Pag	e 1	of	116
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District I District II District II 811 S. First St., / District III 1000 Rio Brazos District IV 1220 S. St. Franc	Artesia, NM Road, Aztec	88210 , NM 87410		Energy Min Oil Co 1220 :	erals a onserv South nta Fe	vation Div St. Franci , NM 875	co Resources ision is Dr. 05	ARTES OCT Subm REC	IA DISTR 1020	14 Revised August 8, 2011 to appropriate District Office in cordance with 19,15.29 NMAC.
NAB14	287:	34/157	2.010			OPERAT		· .	🛛 Initia	al Report 🔲 Final Report
Name of Co		RKI E&P, L	LC	246287		Contact	Zack Laird	L. L		
Address			900, OK	C, OK 73102			lo. 405-742-26			
Facility Nan	ne Yates	Federal #1				Facility Typ	e Oil and Gas V	Nell		
Surface Own	ner Federa	al		Mineral O	wner	Federal			API No	. 30-015-24602
		·		LOCA	TION	OF REI	LEASE			
Unit Letter	Section	Township	Range	Feet from the	North/	South Line	Feet from the	East/W	est Line	County
Н	34	26S	29E		.330 FS	L		990FEI		Eddy
·····		·	i	ude 32.0010310			te -103 967171			
			Dath	,						
Type of Relea	ne Oil an	d Deadwood W	òtar		URE	OF RELI	CASE Release 16Bbis		Volume R	Recovered 15Bbls
Source of Rel							our of Occurrenc	e	Date and	Hour of Discovery
Was Immedia	to Notice (	liven			<u></u>	10/03/14			10/03/14-	– 0700hrs
was minicula			Yes 🗌	] No 🖾 Not Rea	quired	111123,10				
By Whom?						Date and H				
Was a Watero	course Reac		Yes 🛛	1 No		If YES, Vo	lume Impacting t	he Water	course.	
Describe Cau Piping nipp!				n Taken.* and produced wate	r to leal	c; all fluids re	mained on the we	ell pad, N	Well shut-	in, leak repaired.
Describe Area		·. •		ken.* ed soil back drug a	and hau	led.				
regulations al public health should their o	l operators or the envir operations h ument. In a	are required to ronment. The ave failed to a iddition, NMO	o report an acceptance idequately OCD accept	nd/or file certain re ce of a C-141 report investigate and re	lease no t by the mediate	otifications and NMOCD m e contaminati	nd perform correct arked as "Final R on that pose a thr	tive action eport" do eat to gro	ons for reli- bes not reli- bund water	suant to NMOCD rules and eases which may endanger ieve the operator of liability r, surface water, human health ompliance with any other
	~	/ 2		•			OIL CON	SERV	ATION	DIVISION
Signature:	( en	12	~~			Approved by	Environmental	pecialist:	H	
Printed Name	1	rd					Inter to		110	Data N/A
<u>Title:</u> Sr. EH	s manager					Approval Dat		/E	xpiration	
E-mail Addre	ss: ZLaird	@rkixp.com				Conditions of	• •			Attached $\square$
Date: 10/09/	'14		Phone	: 405-987-2213			per O.C.D. R			ines
Attach Addit		ets If Necess				<del>BMIT REN</del> Er Than	EDIATION, P		<del>SAL NC</del> 	2RP-254

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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	nAB1428734057
District RP	
Facility ID	
Application ID	

## **Release Notification**

### **Responsible Party**

Responsible Party: WPX Energy Permian, LLC	OGRID: 246289
Contact Name: Jim Raley	Contact Telephone: 575-689-7597
Contact email: Jim.Raley@dvn.com	Incident # (assigned by OCD): nAB1428734057
Contact mailing address: 5315 Buena Vista Drive, Carlsbad NM	

### **Location of Release Source**

Latitude	32.00103		Longitude	-103.96717	
		(NAD 83 in decimal de	egrees to 5 decimal pla	aces)	
Site Name:	Yates Federal #001		Site Type: Prod	luction Facility	
Date Relea	se Discovered: 10/03/2014		API# (if applicabl	le): 30-015-24602	

Unit Letter	Section	Township	Range	County
Н	34	268	29E	Eddy

Surface Owner: State Federal Tribal Private (Name:

## Nature and Volume of Release

Materia	l(s) Released (Select all that apply and attach calculations or specific	justification for the volumes provided below)
Crude Oil/Produced Water	Volume Released (bbls): 16	Volume Recovered (bbls): 15
Produced Water	Volume Released (bbls):	Volume Recovered (bbls):
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	Yes No
Condensate	Volume Released (bbls)	Volume Recovered (bbls)
Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release:

Piping nipple on wellhead parted allowing oil and produced water to leak; all fluids remained on the well pad. Well shut-in, leak repaired.

