facility ID

Application ID

## Closure

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

Closure Report Attachment Checklist: Each of the follo	wing items must be included in the closure report.
A scaled site and sampling diagram as described in 19.1	15.29.11 NMAC
Photographs of the remediated site prior to backfill or put be notified 2 days prior to liner inspection)	photos of the liner integrity if applicable (Note: appropriate OCD District office
☐ Laboratory analyses of final sampling (Note: appropriate	te 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 may endanger public health or the environment. The accepta should their operations have failed to adequately investigate a human health or the environment. In addition, OCD acceptan compliance with any other federal, state, or local laws and/or	complete to the best of my knowledge and understand that pursuant to OCD rules certain release notifications and perform corrective actions for releases which ince of a C-141 report by the OCD does not relieve the operator of liability and remediate contamination that pose a threat to groundwater, surface water, ince of a C-141 report does not relieve the operator of responsibility for regulations. The responsible party acknowledges they must substantially the conditions that existed prior to the release or their final land use in the OCD when reclamation and re-vegetation are complete.
Printed Name: James Raley	Title: Environmental Specialist
Signature:/	Date:11/24/2021
email: jim.raley@dvn.com	Telephone: 575-689-7597
OCD Only	
Received by: Chad Hensley	Date: 12/21/2021
remediate contamination that poses a threat to groundwater, su party of compliance with any other federal, state, or local law	e party of liability should their operations have failed to adequately investigate and arface water, human health, or the environment nor does not relieve the responsible and/or regulations.
Closure Approved by:	Date:12/21/2021
Printed Name: Chad Hensley	Title: Environmental Specialist Advanced



WSP USA

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

November 21, 2021

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

RE: Closure Request
WPX Energy Permian, LLC.
RDX Federal 21 #042
Incident Number nAPP2124349541
Eddy County, New Mexico

To Whom It May Concern:

WSP USA Inc (WSP) on behalf of WPX Energy Permian, LLC. (WPX) presents the following Closure Request detailing soil sampling activities at the RDX Federal 21 #042 (Site) located in Unit N, Section 21, Township 26 South, Range 30 East, in Eddy County, New Mexico (Figure 1). The purpose of the soil sampling activities was to assess the presences or absence of impacts to soil following an August 30, 2021 release of produced water. Based on the results of the soil sampling events, WPX is submitting this Closure Request, describing site assessment and delineation activities that have occurred and requesting no further action (NFA) for Incident Number nAPP2124349541.

### **RELEASE BACKGROUND**

On August 30, 2021, the hose on a water transfer pump disconnected and resulted in the release of approximately 4 barrels (bbls) of crude oil and 250 bbls of produced water into the lined secondary containment. A vacuum truck was immediately dispatched and recovered approximately 4 bbls of crude oil and 250 bbls of produced water from the lined secondary containment. WPX reported the release to the New Mexico Oil Conservation Division (NMOCD) on a Release Notification and Corrective Action Form C-141 (Form C-141) on September 2, 2021 and was subsequently assigned Incident Number nAPP2124349541.

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#### SITE CHARACTERIZATION

WSP characterized the Site according to Table 1, Closure Criteria for Soils Impacted by a Release, of Title 19, Chapter 15, Part 29, Section 12 (19.15.29.12) of the New Mexico Administrative Code (NMAC). depth to groundwater at the Site is estimated to be greater than 100 feet bgs based on soil boring MW-1, associated with Ross Draw Unit (RDU) Federal Com 21-43, that was drilled by Talon LPE on December 9, 2020. The soil boring is located approximately 0.28 miles east of the Site. Using a truck mounted drill rig equipped with hollow stem auger, the soil boring was advanced to a total depth of approximately 105 feet bgs. Groundwater was not observed within the soil boring after at least 72 hours. Following the observation period, the boring was plugged and abandoned. The boring log is included as Attachment 1.

Regionally, WPX installed six other borings in December 2020 ((RDX 16-25 (MW-1), RDX 17 #3 (MW-1), RDX Federal Com 17-44H (MW-1), RDU #38 (MW-1), RDU #55 (MW-1), and RDU #57 (MW-1)) within a 5 mile radius of the Site and depth to water results for all six indicated groundwater was not encountered within 105 feet of the ground surface. Two other water wells, United States Geological Survey (USGS) well number 320125103514701 and New Mexico Office of the State Engineer (OSE) well number C 02165, indicate depth to water was 117 feet bgs and 180 feet bgs, respectively. Regionally, depth to water appears to be greater than 100 feet bgs and therefore the depth to water estimate for RDU Federal Com 21-43 appears to be consistent with the regional data, thus a representative water well for estimating depth to water for the Site. Figure 1 depicts the nine water wells described above.

The closest continuously flowing or significant watercourse to the Site is an intermittent streambed located approximately 1,265 feet west 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 located in a medium-potential karst area. Potential receptors identified during Site Characterization are displayed in 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)



District II Page 3

- 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

#### LINER INSPECTION

On September 28, 2021, WSP personnel visited the Site to visually inspect the lined secondary containment for any signs of holes or tears that would act as a conduit to subsurface soil. The subsequent visual inspection of liner integrity determined the liner was not in working condition. Based on the site assessment and visual observations, delineation activities were warranted to investigate potential soil impacts. Photographic documentation of delineation activities is included as Attachment 2.

#### **DELINEATION SOIL SAMPLING ACTIVITIES**

On November 3, 2021, WSP personnel conducted delineation activities to confirm the presence or absence of impacted soils through the impaired liner. Utilizing a hand auger, WSP installed one delineation soil sample within the breach area (BH01) to determine the potential vertical extent of impact and six delineation soil samples (BH02 through BH07) outside of the containment to investigate lithology and confirm lateral delineation. Delineation activities were directed by field screening soil samples for volatile aromatic hydrocarbons using a calibrated photoionization detector (PID) and chloride using Hach® chloride QuanTab® test strips. A total of two soil samples were collected from each of the borehole locations: the sample with the highest observed field screening concentrations (approximately 0.5 foot bgs) and the greatest depth (approximately 1 foot bgs). The delineation soil samples were placed directly into pre-cleaned glass jars, labeled with the location, date, time, sampler initials, method of analysis, and immediately placed on ice. The soil samples were transported at or below 4 degrees Celsius (°C), under strict chain-ofcustody (COC) procedures to Eurofins Laboratories (Eurofins) in Carlsbad, New Mexico, for analysis of BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH following EPA Method 8015M/D; and chloride following EPA Method 300.0. The delineation sample locations were mapped utilizing a handheld GPS unit and are presented on Figure 2. Field screening results and observations for the boreholes were recorded on lithologic/soil sampling logs and are presented in Attachment 3.





#### **ANALYTICAL RESULTS**

Laboratory analytical results for the delineation soil samples indicated benzene, BTEX, TPH-GRO/TPH-DRO, TPH, and chloride concentrations were compliant with the Closure Criteria in all delineation soil samples and at both depths. Limited chloride was detected at approximately 1 foot bgs within the breach area (BH01); however, the concentration was in compliance with the Closure Criteria. Laboratory analytical results are summarized in Table 1 and the laboratory analytical report is included as Attachment 4.

### **CLOSURE REQUEST**

WSP personnel advanced seven boreholes (BH01 through BH07) within and around the release extent to a total depth of approximately 1 foot bgs in order to assess the presence or absence of soil impacts resulting from the August 30, 2021 crude oil and produced water release. Laboratory analytical results for all four delineation soil samples indicated benzene, BTEX, TPH-GRO/TPH-DRO, TPH, and chloride concentrations were compliant with the Closure Criteria. Additionally, lateral and vertical definition of the release is below the most stringent Closure Criteria.

While chloride was present within the breached area of the liner (BH01), the concentration was in compliance with the Closure Criteria. In addition, WPX is scheduling repairs to the impaired liner to help prevent future releases to the ground surface and act as a barrier for surface infiltration of precipitation that might mobilize and vertically migrate residual chloride in soil beneath the secondary containment. Assessment and delineation activities have confirmed the absence of impacts to the subsurface resulting from the August 2021 release and efforts to mitigate the release, including the removal of free-standing fluid via a hydrovac, has been protective of human health, the environment, and groundwater. As such, WPX is requesting NFA of Incident Number nAPP2124349541.

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

Sincerely,

WSP USA Inc.

Joseph S. Hernandez

Associate Consultant, Geologist

Daniel R. Moir, P.G.

Lead Consultant, Geologist



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cc: Jim Raley, Devon

**Bureau of Land Management** 

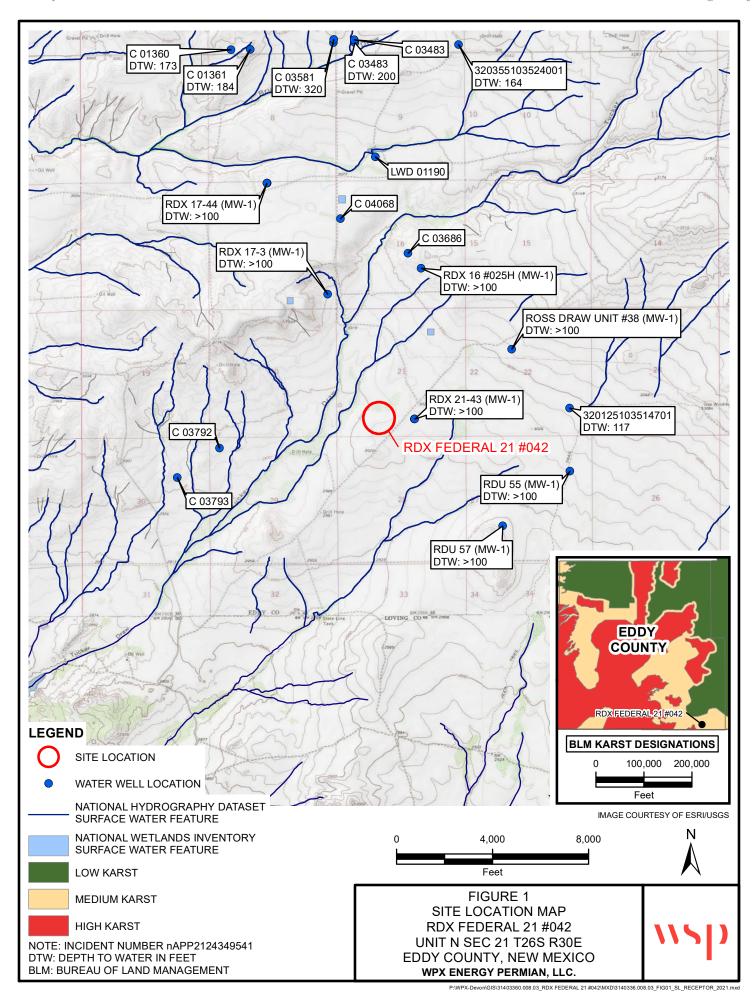
## Attachments:

Figure 1 Site Location Map

Figure 2 Delineation Soil Sample Locations

Table 1 Soil Analytical Results
Attachment 1 Water Well Record
Attachment 2 Photographic Log

Attachment 3 Lithologic/Soil Sampling Log Attachment 4 Laboratory Analytical Reports



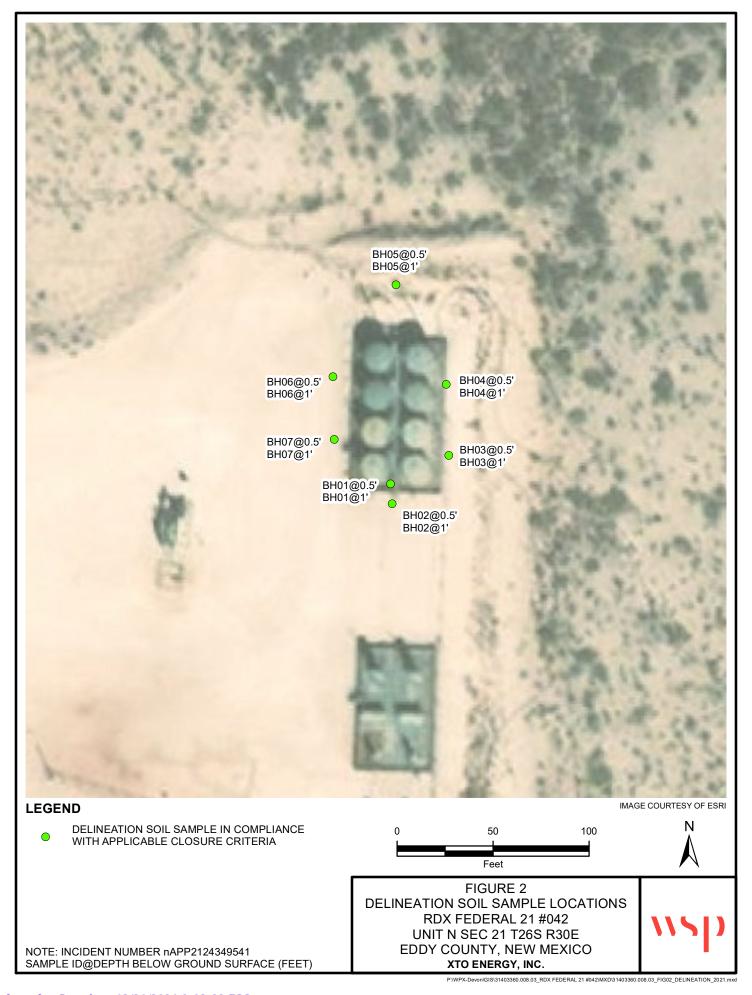


Table 1

### Soil Analytical Results RDX Federal 21 #042 Incident Number nAPP2124349541 Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft bgs)	Benzene (mg/kg)	BTEX (mg/kg)	TPH-DRO (mg/kg)	TPH-GRO (mg/kg)	TPH-ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Clo	osure Criteria (NM	AC 19.15.29)	10	50	NE	NE	NE	1,000	2,500	20,000
Delineation Samples										
BH01	10/28/2021	0.5	< 0.00202	< 0.00403	<49.9	<49.9	<49.9	<49.9	<49.9	2,380
BH01	10/28/2021	1	< 0.00199	< 0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	2,180
BH02	10/28/2021	0.5	< 0.00201	< 0.00402	<49.9	<49.9	<49.9	<49.9	<49.9	214
BH02	10/28/2021	1	< 0.00199	< 0.00398	< 50.0	<50.0	< 50.0	<50.0	< 50.0	289
BH03	10/28/2021	0.5	< 0.00199	< 0.00398	<50.0	<50.0	<50.0	<50.0	< 50.0	21.1
BH03	10/28/2021	1	< 0.00200	< 0.00399	<49.8	<49.8	<49.8	<49.8	<49.8	29.3
BH04	10/28/2021	0.5	< 0.00199	< 0.00398	64.3	<50.0	<50.0	64.3	64.3	17.6
BH04	10/28/2021	1	< 0.00199	< 0.00398	<49.8	<49.8	<49.8	<49.8	<49.8	19.4
BH05	10/28/2021	0.5	< 0.00198	< 0.00397	76.6	<50.0	<50.0	76.6	76.6	22.4
BH05	10/28/2021	1	< 0.00199	< 0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	111
BH06	10/28/2021	0.5	< 0.00199	< 0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	121
BH06	10/28/2021	1	< 0.00200	< 0.00399	<49.9	<49.9	<49.9	<49.9	<49.9	224
BH07	10/28/2021	0.5	< 0.00199	< 0.00398	<49.9	<49.9	<49.9	<49.9	<49.9	264
BH07	10/28/2021	1	< 0.00198	< 0.00397	<49.9	<49.9	<49.9	<49.9	<49.9	222

#### **Notes:**

ft - feet/foot

mg/kg - milligrams per kilograms

BTEX - benzene, toluene, ethylbenzene, and total xylenes

TPH - total petroleum hydrocarbons

DRO - diesel range organics

GRO - gasoline range organics

ORO - oil range organics

NMOCD - New Mexico Oil Conservation Division

NMAC - New Mexico Administrative Code

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

NE - Not Established

**BOLD -** indicates results exceed the higher of the background sample result or applicable regulatory standard Greyed data represents samples that were excavated

		ЦΒ					BORI	NG LOG/	MONITORING W	ELL COMPLETIO	N DIAG	RAM
>	HRL COMPLIANCE							l Number:	W-1	Location:	25	
	SOLUTIONS							IVI	W-1	RDX 16-25		
	20LUIIUN3								0/2020	WPX En	ergy	
Drilling Mo			Sampling !				Logged By:		nn, PG	Drilled By: Talon I	DE	
Gravel Pac	Air Rotar	У	Gravel Pac	k Depth Inte	one erval:		Seal Type:	J. LII	Seal Depth Interval:	Latitude:	LPE	
1	0/20 san			3 b	ags		N	lone	None	32.0399	004	
Casing Typ		Diameter:		Depth Inter			Boring Tota	al Depth (ft. BG		Longitude:	2269	
PVC Screen Typ		2-inch Slot:		0-105 fo	Depth 1	Interval:	Well Total	1 1 Depth (ft. BGS)		-103.883 Depth to Water (ft. BTOC):	DTW Date	<u>;</u>
PVC		0.010-in	nch	2-inch	-	110 ft		11		>110		/2020
Depth Interval (ft)	Recovery (ft)	Plasticity	Moisture	Odor	Staining	(mdd) QId	NSCS	Sample ID	Litholog	y/Remarks	W Comp	ell
0 5 10 15 20	NM	L	D	N	N	NM	SW	NS		nk tan well graded with silt	-	
25 30 35	NM	L	D	N	N	NM	SP	NS		pinky orange poorly graded fine sand		
40	NM	L	D	N	N	NM	SW	NS		d well graded sand gravel	†	
50 55	NM	L	D	N	N	NM	SP	NS		poorly graded fine and	Ţ	
60 65 70 75 80 85 90 95 100 105	NM	L	D	N	N	NM	SP	NS	sand with minor r	e poorly graded fine medium and coarse D: 110' bgs	- - - - - - - - -	

		HR							MONITORING W	ELL COMPLETION	N DIAGRAM	
COMPLIANCE							Boring/Wel		W-1	Location: Ross Draw U	Jnit #38	
							Date:			Client:		
Drilling Mo	Drilling Method: Sampling Method: I								1/2020	WPX En	ergy	
A	Air Rotai	î <b>y</b>			one			J. Li	nn, PG	Talon L	PE	
Gravel Pac	k Type: 0/20 Sar	nd	Gravel Pac	k Depth Inte			Seal Type:	one	Seal Depth Interval: None	Latitude: 32.0303	300	
Casing Typ	e:	Diameter:		Depth Inter	val:			al Depth (ft. BC	GS):	Longitude:		
Screen Typ	VC ne:	2-inch Slot:		0-100 fe	eet bgs Depth	Interval:	Well Total	1( Depth (ft. BGS		-103.871 Depth to Water (ft. BTOC):		
	VC	0.010-ir	nch	2-inch		105 ft	Wen Total	10		> 105	12/16/2020	
Depth Interval (ft)	Recovery (ft)	Plasticity	Moisture	Odor	Staining	PID (ppm)	NSCS	Sample ID	Litholog	y/Remarks	Well Completion	
0 5 10 15	NM	L	D	N	N	NM	SW	NS	fine sand with m	oink to buff colored inor medium and e sand	- - -	
20 25 30	NM	L	D	N	N	NM	SP	NS	Pale orange/pale fine			
35 40 45 50 55 60 65	NM	L	D	N	N	NM	SP	NS	Tan/pale brown/pale orange poorly graded fine sand			
70 75 80 85 90 95	NM	L	D	N	N	NM	SP	NS		poorly graded fine and		
100	NM	L	D	N	N	NM	SP	NS	Tan/pale brown/pal graded fine sand - T			

		HR	L						MONITORING W	ELL COMPLETION	N DIAGR.	AM
COMPLIANCE					Boring/Wel		W-1	Location: RDX Federal C	com 21-43			
		SO	LUI	LUTIONS			Date:			Client:		
Drilling Me							Logged By:		0/2020	WPX End	ergy	
_	Air Rotar	y	Samping !		ne		Logged Dy.		nn, P.G.	Talon L	PE	
Gravel Pack			Gravel Pac	ck Depth Inte			Seal Type:	_	Seal Depth Interval:	Latitude:		
	0/20 Sar	nd Diameter:		3 B Depth Inter	ags			Ione al Depth (ft. BC	None	32.0225 Longitude:	71	
Casing Typ PVC	e:	2-inch		0-100 fe			Boring Tota		10	-103.884	371	
Screen Typ		Slot:		Diameter:		Interval:	Well Total	Depth (ft. BGS		Depth to Water (ft. BTOC):	DTW Date:	
PVC	ı	0.010-ii	nch	2-inch	100 -	105 ft		10	05	> 105	12/16/2	020
Depth Interval (ft)	Recovery (ft)	Plasticity	Moisture	Odor	Staining	PID (ppm)	NSCS	Sample ID	Litholog	y/Remarks	Well Comple	
0 5 10 15	NM	L	D	N	N	NM	SP	NS	Pale orange to tan poorly graded fine sand		- - -	
20	NM	Н	D	N	N	NM	CL	NS	Pale orange/tan/pale red clay, dry, with silt, fine sand, and minor caliche			
25 30 35 40 45	NM	L	D	N	N	NM	SP	NS		e red poorly graded sand	-	
50 55 60	NM	L	D	N	N	NM	SP	NS		den yellow poorly graded fine sand with minor silt and clay		
65 70 75	NM	L	D	N	N	NM	SP	NS	Pale orange to pale red poorly graded fine sand with minor silt/clay		-	
80 85 90	NM	М	D	N	N	NM	SC	NS	Buff to orange color fine sand with medium sand and clay		-	
95	NM	Н	D	N	N	NM	CL	NS	Brown orange clay wi	ith silt and fine sand		
100	NM	Н	D	N	N	NM	SC	NS	fine sand - TD Boring	ouff colored clay with g: 110' BGS; Sand 110'		

Drilling Methods   Air Rotary   Supplies Methods   Air Rotary   None   Case of System Type:   10/20 Sand   Salps   Sand Type:   Online Methods			HR	1						MONITORING W	ELL COMPLETION	N DIAGRA	M
Date:   12/8/2020   Client:   WPX Energy	<b>/</b>				ΙΔΝ	C F		Boring/Wel		W-1			
Table   Tabl					וחוי	N S		Date:			Client:		
Air Rotary	Drilling Me	athod:	0 0		Mathod			Logged Par		3/2020		ergy	
10/20   Sand   3   Bags   None   None   32.036765			y	Samping r		one		Logged By.		nn, PG	1	PE	
Depth Interval:   Depth Inte			1	Gravel Pack Depth Interval:					r			165	
PVC   2-inch   0-102 feet bgs   107   -103.895993   Depth to Water (ft. BTOS):   DTW Date:   12/16/2020   DTW Date:   10/2   DTW Date:   12/16/2020   DTW Date:   12/16/2												65	
PVC	PVC		2-inch 0-102 feet bgs					Ŭ					
Completion   Com		e:		nch				Well Total					20
0     5       10     NM     L     D     N     N     NM     SP     NS     Pale orange poorly graded fine sand       15     20       25     30     NM     L     D     N     N     NM     SP     NS     Same as above with slight increase in coarse sand and gravel       40     45     NM     L     D     N     N     NM     SP     NS     Pale orange poorly graded fine sand with very slight silt       55     NM     L     D     N     N     NM     SP     NS     Pale orange poorly graded fine sand with very slight silt       60     NM     L     D     N     N     NM     SW     NS     Pale orange well graded fine sand with minor coarse sand and gravel       75     NM     M     SL     N     N     N     N     N     N     Pale orange clayey silty fine sand with minor coarse sand and gravel					2-111011						> 107	12/10/20	/20
0     5       10     NM     L     D     N     N     NM     SP     NS     Pale orange poorly graded fine sand       15     20       25     30     NM     L     D     N     N     NM     SP     NS     Same as above with slight increase in coarse sand and gravel       40     45     NM     L     D     N     N     NM     SP     NS     Pale orange poorly graded fine sand with very slight silt       55     NM     L     D     N     N     NM     SP     NS     Pale orange poorly graded fine sand with very slight silt       60     NM     L     D     N     N     NM     SW     NS     Pale orange well graded fine sand with minor coarse sand and gravel       75     NM     M     SL     N     N     N     N     N     N     Pale orange clayey silty fine sand with minor coarse sand and gravel	oth al (f	very t)	icity	ture	or	ing	uudd	$\mathbf{S}$	le II	T 1411	/D 1	Well	
0     5       10     NM     L     D     N     N     NM     SP     NS     Pale orange poorly graded fine sand       15     20       25     30     NM     L     D     N     N     NM     SP     NS     Same as above with slight increase in coarse sand and gravel       40     45     NM     L     D     N     N     NM     SP     NS     Pale orange poorly graded fine sand with very slight silt       55     NM     L     D     N     N     NM     SP     NS     Pale orange poorly graded fine sand with very slight silt       60     NM     L     D     N     N     NM     SW     NS     Pale orange well graded fine sand with minor coarse sand and gravel       75     NM     M     SL     N     N     N     N     N     N     Pale orange clayey silty fine sand with minor coarse sand and gravel	Dep	eco (fi	last	Iois	О	Stair	) Q	NSO	dun	Lithology/Remarks Comp			ion
S	П	M.	F	4		<b>0</b> 1	P]		Š				
NM	0											<u> </u>	
NM	5												
15   20   25   30   NM   L   D   N   N   NM   SP   NS   Same as above with slight increase in coarse sand and gravel   40   45   NM   L   D   N   N   NM   SP   NS   Pale orange poorly graded fine sand with very slight silt   50   NM   L   D   N   N   NM   SP   NS   Pale orange poorly graded fine sand with very slight silt   65   NM   L   D   N   N   NM   SW   NS   Pale orange well graded fine sand   65   70   75   NM   M   SLM   N   N   NM   SM   NS   Pale orange clayey silty fine sand with minor coarse sand and gravel   90   95   Pale orange poorly sorted fine sand   Pale orange poorly sorted	10	NM	I.	D	N	N	NM	SP	NS	Pale orange poor	ly graded fine sand		
25	15	11111			11	11	11111		110	Tate orange poorty graded line saild			
30	20												
NM	25												
Second and gravel   Seco	30	NM	Ţ	D	N	N	NM	CD	NC	Same as above wi	th slight increase in		
A5	35	INIVI	L	ט	11	11	11111	51	NS	coarse san	d and gravel		
Second color   Seco	40									D.I.	. 116 1		
50	45	NM	L	D	N	N	NM	SP	NS				
60 NM L D N N NM SW NS Pale orange well graded fine sand 65	50									with very	siight siit		
65   70   75   NM   M   SL M   N   NM   SM   NS   Pale red orange clayey silty fine sand with minor coarse sand and gravel   90   95   Pale orange poorly sorted fine sand and sand s	55	NM	L	D	N	N	NM	SP	NS	Pale orange poor	ly graded fine sand		
70 75 NM M SL M N N NM SM NS Pale red orange clayey silty fine sand with minor coarse sand and gravel  90 95	60	NM	L	D	N	N	NM	SW	NS	Pale orange well	graded fine sand		
75 NM M SL M N NM SM NS Pale red orange clayey silty fine sand with minor coarse sand and gravel  85 90 Pale orange poorly sorted fine sand and gravel  Pale orange poorly sorted fine sand and gravel	65												
NM   M   SL M   N   NM   SM   NS   with minor coarse sand and gravel	70										·1. 6°	[	
80 85 90 95 Pale orange poorly sorted fine sand -	75	NM	M	SL M	N	N	NM	SM	NS				
90 95 Pale orange poorly sorted fine sand -	80									with fillion coars	se sand and graver	[	
95 Pale orange poorly sorted fine sand -	85										•	T	
95 Pale orange poorly sorted fine sand -	90											T	
The state of the s	95	,,,,		ar v					210	Pale orange poorl	y sorted fine sand -	†	
NM L SLM N NM SP NS TD 107' BGS	100	NM		SL M	N	N	NM	SP	NS			†	
105	105										•		

		HR							MONITORING W	ELL COMPLETION	DIAGRAM	[	
		CO	MPL	IAN	CE		Boring/Well 1		W-1	Location: RDX Federal Co	om 17-44H		
	TM	SO	LU1	101	NS		Date:	12/9	/2020	Client: WPX Energy			
Drilling Me	ethod:		Sampling !	Method:			Logged By:	12/8/	72020	Drilled By:	ergy	$\dashv$	
	Air Rotar	у	None Gravel Pack Depth Interval:				0.15	J. Lin	ın, PG	Talon L	PE	_	
Gravel Pacl	k Type: 0/20 Sar	nd	Gravel Pac		erval: Bags		Seal Type:	one	Seal Depth Interval: None	Latitude: 32.0496	556		
Casing Typ		Diameter:		Depth Inter	val:		Boring Total	Depth (ft. BGS		Longitude:			
PVC Screen Typ	e:	2-inch Slot:		0-105 ft Diameter:		Interval:	Well Total D	epth (ft. BGS):	10	-103.904 Depth to Water (ft. BTOC):		$\dashv$	
PVC		0.010-ii	nch	2-inch		110 ft			10	> 110	12/16/2020	)	
Depth Interval (ft)	Recovery (ft)	Plasticity	Moisture	Odor	Staining	PID (ppm)	USCS	Sample ID	Litholog	Lithology/Remarks C			
0 5 10 15 20 25 30 35 40	NM	L	D	N	N	NM	CE	NS	Buff to pale pin	k colored caliche	-		
45 50 55 60	NM	L	D	N	N	NM	SW	NS		ll graded sand with or silt			
65 70 75	NM	L	D	N	N	NM	SP	NS		orange poorly graded ith minor silt			
80 85 90	NM	L	D	N	N	NM	SW-SM SW-SC	NS		ge well-graded sand tand clay			
95 100 105	NM	L	D	N	N	NM	SP	NS		orange poorly graded or silt - TD: 110' bgs			

		HR							MONITORING W	ELL COMPLETION Location:	N DIAGRAM	
<b>/</b>		c n	MPI	ΙΔΝ	C F		Boring/Wel	Init #55				
	79	SO	וֹ ט ז	[ [ 0 ]	NS		Date:		W-1	Client:		
Drilling Me	ethod:	-	Sampling 1	Method:			Logged By:		9/2020	WPX End	ergy	
A	Air Rotary None								nn, PG	Talon L	PE	
Gravel Pacl						Seal Type:	Ione	Seal Depth Interval: None	Latitude:	65		
Casing Typ	10/20 Sand         3 Bags           Type:         Diameter:         Depth Interval:						al Depth (ft. BC		32.0161 Longitude:	03		
PVC	2-inch 0-101'7"							6'7"	-103.863			
Screen Typ PVC						Well Total	Depth (ft. BGS	6'7"	Depth to Water (ft. BTOC): >106' 7"	DTW Date: 12/16/2020		
Depth Interval (ft)	Recovery (ft)	Plasticity	Moisture	Odor	Staining	PID (ppm)	NSCS	Sample ID		>106' 7"  Lithology/Remarks		
0 5 10 15	NM	L	D	N	N	NM	SP	NS	-	olored poorly graded minor silt	-	
20 25 30	NM	L	D	N	N	NM	SW	NS	_	ell graded fine sand im and coarse sand	-	
35 40 45 50 55 60	NM	L	D	N	N	NM	SP	NS	_	n poorly graded fine ninor gravel		
65 70 75 80 85	NM	L	D	N	N	NM	SP	NS		led fine sand with gravel -		
90 95	NM	L	D	N	N	NM	SP	NS		y graded fine sand minor medium sand		
100 106'7"	NM	M	D	N	N	NM	SC	NS		d with moderate silt TD 106'7"		

		HR	1						MONITORING W	ELL COMPLETION	N DIAGR	AM
		CO	MPL	IAN	CE		Boring/Wel		W-1	Location:  Ross Draw U	Init #57	
	714	SO	LUI	101	NS		Date:			Client:		
Drilling Me	ethod:		Sampling N	Method:			Logged By:		9/2020	WPX End	ergy	
A	Air Rotar	у	None						nn, PG	Talon L	PE	
Gravel Pac		. a	Gravel Pack Depth Interval:				Seal Type:	lone	Seal Depth Interval:	Latitude:	22	
Casing Typ	0/20 Sar	Diameter:	3 Bags neter: Depth Interval:					al Depth (ft. BC	None SS):	32.0103 Longitude:	32	
PVC		2-inch 0-105 feet bgs					Ŭ		10	-103.872		
Screen Typ PVC	e: Slot: Diameter: Depth Interval: 0.010-inch 2-inch 105-110 ft					Well Total	Depth (ft. BGS	): 10	Depth to Water (ft. BTOC): > 110	DTW Date: 12/16/2	020	
			icii	Z-IIICII						> 110	12/10/2	.020
Depth Interval (ft)	Recovery (ft)	Plasticity	Moisture	or	Staining	PID (ppm)	S	Sample ID	7.1.1	/D 1	Wel	1
Depth terval (f	ecove (ft)	lasti	Iois	Odor	tain	D (I	USCS	dun	Litholog	y/Remarks	Comple	etion
Int	R	d	~		S	Ы		2S				
0										_		
5												
10										-		
15		T 2.6	_		3.7	\n.	G) 1	3.10	Tan/pale orange/pale brown poorly			
20	NM	L/M	D	N	N	NM	SM	NS	graded fine sand			
25										-	-	
30										-	-	
35										-	-	
40									Hard dry pale pink	orange well graded	-	
45	NM	M	D	N	N	NM	SW	NS		th gravel	-	
50											-	
55	NM	M	D	N	N	NM	SM	NS	Pale orange red	tan silty fine sand -	-	
60		_	_								-	
65	NM	L	D	N	N	NM	SW	NS	Dark brown greyis	sh well graded sand -	-	
70												
75	1									-		
80	1		D to							-		
85	NM	L/M	SL M	N	N	NM	SW	NS	Grey well	graded sand -		
90	1									-	-	
95	1									-		
100									Tan/nale orange/	pale brown poorly	-	
105	NM	L/M	D	N	N	NM	SM	NS		nd - TD 110' bgs		
103									S = = = = = = = = = = = = = = = = = = =	» - <del>6</del> -		



	PHOTOGRAPHIC LOG	
WPX Energy Permian,	RDX Federal 21 #042	NAPP2124349541
LLC.	Eddy County, NM	

Photo No.	Date
1	November 3 2021
View of the Site	during delineation

activities



Photo No. Date

November 3, 2021

View of the breach area inside containment during delineation activities.



7	11	<b>₹</b>	7		ws	P USA		BH or PH Name: BH01 Date: 11/03/2021			
\				E	INQ Moct 9	Stavana S	troot	Site Name: RDX Federal 21 #042			
				Car	508 West States	v Mexico	88220	RP or Incident Number: NAPP2124349541			
					,			WSP Job Number: 31403360.008			
		LITTI	01.00	10 / 001	CAMPI	INCLO	^				
//	00.00			IC / SOII			G	Logged By: EL Method: Hand auger			
Lat/Lo	ng: 32.02	2594, -10	3.88914	18	Field Scree Hach chlor	-	PID	Hole Diameter: 3 inches Total Depth: 1 feet bgs			
M-moi	st; D-dry; \	Y-yes; N-r	10		_						
Moisture Content								Lithology/Remarks			
М	2,660	0	N	BH01	0.5	0.5	SM	SAND, FINE - MEDIUM GRAIN, LIGHT BROWN, WELL GRADED SILTY, ABUNDANT CALICHE GRAVEL, TRACE CLAY, LOW PLASTICITY, NON - COHESIVE, NO ODOR.			
М	2,200	0	N	BH01	1 _	1 - -	SC	SAND, FINE GRAIN, BROWN, POORLY GRADED, SOME CLAY LOW PLASTICITY, COHESIVE, NO ODOR.			
								@ 1 ft bgs			

115	17		WS	P USA			BH or PH Name: BH02	Date: 11/03/2021
		50	18 Most S	Stavene S	troot		Site Name: RDX Federal 21 #	n42
		Carl	08 West S sbad, Nev	v Mexico	88220		RP or Incident Number: NAPF	
							WSP Job Number: 31403360	
1.1	TUOLOG	10 / 0011	CAMDI	INCLO	<u></u>			
Lat/Long: 32.022566,		IC / SOIL	Field Scree		G		Logged By: EL Hole Diameter: 3 inches	Method: Hand auger Total Depth: 1 feet bgs
Lat/Long: 32.022566,	, -103.88914		Hach chlor	-	PID		Hole Diameter, 3 inches	Total Deptil. Tieet bgs
M-moist; D-dry; Y-yes;	; N-no				USCS/Rock Symbol			
Moisture Content Chloride (ppm)	(ppm) Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)		Litholog	y/Remarks	
M 160 0	) N	BH02	0.5	0.5	SM	SILTY, A		LIGHT BROWN, WELL GRADED, RAVEL, TRACE CLAY, LOW , NO ODOR.
M 300 0	) N	BH02	1 _	1 - -	SC		FINE GRAIN, BROWN, F ASTICITY, COHESIVE,	POORLY GRADED, SOME CLAY, NO ODOR.
						@ 1 ft bg		

7	\ <b>\</b> \	Ţ	1		WS	P USA		BH or PH Name: BH03 Date: 11/03/2021	
\	11			,	.00 \\\ \	N 0	M 1	O'th Name of DDV Factorial OA #0.40	
				Cai	508 West States	Mexico	88220	Site Name: RDX Federal 21 #042  RP or Incident Number: NAPP2124349541	
				Odi	isbaa, ivo	W WICKIGO	00220		
								WSP Job Number: 31403360.008	
				SIC / SOII			G	Logged By: EL Method: Hand auger	
Lat/Lo	ng: 32.02	2635, -10	3.8890	50	Field Scree Hach chlor	•	PID	Hole Diameter: 3 inches Total Depth: 1 feet bgs	
M-moi	st; D-dry; `	Y-yes; N-r	าด						
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks	
M	<128	0	Z	BH03	0.5	0.5	SM	SAND, FINE - MEDIUM GRAIN, LIGHT BROWN, WEL SILTY, ABUNDANT CALICHE GRAVEL, TRACE CLAY PLASTICITY, NON - COHESIVE, NO ODOR.	
M	<128	0	N	BH03	1 _	1	SC	SAND, FINE GRAIN, BROWN, POORLY GRADED, SO LOW PLASTICITY, COHESIVE, NO ODOR.	OME CLAY,
								② 1 ft bgs	

7	11		7		WS	P USA		BH or PH Name: BH04 Date: 11/03/2021				
				E	508 West S	Stevens S	Street	Site Name: RDX Federal 21 #042				
				Car	Isbad, Nev	w Mexico	88220	RP or Incident Number: NAPP2124349541				
								WSP Job Number: 31403360.008				
		LITH		SIC / SOII	SAMDI	INGLO	G	Logged By: EL Method: Hand auger				
Lot/Lo	ng: 32.02				Field Scre		0	Hole Diameter: 3 inches  Total Depth: 1 feet bgs				
LavLo	11g. 32.02	.2737, -10	3.0090	J4	Hach chlor	-	PID	Total Deptil. Teet bys				
M-moi	st; D-dry; `	Y-yes; N-r	าด		1	1						
Moisture Content								Lithology/Remarks				
М	<128	0	N	BH04	0.5	0.5	SM	SAND, FINE - MEDIUM GRAIN, LIGHT BROWN, WELL GRADED SILTY, ABUNDANT CALICHE GRAVEL, TRACE CLAY, LOW PLASTICITY, NON - COHESIVE, NO ODOR.				
М	<128	0	N	BH04	1 _	1	SC	AND, FINE GRAIN, BROWN, POORLY GRADED, SOME CLAY, DW PLASTICITY, COHESIVE, NO ODOR.				

115	17		WS	P USA			3H or PH Name: BH05	Date: 11/03/2021		
		5	08 West S	Stevens S	treet	-	Site Name: RDX Federal 21	#042		
		Car	Isbad, Nev	w Mexico	88220		RP or Incident Number: NAF			
						_	WSP Job Number: 3140336			
11	ITHOL OG	SIC / SOIL	SAMDI	INGLO	G		ogged By: EL	Method: Hand auger		
Lat/Long: 32.022879			Field Scree				Hole Diameter: 3 inches	Total Depth: 1 feet bgs		
Laveong. 32.022079	, -100.00010	<i>31</i>	Hach chlor	-	PID	ľ	Tole Blameter. 6 mones	Total Beptil. Fleet bg5		
M-moist; D-dry; Y-yes	s; N-no			·		•		•		
Moisture Content Chloride (ppm)	(ppm) Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol		Litholo	gy/Remarks		
M <128 C	) N	BH05	0.5	0.5	SC		NE GRAIN, BROWN, ASTICITY, COHESIVE	POORLY GRADED, SOME CLAY, , NO ODOR.		
M <128 C	) N	BH05	1 _	1 1 	SC	SAND, FINE GRAIN, BROWN, POORLY GRADED, SOME CLAY, LOW PLASTICITY, COHESIVE, NO ODOR.				
					TD	@ 1 ft bgs	3			

115	17		WS	P USA			BH or PH Name: BH06	Date: 11/03/2021
		5	Na Wort S	Stavana S	troot		Site Name: RDX Federal 21 #	#042
		Carl	08 West S sbad, Nev	w Mexico	88220		RP or Incident Number: NAP	
							WSP Job Number: 31403360	
LIT	1101.00	SIC / SOIL	CAMDI	INCLO	<u> </u>			T
			Field Scree		G		Logged By: EL Hole Diameter: 3 inches	Method: Hand auger Total Depth: 1 feet bgs
Lat/Long: 32.022748, -	103.88924		Hach chlor	•	PID		note Diameter, 5 inches	Total Depth. Treet bgs
M-moist; D-dry; Y-yes; N	l-no			1 /				- 1
Moisture Content Chloride (ppm) Vapor (npm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)		Litholog	gy/Remarks	
M <128 0	N	BH06	0.5	0.5	USCS/Rock		INE GRAIN, BROWN, I ASTICITY, COHESIVE,	POORLY GRADED, SOME CLAY, NO ODOR.
M 160 0	N	BH06	1 _	1	SC		INE GRAIN, BROWN, I ASTICITY, COHESIVE,	POORLY GRADED, SOME CLAY, NO ODOR.
					TD	@ 1 ft bg	ls	

WSP USA  508 West Stevens Street Carlsbad, New Mexico; 88220  LITHOLOGIC / SOIL SAMPLING LOG Lat/Long: 32,022658, 1-03,890242  Fleid Screening: Hach chloride strips. PID  M-moist: D-dry; Y-yes; N-no  E		1	SI	)		WS	PUSA			BH or PH Name: BH07	Date: 11/03/2021		
RP or Incident Number: NAPP2124349541   WSP Job Number: 31403360.008   LITHOLOGIC / SOIL SAMPLING LOG   Logged By: EL   Method: Hand auger   Lat/Long: 32.022658, -103.889242   Field Screening:   Hach chloride strips, PID   Hole Diameter: 3 inches   Total Depth: 1 feet bgs   Total Depth: 1 feet bgs   Total Depth: 1 feet bgs   Lithology/Remarks   Sample Depth (fft bgs)   O O O O O O O O O O O O O O O O O O							. 5571						
RP or Incident Number: NAPP2124349541   WSP Job Number: 31403360.008   LITHOLOGIC / SOIL SAMPLING LOG   Logged By: EL   Method: Hand auger   Lat/Long: 32.022658, -103.889242   Field Screening: Hach chloride strips, PID   Hole Diameter: 3 inches   Total Depth: 1 feet bgs					<u></u>	ina West 9	Stevens S	Site Name: RDX Federal 21	#042				
WSP Job Number: 31403360.008   LiTHOLOGIC / SOIL SAMPLING LOG   Lat/Long: 32.022658, -103.889242   Field Screening:   Hach chloride strips, PID   Hole Diameter: 3 inches   Total Depth: 1 feet bgs      M-moist; D-dry; Y-yes; N-no     M-moist; D-dry; Y-yes; N-no     M-moist; D-dry; Y-yes; N-no   M-moist;	Lat/Long				Car	Isbad, Nev	w Mexico						
LITHOLOGIC / SOIL SAMPLING LOG  Lat/Long: 32.022658, -103.889242  Field Screening: Hach chloride strips, PID  M-moist; D-dry; Y-yes; N-no  M-moist; D-dry; Y-yes;	Lat/Long												
Field Screening:   Hach chloride strips, PID   Hole Diameter: 3 inches   Total Depth: 1 feet bgs	Lat/Long	LITHOLOGIC / SOIL SAMPLING LOG											
M-moist; D-dry; Y-yes; N-no    Page   Picture   Picture	LauLon										_		
Sample Depth (ft bgs)											rotal Dopum 1 loot ago		
M 220 0 N BH07 0.5 1 0.5 SC SAND, FINE GRAIN, BROWN, POORLY GRADED, SOME CLAY LOW PLASTICITY, COHESIVE, NO ODOR.  M 220 0 N BH07 1 1 SC SAND, FINE GRAIN, BROWN, POORLY GRADED, SOME CLAY LOW PLASTICITY, COHESIVE, NO ODOR.	M-moist	t; D-dry; \	Y-yes; N-r	10					_				
M 220 0 N BH07 0.5 SC SAND, FINE GRAIN, BROWN, POORLY GRADED, SOME CLAY LOW PLASTICITY, COHESIVE, NO ODOR.  M 220 0 N BH07 1 1 SC SAND, FINE GRAIN, BROWN, POORLY GRADED, SOME CLAY LOW PLASTICITY, COHESIVE, NO ODOR.	Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth	Deptili	USCS/Rock Symbol		Litholo	gy/Remarks		
LOW PLASTICITY, COHESIVE, NO ODOR.	М	220	0	N	BH07	0.5	0.5					CLAY,	
TD @ 1 ft bgs	М	220	0	Ν	BH07	1 <u>-</u>	1	SC	SAND, F LOW PL	), FINE GRAIN, BROWN, POORLY GRADED, SOME CLAY PLASTICITY, COHESIVE, NO ODOR.			
	igspace							TD	@ 1 ft ba	10			

# **ANALYTICAL REPORT**

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

Laboratory Job ID: 890-1537-1

Laboratory Sample Delivery Group: 31403360.008

Client Project/Site: RDX Federal 21 #42

For:

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

Attn: Joseph Hernandez

MAMER

Authorized for release by: 11/9/2021 4:33:58 PM

Jessica Kramer, Project Manager (432)704-5440

jessica.kramer@eurofinset.com

LINKS

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

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

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Released to Imaging: 12/21/2021 3:02:39 PM

Client: WSP USA Inc.