 $bbl \ estimate = \frac{saturated \ soil \ volume \ (ft^3)}{4.21 \ (\frac{ft^3}{bbl \ equivalent})} * estimated \ porosity \ (\%) + recovered \ fluids \ (bbl)$ 

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Incident ID	nAB1428734057
District RP	
Facility ID	
Application ID	

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?
🗌 Yes 🖾 No	
If YES, was immediate no	otice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?

## **Initial Response**

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

 $\square$  The source of the release has been stopped.

The impacted area has been secured to protect human health and the environment.

Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

All free liquids and recoverable materials have been removed and managed appropriately.

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

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

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

Printed Name: Jim Raley	Title: Environmental Professional
Signature:	Date:6/14/2023
email: <u>Jim.Raley@dvn.com</u>	Telephone: <u>575-689-7597</u>
OCD Only	
Received by:	Date:

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Oil Conservation Division

	Page 4 of 11
Incident ID	nAB1428734057
District RP	
Facility ID	
Application ID	

## Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>51-100 (ft bgs)</u>
Did this release impact groundwater or surface water?	🗌 Yes 🛛 No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	🗌 Yes 🛛 No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	🗌 Yes 🛛 No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	🗌 Yes 🛛 No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	🗌 Yes 🛛 No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	🗌 Yes 🛛 No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	🗌 Yes 🛛 No
Are the lateral extents of the release within 300 feet of a wetland?	🗌 Yes 🛛 No
Are the lateral extents of the release overlying a subsurface mine?	🗌 Yes 🛛 No
Are the lateral extents of the release overlying an unstable area such as karst geology?	🛛 Yes 🗌 No
Are the lateral extents of the release within a 100-year floodplain?	🗌 Yes 🛛 No
Did the release impact areas <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 soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

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

- Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- Field data
- Data table of soil contaminant concentration data
- $\square$  Depth to water determination
- Determination of water sources and significant watercourses within <sup>1</sup>/<sub>2</sub>-mile of the lateral extents of the release
- Boring or excavation logs
- Photographs including date and GIS information
- Topographic/Aerial maps
- Laboratory data including chain of custody

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

<b>Received by OCD: 6/14/2023</b> Form C-141 Page 4	10:34:54 AM State of New Mexico Oil Conservation Division		Incident ID District RP Facility ID Application ID	Page 5 of 116           nAB1428734057
regulations all operators are rec public health or the environmen failed to adequately investigate	ation given above is true and complete to the quired to report and/or file certain release no nt. The acceptance of a C-141 report by the and remediate contamination that pose a the C-141 report does not relieve the operator of	tifications and perform OCD does not relieve reat to groundwater, s	n corrective actions for rele e the operator of liability sh urface water, human health	eases which may endanger ould their operations have or the environment. In
Printed Name: Jim Raley		Title: <u>Environn</u>	nental Professional	
Signature: fin Rdy		Date:6/14/202	23	
email:	m	Telephone: <u>575</u> -	-689-7597	
OCD Only				
Received by:		Date:		

Received by OCD: 6/14/2023 10:34:54 AM Form C-141 State of New Mexico

Detailed description of proposed remediation technique

<u>Remediation Plan Checklist</u>: Each of the following items must be included in the plan.