Laboratory Job ID: 890-1537-1

Project/Site: RDX Federal 21 #42

SDG: 31403360.008

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### **Definitions/Glossary**

Client: WSP USA Inc. Job ID: 890-1537-1 Project/Site: RDX Federal 21 #42

SDG: 31403360.008

**Qualifiers** 

**GC VOA** 

Qualifier **Qualifier Description** 

Indicates the analyte was analyzed for but not detected.

**GC Semi VOA** 

Qualifier **Qualifier Description** 

F1 MS and/or MSD recovery exceeds control limits.

F2 MS/MSD RPD exceeds control limits

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

**HPLC/IC** 

Qualifier **Qualifier Description** 

F1 MS and/or MSD recovery exceeds control limits.

U Indicates the analyte was analyzed for but not detected.

**Glossary** 

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

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

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

Duplicate Error Ratio (normalized absolute difference) DER

Dil Fac Dilution Factor

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) Limit of Quantitation (DoD/DOE) LOQ

MCL EPA recommended "Maximum Contaminant Level" MDA Minimum Detectable Activity (Radiochemistry) MDC Minimum Detectable Concentration (Radiochemistry)

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

NC Not Calculated

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

NEG Negative / Absent POS Positive / Present

Practical Quantitation Limit **PQL** 

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

Relative Error Ratio (Radiochemistry) **RER** 

Reporting Limit or Requested Limit (Radiochemistry) RL

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

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

**TNTC** Too Numerous To Count

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#### **Case Narrative**

Client: WSP USA Inc.

Project/Site: RDX Federal 21 #42

Job ID: 890-1537-1

SDG: 31403360.008

Job ID: 890-1537-1

Laboratory: Eurofins Xenco, Carlsbad

Narrative

Job Narrative 890-1537-1

#### Receipt

The sample was received on 11/4/2021 8:33 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.8°C

#### **GC VOA**

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

#### GC Semi VOA

Method 8015MOD\_NM: The native sample, matrix spike, and matrix spike duplicate (MS/MSD) associated with preparation batch 880-11444 and analytical batch 880-11509 were performed at the same dilution. Due to the additional level of analyte present in the spiked samples, the concentration of Diesel Range Organics (Over C10-C28) and Oll Range Organics (Over C28-C36) in the MS/MSD was above the instrument calibration range. The data have been reported and qualified.

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.

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## **Client Sample Results**

Client: WSP USA Inc. Job ID: 890-1537-1

Project/Site: RDX Federal 21 #42 SDG: 31403360.008

Lab Sample ID: 890-1537-1 **Client Sample ID: BH01** Date Collected: 11/03/21 10:50 Matrix: Solid

Sample Depth: 1

Date Received: 11/04/21 08:33

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		11/05/21 09:00	11/05/21 13:27	1
Toluene	< 0.00199	U	0.00199		mg/Kg		11/05/21 09:00	11/05/21 13:27	1
Ethylbenzene	< 0.00199	U	0.00199		mg/Kg		11/05/21 09:00	11/05/21 13:27	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		11/05/21 09:00	11/05/21 13:27	1
o-Xylene	< 0.00199	U	0.00199		mg/Kg		11/05/21 09:00	11/05/21 13:27	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		11/05/21 09:00	11/05/21 13:27	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	126		70 - 130				11/05/21 09:00	11/05/21 13:27	1
1,4-Difluorobenzene (Surr)	103		70 - 130				11/05/21 09:00	11/05/21 13:27	1
Method: Total BTEX - Total BTE	X Calculation								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			11/08/21 17:06	1
Method: 8015 NM - Diesel Range Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
TOTAL	.40.0		40.0					44/05/04 40 50	
Total TPH	<49.9	U	49.9		mg/Kg			11/05/21 13:50	1
			49.9		mg/Kg			11/05/21 13:50	
Method: 8015B NM - Diesel Ran	ge Organics (D		49.9	MDL		D	Prepared	11/05/21 13:50 Analyzed	
Method: 8015B NM - Diesel Rang Analyte Gasoline Range Organics	ge Organics (D	RO) (GC) Qualifier		MDL		<u>D</u>	Prepared 11/04/21 10:41		1
Method: 8015B NM - Diesel Rang Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	ge Organics (Di	RO) (GC) Qualifier	RL	MDL	Unit	<u>D</u>	<u>.</u>	Analyzed	1 Dil Fac
Method: 8015B NM - Diesel Rang Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	ge Organics (D Result <49.9	RO) (GC) Qualifier U	RL 49.9	MDL	Unit mg/Kg	<u>D</u>	11/04/21 10:41	Analyzed 11/05/21 16:44	Dil Fac
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 (DI Result <49.9	RO) (GC) Qualifier U	RL 49.9	MDL	Unit mg/Kg mg/Kg	<u>D</u>	11/04/21 10:41	Analyzed 11/05/21 16:44 11/05/21 16:44	Dil Fac
Method: 8015B NM - Diesel Range 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 <49.9	RO) (GC) Qualifier U	RL 49.9 49.9 49.9	MDL	Unit mg/Kg mg/Kg	<u>D</u>	11/04/21 10:41 11/04/21 10:41 11/04/21 10:41	Analyzed 11/05/21 16:44 11/05/21 16:44 11/05/21 16:44	1 Dil Fac
Method: 8015B NM - Diesel Range Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	ge Organics (D)  Result  <49.9  <49.9  <49.9  **Recovery**  120	RO) (GC) Qualifier U	RL 49.9 49.9 49.9 <i>Limits</i>	MDL	Unit mg/Kg mg/Kg	<u>D</u>	11/04/21 10:41  11/04/21 10:41  11/04/21 10:41  Prepared	Analyzed 11/05/21 16:44 11/05/21 16:44 11/05/21 16:44 Analyzed	Dil Fac  1  1  Dil Fac  Dil Fac
Total TPH  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  Method: 300.0 - Anions, Ion Chro	ge Organics (D)  Result  <49.9  <49.9  <49.9  **Recovery**  120  138	RO) (GC) Qualifier U  U  Qualifier S1+	RL 49.9 49.9 49.9 Limits 70 - 130	MDL	Unit mg/Kg mg/Kg	<u>D</u>	11/04/21 10:41 11/04/21 10:41 11/04/21 10:41 Prepared 11/04/21 10:41	Analyzed 11/05/21 16:44 11/05/21 16:44 11/05/21 16:44  Analyzed 11/05/21 16:44	Dil Fac
Method: 8015B NM - Diesel Range Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	ge Organics (D)  Result  <49.9  <49.9  <49.9  // Recovery  120  138  romatography -	RO) (GC) Qualifier U  U  Qualifier S1+	RL 49.9 49.9 49.9 Limits 70 - 130	MDL	Unit mg/Kg mg/Kg mg/Kg	<u>D</u>	11/04/21 10:41 11/04/21 10:41 11/04/21 10:41 Prepared 11/04/21 10:41	Analyzed 11/05/21 16:44 11/05/21 16:44 11/05/21 16:44  Analyzed 11/05/21 16:44	Dil Fac

# **Surrogate Summary**

 Client: WSP USA Inc.
 Job ID: 890-1537-1

 Project/Site: RDX Federal 21 #42
 SDG: 31403360.008

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

				Percent Surrogate Recovery (Acceptance Limits)
		BFB1	DFBZ1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
890-1537-1	BH01	126	103	
890-1537-1 MS	BH01	111	103	
890-1537-1 MSD	BH01	119	102	
LCS 880-11475/1-A	Lab Control Sample	107	106	
LCSD 880-11475/2-A	Lab Control Sample Dup	103	106	
MB 880-11475/5-A	Method Blank	110	94	
Surrogate Legend				
BFB = 4-Bromofluorobe	nzene (Surr)			
BFB = 4-Bromofluorobe DFBZ = 1,4-Difluoroben	,			

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

Matrix: Solid Prep Type: Total/NA

				Percent Surrogate Recovery (Acceptance Limit
		1CO1	OTPH1	
ab Sample ID	Client Sample ID	(70-130)	(70-130)	
0-7973-A-1-B MS	Matrix Spike	101	84	
80-7973-A-1-C MSD	Matrix Spike Duplicate	101	90	
390-1537-1	BH01	120	138 S1+	
CS 880-11444/2-A	Lab Control Sample	102	112	
CSD 880-11444/3-A	Lab Control Sample Dup	97	108	
/IB 880-11444/1-A	Method Blank	109	129	

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

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Client: WSP USA Inc.

Job ID: 890-1537-1 Project/Site: RDX Federal 21 #42 SDG: 31403360.008

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-11475/5-A

**Matrix: Solid** Analysis Batch: 11515 Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 11475

	MB	MR							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Benzene	<0.00200	U	0.00200		mg/Kg		11/05/21 09:00	11/05/21 12:28	
Toluene	<0.00200	U	0.00200		mg/Kg		11/05/21 09:00	11/05/21 12:28	
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		11/05/21 09:00	11/05/21 12:28	
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		11/05/21 09:00	11/05/21 12:28	
o-Xylene	<0.00200	U	0.00200		mg/Kg		11/05/21 09:00	11/05/21 12:28	
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		11/05/21 09:00	11/05/21 12:28	

MB MB

Surrogate	%Recovery	Qualifier	Limits		Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		70 - 130	-	11/05/21 09:00	11/05/21 12:28	1
1,4-Difluorobenzene (Surr)	94		70 - 130		11/05/21 09:00	11/05/21 12:28	1

Lab Sample ID: LCS 880-11475/1-A **Client Sample ID: Lab Control Sample** 

Matrix: Solid

Analysis Batch: 11515

Prep Type: Total/NA Prep Batch: 11475

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	0.100	0.08097		mg/Kg		81	70 - 130	
Toluene	0.100	0.07362		mg/Kg		74	70 - 130	
Ethylbenzene	0.100	0.07723		mg/Kg		77	70 - 130	
m-Xylene & p-Xylene	0.200	0.1612		mg/Kg		81	70 - 130	
o-Xylene	0.100	0.08159		mg/Kg		82	70 - 130	

LCS LCS

Surrogate	%Recovery (	Qualifier	Limits
4-Bromofluorobenzene (Surr)	107		70 - 130
1,4-Difluorobenzene (Surr)	106		70 - 130

Lab Sample ID: LCSD 880-11475/2-A

Matrix: Solid

Analysis Batch: 11515

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

Prep Type: Total/NA

Prep Batch: 11475

	Spike	LCSD	LCSD				%Rec.		RPD	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Benzene	0.100	0.08404		mg/Kg		84	70 - 130	4	35	
Toluene	0.100	0.07617		mg/Kg		76	70 - 130	3	35	
Ethylbenzene	0.100	0.07848		mg/Kg		78	70 - 130	2	35	
m-Xylene & p-Xylene	0.200	0.1634		mg/Kg		82	70 - 130	1	35	
o-Xylene	0.100	0.08158		mg/Kg		82	70 - 130	0	35	

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		70 - 130
1,4-Difluorobenzene (Surr)	106		70 - 130

Lab Sample ID: 890-1537-1 MS

Matrix: Solid

**Analysis Batch: 11515** 

Client Sample ID: BH01 Prep Type: Total/NA

Prep Batch: 11475

_	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	<0.00199	U	0.0998	0.09141		mg/Kg	_	91	70 - 130	
Toluene	<0.00199	U	0.0998	0.08545		mg/Kg		85	70 - 130	

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### QC Sample Results

Client: WSP USA Inc. Job ID: 890-1537-1 Project/Site: RDX Federal 21 #42 SDG: 31403360.008

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

Lab Sample ID: 890-1537-1 MS

Analysis Batch: 11515

**Client Sample ID: BH01 Matrix: Solid** Prep Type: Total/NA Prep Batch: 11475

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Ethylbenzene	<0.00199	U	0.0998	0.08783		mg/Kg		88	70 - 130	
m-Xylene & p-Xylene	<0.00398	U	0.200	0.1844		mg/Kg		92	70 - 130	
o-Xylene	<0.00199	U	0.0998	0.09241		mg/Kg		92	70 - 130	

MS MS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	111	70 - 130
1,4-Difluorobenzene (Surr)	103	70 - 130

Lab Sample ID: 890-1537-1 MSD

**Client Sample ID: BH01 Matrix: Solid** Prep Type: Total/NA **Analysis Batch: 11515** Prep Batch: 11475

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00199	U	0.0996	0.08206		mg/Kg		82	70 - 130	11	35
Toluene	<0.00199	U	0.0996	0.07797		mg/Kg		78	70 - 130	9	35
Ethylbenzene	<0.00199	U	0.0996	0.08478		mg/Kg		85	70 - 130	4	35
m-Xylene & p-Xylene	<0.00398	U	0.199	0.1813		mg/Kg		91	70 - 130	2	35
o-Xylene	<0.00199	U	0.0996	0.09187		mg/Kg		92	70 - 130	1	35

MSD MSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	119		70 - 130
1,4-Difluorobenzene (Surr)	102		70 - 130

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

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ab Sample ID: MB 880-11444/1-A	Client Sample ID: Method Blank
Matrix: Solid	Prep Type: Total/NA
Analysis Batch: 11509	Prep Batch: 11444
MB MB	

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<50.0	U	50.0		mg/Kg		11/04/21 10:41	11/05/21 11:16	1
(GRO)-C6-C10									
Diesel Range Organics (Over	<50.0	U	50.0		mg/Kg		11/04/21 10:41	11/05/21 11:16	1
C10-C28)									
Oll Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		11/04/21 10:41	11/05/21 11:16	1

MB MB Dil Fac Surrogate %Recovery Qualifier Limits Prepared Analyzed 70 - 130 1-Chlorooctane 109 11/04/21 10:41 11/05/21 11:16 70 - 130 o-Terphenyl 129 11/04/21 10:41 11/05/21 11:16

Lab Sample ID: LCS 880-11444/2-A Client Sample ID: Lab Control Sample

**Matrix: Solid** 

**Analysis Batch: 11509** Prep Batch: 11444 Spike LCS LCS %Rec. Added Result Qualifier Unit %Rec Limits

Analyte 1000 1120 112 70 - 130 Gasoline Range Organics mg/Kg (GRO)-C6-C10 Diesel Range Organics (Over 1000 1093 mg/Kg 109 70 - 130

C10-C28)

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Prep Type: Total/NA

Client: WSP USA Inc. Job ID: 890-1537-1 Project/Site: RDX Federal 21 #42 SDG: 31403360.008

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

LCS LCS

Lab Sample ID: LCS 880-11444/2-A **Client Sample ID: Lab Control Sample** 

**Matrix: Solid** 

**Analysis Batch: 11509** 

Prep Type: Total/NA

Prep Batch: 11444

Surrogate %Recovery Qualifier 1-Chlorooctane 102 70 - 130 o-Terphenyl 112 70 - 130

Lab Sample ID: LCSD 880-11444/3-A Client Sample ID: Lab Control Sample Dup

Limits

**Matrix: Solid** 

Analysis Batch: 11509

Prep Type: Total/NA

Prep Batch: 11444

Spike LCSD LCSD %Rec. RPD Analyte Added Result Qualifier Unit D %Rec Limits RPD Limit 1000 1145 114 70 - 1302 20 Gasoline Range Organics mg/Kg (GRO)-C6-C10 1000 Diesel Range Organics (Over 1146 mg/Kg 115 70 - 13020 5 C10-C28)

LCSD LCSD

Surrogate %Recovery Qualifier Limits 97 70 - 130 1-Chlorooctane 108 70 - 130 o-Terphenyl

Lab Sample ID: 880-7973-A-1-B MS Client Sample ID: Matrix Spike

**Matrix: Solid** 

**Analysis Batch: 11509** 

Prep Type: Total/NA

%Rec.

Prep Batch: 11444

Sample Sample Spike Analyte Result Qualifier hahhA Result Qualifier Unit %Rec Limits D Gasoline Range Organics <249 U F1 F2 997 1598 F1 mg/Kg 160 70 - 130

MS MS

(GRO)-C6-C10

MS MS Qualifier %Recovery I imits Surrogate 1-Chlorooctane 101 70 - 130 o-Terphenyl 84 70 - 130

Lab Sample ID: 880-7973-A-1-C MSD Client Sample ID: Matrix Spike Duplicate

**Matrix: Solid** 

**Analysis Batch: 11509** 

Prep Type: Total/NA

Prep Batch: 11444

Sample Sample Spike MSD MSD %Rec. RPD Analyte Result Qualifier Added Result Qualifier Unit %Rec Limits RPD Limit Gasoline Range Organics <249 U F1 F2 1000 1220 F2 mg/Kg 122 70 - 13027 20

(GRO)-C6-C10

MSD MSD

Qualifier Limits Surrogate %Recovery 1-Chlorooctane 101 70 - 130 o-Terphenyl 90 70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-11667/1-A Client Sample ID: Method Blank

Matrix: Solid

**Analysis Batch: 11702** 

MB MB

Result Qualifier RLMDL Unit D Dil Fac Analyte Prepared Analyzed Chloride <5.00 U 5.00 mg/Kg 11/09/21 03:48

Eurofins Xenco, Carlsbad

**Prep Type: Soluble** 

Released to Imaging: 12/21/2021 3:02:39 PM

### QC Sample Results

Client: WSP USA Inc. Job ID: 890-1537-1 Project/Site: RDX Federal 21 #42

SDG: 31403360.008

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: LCS 880-11667/2-A

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

**Matrix: Solid** 

**Analysis Batch: 11702** 

		Spike	LCS	LCS				%Rec.	
Analyte		Added	Result	Qualifier	Unit	D	%Rec	Limits	
Chloride		250	256.9		mg/Kg		103	90 - 110	

Lab Sample ID: LCSD 880-11667/3-A Client Sample ID: Lab Control Sample Dup **Matrix: Solid** 

**Prep Type: Soluble** 

**Analysis Batch: 11702** 

Spike LCSD LCSD %Rec. RPD Added Result Qualifier Limits Limit Analyte Unit D %Rec RPD Chloride 250 259.3 mg/Kg 104 90 - 110

Lab Sample ID: 890-1526-A-1-H MS Client Sample ID: Matrix Spike

**Matrix: Solid Prep Type: Soluble** 

**Analysis Batch: 11702** MS MS

%Rec. Sample Sample Spike Analyte Result Qualifier Added Result Qualifier Unit Limits Chloride 6410 F1 2530 9341 F1 90 - 110 mg/Kg 116

Lab Sample ID: 890-1526-A-1-I MSD Client Sample ID: Matrix Spike Duplicate **Matrix: Solid Prep Type: Soluble** 

**Analysis Batch: 11702** 

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	6410	F1	2530	9322	F1	mg/Kg		115	90 - 110	0	20

# **QC Association Summary**

Client: WSP USA Inc.

Project/Site: RDX Federal 21 #42

Job ID: 890-1537-1 SDG: 31403360.008

### **GC VOA**

#### Prep Batch: 11475

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1537-1	BH01	Total/NA	Solid	5035	
MB 880-11475/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-11475/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-11475/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-1537-1 MS	BH01	Total/NA	Solid	5035	
890-1537-1 MSD	BH01	Total/NA	Solid	5035	

### Analysis Batch: 11515

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1537-1	BH01	Total/NA	Solid	8021B	11475
MB 880-11475/5-A	Method Blank	Total/NA	Solid	8021B	11475
LCS 880-11475/1-A	Lab Control Sample	Total/NA	Solid	8021B	11475
LCSD 880-11475/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	11475
890-1537-1 MS	BH01	Total/NA	Solid	8021B	11475
890-1537-1 MSD	BH01	Total/NA	Solid	8021B	11475

#### **Analysis Batch: 11768**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1537-1	BH01	Total/NA	Solid	Total BTEX	

#### **GC Semi VOA**

### Prep Batch: 11444

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1537-1 MB 880-11444/1-A	BH01 Method Blank	Total/NA Total/NA	Solid Solid	8015NM Prep 8015NM Prep	
LCS 880-11444/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-11444/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-7973-A-1-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
880-7973-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

#### **Analysis Batch: 11509**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1537-1	BH01	Total/NA	Solid	8015B NM	11444
MB 880-11444/1-A	Method Blank	Total/NA	Solid	8015B NM	11444
LCS 880-11444/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	11444
LCSD 880-11444/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	11444
880-7973-A-1-B MS	Matrix Spike	Total/NA	Solid	8015B NM	11444
880-7973-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	11444

#### **Analysis Batch: 11598**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1537-1	BH01	Total/NA	Solid	8015 NM	

### HPLC/IC

#### Leach Batch: 11667

Released to Imaging: 12/21/2021 3:02:39 PM

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1537-1	BH01	Soluble	Solid	DI Leach	
MB 880-11667/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-11667/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-11667/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

Eurofins Xenco, Carlsbad

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# **QC Association Summary**

Client: WSP USA Inc.
Project/Site: RDX Federal 21 #42
SD

Job ID: 890-1537-1 SDG: 31403360.008

### **HPLC/IC** (Continued)

### Leach Batch: 11667 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1526-A-1-H MS	Matrix Spike	Soluble	Solid	DI Leach	
890-1526-A-1-I MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

#### **Analysis Batch: 11702**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1537-1	BH01	Soluble	Solid	300.0	11667
MB 880-11667/1-A	Method Blank	Soluble	Solid	300.0	11667
LCS 880-11667/2-A	Lab Control Sample	Soluble	Solid	300.0	11667
LCSD 880-11667/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	11667
890-1526-A-1-H MS	Matrix Spike	Soluble	Solid	300.0	11667
890-1526-A-1-I MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	11667

Eurofins Xenco, Carlsbad

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### **Lab Chronicle**

Client: WSP USA Inc. Job ID: 890-1537-1 Project/Site: RDX Federal 21 #42 SDG: 31403360.008

**Client Sample ID: BH01** Lab Sample ID: 890-1537-1

Date Collected: 11/03/21 10:50 Matrix: Solid Date Received: 11/04/21 08:33

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	11475	11/05/21 09:00	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	11515	11/05/21 13:27	KL	XEN MID
Total/NA	Analysis	Total BTEX		1			11768	11/08/21 17:06	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			11598	11/05/21 13:50	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	11444	11/04/21 10:41	DM	XEN MID
Total/NA	Analysis	8015B NM		1			11509	11/05/21 16:44	AJ	XEN MID
Soluble	Leach	DI Leach			5.02 g	50 mL	11667	11/08/21 11:05	CH	XEN MID
Soluble	Analysis	300.0		5			11702	11/09/21 05:35	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: 890-1537-1 Project/Site: RDX Federal 21 #42

SDG: 31403360.008

#### 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 analytes the agency does not of	• '	t the laboratory is not certifi	ed by the governing authority. This list ma	ay include analytes fo
Analysis Method		N. A. a. A. a. a.	Analida	
	Prep Method	Matrix	Analyte	
7 tharyono finethiod				
8015 NM		Solid	Total TPH	

**Method Description** 

Total BTEX Calculation

Microextraction

Volatile Organic Compounds (GC)

Diesel Range Organics (DRO) (GC)

Diesel Range Organics (DRO) (GC)

**Deionized Water Leaching Procedure** 

Anions, Ion Chromatography

Closed System Purge and Trap

### **Method Summary**

Client: WSP USA Inc.