Incident ID	nAB1428734057
District RP	
Facility ID	
Application ID	

## **Remediation Plan**

Scaled sitemap with GPS coordinates showing delineation points Estimated volume of material to be remediated Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required) Deferral Requests Only: Each of the following items must be confirmed as part of any request for deferral of remediation. Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction. Extents of contamination must be fully delineated. Contamination does not cause an imminent risk to human health, the environment, or groundwater. I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. Printed Name: Jim Raley Title: Environmental Professional Signature: Date: 6/14/2023 email: \_\_\_\_\_Jim.Raley@dvn.com Telephone: 575-689-7597 **OCD Only** Received by: Date: Approved Approved with Attached Conditions of Approval Denied Deferral Approved Ashley Maxwell Date: 11/27/2023 Signature:

o Horizontal delineation must meet the requirements of the reclamation standards 19.15.29.13 NMAC (600 mg/kg Cl, 100 mg/kg TPH, 50 mg/kg BTEX, 10 mg/kg benzene) or OCD approved "background" values for the upper 4 feet of the impacted area.



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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 PageJeof 116

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

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Incident ID	NRM2011138650
District RP	
Facility ID	
Application ID	

## **Release Notification**

### **Responsible Party**

Responsible Party: WPX Energy Permian, LLC.	OGRID: 246289		
Contact Name: Lynda Laumbach	Contact Telephone: (575) 725-1647		
Contact email: Lynda.Laumbach@wpxenergy.com	Incident # (assigned by OCD)		
Contact mailing address: 5315 Buena Vista Drive, Carlsbad, NM 88220			

### **Location of Release Source**

Latitude 32.000725

Longitude -103.967483 (NAD 83 in decimal degrees to 5 decimal places)

Site Name: Yates Federal #001	Site Type: Production Facility	
Date Release Discovered: 04/14/2020	API# (if applicable): 30-015-24602	

Unit Letter	Section	Township	Range	County
Н	34	26S	29E	Eddy

Surface Owner: State X Federal Tribal Private (Name:

## Nature and Volume of Release

Mater	Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)				
Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)			
X Produced Water	Volume Released (bbls): 10	Volume Recovered (bbls): 2			
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	X Yes No			
Condensate	Volume Released (bbls)	Volume Recovered (bbls)			
Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)			
Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)			

Cause of Release:

At 14:00 hours the tubing valve failed causing the produced water tank to overflow and release 10bbl of produced water into the earthen berm. 2bbls were recovered with a vacuum truck. No fluids left location.

$$bbl \ estimate = \frac{saturated \ soil \ volume \ (ft^3)}{4.21(\frac{ft^3}{bbl \ equivalent})} * estimated \ soil \ porosity(\%)$$

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	NRM2011138650
District RP	
Facility ID	
Application ID	

## **Release Notification**

### **Responsible Party**

Responsible Party: WPX Energy Permian, LLC	OGRID: 246289
Contact Name: Jim Raley	Contact Telephone: 575-689-7597
Contact email: Jim.Raley@dvn.com	Incident # (assigned by OCD): NRM2011138650
Contact mailing address: 5315 Buena Vista Drive, Carlsbad NM	

### **Location of Release Source**

Latitude	32.000725	Longitude	
		(NAD 65 in decimal degrees to 5 decimal places)	
Site Name:	Yates Federal #001	Site Type: Production Facility	
Date Release Discovered: 04/14/2020		API# (if applicable): 30-015-24602	
		·	

Unit Letter	Section	Township	Range	County
Н	34	26S	29E	Eddy

Surface Owner: State Federal Tribal Private (Name:

## Nature and Volume of Release

Materi	Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)				
Crude Oil	Volume Released (bbls):	Volume Recovered (bbls):			
Produced Water	Volume Released (bbls): 10	Volume Recovered (bbls): 2			
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	Yes No			
Condensate	Volume Released (bbls)	Volume Recovered (bbls)			
Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)			
Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)			

Cause of Release:

At 14:00 hours the tubing valve failed causing the produced water tank to overflow and release 10bbl of produced water into the earthen berm. 2bbls were recovered with a vacuum truck. No fluids left location.

 $bbl \ estimate = \frac{saturated \ soil \ volume \ (ft^3)}{4.21 \ (\frac{ft^3}{bbl \ equivalent})} * estimated \ porosity \ (\%) + recovered \ fluids \ (bbl)$ 

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Incident ID	NRM2011138650
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Application ID	

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?
🗌 Yes 🖾 No	
If YES, was immediate no	otice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?

### **Initial Response**

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

 $\square$  The source of the release has been stopped.