Method

8021B

Total BTEX

8015 NM

8015B NM

8015NM Prep

DI Leach

300.0

5035

Project/Site: RDX Federal 21 #42

Job ID: 890-1537-1

SDG: 31403360.008

Protocol	Laboratory
FIOLOCOI	Laboratory
SW846	XEN MID
TAL SOP	XEN MID
SW846	XEN MID
SW846	XEN MID
MCAWW	XEN MID
SW846	XEN MID

XEN MID

SW846

ASTM

**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

Eurofins Xenco, Carlsbad

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# **Sample Summary**

Client: WSP USA Inc.

Project/Site: RDX Federal 21 #42

Job ID: 890-1537-1

SDG: 31403360.008

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-1537-1	BH01	Solid	11/03/21 10:50	11/04/21 08:33	1

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Address:

City, State ZIP:

Carlsbad, NM, 88220

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Project Manager: Company Name:

State of Project:	5315 Buena Vista Dr.	Address:		3300 North A Street
Program: UST/PST □RP □rownfields □R0		Company Name: WPX Energy		WSP Permian office
Work Order Comments	Jim Raley	Bill to: (if different) Jim Raley		Dan Moir
.2000) www.xenco.com Page	Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000)	7550) Phoenix,AZ (480	Hobbs, NM (575-392-	
,	Midland, TX (432-704-5440) EL Paso, TX (915)585-3443 Lubbock, TX (806)794-1296	I.TX (432-704-5440) EL	Midland	
	Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334	TX (281) 240-4200 Dal	Houston,	
Work Order No:	Chain of Custody	C		

Revised Date 051418 Rev 2018 1							į			
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Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	Da	re)	Received by: (Signature)	Received	ature)	shed by (Signature)	Relinquished by
	terms and conditions ces beyond the control ously negotiated.	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 liably 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 chapty 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.	iny to Xenco, its affilioperses incurred by Xenco, but not analy	client compa / losses or eau / losses or eau	chase order from ponsibility for any for each sample s	titutes a valid pur ot assume any res nd a charge of \$5 i	f samples cons les and shall no each project ar	and relinquishment or y for the cost of samp 5.00 will be applied to	re of this document co will be liable on nimum charge of \$7	Notice: Signature of this docu of service. Xenco will be liabl of Xenco. A minimum chapge
Na Sr 11 Sr 0 v Zr 1631/245.1/7470 /7471 : Hg	TI U	Cd Ca Cr Co Cu Fe	As Ba Be B	_	CRA 13PPM Texas 11 A	8RCRA 13PPM TCLP / SPLP 6		otal 200.7 / 6010 200.8 / 6020: Circle Method(s) and Metal(s) to be analyzed	Total 200.7 / 6010 Circle Method(s) and	Total 21 Circle
				-						
				-						
Discrete			×	×	-1	10:50	11/3/2021	S	BH01	
Sample Comments	σ.		BTEX (	Numb TPH (E	Depth	Time Sampled	Date Sampled	n Matrix	Sample Identification	Sam
lab, if received by 4:30pm	<u> </u>			_		Total Containers:	Tot	Z	L	Sample Custody Seals
TAT starts the day recevied by the	TATS				50.2	tion Factor:	Corr	<b>∤ē</b>		Cooler Custody Seals
		890-1537 Chain of Custody		taine		I hermometer ID			(°C):	Temperature (°C):
				ers				7		
					No No	Wet Ice:	No.	Temp Blank:	SAMPLE RECEIPT	SAMPLE
					)ate:	Due Date	ee	Elliot Lee	ıme:	Sampler's Name:
Incident # NAPP2124349541	Incide			_	2414	Rush: 24				P.O. Number:
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Work Order Notes		ANALYSIS REQUEST			Turn Around	Tui	21 # 42	RDX Federal 21 # 42	ינ	Project Name:
Cale	Deliverables: EDD ADAF1		Email: Elliot.Lee@wsp.com, Anna.Byers@wsp.com	p.com, Anı	Elliot.Lee@ws	Email:		(432) 236-3849	(432) 2	Phone:
	֓֞֟֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓֓		Carlsbad, NM, 88220		City, State ZIP:			Midland, TX 79705		City, State ZIP:

Carlsbad NM 88220

1089 N Canal St

Phone 575-988-3199 Fax 575-988-3199

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Eurofins Xenco, Carlsbad

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Chain of Custody Record

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Environment Testing
America

State, Zip: TX 79701 BH01 (890-1537-1) Sample Identification - Client ID (Lab ID) RDX Federal 21 #42 ossible Hazard Identification 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 naintain 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 and in the State of Origin listed above for analysis/tests/matrix being analyzed the samples must be shipped back to the Eurofins Xenco LLC. Shipping/Receiving 132-704-5440(Tel) impty Kit Relinquished by Deliverable Requested | || || || |V Other (specify) 211 W Florida Ave elinquished by elinquished by Custody Seals Intact: urofins Xenco lient Information ent Contact rquished by: ∆ Yes ö (Sub Contract Lab) Custody Seal No Date/Time Date/Time Primary Deliverable Rank 2 Project # 88000203 TAT Requested (days): Phone Sampler Sample Date e Date Requested /5/2021 11/3/21 Date Mountair 10 50 G=grab) (C=comp, Sample Preservation Code: Type Company Company Company Matrix Solid Lab PM jessica kramer@eurofinset.com
Accreditations Required (See note)
NELAP - Texas Kramer Jessica Ime Special Instructions/QC Requirements Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Perform MS/MSD (Yes or No) Received by × 300\_ORGFM\_28D/DI\_LEACH Chloride Cooler Temperature(s) °C and Other Remarks Return To Client yed by 8015MOD\_NM/8015NM\_S\_Prep Full TPH × 8021B/5035FP\_Calc BTEX × B015MOD\_Calc Analysis Requested Total\_BTEX\_GCV × Disposal By Lab State of Origin.

New Mexico Carrier Tracking No(s) lethod of Shipment 、たられ Date/Time Ú Archive For **Total Number of containers** 4 D Nitric Acid
E NaHSQ4
F MeOH
G Amchior
H Ascorbic Acid
I Ice
J DI Water
K EDTA
L EDA COC No 890-495 1 w > Preservation Codes 890-1537-1 Page 1 of 1 NaOH Special Instructions/Note: M Hexane
N None
O ANNEO
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O NASSO3 Company Ver: 06/08/2021 Company

# **Login Sample Receipt Checklist**

Client: WSP USA Inc.

Job Number: 890-1537-1 SDG Number: 31403360.008

List Source: Eurofins Xenco, Carlsbad

Login Number: 1537 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	

Released to Imaging: 12/21/2021 3:02:39 PM

### **Login Sample Receipt Checklist**

Job Number: 890-1537-1 SDG Number: 31403360.008

Login Number: 1537
List Source: Eurofins Xenco, Midland
List Number: 2
List Creation: 11/05/21 01:13 PM

Creator: Kramer, Jessica

Client: WSP USA Inc.

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	4.6/4.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

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# **ANALYTICAL REPORT**

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

Laboratory Job ID: 890-1538-1

Laboratory Sample Delivery Group: 31403360.008

Client Project/Site: RDX Federal 21 #42

For:

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

Attn: Joseph Hernandez

J. KRAMER

Authorized for release by: 11/16/2021 4:56:43 PM

Jessica Kramer, Project Manager (432)704-5440

jessica.kramer@eurofinset.com

LINKS

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Released to Imaging: 12/21/2021 3:02:39 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.

Laboratory Job ID: 890-1538-1

Project/Site: RDX Federal 21 #42

SDG: 31403360.008

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### **Definitions/Glossary**

Client: WSP USA Inc. Job ID: 890-1538-1 Project/Site: RDX Federal 21 #42

SDG: 31403360.008

#### **Qualifiers**

**GC VOA** 

Qualifier **Qualifier Description** F1 MS and/or MSD recovery exceeds control limits.

F2 MS/MSD RPD exceeds control limits S1+

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

**GC Semi VOA** 

Qualifier **Qualifier Description** F2 MS/MSD RPD exceeds control limits S1-Surrogate recovery exceeds control limits, low biased.

Indicates the analyte was analyzed for but not detected.

HPLC/IC

U

Qualifier **Qualifier Description** 

U Indicates the analyte was analyzed for but not detected.

#### **Glossary**

DL, RA, RE, IN

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)

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

Decision Level Concentration (Radiochemistry) DLC EDL Estimated Detection Limit (Dioxin) LOD

Limit of Detection (DoD/DOE) LOQ Limit of Quantitation (DoD/DOE) MCL EPA recommended "Maximum Contaminant Level"

Minimum Detectable Activity (Radiochemistry) MDA Minimum Detectable Concentration (Radiochemistry) MDC

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** 

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

RER Relative Error Ratio (Radiochemistry)

Reporting Limit or Requested Limit (Radiochemistry) RL

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

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

**TNTC** Too Numerous To Count

Eurofins Xenco, Carlsbad

#### **Case Narrative**

Client: WSP USA Inc.

Job ID: 890-1538-1 Project/Site: RDX Federal 21 #42 SDG: 31403360.008

Job ID: 890-1538-1

Laboratory: Eurofins Xenco, Carlsbad

Narrative

Job Narrative 890-1538-1

#### Receipt

The samples were received on 11/4/2021 8:33 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 0.8°C

#### **GC VOA**

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-11531 and analytical batch 880-11601 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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

#### GC Semi VOA

Method 8015MOD\_NM: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-11615 and analytical batch 880-11626 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

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

Matrix: Solid

Lab Sample ID: 890-1538-1

# **Client Sample Results**

Client: WSP USA Inc. Job ID: 890-1538-1

Project/Site: RDX Federal 21 #42 SDG: 31403360.008

**Client Sample ID: BH01** 

Date Collected: 11/03/21 10:45 Date Received: 11/04/21 08:33

Sample Depth: 0.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U F1	0.00202		mg/Kg		11/05/21 11:19	11/05/21 17:49	1
Toluene	<0.00202	U F1 F2	0.00202		mg/Kg		11/05/21 11:19	11/05/21 17:49	1
Ethylbenzene	<0.00202	U F1	0.00202		mg/Kg		11/05/21 11:19	11/05/21 17:49	1
m-Xylene & p-Xylene	<0.00403	U F1	0.00403		mg/Kg		11/05/21 11:19	11/05/21 17:49	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		11/05/21 11:19	11/05/21 17:49	1
Xylenes, Total	<0.00403	U F1	0.00403		mg/Kg		11/05/21 11:19	11/05/21 17:49	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	118		70 - 130				11/05/21 11:19	11/05/21 17:49	1
1,4-Difluorobenzene (Surr)	101		70 - 130				11/05/21 11:19	11/05/21 17:49	1
Method: Total BTEX - Total BTE	X Calculation								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00403	U	0.00403		mg/Kg			11/11/21 14:14	1
Analyte	Pocult	O 1:C:							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9		49.9	MDL	mg/Kg	<u>D</u>	Prepared	Analyzed 11/09/21 16:19	
	<49.9	U		MDL		<u>D</u>	Prepared		
Total TPH	<49.9 ge Organics (D	U		MDL	mg/Kg	<u>D</u> 	Prepared Prepared		1
Total TPH  Method: 8015B NM - Diesel Ran	<49.9 ge Organics (D	RO) (GC) Qualifier	49.9		mg/Kg	=	<u> </u>	11/09/21 16:19	1 Dil Fac
Total TPH  Method: 8015B NM - Diesel Rang Analyte Gasoline Range Organics	<49.9  ge Organics (D  Result	RO) (GC) Qualifier U F2	49.9		mg/Kg	=	Prepared	11/09/21 16:19  Analyzed	Dil Fac
Total TPH  Method: 8015B NM - Diesel Rang Analyte  Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	<pre>cease organics (D) Result cease cease</pre>	U RO) (GC) Qualifier U F2	49.9  RL 49.9		mg/Kg  Unit mg/Kg	=	Prepared 11/05/21 16:18	11/09/21 16:19  Analyzed  11/06/21 22:45	Dil Fac
Total TPH  Method: 8015B NM - Diesel Rang Analyte  Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	<49.9 ge Organics (D) Result <49.9 <49.9	U (GC) Qualifier U F2 U	49.9  RL 49.9  49.9		mg/Kg  Unit mg/Kg  mg/Kg	=	Prepared 11/05/21 16:18 11/05/21 16:18	Analyzed 11/06/21 22:45	1 Dil Fac
Total TPH  Method: 8015B NM - Diesel Rang Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	<49.9 ge Organics (D) Result <49.9 <49.9 <49.9	U RO) (GC) Qualifier U F2 U	49.9  RL 49.9  49.9  49.9		mg/Kg  Unit mg/Kg  mg/Kg	=	Prepared 11/05/21 16:18 11/05/21 16:18	Analyzed 11/06/21 22:45 11/06/21 22:45	Dil Face 1 1 1 Dil Face
Total TPH  Method: 8015B NM - Diesel Rang Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate	<49.9 ge Organics (D) Result <49.9 <49.9 <49.9 %Recovery	U RO) (GC) Qualifier U F2 U	49.9  RL 49.9  49.9  49.9  Limits		mg/Kg  Unit mg/Kg  mg/Kg	=	Prepared 11/05/21 16:18 11/05/21 16:18 11/05/21 16:18 Prepared	Analyzed 11/06/21 22:45 11/06/21 22:45 Analyzed Analyzed	Dil Fac
Total TPH  Method: 8015B NM - Diesel Rang Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	49.9 ge Organics (D) Result <49.9 <49.9 <49.9 %Recovery 89 96	U RO) (GC) Qualifier U F2 U Qualifier	49.9  RL 49.9  49.9  49.9  Limits 70 - 130		mg/Kg  Unit mg/Kg  mg/Kg	=	Prepared 11/05/21 16:18 11/05/21 16:18 11/05/21 16:18 Prepared 11/05/21 16:18	11/09/21 16:19  Analyzed  11/06/21 22:45  11/06/21 22:45  Analyzed  11/06/21 22:45	Dil Fac
Total TPH  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	49.9 ge Organics (D) Result <49.9 <49.9 <89 96 omatography -	U RO) (GC) Qualifier U F2 U Qualifier	49.9  RL 49.9  49.9  49.9  Limits 70 - 130		mg/Kg  Unit mg/Kg  mg/Kg  mg/Kg	<u> </u>	Prepared 11/05/21 16:18 11/05/21 16:18 11/05/21 16:18 Prepared 11/05/21 16:18	11/09/21 16:19  Analyzed  11/06/21 22:45  11/06/21 22:45  Analyzed  11/06/21 22:45	Dil Fac

**Client Sample ID: BH02** Lab Sample ID: 890-1538-2 Date Collected: 11/03/21 13:12 Matrix: Solid

Date Received: 11/04/21 08:33

Sample Depth: 0.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201		mg/Kg		11/05/21 11:19	11/05/21 18:10	1
Toluene	<0.00201	U	0.00201		mg/Kg		11/05/21 11:19	11/05/21 18:10	1
Ethylbenzene	<0.00201	U	0.00201		mg/Kg		11/05/21 11:19	11/05/21 18:10	1
m-Xylene & p-Xylene	<0.00402	U	0.00402		mg/Kg		11/05/21 11:19	11/05/21 18:10	1
o-Xylene	<0.00201	U	0.00201		mg/Kg		11/05/21 11:19	11/05/21 18:10	1
Xylenes, Total	<0.00402	U	0.00402		mg/Kg		11/05/21 11:19	11/05/21 18:10	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)			70 - 130				11/05/21 11:19	11/05/21 18:10	1

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Lab Sample ID: 890-1538-2

Client: WSP USA Inc.

Job ID: 890-1538-1 Project/Site: RDX Federal 21 #42 SDG: 31403360.008

Client Sample ID: BH02

Date Collected: 11/03/21 13:12

Sample Depth: 0.5

Matrix: Solid Date Received: 11/04/21 08:33

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

Qualifier Surrogate %Recovery Limits Prepared Analyzed Dil Fac 70 - 130 11/05/21 11:19 1,4-Difluorobenzene (Surr) 103 11/05/21 18:10

**Method: Total BTEX - Total BTEX Calculation** 

Analyte Result Qualifier RL MDL Unit D Analyzed Dil Fac Prepared <0.00402 Total BTEX 0.00402 11/11/21 14:14 mg/Kg

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

RL MDL Unit D Prepared Analyzed Dil Fac Total TPH <49.9 49.9 mg/Kg 11/09/21 16:19

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

**MDL** Unit Analyte Result Qualifier RL D Prepared Analyzed Dil Fac <49.9 U mg/Kg Gasoline Range Organics 49.9 11/05/21 16:18 11/06/21 23:46 (GRO)-C6-C10 <49.9 U 49.9 11/05/21 16:18 11/06/21 23:46 Diesel Range Organics (Over mg/Kg C10-C28) OII Range Organics (Over C28-C36) <49.9 U 49.9 mg/Kg 11/05/21 16:18 11/06/21 23:46

Surrogate %Recovery Qualifier Limits Prepared Analyzed Dil Fac 1-Chlorooctane 115 70 - 130 11/05/21 16:18 11/06/21 23:46 11/05/21 16:18 o-Terphenyl 126 70 - 130 11/06/21 23:46

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte Result Qualifier RL MDL Unit D Prepared Analyzed Dil Fac 25.0 11/12/21 13:21 Chloride 214 mg/Kg

Lab Sample ID: 890-1538-3 Client Sample ID: BH02

Date Collected: 11/03/21 13:20 Date Received: 11/04/21 08:33

Sample Depth: 1

Method: 8021B - Volatile Organic Compounds (GC)

Analyte Result Qualifier RL MDL Unit D Prepared Analyzed Dil Fac Benzene <0.00199 0.00199 mg/Kg 11/05/21 11:19 11/05/21 18:30 Toluene <0.00199 U 0.00199 11/05/21 11:19 11/05/21 18:30 mg/Kg Ethylbenzene <0.00199 U 0.00199 11/05/21 11:19 11/05/21 18:30 mg/Kg 11/05/21 18:30 m-Xylene & p-Xylene <0.00398 U 0.00398 11/05/21 11:19 mg/Kg o-Xylene <0.00199 U 0.00199 mg/Kg 11/05/21 11:19 11/05/21 18:30 Xylenes, Total <0.00398 U 0.00398 mg/Kg 11/05/21 11:19 11/05/21 18:30 %Recovery Qualifier Limits Dil Fac Surrogate Prepared Analyzed

70 - 130 11/05/21 11:19 4-Bromofluorobenzene (Surr) 124 11/05/21 18:30 1,4-Difluorobenzene (Surr) 94 70 - 130 11/05/21 11:19 11/05/21 18:30

**Method: Total BTEX - Total BTEX Calculation** 

Analyte RL MDL D Result Qualifier Unit Prepared Analyzed Dil Fac Total BTEX <0.00398 0.00398 mg/Kg 11/11/21 14:14

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

Analyte Result Qualifier RL MDL Unit D Prepared Analyzed Dil Fac <50.0 U Total TPH 50.0 11/09/21 16:19 mg/Kg

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Matrix: Solid

Lab Sample ID: 890-1538-3

## **Client Sample Results**

Client: WSP USA Inc. Job ID: 890-1538-1 Project/Site: RDX Federal 21 #42 SDG: 31403360.008

**Client Sample ID: BH02** 

Date Collected: 11/03/21 13:20 Date Received: 11/04/21 08:33

Sample Depth: 1

Method: 8015B NM - Diesel Rang	ge Organics (D	RO) (GC)							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<50.0	U	50.0		mg/Kg		11/05/21 16:18	11/07/21 00:06	1
(GRO)-C6-C10									
Diesel Range Organics (Over	<50.0	U	50.0		mg/Kg		11/05/21 16:18	11/07/21 00:06	1
C10-C28)									
Oll Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		11/05/21 16:18	11/07/21 00:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	93		70 - 130				11/05/21 16:18	11/07/21 00:06	1
o-Terphenyl	102		70 - 130				11/05/21 16:18	11/07/21 00:06	1
Method: 300.0 - Anions, Ion Chro	omatography -	Soluble							
		<b>-</b>	D.	MDL	Unit	D	Prepared	Anglyzad	Dil Fac
Analyte	Result	Qualifier	RL	MDL	UIIIL	U	Frepareu	Analyzed	DII Fac

**Client Sample ID: BH03** Lab Sample ID: 890-1538-4 Date Collected: 11/03/21 13:33 Matrix: Solid

Date Received: 11/04/21 08:33

Sample Depth: 0.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		11/05/21 11:19	11/05/21 18:50	1
Toluene	<0.00199	U	0.00199		mg/Kg		11/05/21 11:19	11/05/21 18:50	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		11/05/21 11:19	11/05/21 18:50	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		11/05/21 11:19	11/05/21 18:50	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		11/05/21 11:19	11/05/21 18:50	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		11/05/21 11:19	11/05/21 18:50	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	120		70 - 130				11/05/21 11:19	11/05/21 18:50	1
1,4-Difluorobenzene (Surr)	93		70 - 130				11/05/21 11:19	11/05/21 18:50	1
Method: Total BTEX - Total BTE)	( Calculation								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg	<del></del> _		11/11/21 14:14	1
Method: 8015 NM - Diesel Range	Organics (DR	O) (GC)							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			11/09/21 16:19	1
Method: 8015B NM - Diesel Rang	ge Organics (D	RO) (GC)							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		11/05/21 16:18	11/07/21 00:26	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		11/05/21 16:18	11/07/21 00:26	1
Oll Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		11/05/21 16:18	11/07/21 00:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	86		70 - 130				11/05/21 16:18	11/07/21 00:26	1
	96		70 - 130				11/05/21 16:18	11/07/21 00:26	

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Job ID: 890-1538-1

Client: WSP USA Inc. Project/Site: RDX Federal 21 #42 SDG: 31403360.008

**Client Sample ID: BH03** Lab Sample ID: 890-1538-4 Matrix: Solid

Date Collected: 11/03/21 13:33 Date Received: 11/04/21 08:33

Sample Depth: 0.5

Method: 300.0 - Anions, Ion Chromatography - Soluble										
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Chloride	21.1		4.97		mg/Kg			11/12/21 13:50	1	

Client Sample ID: BH03 Lab Sample ID: 890-1538-5

Date Collected: 11/03/21 13:45 Date Received: 11/04/21 08:33

Sample Depth: 1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Benzene	<0.00200	U	0.00200		mg/Kg		11/05/21 11:19	11/05/21 19:11	
Toluene	<0.00200	U	0.00200		mg/Kg		11/05/21 11:19	11/05/21 19:11	
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		11/05/21 11:19	11/05/21 19:11	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		11/05/21 11:19	11/05/21 19:11	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		11/05/21 11:19	11/05/21 19:11	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		11/05/21 11:19	11/05/21 19:11	•
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
4-Bromofluorobenzene (Surr)	129		70 - 130				11/05/21 11:19	11/05/21 19:11	1
1,4-Difluorobenzene (Surr)	108		70 - 130				11/05/21 11:19	11/05/21 19:11	1
· Method: Total BTEX - Total BTEX	Calculation								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00399	U	0.00399		mg/Kg			11/11/21 14:14	1
Method: 8015 NM - Diesel Range	•								
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8		mg/Kg			11/09/21 16:19	1
Method: 8015B NM - Diesel Rang	je Organics (D	RO) (GC)							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8		mg/Kg		11/05/21 16:18	11/07/21 00:46	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8		mg/Kg		11/05/21 16:18	11/07/21 00:46	1
Oll Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		11/05/21 16:18	11/07/21 00:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	97		70 - 130				11/05/21 16:18	11/07/21 00:46	1
o-Terphenyl	110		70 - 130				11/05/21 16:18	11/07/21 00:46	1
Method: 300.0 - Anions, Ion Chro	matography -	Soluble							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac

Matrix: Solid

Client: WSP USA Inc. Job ID: 890-1538-1

Project/Site: RDX Federal 21 #42 SDG: 31403360.008

**Client Sample ID: BH04** Lab Sample ID: 890-1538-6 Date Collected: 11/03/21 13:55 Date Received: 11/04/21 08:33

Sample Depth: 0.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		11/05/21 11:19	11/05/21 19:31	1
Toluene	< 0.00199	U	0.00199		mg/Kg		11/05/21 11:19	11/05/21 19:31	1
Ethylbenzene	< 0.00199	U	0.00199		mg/Kg		11/05/21 11:19	11/05/21 19:31	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		11/05/21 11:19	11/05/21 19:31	1
o-Xylene	< 0.00199	U	0.00199		mg/Kg		11/05/21 11:19	11/05/21 19:31	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		11/05/21 11:19	11/05/21 19:31	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	119		70 - 130				11/05/21 11:19	11/05/21 19:31	1
1,4-Difluorobenzene (Surr)	98		70 - 130				11/05/21 11:19	11/05/21 19:31	1
Method: Total BTEX - Total BTEX	X Calculation								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			11/11/21 14:14	1
Method: 8015 NM - Diesel Range Analyte	•	O) (GC) Qualifier	RL	MDI	Unit	D	Dronavad		
				IVIDL	Oiiit		Prepared	Analyzed	Dil Fac
Total TPH	64.3		50.0	MIDE	mg/Kg	_ =		11/09/21 16:19	
Total TPH  Method: 8015B NM - Diesel Ran	64.3	<u> </u>		MDL			Frepareu		
	64.3 ge Organics (D	<u> </u>		MDL	mg/Kg	D	Prepared		1
Method: 8015B NM - Diesel Ran	64.3 ge Organics (D	RO) (GC) Qualifier	50.0		mg/Kg	<del>-</del>		11/09/21 16:19	1 Dil Fac
Method: 8015B NM - Diesel Rang Analyte Gasoline Range Organics	64.3  ge Organics (D  Result	RO) (GC) Qualifier	50.0		mg/Kg	<del>-</del>	Prepared	11/09/21 16:19  Analyzed	Dil Fac
Method: 8015B NM - Diesel Rang Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	ge Organics (D Result <50.0	RO) (GC) Qualifier	50.0 RL 50.0		mg/Kg  Unit mg/Kg	<del>-</del>	Prepared 11/05/21 16:18	11/09/21 16:19  Analyzed  11/07/21 01:06	Dil Fac
Method: 8015B NM - Diesel Rang Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	64.3  ge Organics (D  Result  <50.0  64.3	RO) (GC) Qualifier U	50.0 RL 50.0 50.0		mg/Kg  Unit mg/Kg  mg/Kg	<del>-</del>	Prepared 11/05/21 16:18 11/05/21 16:18	11/09/21 16:19  Analyzed  11/07/21 01:06  11/07/21 01:06	1 Dil Fac
Method: 8015B NM - Diesel Range Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	64.3  ge Organics (D  Result  <50.0  64.3  <50.0	RO) (GC) Qualifier U	50.0  RL 50.0  50.0  50.0		mg/Kg  Unit mg/Kg  mg/Kg	<del>-</del>	Prepared 11/05/21 16:18 11/05/21 16:18	Analyzed 11/07/21 01:06 11/07/21 01:06	Dil Face 1 1 1 Dil Face
Method: 8015B NM - Diesel Range Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36) Surrogate	G4.3   Ge Organics (D   Result   <50.0     G4.3   <50.0	RO) (GC) Qualifier U	50.0  RL 50.0  50.0  50.0  Limits		mg/Kg  Unit mg/Kg  mg/Kg	<del>-</del>	Prepared 11/05/21 16:18 11/05/21 16:18 11/05/21 16:18 Prepared	Analyzed 11/07/21 01:06 11/07/21 01:06 11/07/21 01:06 Analyzed	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)  Surrogate 1-Chlorooctane	G4.3   Ge Organics (D   Result   <50.0     G4.3   <50.0	RO) (GC) Qualifier U  Qualifier S1-	50.0  RL 50.0  50.0  50.0  Limits 70 - 130		mg/Kg  Unit mg/Kg  mg/Kg	<del>-</del>	Prepared 11/05/21 16:18 11/05/21 16:18 11/05/21 16:18 Prepared 11/05/21 16:18	Analyzed 11/07/21 01:06 11/07/21 01:06 11/07/21 01:06 Analyzed 11/07/21 01:06	Dil Fac
Method: 8015B NM - Diesel Range Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane o-Terphenyl	G4.3   Ge Organics (D   Result   <50.0     G4.3   <50.0	RO) (GC) Qualifier U  Qualifier S1-	50.0  RL 50.0  50.0  50.0  Limits 70 - 130		mg/Kg  Unit mg/Kg mg/Kg mg/Kg	<del>-</del>	Prepared 11/05/21 16:18 11/05/21 16:18 11/05/21 16:18 Prepared 11/05/21 16:18	Analyzed 11/07/21 01:06 11/07/21 01:06 11/07/21 01:06 Analyzed 11/07/21 01:06	Dil Fac  1  Dil Fac  1  Dil Fac  1  Dil Fac  1  Dil Fac

Client Sample ID: BH04 Lab Sample ID: 890-1538-7

Date Collected: 11/03/21 14:00 Date Received: 11/04/21 08:33

Sample Depth: 1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		11/05/21 11:19	11/05/21 19:52	1
Toluene	<0.00199	U	0.00199		mg/Kg		11/05/21 11:19	11/05/21 19:52	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		11/05/21 11:19	11/05/21 19:52	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		11/05/21 11:19	11/05/21 19:52	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		11/05/21 11:19	11/05/21 19:52	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		11/05/21 11:19	11/05/21 19:52	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)			70 - 130				11/05/21 11:19	11/05/21 19:52	1

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Client: WSP USA Inc.

Job ID: 890-1538-1

Project/Site: PDV Federal 21 #43

Project/Site: RDX Federal 21 #42 SDG: 31403360.008

Client Sample ID: BH04

Lab Sample ID: 890-1538-7

Date Collected: 11/03/21 14:00

Matrix: Solid

Sample Depth: 1

Date Received: 11/04/21 08:33

Method: 8021B - Volatile Or	ganic Compo	ounds (GC)	(Continued)
modifical colline of	gaine comp.	Julius (35)	( Continuou,

Surrogate	%Recovery Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	100	70 - 130	11/05/21 11:19	11/05/21 19:52	1

Method: Total	BTEX - Total	BTEX Calculation	าท

Analyte	Result	Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398	mg/Kg			11/11/21 14:14	1

Method: 8015 NM - Diesel Range Organics (DRO) (G	C
Method: 0013 NM - Dieser Range Organics (DIXO) (C	, ,

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.8	U	49.8		mg/Kg			11/09/21 16:19	1

Method: 8015B	NM - Diesel	Range Or	ganics (	DRO)	(GC)
Method. 0013D	IAIM - DIESEI	Kange Or	yanıcə (	DICO)	(GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<49.8	U	49.8		mg/Kg		11/05/21 16:18	11/07/21 01:26	1
(GRO)-C6-C10  Diesel Range Organics (Over	<49.8	U	49.8		mg/Kg		11/05/21 16:18	11/07/21 01:26	1
C10-C28) OII Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		11/05/21 16:18	11/07/21 01:26	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac

01:26 1
01:26 1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac
Chloride	19.4	5.00	mg/Kg			11/12/21 14:12	1

Client Sample ID: BH05 Lab Sample ID: 890-1538-8

Date Collected: 11/03/21 14:14 Date Received: 11/04/21 08:33

Sample Depth: 0.5

Mathadi 0004D	Valatile Overen	ic Compounds (GC)
Memoo: Auzib	- voianie Urdan	ic Compounds (GC)

Motifica. Coz ID Volutilo Orga	(33)								
Analyte	Result	Qualifier	RL	MDL (	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	r	mg/Kg		11/05/21 11:19	11/05/21 20:12	1
Toluene	<0.00198	U	0.00198	r	mg/Kg		11/05/21 11:19	11/05/21 20:12	1
Ethylbenzene	<0.00198	U	0.00198	r	mg/Kg		11/05/21 11:19	11/05/21 20:12	1
m-Xylene & p-Xylene	<0.00397	U	0.00397	r	mg/Kg		11/05/21 11:19	11/05/21 20:12	1
o-Xylene	<0.00198	U	0.00198	r	mg/Kg		11/05/21 11:19	11/05/21 20:12	1
Xylenes, Total	<0.00397	U	0.00397	r	mg/Kg		11/05/21 11:19	11/05/21 20:12	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	120		70 - 130				11/05/21 11:19	11/05/21 20:12	1
1,4-Difluorobenzene (Surr)	104		70 - 130				11/05/21 11:19	11/05/21 20:12	1

Method:	Total RTF)	( - Total RTFX	Calculation

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	< 0.00397	U	0.00397		ma/Ka			11/11/21 14:14	1

Analyte	Result	Qualifier	RL	MDL	Unit	)	Prepared	Analyzed	Dil Fac	
Total TPH	 76.6		50.0		mg/Kg			11/09/21 16:19	1	

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Client: WSP USA Inc. Job ID: 890-1538-1 Project/Site: RDX Federal 21 #42 SDG: 31403360.008

**Client Sample ID: BH05** 

Date Collected: 11/03/21 14:14 Date Received: 11/04/21 08:33

Sample Depth: 0.5

Lab Sample	ID:	890-	1538-8
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Matrix: Solid

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		11/05/21 16:18	11/07/21 01:46	1
Diesel Range Organics (Over C10-C28)	76.6		50.0		mg/Kg		11/05/21 16:18	11/07/21 01:46	1
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		11/05/21 16:18	11/07/21 01:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	113		70 - 130				11/05/21 16:18	11/07/21 01:46	1
o-Terphenyl	0.1	S1-	70 - 130				11/05/21 16:18	11/07/21 01:46	1
Method: 300.0 - Anions, Ion Chro	matography -	Soluble							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	22.4		5.02		mg/Kg			11/12/21 14:20	

Lab Sample ID: 890-1538-9 **Client Sample ID: BH05** Date Collected: 11/03/21 14:22 Matrix: Solid

Date Received: 11/04/21 08:33

Sample Depth: 1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		11/05/21 11:19	11/05/21 20:32	1
Toluene	0.00222		0.00199		mg/Kg		11/05/21 11:19	11/05/21 20:32	1
Ethylbenzene	< 0.00199	U	0.00199		mg/Kg		11/05/21 11:19	11/05/21 20:32	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		11/05/21 11:19	11/05/21 20:32	1
o-Xylene	< 0.00199	U	0.00199		mg/Kg		11/05/21 11:19	11/05/21 20:32	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		11/05/21 11:19	11/05/21 20:32	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	128		70 - 130				11/05/21 11:19	11/05/21 20:32	1
1,4-Difluorobenzene (Surr)	102		70 - 130				11/05/21 11:19	11/05/21 20:32	1
Method: Total BTEX - Total BTEX	( Calculation								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			11/11/21 14:14	1
Total BTEX  Method: 8015 NM - Diesel Range			0.00398		mg/Kg			11/11/21 14:14	1
• <sup>***</sup> •	Organics (DR		0.00398	MDL			Prepared	11/11/21 14:14  Analyzed	·
Method: 8015 NM - Diesel Range	Organics (DR	O) (GC) Qualifier		MDL		<u>D</u>	Prepared		Dil Fac
Method: 8015 NM - Diesel Range Analyte	Organics (DR Result <49.9	O) (GC) Qualifier	RL	MDL	Unit	<u>D</u>	Prepared	Analyzed	Dil Fac
Method: 8015 NM - Diesel Range Analyte Total TPH	Organics (DR Result <49.9	O) (GC) Qualifier	RL		Unit	D	Prepared Prepared	Analyzed	Dil Fac
Method: 8015 NM - Diesel Range Analyte Total TPH  Method: 8015B NM - Diesel Range Analyte Gasoline Range Organics	Organics (DR Result <49.9	Qualifier U  RO) (GC) Qualifier	<b>RL</b>		Unit mg/Kg			Analyzed 11/09/21 16:19	Dil Fac
Method: 8015 NM - Diesel Range Analyte Total TPH  Method: 8015B NM - Diesel Range Analyte Gasoline Range Organics (GRO)-C6-C10	Ge Organics (DR)  Result  <49.9  Ge Organics (D)  Result  <49.9	Qualifier U  RO) (GC) Qualifier U  Qualifier U	RL 49.9  RL 49.9		Unit mg/Kg  Unit mg/Kg		Prepared 11/05/21 16:18	Analyzed 11/09/21 16:19  Analyzed 11/07/21 02:01	Dil Fac
Method: 8015 NM - Diesel Range Analyte Total TPH  Method: 8015B NM - Diesel Range Analyte Gasoline Range Organics	Organics (DR Result <49.9 ge Organics (DI Result	Qualifier U  RO) (GC) Qualifier U  Qualifier U	RL		Unit mg/Kg		Prepared	Analyzed 11/09/21 16:19 Analyzed	Dil Fac  Dil Fac
Method: 8015 NM - Diesel Range Analyte Total TPH  Method: 8015B NM - Diesel Range Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Ge Organics (DR)  Result  <49.9  Ge Organics (D)  Result  <49.9	Qualifier U  RO) (GC) Qualifier U  U  U  U  U	RL 49.9  RL 49.9		Unit mg/Kg  Unit mg/Kg		Prepared 11/05/21 16:18	Analyzed 11/09/21 16:19  Analyzed 11/07/21 02:01	Dil Fac  Dil Fac
Method: 8015 NM - Diesel Range Analyte Total TPH  Method: 8015B NM - Diesel Range Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	Ge Organics (DR)  Result  49.9 ge Organics (D)  Result  49.9	Qualifier U  RO) (GC) Qualifier U  U  U  U	RL 49.9  RL 49.9  49.9		Unit mg/Kg  Unit mg/Kg mg/Kg		Prepared 11/05/21 16:18 11/05/21 16:18	Analyzed 11/09/21 16:19  Analyzed 11/07/21 02:01 11/07/21 02:01	Dil Fac  Dil Fac  1  1  1
Method: 8015 NM - Diesel Range Analyte Total TPH  Method: 8015B NM - Diesel Range Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	ge Organics (DR) Result 49.9 Result 49.9 449.9 <49.9	Qualifier U  RO) (GC) Qualifier U  U  U  U	RL 49.9  RL 49.9  49.9  49.9		Unit mg/Kg  Unit mg/Kg mg/Kg		Prepared 11/05/21 16:18 11/05/21 16:18	Analyzed 11/09/21 16:19  Analyzed 11/07/21 02:01 11/07/21 02:01	Dil Fac  Dil Fac  1

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11/16/2021

### **Client Sample Results**

Client: WSP USA Inc. Job ID: 890-1538-1 Project/Site: RDX Federal 21 #42 SDG: 31403360.008

**Client Sample ID: BH05** 

Lab Sample ID: 890-1538-9

Date Collected: 11/03/21 14:22 Date Received: 11/04/21 08:33

Matrix: Solid

Sample Depth: 1

Method: 300.0 - Anions, Ion Chromatography - Soluble									
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	111		4.98		mg/Kg			11/12/21 14:27	1

**Client Sample ID: BH06** Lab Sample ID: 890-1538-10 **Matrix: Solid** 

Date Collected: 11/03/21 14:32 Date Received: 11/04/21 08:33

Sample Depth: 0.5 - .

(GRO)-C6-C10

C10-C28)

Surrogate

Chloride

Diesel Range Organics (Over

OII Range Organics (Over C28-C36)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		11/05/21 11:19	11/05/21 20:53	1
Toluene	<0.00199	U	0.00199		mg/Kg		11/05/21 11:19	11/05/21 20:53	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		11/05/21 11:19	11/05/21 20:53	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		11/05/21 11:19	11/05/21 20:53	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		11/05/21 11:19	11/05/21 20:53	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		11/05/21 11:19	11/05/21 20:53	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	138	S1+	70 - 130				11/05/21 11:19	11/05/21 20:53	1
1,4-Difluorobenzene (Surr)	107		70 - 130				11/05/21 11:19	11/05/21 20:53	1
Method: Total BTEX - Total B1	EX Calculation								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			11/11/21 14:14	1
Method: 8015 NM - Diesel Rar	ge Organics (DR	O) (GC)							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			11/09/21 16:19	1
Method: 8015B NM - Diesel Ra	ange Organics (D	RO) (GC)							
Analyte	Pocult	Qualifier	RL	MDI	Unit	D	Prepared	Analyzed	Dil Fac
Allalyte	Kesuit	Qualifier		IVIDE	OTIL		riepaieu	Allalyzeu	Dillac

1-Chlorooctane	102	70 - 130			11/05/21 16:18	11/07/21 02:21	1
o-Terphenyl	115	70 - 130			11/05/21 16:18	11/07/21 02:21	1
Method: 300.0 - Anions, Ion Chror	natography - Soluble						
Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac

5.00

49.9

49.9

Limits

mg/Kg

mg/Kg

mg/Kg

11/05/21 16:18

11/05/21 16:18

Prepared

<49.9 U

<49.9 U

%Recovery Qualifier

121

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11/07/21 02:21

11/07/21 02:21

Analyzed

11/12/21 14:35

Dil Fac

Client: WSP USA Inc. Job ID: 890-1538-1 Project/Site: RDX Federal 21 #42 SDG: 31403360.008

**Client Sample ID: BH06** Lab Sample ID: 890-1538-11

Date Collected: 11/03/21 14:40 Matrix: Solid Date Received: 11/04/21 08:33

Sample Depth: 1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Benzene	<0.00200	U	0.00200		mg/Kg		11/05/21 16:41	11/06/21 18:05	
Toluene	<0.00200	U	0.00200		mg/Kg		11/05/21 16:41	11/06/21 18:05	
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		11/05/21 16:41	11/06/21 18:05	
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		11/05/21 16:41	11/06/21 18:05	
o-Xylene	<0.00200	U	0.00200		mg/Kg		11/05/21 16:41	11/06/21 18:05	
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		11/05/21 16:41	11/06/21 18:05	
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fa
4-Bromofluorobenzene (Surr)	111		70 - 130				11/05/21 16:41	11/06/21 18:05	
1,4-Difluorobenzene (Surr)	70		70 - 130				11/05/21 16:41	11/06/21 18:05	
Method: Total BTEX - Total BTEX	<b>Calculation</b>								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fa
Total BTEX	<0.00399	U	0.00399		mg/Kg			11/11/21 14:14	
Total TPH	<49.9	U	49.9		mg/Kg		·	11/09/21 16:19	
								11/09/21 10.19	
Method: 8015B NM - Diesel Rand	ne Organics (D	RO) (GC)						11/09/21 10.19	
	•	RO) (GC) Qualifier	RL	MDL	Unit	D	Prepared		
Analyte Gasoline Range Organics	•	Qualifier	RL49.9	MDL	Unit mg/Kg	<u>D</u>	Prepared 11/05/21 16:18	Analyzed 11/07/21 03:00	Dil Fa
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Result	Qualifier U		MDL		<u>D</u>		Analyzed	Dil Fa
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	Result   <49.9	Qualifier U	49.9	MDL	mg/Kg	<u>D</u>	11/05/21 16:18	Analyzed 11/07/21 03:00	Dil Fa
Analyte  Gasoline Range Organics (GRO)-C6-C10  Diesel Range Organics (Over C10-C28)  Oll Range Organics (Over C28-C36)	Result   <49.9   <49.9	Qualifier U U U	49.9	MDL	mg/Kg	<u>D</u>	11/05/21 16:18 11/05/21 16:18	Analyzed 11/07/21 03:00 11/07/21 03:00	Dil Fa
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)  Surrogate	Result  <49.9 <49.9 <49.9	Qualifier U U U	49.9 49.9 49.9	MDL	mg/Kg	<u> </u>	11/05/21 16:18 11/05/21 16:18 11/05/21 16:18	Analyzed 11/07/21 03:00 11/07/21 03:00 11/07/21 03:00	Dil Fa
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) OII Range Organics (Over C28-C36)  Surrogate 1-Chlorooctane	Result   <49.9   <49.9   <49.9   <49.9   %Recovery	Qualifier U U U	49.9 49.9 49.9 <i>Limits</i>	MDL	mg/Kg	<u>D</u>	11/05/21 16:18 11/05/21 16:18 11/05/21 16:18 11/05/21 16:18 Prepared	Analyzed 11/07/21 03:00 11/07/21 03:00 11/07/21 03:00 Analyzed	Dil Fa
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  Method: 300.0 - Anions, Ion Chro	Result   <49.9   <49.9   <49.9     <49.9     <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0   <10.0	Qualifier  U  U  Qualifier	49.9 49.9 49.9 <b>Limits</b> 70 - 130	MDL	mg/Kg	<u> </u>	11/05/21 16:18 11/05/21 16:18 11/05/21 16:18 Prepared 11/05/21 16:18	Analyzed 11/07/21 03:00 11/07/21 03:00 11/07/21 03:00  Analyzed 11/07/21 03:00	Dil Fa
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	49.9 49.9 49.9 <b>Limits</b> 70 - 130	MDL	mg/Kg mg/Kg mg/Kg	<u>D</u>	11/05/21 16:18 11/05/21 16:18 11/05/21 16:18 Prepared 11/05/21 16:18	Analyzed 11/07/21 03:00 11/07/21 03:00 11/07/21 03:00  Analyzed 11/07/21 03:00	Dil Fa