The impacted area has been secured to protect human health and the environment.

Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

All free liquids and recoverable materials have been removed and managed appropriately.

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

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

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

Printed Name: Jim Raley	Title: Environmental Professional
Signature:	Date:6/14/2023
email: <u>Jim.Raley@dvn.com</u>	Telephone: <u>575-689-7597</u>
OCD Only	
Received by:	Date:

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Oil Conservation Division

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Incident ID	NRM2011138650
District RP	
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Application ID	

## Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>51-100 (ft bgs)</u>
Did this release impact groundwater or surface water?	🗌 Yes 🛛 No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	🗌 Yes 🛛 No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	🗌 Yes 🛛 No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	🗌 Yes 🛛 No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	🗌 Yes 🛛 No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	🗌 Yes 🛛 No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	🗌 Yes 🛛 No
Are the lateral extents of the release within 300 feet of a wetland?	🗌 Yes 🛛 No
Are the lateral extents of the release overlying a subsurface mine?	🗌 Yes 🛛 No
Are the lateral extents of the release overlying an unstable area such as karst geology?	🛛 Yes 🗌 No
Are the lateral extents of the release within a 100-year floodplain?	🗌 Yes 🛛 No
Did the release impact areas <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 soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

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

- Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- Field data
- Data table of soil contaminant concentration data
- $\square$  Depth to water determination
- Determination of water sources and significant watercourses within <sup>1</sup>/<sub>2</sub>-mile of the lateral extents of the release
- Boring or excavation logs
- Photographs including date and GIS information
- Topographic/Aerial maps
- Laboratory data including chain of custody

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

<b>Received by OCD: 6/14</b> Form C-141 Page 4	7/2023 10:34:54 AM State of New Mexico Oil Conservation Division	10:34:54 AM State of New Mexico Oil Conservation Division		Incident ID District RP Facility ID Application ID	Page 11 of 116           NRM2011138650
regulations all operators public health or the envi failed to adequately inve addition, OCD acceptance and/or regulations.		otifications OCD doe reat to gro of responsi Title: _ _ Date:	and perform co s not relieve the undwater, surfa bility for compl	nd understand that pursu rrective actions for rele operator of liability sho ce water, human health iance with any other fea tal Professional	ases which may endanger ould their operations have or the environment. In
OCD Only Received by:			Date:		

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<u>Remediation Plan Checklist</u>: Each of the following items must be included in the plan.

Incident ID	NRM2011138650
District RP	
Facility ID	
Application ID	

## **Remediation Plan**

Detailed description of proposed remediation technique Scaled sitemap with GPS coordinates showing delineation points  $\boxtimes$ Estimated volume of material to be remediated Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required) Deferral Requests Only: Each of the following items must be confirmed as part of any request for deferral of remediation. Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction. Extents of contamination must be fully delineated. Contamination does not cause an imminent risk to human health, the environment, or groundwater. 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. Signature: fin Refy Date: 6/14/2023 email: \_\_\_\_\_Jim.Raley@dvn.com Telephone: <u>575-689-7597</u> OCD Only \_\_\_\_ Date: \_\_\_\_ Received by: Approved Approved with Attached Conditions of Approval Denied Deferral Approved Signature: Date:



# **REMEDIATION WORK PLAN**

Yates Federal #001 Eddy County, New Mexico Incident Numbers nAB1428734057 and NRM2011138650

> Prepared for: WPX Energy Permian, LLC

Carlsbad • Midland • San Antonio • Lubbock • Hobbs • Lafayette



### **SYNOPSIS**

Etech Environmental & Safety Solutions, Inc. (Etech), on behalf of WPX Energy Permian, LLC (WPX), presents the following Remediation Work Plan (RWP) detailing a scope of work to address soil impacts from two inadvertent releases of crude oil and/or produced water at the Yates Federal #001 (Site). Based on the incident reviews and field observations at the Site, WPX proposes this RWP, which summarizes initial response efforts and details remediation objectives to investigate the releases and develop a corrective action plan to rectify environmental impacts.