**Client Sample ID: BH07** Lab Sample ID: 890-1538-12 Matrix: Solid

Date Collected: 11/03/21 14:50 Date Received: 11/04/21 08:33

Sample Depth: 0.5

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		11/05/21 16:41	11/06/21 18:25	1
Toluene	<0.00199	U	0.00199		mg/Kg		11/05/21 16:41	11/06/21 18:25	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		11/05/21 16:41	11/06/21 18:25	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		11/05/21 16:41	11/06/21 18:25	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		11/05/21 16:41	11/06/21 18:25	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		11/05/21 16:41	11/06/21 18:25	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)			70 - 130				11/05/21 16:41	11/06/21 18:25	

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 Client: WSP USA Inc.
 Job ID: 890-1538-1

 Project/Site: RDX Federal 21 #42
 SDG: 31403360.008

Client Sample ID: BH07 Lab Sample ID: 890-1538-12

Date Collected: 11/03/21 14:50

Date Received: 11/04/21 08:33

Matrix: Solid

Sample Depth: 0.5

Total BTEX

Method: 8021B - Volatile Orga	anic Compounds (GC) (Conti	nued)					
Surrogate	%Recovery Qualifier	Limits			Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	95	70 - 130			11/05/21 16:41	11/06/21 18:25	1
Method: Total BTEX - Total B	TEX Calculation						
Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac

Method: 8015 NM - Diesel Range O	Method: 8015 NM - Diesel Range Organics (DRO) (GC)										
Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac				
Total TPH	<49.9 U	49.9	mg/Kg			11/09/21 16:19	1				

0.00398

mg/Kg

mg/Kg

<0.00398 U

264

Result Qualifier

<49.9 U

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		11/05/21 16:18	11/07/21 03:21	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		11/05/21 16:18	11/07/21 03:21	1
Oll Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		11/05/21 16:18	11/07/21 03:21	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	113		70 - 130				11/05/21 16:18	11/07/21 03:21	1

o-Terphenyl	123	70 - 130		1	1/05/21 16:18 1	11/07/21 03:21	1	
Method: 300.0 - Anions, Ion Chromatogra	aphy - Soluble							
Analyte	Result Qualifier	RL	MDL Unit	D	Prepared	Analyzed	Dil Fac	

4.96

Client Sample ID: BH07

Date Collected: 11/03/21 14:58

Lab Sample ID: 890-1538-13

Matrix: Solid

Date Received: 11/04/21 08:33

Sample Depth: 1

Chloride

Analyte

Total TPH

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198		mg/Kg		11/05/21 16:41	11/06/21 18:46	1
Toluene	<0.00198	U	0.00198		mg/Kg		11/05/21 16:41	11/06/21 18:46	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		11/05/21 16:41	11/06/21 18:46	1
m-Xylene & p-Xylene	<0.00397	U	0.00397		mg/Kg		11/05/21 16:41	11/06/21 18:46	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		11/05/21 16:41	11/06/21 18:46	1
Xylenes, Total	<0.00397	U	0.00397		mg/Kg		11/05/21 16:41	11/06/21 18:46	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	103		70 - 130				11/05/21 16:41	11/06/21 18:46	1
1,4-Difluorobenzene (Surr)	102		70 - 130				11/05/21 16:41	11/06/21 18:46	1
Method: Total BTEX - Total BT	EX Calculation								
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00397	U	0.00397		mg/Kg			11/11/21 14:14	1

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Analyzed

11/09/21 16:19

Prepared

RL

49.9

MDL Unit

mg/Kg

2

3

5

7

11/11/21 14:14

11/15/21 17:40

9

11

13

14

Dil Fac

# **Client Sample Results**

 Client: WSP USA Inc.
 Job ID: 890-1538-1

 Project/Site: RDX Federal 21 #42
 SDG: 31403360.008

Client Sample ID: BH07

Lab Sample ID: 890-1538-13

Date Collected: 11/03/21 14:58 Matrix: Solid
Date Received: 11/04/21 08:33

Sample Depth: 1

Chloride

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		11/05/21 16:18	11/07/21 03:40	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		11/05/21 16:18	11/07/21 03:40	1
OII Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		11/05/21 16:18	11/07/21 03:40	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	113		70 - 130				11/05/21 16:18	11/07/21 03:40	1
o-Terphenyl	125		70 - 130				11/05/21 16:18	11/07/21 03:40	1
Method: 300.0 - Anions, Ion Chro	matography -	Soluble							
Analyte	•	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac

5.00

222

mg/Kg

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11/10/21 19:43

# **Surrogate Summary**

 Client: WSP USA Inc.
 Job ID: 890-1538-1

 Project/Site: RDX Federal 21 #42
 SDG: 31403360.008

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Prep Type: Total/NA

		BFB1	DFBZ1	Percent Surrogate Recovery (Acceptance Limits
ab Sample ID	Client Sample ID	(70-130)	(70-130)	
390-1519-A-1-C MS	Matrix Spike	110	101	·
890-1519-A-1-D MSD	Matrix Spike Duplicate	113	96	
390-1538-1	BH01	118	101	
90-1538-1 MS	BH01	115	106	
90-1538-1 MSD	BH01	117	74	
90-1538-2	BH02	119	103	
90-1538-3	BH02	124	94	
90-1538-4	BH03	120	93	
90-1538-5	BH03	129	108	
90-1538-6	BH04	119	98	
90-1538-7	BH04	115	100	
90-1538-8	BH05	120	104	
90-1538-9	BH05	128	102	
90-1538-10	BH06	138 S1+	107	
90-1538-11	BH06	111	70	
90-1538-12	BH07	115	95	
90-1538-13	BH07	103	102	
CS 880-11477/1-A	Lab Control Sample	105	102	
CS 880-11531/1-A	Lab Control Sample	108	107	
CSD 880-11477/2-A	Lab Control Sample Dup	106	97	
CSD 880-11531/2-A	Lab Control Sample Dup	112	106	
/IB 880-11476/5-A	Method Blank	128	97	
/IB 880-11477/5-A	Method Blank	112	96	
	Method Blank	123	110	

BFB = 4-Bromotiuoropenzene (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)	
890-1538-1	BH01	89	96	
890-1538-1 MS	BH01	100	83	
890-1538-1 MSD	BH01	117	96	
890-1538-2	BH02	115	126	
890-1538-3	BH02	93	102	
890-1538-4	BH03	86	96	
890-1538-5	BH03	97	110	
890-1538-6	BH04	90	0.1 S1-	
890-1538-7	BH04	86	96	
890-1538-8	BH05	113	0.1 S1-	
890-1538-9	BH05	105	120	
890-1538-10	BH06	102	115	
890-1538-11	BH06	113	124	
390-1538-12	BH07	113	123	
890-1538-13	BH07	113	125	

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# **Surrogate Summary**

Client: WSP USA Inc. Job ID: 890-1538-1 Project/Site: RDX Federal 21 #42 SDG: 31403360.008

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

Matrix: Solid Prep Type: Total/NA

			Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
LCS 880-11615/2-A	Lab Control Sample	84	82	
LCSD 880-11615/3-A	Lab Control Sample Dup	96	82	
MB 880-11615/1-A	Method Blank	89	105	
Surrogate Legend				
1CO = 1-Chlorooctane				
OTPH = o-Terphenyl				

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Client: WSP USA Inc. Job ID: 890-1538-1 Project/Site: RDX Federal 21 #42 SDG: 31403360.008

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-11476/5-A

**Matrix: Solid** Analysis Batch: 11515 Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 11476

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		11/05/21 09:00	11/05/21 23:59	1
Toluene	<0.00200	U	0.00200		mg/Kg		11/05/21 09:00	11/05/21 23:59	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		11/05/21 09:00	11/05/21 23:59	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		11/05/21 09:00	11/05/21 23:59	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		11/05/21 09:00	11/05/21 23:59	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		11/05/21 09:00	11/05/21 23:59	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepare	ed	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	128		70 - 130	11/05/21 0	9:00	11/05/21 23:59	1
1,4-Difluorobenzene (Surr)	97		70 - 130	11/05/21 0	9:00	11/05/21 23:59	1

Lab Sample ID: MB 880-11477/5-A Client Sample ID: Method Blank **Matrix: Solid** 

Analysis Batch: 11515 MR MR

Prep Type: Total/NA

Prep Batch: 11477

Analyte Result Qualifier RL MDL Unit Prepared Analyzed Dil Fac mg/Kg Benzene <0.00200 U 0.00200 11/05/21 16:41 11/06/21 10:53 Toluene <0.00200 U 0.00200 mg/Kg 11/05/21 16:41 11/06/21 10:53 Ethylbenzene <0.00200 U 0.00200 mg/Kg 11/05/21 16:41 11/06/21 10:53 <0.00400 U 0.00400 11/06/21 10:53 m-Xylene & p-Xylene mg/Kg 11/05/21 16:41 <0.00200 U 0.00200 11/06/21 10:53 o-Xylene mg/Kg 11/05/21 16:41 11/05/21 16:41 Xylenes, Total <0.00400 U 0.00400 mg/Kg 11/06/21 10:53

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		70 - 130	11/05/21 16:41	11/06/21 10:53	1
1,4-Difluorobenzene (Surr)	96		70 - 130	11/05/21 16:41	11/06/21 10:53	1

Lab Sample ID: LCS 880-11477/1-A

**Matrix: Solid** 

**Analysis Batch: 11515** 

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Batch: 11477

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	0.100	0.08670		mg/Kg		87	70 - 130	
Toluene	0.100	0.08238		mg/Kg		82	70 - 130	
Ethylbenzene	0.100	0.08292		mg/Kg		83	70 - 130	
m-Xylene & p-Xylene	0.200	0.1700		mg/Kg		85	70 - 130	
o-Xylene	0.100	0.08796		mg/Kg		88	70 - 130	

LCS LCS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	105	70 - 130
1.4-Difluorobenzene (Surr)	102	70 - 130

Lab Sample ID: LCSD 880-11477/2-A

Matrix: Solid

**Analysis Batch: 11515** 

Client Sample ID: La	b Control Sample Dup
	Drop Type, Total/NA

Prep Type: Total/NA

Prep Batch: 11477

	<b>Бріке</b>	LCSD LCSD				%Rec.		KPD
Analyte	Added	Result Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	0.100	0.08646	mg/Kg		86	70 - 130	0	35

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Client: WSP USA Inc. Job ID: 890-1538-1 Project/Site: RDX Federal 21 #42 SDG: 31403360.008

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

Lab Sample ID: LCSD 880-11477/2-A

**Analysis Batch: 11515** 

**Matrix: Solid** 

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA Prep Batch: 11477

	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Toluene	0.100	0.08498		mg/Kg		85	70 - 130	3	35
Ethylbenzene	0.100	0.08572		mg/Kg		86	70 - 130	3	35
m-Xylene & p-Xylene	0.200	0.1770		mg/Kg		89	70 - 130	4	35
o-Xylene	0.100	0.08966		mg/Kg		90	70 - 130	2	35

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		70 - 130
1,4-Difluorobenzene (Surr)	97		70 - 130

Lab Sample ID: 890-1519-A-1-C MS

**Matrix: Solid** 

Analysis Batch: 11515

Client Sample ID: Matrix Spike

Prep Type: Total/NA

MS MS Surrogate %Recovery Qualifier Limits 4-Bromofluorobenzene (Surr) 110 70 - 130 1,4-Difluorobenzene (Surr) 101 70 - 130

Lab Sample ID: 890-1519-A-1-D MSD

**Matrix: Solid** 

**Analysis Batch: 11515** 

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

	IVISD	MSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	113		70 - 130
1,4-Difluorobenzene (Surr)	96		70 - 130

Lab Sample ID: MB 880-11531/5-A

Matrix: Solid

**Analysis Batch: 11601** 

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 11531

	MB	MB						
Analyte	Result	Qualifier	RL	MDL Uni	t D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/	/Kg	11/05/21 11:19	11/05/21 17:21	1
Toluene	<0.00200	U	0.00200	mg/	′Kg	11/05/21 11:19	11/05/21 17:21	1
Ethylbenzene	<0.00200	U	0.00200	mg/	′Kg	11/05/21 11:19	11/05/21 17:21	1
m-Xylene & p-Xylene	<0.00400	U	0.00400	mg/	'Kg	11/05/21 11:19	11/05/21 17:21	1
o-Xylene	<0.00200	U	0.00200	mg/	′Kg	11/05/21 11:19	11/05/21 17:21	1
Xylenes, Total	<0.00400	U	0.00400	mg/	′Kg	11/05/21 11:19	11/05/21 17:21	1

MB MB

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	123		70 - 130	11/05/21 11:19	11/05/21 17:21	1
1,4-Difluorobenzene (Surr)	110		70 - 130	11/05/21 11:19	11/05/21 17:21	1

Lab Sample ID: LCS 880-11531/1-A

**Matrix: Solid** 

**Analysis Batch: 11601** 

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 11531

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	 0.100	0.08524		mg/Kg	_	85	70 - 130	
Toluene	0.100	0.08784		mg/Kg		88	70 - 130	

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### **QC Sample Results**

Client: WSP USA Inc. Job ID: 890-1538-1 Project/Site: RDX Federal 21 #42 SDG: 31403360.008

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

Lab Sample ID: LCS 880-11531/1-A **Matrix: Solid** 

**Analysis Batch: 11601** 

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA Prep Batch: 11531

	Spike	LCS	LCS				%Rec.
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Ethylbenzene	0.100	0.09086		mg/Kg		91	70 - 130
m-Xylene & p-Xylene	0.200	0.1800		mg/Kg		90	70 - 130
o-Xylene	0.100	0.09060		mg/Kg		91	70 - 130

LCS LCS

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	108		70 - 130
1,4-Difluorobenzene (Surr)	107		70 - 130

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 11531

Lab Sample ID: LCSD 880-11531/2-A **Matrix: Solid** 

**Analysis Batch: 11601** 

	Spike	LCSD	LCSD			%Rec.		RPD
Analyte	Added	Result	Qualifier Unit	D	%Rec	Limits	RPD	Limit
Benzene	0.100	0.09003	mg/Kg		90	70 - 130	5	35
Toluene	0.100	0.09200	mg/Kg		92	70 - 130	5	35
Ethylbenzene	0.100	0.09994	mg/Kg		100	70 - 130	10	35
m-Xylene & p-Xylene	0.200	0.1957	mg/Kg		98	70 - 130	8	35
o-Xylene	0.100	0.09561	mg/Kg		96	70 - 130	5	35

LCSD LCSD

Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	112		70 - 130
1,4-Difluorobenzene (Surr)	106		70 - 130

Lab Sample ID: 890-1538-1 MS

**Matrix: Solid** 

**Analysis Batch: 11601** 

**Client Sample ID: BH01** Prep Type: Total/NA Prep Batch: 11531

	Sample	Sample	Spike	MS	MS				%Rec.	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	<0.00202	U F1	0.0996	0.07394		mg/Kg		74	70 - 130	
Toluene	<0.00202	U F1 F2	0.0996	0.07907		mg/Kg		79	70 - 130	
Ethylbenzene	<0.00202	U F1	0.0996	0.08129		mg/Kg		82	70 - 130	
m-Xylene & p-Xylene	<0.00403	U F1	0.199	0.1578		mg/Kg		79	70 - 130	
o-Xylene	<0.00202	U	0.0996	0.07868		mg/Kg		78	70 - 130	

MS MS

Surrogate	%Recovery Qualifier	Limits
4-Bromofluorobenzene (Surr)	115	70 - 130
1,4-Difluorobenzene (Surr)	106	70 - 130

Lab Sample ID: 890-1538-1 MSD

**Matrix: Solid** 

Analysis Ratch: 11601

Client Sample ID: BH01 Prep Type: Total/NA Prep Batch: 11531

Alialysis Dalcii. 11001									Fieh	Dateii.	11991
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	<0.00202	U F1	0.100	0.06575	F1	mg/Kg		65	70 - 130	12	35
Toluene	<0.00202	U F1 F2	0.100	0.05482	F1 F2	mg/Kg		55	70 - 130	36	35
Ethylbenzene	<0.00202	U F1	0.100	0.06434	F1	mg/Kg		64	70 - 130	23	35
m-Xylene & p-Xylene	<0.00403	U F1	0.201	0.1183	F1	mg/Kg		58	70 - 130	29	35
o-Xylene	<0.00202	U	0.100	0.08815		mg/Kg		87	70 - 130	11	35

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### **QC Sample Results**

Job ID: 890-1538-1 Client: WSP USA Inc. Project/Site: RDX Federal 21 #42 SDG: 31403360.008

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

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	117		70 - 130
1,4-Difluorobenzene (Surr)	74		70 - 130

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

Matrix: Solid				•	pple ID: Method Blank Prep Type: Total/NA				
Analysis Batch: 11626								Prep Batcl	n: 11615
	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<50.0	U	50.0		mg/Kg		11/05/21 16:18	11/06/21 21:43	1
(GRO)-C6-C10									
Diesel Range Organics (Over	<50.0	U	50.0		mg/Kg		11/05/21 16:18	11/06/21 21:43	1
C10-C28)									
OII Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		11/05/21 16:18	11/06/21 21:43	1
	МВ	MB							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	89		70 - 130				11/05/21 16:18	11/06/21 21:43	1
o-Terphenyl	105		70 - 130				11/05/21 16:18	11/06/21 21:43	1

Lab Sample ID: LCS 880-11615/2-A	Client Sample ID: Lab Control Sample
Matrix: Solid	Prep Type: Total/NA
Analysis Batch: 11626	Prep Batch: 11615

	Spike	LCS	LCS				%Rec.	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Gasoline Range Organics	1000	766.0		mg/Kg		77	70 - 130	 
(GRO)-C6-C10								
Diesel Range Organics (Over	1000	781.5		mg/Kg		78	70 - 130	
C10-C28)								

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	84		70 - 130
o-Terphenyl	82		70 - 130

Released to Imaging: 12/21/2021 3:02:39 PM

Lab Sample ID: LCSD 880-11615/3-A	Client Sample ID: Lab Control Sample Dup
Matrix: Solid	Prep Type: Total/NA
Analysis Batch: 11626	Prep Batch: 11615

-	Spike	LCSD	LCSD				%Rec.		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics	1000	798.4		mg/Kg		80	70 - 130	4	20
(GRO)-C6-C10									
Diesel Range Organics (Over	1000	753.8		mg/Kg		75	70 - 130	4	20
C10-C28)									

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane	96		70 - 130
o-Terphenyl	82		70 - 130

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A

Prep Batch: 11615

Client: WSP USA Inc. Job ID: 890-1538-1 Project/Site: RDX Federal 21 #42

SDG: 31403360.008

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

Lab Sample ID: 890-1538-1 MS

**Matrix: Solid** 

**Analysis Batch: 11626** 

Client Sample ID: BH01 Prep Type: Total/NA Prep Batch: 11615

Sample Sample Spike MS MS Result Qualifier Result Qualifier Added Unit D %Rec Limits Gasoline Range Organics <49.9 U F2 997 954.8 mg/Kg 96 70 - 130 (GRO)-C6-C10 Diesel Range Organics (Over 997 857 4 83 70 - 130<49.9 U mg/Kg

C10-C28)

o-Terphenyl

Analyte

MS MS %Recovery Surrogate

Qualifier Limits 1-Chlorooctane 70 - 130 100 83 70 - 130

Lab Sample ID: 890-1538-1 MSD Client Sample ID: BH01

**Matrix: Solid** 

**Analysis Batch: 11626** 

Prep Type: Total/NA

Prep Batch: 11615

**Prep Type: Soluble** 

**Prep Type: Soluble** 

Spike MSD MSD %Rec. RPD Sample Sample Analyte Result Qualifier Added Result Qualifier Unit D %Rec Limits **RPD** Limit 1000 Gasoline Range Organics <49.9 U F2 1268 F2 mg/Kg 127 70 - 130 28 20 (GRO)-C6-C10 Diesel Range Organics (Over <49.9 U 1000 990.7 mg/Kg 97 70 - 130 14 20 C10-C28)

MSD MSD Surrogate %Recovery Qualifier

1-Chlorooctane 117 70 - 130 96 70 - 130 o-Terphenyl

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-11669/1-A Client Sample ID: Method Blank

**Matrix: Solid** 

**Analysis Batch: 11847** 

MB MB

Analyte Result Qualifier MDL Unit RL Prepared Analyzed Dil Fac Chloride <5.00 U 5.00 11/10/21 12:24 mg/Kg

Lab Sample ID: LCS 880-11669/2-A Client Sample ID: Lab Control Sample **Prep Type: Soluble** 

Limits

**Matrix: Solid** 

**Analysis Batch: 11847** 

LCS LCS Spike %Rec. Analyte Added Result Qualifier Limits Unit D %Rec Chloride 250 249.5 100 90 - 110 mg/Kg

Client Sample ID: Lab Control Sample Dup

Lab Sample ID: LCSD 880-11669/3-A Matrix: Solid

**Analysis Batch: 11847** 

Spike LCSD LCSD %Rec. RPD Analyte Added Result Qualifier %Rec Limits RPD Limit Unit D Chloride 250 100 250.1 mg/Kg 90 \_ 110 20

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Client: WSP USA Inc. Job ID: 890-1538-1 Project/Site: RDX Federal 21 #42 SDG: 31403360.008

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 890-1527-A-10-E MS Client Sample ID: Matrix Spike **Matrix: Solid Prep Type: Soluble** 

**Analysis Batch: 11847** 

Chloride

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

253

Lab Sample ID: 890-1527-A-10-F MSD Client Sample ID: Matrix Spike Duplicate Matrix: Solid **Prep Type: Soluble** 

273.2

mg/Kg

99

90 - 110

**Analysis Batch: 11847** 

22.7

Sample Sample Spike MSD MSD %Rec. RPD Qualifier Added Qualifier Analyte Result Result Unit D %Rec Limits RPD Limit Chloride 22.7 250 263.3 mg/Kg 90 - 110

Lab Sample ID: MB 880-11670/1-A Client Sample ID: Method Blank **Prep Type: Soluble** 

**Matrix: Solid** 

**Analysis Batch: 11952** мв мв

Analyte Result Qualifier RL MDL Unit D Prepared Analyzed Dil Fac Chloride <5.00 U 5.00 11/12/21 08:26 mg/Kg

Lab Sample ID: LCS 880-11670/2-A Client Sample ID: Lab Control Sample **Prep Type: Soluble** 

**Matrix: Solid** 

**Analysis Batch: 11952** 

LCS LCS Spike %Rec. Added Analyte Result Qualifier Unit %Rec Limits Chloride 250 248.2 90 - 110 mg/Kg

Lab Sample ID: LCSD 880-11670/3-A Client Sample ID: Lab Control Sample Dup **Prep Type: Soluble** 

**Matrix: Solid** 

**Analysis Batch: 11952** 

Spike LCSD LCSD %Rec. RPD Analyte Added Result Qualifier Unit %Rec Limits RPD Limit Chloride 250 249.0 mg/Kg 100 90 - 110 20

Lab Sample ID: 890-1538-1 MS Client Sample ID: BH01 **Prep Type: Soluble** 

**Matrix: Solid** 

**Analysis Batch: 11952** 

Sample Sample Spike MS MS %Rec. Result Qualifier Added Analyte Result Qualifier Unit D %Rec Limits Chloride 2380 1250 3681 mg/Kg 104 90 - 110

Lab Sample ID: 890-1538-1 MSD

**Matrix: Solid** 

**Analysis Batch: 11952** 

MSD MSD %Rec. RPD Sample Sample Spike Qualifier Result Added Result Qualifier Limits RPD Limit Analyte Unit D %Rec Chloride 2380 1250 3702 mg/Kg 106 90 - 110

Lab Sample ID: MB 880-11671/1-A Client Sample ID: Method Blank

**Matrix: Solid** 

**Analysis Batch: 11955** 

мв мв Analyte Result Qualifier RL MDL Unit D Prepared Analyzed Dil Fac 5.00 Chloride <5.00 mg/Kg 11/15/21 13:59

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Client Sample ID: BH01

**Prep Type: Soluble** 

**Prep Type: Soluble** 

Released to Imaging: 12/21/2021 3:02:39 PM

### QC Sample Results

Client: WSP USA Inc. Job ID: 890-1538-1 Project/Site: RDX Federal 21 #42

SDG: 31403360.008

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: LCS 880-11671/2-A **Client Sample ID: Lab Control Sample Matrix: Solid Prep Type: Soluble** 

Analysis Batch: 11955

Spike LCS LCS %Rec. Analyte Added Result Qualifier Unit %Rec Limits Chloride 250 259.1 mg/Kg 104 90 - 110

Lab Sample ID: LCSD 880-11671/3-A Client Sample ID: Lab Control Sample Dup

**Matrix: Solid Prep Type: Soluble** 

**Analysis Batch: 11955** 

Spike LCSD LCSD %Rec. RPD Added Limit Analyte Result Qualifier Unit D %Rec Limits RPD Chloride 250 260.0 mg/Kg 104 90 - 110 0

Lab Sample ID: 880-8014-A-11-E MS Client Sample ID: Matrix Spike

**Matrix: Solid Prep Type: Soluble** 

**Analysis Batch: 11955** 

MS MS Spike

%Rec. Sample Sample Analyte Result Qualifier Added Result Qualifier Unit Limits Chloride 30.8 250 295.5 106 90 - 110 mg/Kg

Lab Sample ID: 880-8014-A-11-F MSD Client Sample ID: Matrix Spike Duplicate **Prep Type: Soluble** 

**Matrix: Solid** 

**Analysis Batch: 11955** 

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	30.8		250	287.2		mg/Kg		103	90 - 110	3	20

Client: WSP USA Inc.

Project/Site: RDX Federal 21 #42

Job ID: 890-1538-1 SDG: 31403360.008

**GC VOA** 

Prep Batch: 11476

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-11476/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 11477

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batc
890-1538-11	BH06	Total/NA	Solid	5035	
890-1538-12	BH07	Total/NA	Solid	5035	
890-1538-13	BH07	Total/NA	Solid	5035	
MB 880-11477/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-11477/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-11477/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

**Analysis Batch: 11515** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1538-11	BH06	Total/NA	Solid	8021B	11477
890-1538-12	BH07	Total/NA	Solid	8021B	11477
890-1538-13	BH07	Total/NA	Solid	8021B	11477
MB 880-11476/5-A	Method Blank	Total/NA	Solid	8021B	11476
MB 880-11477/5-A	Method Blank	Total/NA	Solid	8021B	11477
LCS 880-11477/1-A	Lab Control Sample	Total/NA	Solid	8021B	11477
LCSD 880-11477/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	11477
890-1519-A-1-C MS	Matrix Spike	Total/NA	Solid	8021B	
890-1519-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	

Prep Batch: 11531

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batcl
890-1538-1	BH01	Total/NA	Solid	5035	
890-1538-2	BH02	Total/NA	Solid	5035	
890-1538-3	BH02	Total/NA	Solid	5035	
890-1538-4	BH03	Total/NA	Solid	5035	
890-1538-5	BH03	Total/NA	Solid	5035	
890-1538-6	BH04	Total/NA	Solid	5035	
890-1538-7	BH04	Total/NA	Solid	5035	
890-1538-8	BH05	Total/NA	Solid	5035	
890-1538-9	BH05	Total/NA	Solid	5035	
890-1538-10	BH06	Total/NA	Solid	5035	
MB 880-11531/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-11531/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-11531/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-1538-1 MS	BH01	Total/NA	Solid	5035	
890-1538-1 MSD	BH01	Total/NA	Solid	5035	

**Analysis Batch: 11601** 

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1538-1	BH01	Total/NA	Solid	8021B	11531
890-1538-2	BH02	Total/NA	Solid	8021B	11531
890-1538-3	BH02	Total/NA	Solid	8021B	11531
890-1538-4	BH03	Total/NA	Solid	8021B	11531
890-1538-5	BH03	Total/NA	Solid	8021B	11531
890-1538-6	BH04	Total/NA	Solid	8021B	11531
890-1538-7	BH04	Total/NA	Solid	8021B	11531
890-1538-8	BH05	Total/NA	Solid	8021B	11531

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 Client: WSP USA Inc.
 Job ID: 890-1538-1

 Project/Site: RDX Federal 21 #42
 SDG: 31403360.008

**GC VOA (Continued)** 

### **Analysis Batch: 11601 (Continued)**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1538-9	BH05	Total/NA	Solid	8021B	11531
890-1538-10	BH06	Total/NA	Solid	8021B	11531
MB 880-11531/5-A	Method Blank	Total/NA	Solid	8021B	11531
LCS 880-11531/1-A	Lab Control Sample	Total/NA	Solid	8021B	11531
LCSD 880-11531/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	11531
890-1538-1 MS	BH01	Total/NA	Solid	8021B	11531
890-1538-1 MSD	BH01	Total/NA	Solid	8021B	11531

### Analysis Batch: 12040

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1538-1	BH01	Total/NA	Solid	Total BTEX	
890-1538-2	BH02	Total/NA	Solid	Total BTEX	
890-1538-3	BH02	Total/NA	Solid	Total BTEX	
890-1538-4	BH03	Total/NA	Solid	Total BTEX	
890-1538-5	BH03	Total/NA	Solid	Total BTEX	
890-1538-6	BH04	Total/NA	Solid	Total BTEX	
890-1538-7	BH04	Total/NA	Solid	Total BTEX	
890-1538-8	BH05	Total/NA	Solid	Total BTEX	
890-1538-9	BH05	Total/NA	Solid	Total BTEX	
890-1538-10	BH06	Total/NA	Solid	Total BTEX	
890-1538-11	BH06	Total/NA	Solid	Total BTEX	
890-1538-12	BH07	Total/NA	Solid	Total BTEX	
890-1538-13	BH07	Total/NA	Solid	Total BTEX	

GC Semi VOA

### Prep Batch: 11615

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1538-1	BH01	Total/NA	Solid	8015NM Prep	
890-1538-2	BH02	Total/NA	Solid	8015NM Prep	
890-1538-3	BH02	Total/NA	Solid	8015NM Prep	
890-1538-4	BH03	Total/NA	Solid	8015NM Prep	
890-1538-5	BH03	Total/NA	Solid	8015NM Prep	
890-1538-6	BH04	Total/NA	Solid	8015NM Prep	
890-1538-7	BH04	Total/NA	Solid	8015NM Prep	
890-1538-8	BH05	Total/NA	Solid	8015NM Prep	
890-1538-9	BH05	Total/NA	Solid	8015NM Prep	
890-1538-10	BH06	Total/NA	Solid	8015NM Prep	
890-1538-11	BH06	Total/NA	Solid	8015NM Prep	
890-1538-12	BH07	Total/NA	Solid	8015NM Prep	
890-1538-13	BH07	Total/NA	Solid	8015NM Prep	
MB 880-11615/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-11615/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-11615/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-1538-1 MS	BH01	Total/NA	Solid	8015NM Prep	
890-1538-1 MSD	BH01	Total/NA	Solid	8015NM Prep	

### Analysis Batch: 11626

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1538-1	BH01	Total/NA	Solid	8015B NM	11615
890-1538-2	BH02	Total/NA	Solid	8015B NM	11615

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11/16/2021

11531

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 Client: WSP USA Inc.
 Job ID: 890-1538-1

 Project/Site: RDX Federal 21 #42
 SDG: 31403360.008

GC Semi VOA (Continued)

### **Analysis Batch: 11626 (Continued)**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1538-3	BH02	Total/NA	Solid	8015B NM	11615
890-1538-4	BH03	Total/NA	Solid	8015B NM	11615
890-1538-5	BH03	Total/NA	Solid	8015B NM	11615
890-1538-6	BH04	Total/NA	Solid	8015B NM	11615
890-1538-7	BH04	Total/NA	Solid	8015B NM	11615
890-1538-8	BH05	Total/NA	Solid	8015B NM	11615
890-1538-9	BH05	Total/NA	Solid	8015B NM	11615
890-1538-10	BH06	Total/NA	Solid	8015B NM	11615
890-1538-11	BH06	Total/NA	Solid	8015B NM	11615
890-1538-12	BH07	Total/NA	Solid	8015B NM	11615
890-1538-13	BH07	Total/NA	Solid	8015B NM	11615
MB 880-11615/1-A	Method Blank	Total/NA	Solid	8015B NM	11615
LCS 880-11615/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	11615
LCSD 880-11615/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	11615
890-1538-1 MS	BH01	Total/NA	Solid	8015B NM	11615
890-1538-1 MSD	BH01	Total/NA	Solid	8015B NM	11615

### Analysis Batch: 11856

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1538-1	BH01	Total/NA	Solid	8015 NM	
890-1538-2	BH02	Total/NA	Solid	8015 NM	
890-1538-3	BH02	Total/NA	Solid	8015 NM	
890-1538-4	BH03	Total/NA	Solid	8015 NM	
890-1538-5	BH03	Total/NA	Solid	8015 NM	
890-1538-6	BH04	Total/NA	Solid	8015 NM	
890-1538-7	BH04	Total/NA	Solid	8015 NM	
890-1538-8	BH05	Total/NA	Solid	8015 NM	
890-1538-9	BH05	Total/NA	Solid	8015 NM	
890-1538-10	BH06	Total/NA	Solid	8015 NM	
890-1538-11	BH06	Total/NA	Solid	8015 NM	
890-1538-12	BH07	Total/NA	Solid	8015 NM	
890-1538-13	BH07	Total/NA	Solid	8015 NM	

### HPLC/IC

### Leach Batch: 11669

<b>Lab Sample ID</b> 890-1538-13	Client Sample ID BH07	Prep Type Soluble	Matrix Solid	Method DI Leach	Prep Batch
MB 880-11669/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-11669/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-11669/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-1527-A-10-E MS	Matrix Spike	Soluble	Solid	DI Leach	
890-1527-A-10-F MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

### Leach Batch: 11670

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1538-1	BH01	Soluble	Solid	DI Leach	
890-1538-2	BH02	Soluble	Solid	DI Leach	
890-1538-3	BH02	Soluble	Solid	DI Leach	
890-1538-4	BH03	Soluble	Solid	DI Leach	
890-1538-5	BH03	Soluble	Solid	DI Leach	

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Client: WSP USA Inc. Job ID: 890-1538-1 Project/Site: RDX Federal 21 #42 SDG: 31403360.008

**HPLC/IC** (Continued)

### Leach Batch: 11670 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1538-6	BH04	Soluble	Solid	DI Leach	
890-1538-7	BH04	Soluble	Solid	DI Leach	
890-1538-8	BH05	Soluble	Solid	DI Leach	
890-1538-9	BH05	Soluble	Solid	DI Leach	
890-1538-10	BH06	Soluble	Solid	DI Leach	
MB 880-11670/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-11670/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-11670/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-1538-1 MS	BH01	Soluble	Solid	DI Leach	
890-1538-1 MSD	BH01	Soluble	Solid	DI Leach	

### Leach Batch: 11671

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1538-11	BH06	Soluble	Solid	DI Leach	
890-1538-12	BH07	Soluble	Solid	DI Leach	
MB 880-11671/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-11671/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-11671/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-8014-A-11-E MS	Matrix Spike	Soluble	Solid	DI Leach	
880-8014-A-11-F MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

### **Analysis Batch: 11847**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1538-13	BH07	Soluble	Solid	300.0	11669
MB 880-11669/1-A	Method Blank	Soluble	Solid	300.0	11669
LCS 880-11669/2-A	Lab Control Sample	Soluble	Solid	300.0	11669
LCSD 880-11669/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	11669
890-1527-A-10-E MS	Matrix Spike	Soluble	Solid	300.0	11669
890-1527-A-10-F MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	11669

### Analysis Batch: 11952

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1538-1	BH01	Soluble	Solid	300.0	11670
890-1538-2	BH02	Soluble	Solid	300.0	11670
890-1538-3	BH02	Soluble	Solid	300.0	11670
890-1538-4	BH03	Soluble	Solid	300.0	11670
890-1538-5	BH03	Soluble	Solid	300.0	11670
890-1538-6	BH04	Soluble	Solid	300.0	11670
890-1538-7	BH04	Soluble	Solid	300.0	11670
890-1538-8	BH05	Soluble	Solid	300.0	11670
890-1538-9	BH05	Soluble	Solid	300.0	11670
890-1538-10	BH06	Soluble	Solid	300.0	11670
MB 880-11670/1-A	Method Blank	Soluble	Solid	300.0	11670
LCS 880-11670/2-A	Lab Control Sample	Soluble	Solid	300.0	11670
LCSD 880-11670/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	11670
890-1538-1 MS	BH01	Soluble	Solid	300.0	11670
890-1538-1 MSD	BH01	Soluble	Solid	300.0	11670

### Analysis Batch: 11955

—					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1538-11	BH06	Soluble	Solid	300.0	11671

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 Client: WSP USA Inc.
 Job ID: 890-1538-1

 Project/Site: RDX Federal 21 #42
 SDG: 31403360.008

**HPLC/IC** (Continued)

### **Analysis Batch: 11955 (Continued)**

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-1538-12	BH07	Soluble	Solid	300.0	11671
MB 880-11671/1-A	Method Blank	Soluble	Solid	300.0	11671
LCS 880-11671/2-A	Lab Control Sample	Soluble	Solid	300.0	11671
LCSD 880-11671/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	11671
880-8014-A-11-E MS	Matrix Spike	Soluble	Solid	300.0	11671
880-8014-A-11-F MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	11671

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SDG: 31403360.008

**Client Sample ID: BH01** 

Client: WSP USA Inc.

Date Collected: 11/03/21 10:45 Date Received: 11/04/21 08:33

Project/Site: RDX Federal 21 #42

Lab Sample ID: 890-1538-1

**Matrix: Solid** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	11531	11/05/21 11:19	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	11601	11/05/21 17:49	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			12040	11/11/21 14:14	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			11856	11/09/21 16:19	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	11615	11/05/21 16:18	DM	XEN MID
Total/NA	Analysis	8015B NM		1			11626	11/06/21 22:45	AJ	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	11670	11/08/21 11:27	CH	XEN MID
Soluble	Analysis	300.0		5			11952	11/12/21 12:59	SC	XEN MID

Lab Sample ID: 890-1538-2

Date Collected: 11/03/21 13:12

**Client Sample ID: BH02** 

Date Received: 11/04/21 08:33

**Matrix: Solid** 

Batch Dil Initial Final Batch Batch Prepared Prep Type Туре Method Run Factor Amount Amount Number or Analyzed Analyst Lab 5035 11/05/21 11:19 Total/NA Prep 4.97 g 5 mL 11531 MR XEN MID Total/NA 8021B 5 mL 11/05/21 18:10 XEN MID Analysis 1 5 mL 11601 MR Total/NA Total BTEX 12040 11/11/21 14:14 XEN MID Analysis 1 A.I Total/NA Analysis 8015 NM 11856 11/09/21 16:19 XEN MID Total/NA XEN MID Prep 8015NM Prep 10.02 g 11615 11/05/21 16:18 DM 10 mL Total/NA Analysis 8015B NM 11626 11/06/21 23:46 AJ XEN MID Soluble XEN MID Leach DI Leach 5.01 g 50 mL 11670 11/08/21 11:27 CH Soluble Analysis 300.0 5 11952 11/12/21 13:21 SC XEN MID

Client Sample ID: BH02

Date Collected: 11/03/21 13:20 Date Received: 11/04/21 08:33

Lab Sample ID: 890-1538-3

**Matrix: Solid** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	11531	11/05/21 11:19	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	11601	11/05/21 18:30	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			12040	11/11/21 14:14	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			11856	11/09/21 16:19	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	11615	11/05/21 16:18	DM	XEN MID
Total/NA	Analysis	8015B NM		1			11626	11/07/21 00:06	AJ	XEN MID
Soluble	Leach	DI Leach			5.04 g	50 mL	11670	11/08/21 11:27	CH	XEN MID
Soluble	Analysis	300.0		1			11952	11/12/21 13:28	SC	XEN MID

**Client Sample ID: BH03** 

Date Collected: 11/03/21 13:33

Date Received: 11/04/21 08:33

Lab Sample ID: 890-1538-4

**Matrix: Solid** 

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	11531	11/05/21 11:19	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	11601	11/05/21 18:50	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			12040	11/11/21 14:14	AJ	XEN MID

Eurofins Xenco, Carlsbad

Page 30 of 42

### **Lab Chronicle**

 Client: WSP USA Inc.
 Job ID: 890-1538-1

 Project/Site: RDX Federal 21 #42
 SDG: 31403360.008

Client Sample ID: BH03 Lab Sample ID: 890-1538-4

Date Collected: 11/03/21 13:33

Matrix: Solid

Date Received: 11/04/21 08:33

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			11856	11/09/21 16:19	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	11615	11/05/21 16:18	DM	XEN MID
Total/NA	Analysis	8015B NM		1			11626	11/07/21 00:26	AJ	XEN MID
Soluble	Leach	DI Leach			5.03 g	50 mL	11670	11/08/21 11:27	CH	XEN MID
Soluble	Analysis	300.0		1			11952	11/12/21 13:50	SC	XEN MID

Client Sample ID: BH03 Lab Sample ID: 890-1538-5

Date Collected: 11/03/21 13:45

Matrix: Solid

Date Received: 11/04/21 08:33

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	11531	11/05/21 11:19	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	11601	11/05/21 19:11	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			12040	11/11/21 14:14	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			11856	11/09/21 16:19	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	11615	11/05/21 16:18	DM	XEN MID
Total/NA	Analysis	8015B NM		1			11626	11/07/21 00:46	AJ	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	11670	11/08/21 11:27	CH	XEN MID
Soluble	Analysis	300.0		1			11952	11/12/21 13:58	SC	XEN MID

Client Sample ID: BH04 Lab Sample ID: 890-1538-6

Date Collected: 11/03/21 13:55
Date Received: 11/04/21 08:33

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	11531	11/05/21 11:19	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	11601	11/05/21 19:31	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			12040	11/11/21 14:14	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			11856	11/09/21 16:19	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	11615	11/05/21 16:18	DM	XEN MID
Total/NA	Analysis	8015B NM		1			11626	11/07/21 01:06	AJ	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	11670	11/08/21 11:27	CH	XEN MID
Soluble	Analysis	300.0		1			11952	11/12/21 14:05	SC	XEN MID

Client Sample ID: BH04 Lab Sample ID: 890-1538-7

Date Collected: 11/03/21 14:00 Date Received: 11/04/21 08:33

_	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	11531	11/05/21 11:19	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	11601	11/05/21 19:52	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			12040	11/11/21 14:14	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			11856	11/09/21 16:19	AJ	XEN MID
Total/NA Total/NA	Prep Analysis	8015NM Prep 8015B NM		1	10.05 g	10 mL	11615 11626	11/05/21 16:18 11/07/21 01:26	DM AJ	XEN MID XEN MID

Eurofins Xenco, Carlsbad

**Matrix: Solid** 

2

3

7

9

10

16

14

**Matrix: Solid** 

D -1

Released to Imaging: 12/21/2021 3:02:39 PM

Analysis

300.0

XEN MID

Client: WSP USA Inc.