### SITE LOCATION AND RELEASE BACKGROUND

The Site is located in Unit H, Section 34, Township 26 South, Range 29 East, in Eddy County, New Mexico (32.000725°, -103.967483°) and is associated with oil and gas exploration and production operations on Federal Land managed by the Bureau of Land Management (**Figure 1** in **Appendix A**).

### nAB1428734057

On October 3, 2014, a wellhead leak resulted in approximately 16 barrels (bbls) of crude oil/produced water to be released onto the well pad surface. Vacuum trucks were immediately dispatched and recovered approximately 15 bbls of fluids. 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), which was received by the NMOCD on October 10, 2014, and was subsequently assigned Incident Number nAB1428734057. WPX conducted initial remediation efforts to minimize impacts at the Site, which included the removal and disposal of surficial stained soil. Well files were reviewed to investigate the existence of a reserve pit north of the release area. Based on the review and observations at the Site is it likely the reserve pit exists as documented on the well drilling permit. As a result, no further delineation was conducted in the area to minimize disturbance of the pit area. A Deferral Report (DR) was then submitted by WPX and denied on March 29, 2023, for a depth to water determination based off a well greater than 0.5 miles from the Site and reported groundwater measurements greater than 25 years old.

### NRM2011138650

On April 14, 2020, a storage tank overflow resulted in approximately 10 bbls of produced water to be released into the tank battery earthen berm containment. Vacuum trucks were immediately dispatched and recovered approximately 2 bbls of fluids. WPX reported the release to the NMOCD on a Form C-141, which was received by the NMOCD on April 17, 2020, and was subsequently assigned Incident Number NRM2011128650. WPX mapped the release extent utilizing a handheld Trimble® Global Positioning System (GPS) unit following the release discovery and is presented as an Area of Concern (AOC) on **Figure 2** in **Appendix A**. Between April 30 and November 5, 2020, WPX initiated excavation activities, contracted the completion of a karst survey at the Site and surrounding area and continued excavation efforts. A DR was then submitted by WPX and was denied on March 18, 2021, due to the karst potential designation for the Site, which had been based off the karst survey results. Based on the data summary from those events and recently denied DR, additional remedial actions appeared warranted. Previous remediation summaries can be referenced in the original reports submitted to the NMOCD.

### SITE CHARACTERIZATION AND CLOSURE CRITERIA

Etech characterized the Site according to Table I, 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) considering depth to groundwater and the proximity to:

- Any continuously flowing watercourse or any other significant watercourse;
- Any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark);
- An occupied permanent residence, school, hospital, institution or church;



- A spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes;
- Any freshwater well or spring;
- Incorporated municipal boundaries or a defined municipal fresh water well field covered under a municipal ordinance;
- A wetland;
- A subsurface mine;
- An unstable area (i.e. high karst potential); and
- A 100-year floodplain.

The closest water well with data is State of Texas Tracking #356414, located approximately 0.4 miles west to southwest of the Site. The well has a reported depth to groundwater of 58 feet below ground surface (bgs) from 2014. Based on this information and findings from the regional water well review, groundwater depth at the Site is estimated to be between 51 and 100 feet bgs. All well records referenced for depth to groundwater determination are included in **Appendix B**.

It should be noted that a margin of error is possible based on imagery only; field verification can further confirm these specified classifications developed from image analysis.

Based on the desktop review of the current BLM Carlsbad Field Office (CFO) karst cave potential map, this Site is located in a high potential karst area; however, a pedestrian karst survey was conducted and confirmed the absence of surface karst features and the limited likelihood of shallow subsurface karst features. No surface karst features were identified after a thorough desktop review by a karst expert or discovered within the 30.4 acres covered during the pedestrian karst survey. The karst survey is included in **Appendix C**.

Based on the initial desktop review, other potential receptors are not within the established buffers defined in NMAC 19.15.29.12. Receptor details from the site characterization are included in **Figure 1** in **Appendix A**.