Soluble

Project/Site: RDX Federal 21 #42

Client Sample ID: BH04

Date Collected: 11/03/21 14:00

Date Received: 11/04/21 08:33

Job ID: 890-1538-1 SDG: 31403360.008

Lab Sample ID: 890-1538-7

11952

11/12/21 14:12

**Matrix: Solid** 

SC

Batch Batch Dil Initial Final Batch Prepared Prep Type Туре Method Run Factor Amount Amount Number or Analyzed Analyst Lab Soluble Leach DI Leach 50 mL 11670 11/08/21 11:27 СН XEN MID 5 g

1

**Client Sample ID: BH05** Lab Sample ID: 890-1538-8

Date Collected: 11/03/21 14:14

**Matrix: Solid** Date Received: 11/04/21 08:33

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.04 g	5 mL	11531	11/05/21 11:19	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	11601	11/05/21 20:12	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			12040	11/11/21 14:14	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			11856	11/09/21 16:19	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	11615	11/05/21 16:18	DM	XEN MID
Total/NA	Analysis	8015B NM		1			11626	11/07/21 01:46	AJ	XEN MID
Soluble	Leach	DI Leach			4.98 g	50 mL	11670	11/08/21 11:27	CH	XEN MID
Soluble	Analysis	300.0		1			11952	11/12/21 14:20	SC	XEN MID

**Client Sample ID: BH05** Lab Sample ID: 890-1538-9

Date Collected: 11/03/21 14:22 **Matrix: Solid** Date Received: 11/04/21 08:33

Batch Dil Final Batch Initial Batch Prepared Prep Type Туре Method Run Factor Amount Amount Number or Analyzed Analyst Lab Total/NA Prep 5035 5.02 g 5 mL 11531 11/05/21 11:19 MR XEN MID 11/05/21 20:32 Total/NA 8021B 5 mL 5 mL XEN MID Analysis 1 11601 MR Total/NA Analysis Total BTEX 1 12040 11/11/21 14:14 AJ XEN MID Total/NA Analysis 8015 NM 1 11856 11/09/21 16:19 AJ XEN MID Total/NA Prep 8015NM Prep 10.02 g 11615 11/05/21 16:18 DM XEN MID 10 mL Analysis XEN MID Total/NA 8015B NM 1 11626 11/07/21 02:01 AJ Soluble Leach DI Leach 5.02 g 50 mL 11670 11/08/21 11:27 СН XEN MID Soluble Analysis 300.0 1 11952 11/12/21 14:27 SC XEN MID

**Client Sample ID: BH06** Lab Sample ID: 890-1538-10

Date Collected: 11/03/21 14:32 **Matrix: Solid** Date Received: 11/04/21 08:33

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	11531	11/05/21 11:19	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	11601	11/05/21 20:53	MR	XEN MID
Total/NA	Analysis	Total BTEX		1			12040	11/11/21 14:14	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			11856	11/09/21 16:19	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	11615	11/05/21 16:18	DM	XEN MID
Total/NA	Analysis	8015B NM		1			11626	11/07/21 02:21	AJ	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	11670	11/08/21 11:27	CH	XEN MID
Soluble	Analysis	300.0		1			11952	11/12/21 14:35	SC	XEN MID

Eurofins Xenco, Carlsbad

11/16/2021

Job ID: 890-1538-1

11955

11/15/21 17:40

CH

Client: WSP USA Inc. Project/Site: RDX Federal 21 #42 SDG: 31403360.008

Client Sample ID: BH06 Lab Sample ID: 890-1538-11

Date Collected: 11/03/21 14:40 **Matrix: Solid** Date Received: 11/04/21 08:33

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	11477	11/05/21 16:41	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	11515	11/06/21 18:05	KL	XEN MID
Total/NA	Analysis	Total BTEX		1			12040	11/11/21 14:14	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			11856	11/09/21 16:19	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	11615	11/05/21 16:18	DM	XEN MID
Total/NA	Analysis	8015B NM		1			11626	11/07/21 03:00	AJ	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	11671	11/08/21 11:29	CH	XEN MID
Soluble	Analysis	300.0		1			11955	11/15/21 17:33	CH	XEN MID

Lab Sample ID: 890-1538-12 **Client Sample ID: BH07** 

Date Collected: 11/03/21 14:50 **Matrix: Solid** Date Received: 11/04/21 08:33

Batch Dil Initial Final Batch Batch Prepared Prep Type Туре Method Run Factor Amount Amount Number or Analyzed Analyst Lab 5035 Total/NA Prep 5.03 g 5 mL 11477 11/05/21 16:41 MR XEN MID Total/NA 8021B 5 mL 11/06/21 18:25 XEN MID Analysis 1 5 mL 11515 KL Total/NA Total BTEX 12040 11/11/21 14:14 XEN MID Analysis 1 A.I Total/NA Analysis 8015 NM 11856 11/09/21 16:19 XEN MID Total/NA 8015NM Prep XEN MID Prep 10.03 g 11615 11/05/21 16:18 DM 10 mL Total/NA Analysis 8015B NM 11626 11/07/21 03:21 AJ XEN MID Soluble XEN MID Leach DI Leach 5.04 g 50 mL 11671 11/08/21 11:29 CH

Lab Sample ID: 890-1538-13 **Client Sample ID: BH07** 

Date Collected: 11/03/21 14:58 **Matrix: Solid** Date Received: 11/04/21 08:33

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	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Type	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.04 g	5 mL	11477	11/05/21 16:41	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	11515	11/06/21 18:46	KL	XEN MID
Total/NA	Analysis	Total BTEX		1			12040	11/11/21 14:14	AJ	XEN MID
Total/NA	Analysis	8015 NM		1			11856	11/09/21 16:19	AJ	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	11615	11/05/21 16:18	DM	XEN MID
Total/NA	Analysis	8015B NM		1			11626	11/07/21 03:40	AJ	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	11669	11/08/21 11:25	CH	XEN MID
Soluble	Analysis	300.0		1			11847	11/10/21 19:43	CH	XEN MID

**Laboratory References:** 

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

Eurofins Xenco, Carlsbad

XEN MID

Soluble

Analysis

300.0

### **Accreditation/Certification Summary**

 Client: WSP USA Inc.
 Job ID: 890-1538-1

 Project/Site: RDX Federal 21 #42
 SDG: 31403360.008

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	T104704400-21-22	06-30-22
The following analytes	are included in this report hi	it the laboratory is not certific	ed by the governing authority. This list ma	av include analytes for
the agency does not of	· '	it the laboratory is not certain	ed by the governing additionty. This list me	ay include analytes for
0 ,	· '	Matrix	Analyte	ay illicitude allalytes for
the agency does not of	fer certification.	,	, , ,	ay include analytes for

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### **Method Summary**

Client: WSP USA Inc.

Project/Site: RDX Federal 21 #42

Job ID: 890-1538-1

SDG: 31403360.008

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

Eurofins Xenco, Carlsbad

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### **Sample Summary**

Client: WSP USA Inc.

Job ID: 890-1538-1

Project/Site: RDX Federal 21 #42 SDG: 31403360.008

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-1538-1	BH01	Solid	11/03/21 10:45	11/04/21 08:33	0.5
890-1538-2	BH02	Solid	11/03/21 13:12	11/04/21 08:33	0.5
890-1538-3	BH02	Solid	11/03/21 13:20	11/04/21 08:33	1
890-1538-4	BH03	Solid	11/03/21 13:33	11/04/21 08:33	0.5
890-1538-5	BH03	Solid	11/03/21 13:45	11/04/21 08:33	1
890-1538-6	BH04	Solid	11/03/21 13:55	11/04/21 08:33	0.5
890-1538-7	BH04	Solid	11/03/21 14:00	11/04/21 08:33	1
890-1538-8	BH05	Solid	11/03/21 14:14	11/04/21 08:33	0.5
890-1538-9	BH05	Solid	11/03/21 14:22	11/04/21 08:33	1
890-1538-10	BH06	Solid	11/03/21 14:32	11/04/21 08:33	0.5
890-1538-11	BH06	Solid	11/03/21 14:40	11/04/21 08:33	1
890-1538-12	BH07	Solid	11/03/21 14:50	11/04/21 08:33	0.5
890-1538-13	BH07	Solid	11/03/21 14:58	11/04/21 08:33	1

Address:

Company Name:

WSP Permian office

3300 North A Street

Address:

5315 Buena Vista Dr.

Company Name:

WPX Energy

Program: UST/PST State of Project:

13

### Project Manager: Dan Moir 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 Bill to: (if different) Jim Raley

Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa.FL (813-620-2000)

Chain of Custody

Revised Date 051418 Rev. 2018 1				6			_					,
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	d conditions nd the control potiated.	signs standard terms and e to circumstances beyon ed unless previously nego	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 post 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 wift 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.	nco, its affili ncurred by t ut not analyz	any to Xer xpenses i Xenco, bu	ent compa asses or e	se order from cli nsibility for any lo each sample sub	utes a valid purcha assume any respon a charge of \$5 for	samples constitues and shall not a sach project and	uishment of ost of sample applied to	document and reling liable only for the parage of \$75.00 will b	Notice: Signature of this of service. Xenco will be of Xenco. A minimum ch
1631 / 245.1 / (4/0 / /4/1 : Hg		Mn Mo Ni Se Ag Ti U	Sb As Ba Be Cd Cr Co Cu Pb Mn M	Be Cd	As Ba	RA Sb	6010: 8RCF	TCLP / SPLP 6010: 8RCRA	alyzed	) to be an	Circle Method(s) and Metal(s) to be analyzed	Circle Method
	I K Se Ag SiO2	Pb Mg Mn Mo	$\circ$	Be B	As Ba	Al Sb	13PPM Texas 11 Al Sb	BRCRA 13PPN	87	6020:	010 200.8 / 6020:	Total 200.7 / 6010
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Discrete				×	×	×		14:55	11/3/2021	S	5	вно5
Discrete				×	×		0.5'	14:14	11/3/2021	S	5	ВН05
Discrete				×	×	~ ×	1	14.60		S	4	BH04
Discrete				×	×		0.5'	12:55	11/3/2021	S	4	BH04
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Discrete				×	×	1 ×	0.5'	13:12	11/3/2021	S	2	ВН02
Discrete				×	×	×	0.5'	Sh: 01	11/3/2021	S	1	BH01
Sample Comments	Sarr			Chloric	BTEX (	Numb	Depth	Time Sampled	Date Sampled	Matrix	tification	Sample Identification
lab, if received by 4:30pm	lab, if	_ _ _		le (E				Total Containers:	Total	o (NIA)	ils: Yes No	Sample Custody Seals:
TAT starts the day recevied by the	TAT starts	38 Chain of Custody	890-1538 Cha	PA 300			0.2	actor:	Согге		s: Yes No	Cooler Custody Seals
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Incident # NAPP2124349541	Incident #							Rush:				P.O. Number:
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Work Order Notes	Woi	REQUEST	ANALYSIS RE				Turn Around	Turn	21 # 42	RDX Federal 21 # 42	RD)	Project Name:
Other:	ADaPT	Deliverables: EDD	<u>m</u>	s@wsp.cc	na.Byers	com, An	Email: Elliot.Lee@wsp.com, Anna.Byers@wsp.com	Email: El			(432) 236-3849	Phone:
		Reporting.Level		Carlsbad, NM, 88220	Isbad, N	Car	City, State ZIP:	Ω		705	Midland, TX 79705	City, State ZIP:

Work Order No:

Address:

City, State ZIP:

Midland, TX 79705 3300 North A Street

City, State ZIP:

Project Manager:

Dan Moir

Company Name:

WSP Permian office

## Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San A Chain of Custo

Chain of Custody Work Order No:	Houston,TX (281) 240-4200 Dallas,TX (214) 902-0300 San Antonio,TX (210) 509-3334	Midland.TX (432-704-5440) EL Paso.TX (915)585-3443 Lubbock.TX (806)794-1296	Hobbs,NM (575-392-7550) Phoenix,AZ (480-355-0900) Atlanta,GA (770-449-8800) Tampa,FL (813-620-2000) www.xenco.com	Bill to: (if different) Jim Raley Work Order Co	Company Name: WPX Energy Program: UST/PST RP Prownfields RC Sperfund	Address: State of Project:	City State 7ID.   Carlshad NM 88720   Reporting:Level II   Pevel III   FT/UST   RP   [Pvel IV
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	onditions the control ated.	gnature 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 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 conditions 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.	ors. It assigns states are due to circus enforced unless	subcontractont if such losse terms will b	s affiliates and ed by the clien analyzed. The	Xenco, its es incurre b, but not a	ompany to or expens d to Xenco	n client co ny losses submitte	hase order from consibility for ar or each sample	ites a valid purc ssume any resp a charge of \$5 f	samples constitues and shall not a	quishment of cost of sample to be applied to	ocument and reli iable only for the irge of \$75.00 will	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.
Na Sr Tl Sn U V Zn 1631 / 245.1 / 7470 / 7471 : Hg	Ag SiO2	Fe Pb Mg Mn Mo Ni K Se n Mo Ni Se Ag Tl U	Cr Co Cu Fe Pb Mg I Cu Pb Mn Mo Ni Se	a Cr Co C	B Cd Ca Cd Cr Co	Ba Be Ba Be	Sb As	₽ ≥	PM Texas 11 P 6010: 8RC	8RCRA 13PPM Tex TCLP / SPLP 6010:	8	<b>6020:</b> s) to be an	s) and Metal(s) to b	Total 200.7 / 6010 200.8 / 6020: Circle Method(s) and Metal(s) to be analyzed
					1	+								
							-							
							-							
Discrete			-			×	×		-	14:58	11/3/2021	S	7	BH07
Discrete						×	×	_	0.5'	14:50	11/3/2021	S	7	ВН07
Discrete						×	×	_	<u>-</u>	14:40	11/3/2021	S	5,	ВН06
Sample Comments	Sam					BTEX (	TPH (E	Numb	Depth	Time Sampled	Date Sampled	Matrix	ification	Sample Identification
lab, if received by 4:30pm	lab, if						PA 80	er of (		Total Containers:	Total	1 1	Yes	Sample Custody Seals
TAT starts the day received by the	TAT starts						15)	Conta		Correction Factor:	Conne	NA NO	Yes	Received Intact:
								iner		Thermometer ID	Ž.			Temperature (°C):
								s	Yes No	Wet Ice:	Yes No	Temp Blank:		SAMPLE RECEIPT
									ate:	Due Date	ě	Elliot Lee		Sampler's Name:
Incident # NAPP2124349541	Incident #								,	Rush:				P.O. Number:
									TO SE	Routine	.008	31403360.008		Project Number:
Work Order Notes	Wo		YSIS REQUEST	ANALYS					Turn Around	Tur	21 # 42	RDX Federal 21 # 42	RC	Project Name:
Care:	) (a)	Deliverables. EDD			sp.com	yers@w	Anna.B	sp.com	Email: Elliot.Lee@wsp.com, Anna.Byers@wsp.com	Email:		9	(432) 236-3849	Phone:
Othor:	ח אם	) :: : : : : : : : : : : : : : : : : :									_			

**Eurofins Xenco, Carlsbad** 

\*\* eurofins | Environment Testing | America

# **Chain of Custody Record**

1089 N Canal St Carlsbad NM 88220	0	Chain of Custody Record	f Custo	ody Re	00	ă															💸 eurofins		Environ America	Environment Testing America	sting
Phone 575-988-3199 Fax 575-988-3199	Sampler			i at DM									2	3	r S	2	1			-	O No				
Client Information (Sub Contract Lab)				Kramer		Jessica	-							California indoming ind (a)	000	1	`	l	1	00 (	890-495 1				
Client Contact: Shipping/Receiving	Phone:			E-Mail jessica kramer@eurofinset.com	krar	mer@	eur	ofins	et.co	3		ı	State	State of Origin New Mexico	Xi gin					T1 0	Page: Page 1 of 2	ĺ			
Company Eurofins Xenco				- <b>7</b>	Accreditations Required (See not NELAP - Texas	P - T	s Requ	uired (	See n	ote):										<u>۔</u>	Job #. 890-1538-1				
Address 1211 W Florida Ave,	Due Date Requested 11/10/2021	ă							<b>&gt;</b>	Analysis	Sis	Rec	Requested	ted							Preservation Codes	odes			
City: Midland	TAT Requested (days):	ıys):		40														$\vdash$		Karal S	B NaOH	z 3	II	None None	
State, Zip: TX 79701						6-1200-0-00-0-0									****				**************************************	mar	D Nitric Acid	D T Q	Na	Na2O4S Na2SO3	
Phone: 432-704-5440(Tel)	PO #:					ie	TPH												<del>44.00. &gt;.</del>	<u>edinadatan</u>	F MeOH G Amchlor H Ascorbic Acid		T HZ	H2SO4 TSP Dodecahydrate	<u>}</u>
Email	WO#:				W671807777	Chloric	p Full					,							age gapace	Mary Aller			MC AC	etone AA	Š
Project Name RDX Federal 21 #42	Project #: 88000203				000074460760	EACH	S_Pre	ΈX												CHO SES	L EDA	NI -	Z oth	pH 4-5 other (specify)	
Site	SSOW#:				CONTROL OF THE SAME	D/DI_L	015NM	alc B		v									Carrier S.	Sections	Other:				
		<u>}</u>	Sample Type	Matrix (w=water S=solid,	i Filtered S orm MS/M	ORGFM_28	MOD_NM/8	B/6035FP_0	MOD_Calc	_BTEX_GC					<u>,</u>					l Number					
Sample Identification - Client ID (Lab ID)	Sample Date	<b>}</b>		2	- Story Story	300	801	802	801	Tot		Г							ALL S	ТО	Special	Inst	ructi	Special Instructions/Note	<u> </u>
				n Code:	$\Diamond$	er Hole	777				Sandari -	J		Dopto.	700-100	iron (II)				u			1		
BH01 (890-1538-1)	11/3/21	Mountain		Solid		×	×	×	×	×							<u> </u>		a diam						
BH02 (890-1538-2)	11/3/21	13 12 Mountain		Solid		×	×	×	×	×									2 1	(4)					
BH02 (890-1538-3)	11/3/21	13 20 Mountain		Solid		×	×	×	×	×									(20-11-08)						
ВН03 (890-1538-4)	11/3/21	13 33 Mountain		Solid		×	×	×	×	×									22	4					
ВН03 (890-1538-5)	11/3/21	13 45 Mountain		Solid		×	×	×	×	×								$\vdash$	F 1 10000009						
BH04 (890-1538-6)	11/3/21	13 55 Mountain		Solid		×	×	×	×	×									(mjain )	(A)					
BH04 (890-1538-7)	11/3/21	14 00 Mountain		Solid		×	×	×	×	×										, <b>4</b>					
BH05 (890-1538-8)	11/3/21	14 14 Mountain		Solid		×	×	×	×	×										, <b>200</b>					
BH05 (890-1538-9)	11/3/21	14 22 Mountain		Solid		×	×	×	×	×						$\vdash$	<del> </del>			(45) Marie					
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 currenty 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.	places the ownership being analyzed the si he signed Chain of Cu	of method anal amples must be stody attesting t	yte & accreditati shipped back to o said complicar	on compliance the Eurofins ) ice to Eurofins	upon (enco I	ort si	bcont	tract la	aborat other	ories instru	This ctions	samp will b	le ship e prov	ment	is for Any	warde	es to	der cl	hain- edita	of-cu	istody If the lab status should be	orator, broug	y does ht to E	not currently	» Ec
Possible Hazard Identification					_s	Sample Disposal ( A fee may	e Die	pos	le Disposal (A f	fee	maj	□èe	asse	assessed if san	lifs	事	les	⊓ae	□ē:	\$ \$	be assessed if samples are retained longer than	1 1	1 month)	nth)	
Deliverable Requested   II III IV Other (specify)	Primary Deliverable Rank. 2	able Rank. 2			န	Special Instructions/QC	Inst	먑	ons/C		Requirements	reme	nts.		ŀ	l		l							
Empty Kit Relinquished by		Date			Time				ŀ					Me	Method of Shipment:	f Ship	men	"							
Relinquished by Que Ct 11.42	Date/Time <sup>-</sup>		, ç	Company		Rec		A SA	Con	The	K	2	C	M	( )	B	Date/Time:	U.	10.	Ψ			Company	any	
Reinquisned by	Date/Time.		8	Company		Rec	eceived	by								Da	Date/Time	ne.		(M	4		Company	vany	
Relinquished by	Date/Time		S	Company		Rec	Received by	by:								Da	Date/Time t	ne					Company	any	
Custody Seals Intact. Custody Seal No						ပ္ပ	oler Te	mper	Cooler Temperature(s) °	s) °C ;	C and Other Remarks	ther F	eman	Ĝ	T	,	6	L	1	IJ					
																	-			1			Ver	Ver 06/08/2021	

1089 N Canal St.

Carlsbad NM 88220 Phone 575-988-3199 Fax: 575-988-3199

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State Zip TX 79701 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. BH07 (890-1538-12) Empty Kit Relinquished by Possible Hazard Identification BH07 (890-1538-13) BH06 (890-1538-11) BH06 (890-1538-10) Sample Identification - Client ID (Lab ID) RDX Federal 21 #42 432-704-5440(Tel) 1211 W Florida Ave Eurofins Xenco elinquished by Shipping/Receiving elinquished by: Custody Seals Intact linquished by lient Information Yes <del>Z</del> (Sub Contract Lab) Custody Seal No Other (specify) Project #: 88000203 Date/Time Date/Time Primary Deliverable Rank. 2 Due Date Requested. 11/10/2021 Sampler SSOW#: Phone FAT Requested (days): 11/3/21 11/3/21 11/3/21 11/3/21 Date Mountain 14 58 Mountain 14 50 Mountain 14 40 Mountain Sample 14 32 (C=comp, G=grab) Sample Preservation Code: Type Company Company Company Matrix Solid Solid Solid Solid Kramer Jessica jessica.kramer@eurofinset com
Accreditations Required (See note). Time Field Filtered Sample (Yes or No) NELAP - Texas Sample Disposal (A fee may be assessed if samples are retained longer than 1 month) Perform MS/MSD (Yes or No) Special Instructions/QC Requirements Received by: Received by: Received by 300\_ORGFM\_28D/DI\_LEACH Chloride ×  $\times$ × × Cooler Temperature(s) °C and Other Remarks Return To Client × × × × 8015MOD\_NM/8015NM\_S\_Prep Full TPH 8021B/6035FP\_Calc BTEX × × × × × × 8015MOD Calc Analysis Requested Total\_BTEX\_GCV × × × × Disposal By Lab State of Origin New Mexico Method of Shipment Date/Time Archive For Total Number of containers 4 4 998 D. Nitric Acid
E. NaHSO4
F. MeOH
G. Amchlor
H. Ascorbic Acid
I. Ice
J. DI Water
K. EDTA
L. EDA COC No: 890-495 2 œ⊳ Preservation Codes 890-1538-1 Page 2 of 2 Na Ct Special Instructions/Note P Na2O4S
P Na2O4S
Q Na2SO3
R Na2SO3
S H2SO4
T TSP Dodecahydrate
U Acetone
V MCAA M - Hexane N None Q K O F U > ≥ N Company Company

Ver: 06/08/2021

### **Login Sample Receipt Checklist**

Client: WSP USA Inc.

Job Number: 890-1538-1 SDG Number: 31403360.008

Login Number: 1538 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: 890-1538-1 SDG Number: 31403360.008

Login Number: 1538 List Source: Eurofins Xenco, Midland List Number: 2

List Creation: 11/05/21 01:13 PM

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	4.6/4.7
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is	N/A	

<6mm (1/4").

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 63625

### **CONDITIONS**

Operator:	OGRID:		
WPX Energy Permian, LLC	246289		
Devon Energy - Regulatory	Action Number:		
Oklahoma City, OK 73102	63625		
	Action Type:		
	[C-141] Release Corrective Action (C-141)		

### CONDITIONS

Created By	Condition	Condition Date
chensley	None	12/21/2021