Based on the results from the desktop review and estimated regional depth to groundwater at the Site, the following Closure Criteria was applied:

Constituents of Concern (COCs)	Laboratory Analytical Method	Closure Criteria
Chloride	Environmental Protection Agency (EPA) 300.0	600 milligram per kilogram (mg/kg)
Total Petroleum Hydrocarbon (TPH)	EPA 8015 M/D	100 mg/kg
Benzene	EPA 8021B	10 mg/kg
Benzene, Toluene, Ethylbenzene, Total Xylenes (BTEX)	EPA 8021B	50 mg/kg

### SITE ASSESSMENT

On October 28, 2022, a site assessment was conducted by a third-party environmental consultant to evaluate and verify the release events according to the reported incident details. Two AOCs were identified: an area surrounding the well head (AOC #1) and an area within the tank battery earthen berm containment (AOC #2). The AOCs were mapped with a handheld GPS unit according to visual observations and depicted in **Figure 2** in **Appendix A**. Photographic documentation during the Site visit is included as **Appendix D**.





### **DELINEATION SOIL SAMPLING ACTIVIES**

On May 12, 2022, and November 9, 2022, a-third party environmental consultant advanced a total of two delineation potholes (PH01 and PH02) via mechanical equipment within the tank battery earthen berm containment. Delineation activities were driven by field screening soil samples for volatile organic hydrocarbons using a photoionization detector (PID) and chloride using Hach® chloride QuanTab® test strips. A minimum of two soil samples were collected from each pothole: at least one sample representing the highest observed field screening concentrations and one sample representing the pothole terminus. Field screening results and soil descriptions were denoted on a soil sampling log, which is included as **Attachment E**. The location of the delineation soil samples is shown in **Figure 2** in **Appendix A**. Photographic documentation during delineation activities is included in **Attachment D**.

Delineation soil samples were placed directly into lab provided pre-cleaned glass jars, packaged with minimal void space, labeled and immediately placed on ice. The soil samples were transported under strict chain-of-custody procedures, to Eurofins Laboratories (Eurofins) in Carlsbad, New Mexico, for analysis of COCs.

### LABORATORY ANALYTICAL RESULTS

Laboratory analytical results for both PH01 and PH02 indicated BTEX and TPH concentrations were below the laboratory detection limit, and chloride concentrations for all soil samples collected from PH02 were below the Site Closure Criteria. Chloride concentrations for PH01 were compliant with Site Closure Criteria once the pothole reached 15 feet bgs. Laboratory analytical results are summarized in Table 1 as **Attachment F**, and the complete laboratory reports with chain-of-custody documentation is included as **Attachment G**.

### PROPOSED REMEDIATION WORK PLAN

Based on the Site assessment, the following conclusion regarding the release is presented:

- Delineation soil sampling activities are required to assess the presence or absence of impacts to soil within AOC #1, and if present, to define the vertical and horizontal extent(s) through subsurface investigation and laboratory analyses of Closure Criteria COCs.
- Delineation soil sampling activities are required to assess the lateral extent of AOC #2 through subsurface investigation and laboratory analyses of Closure Criteria COCs.
- Delineation soil samples collected from PH02 will assist in the western lateral definition of both AOCs.

Based on the conclusion drawn above, WPX proposes the following remedial corrective actions:

- WPX proposes to advance up to 12 delineation points within and around the AOCs via mechanical equipment (Figure 3 in Appendix A). Soil samples will be collected from each delineation location at a maximum frequency of 5-foot intervals and field screened for volatile organic compounds utilizing a PID and chloride using Hach<sup>®</sup> chloride QuanTab<sup>®</sup> test strips. Soil observations and field screening results for each delineation soil sample will be recorded on soil sampling logs. Soil sample locations will be mapped using a handheld GPS unit.
- A minimum of two soil samples will be collected from each delineation point location, representing the highest field screened concentration(s) and the greatest depth, and submitted to an accredited lab for analysis of BTEX, TPH and Chloride.
- Delineation locations proposed in areas off pad may require third-party operator oversight and additional safety measures near their respective subsurface pipelines before or during delineation



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activities. WPX and/or the third-party operator may implement additional safety precautions above encroachment guidelines at their company's discretion for the health and safety of on-site personnel and for the structural integrity of utilities. Acknowledgement of the reserve pit may also require the implementation of encroachment guidelines in order to preserve the pit liner throughout remediation activities. Such restrictions include but are not limited to:

- i. Shifting a proposed sampling location(s) within the AOCs to adhere to established buffer zone(s) around one or more utilities or the reserve pit.
- ii. Inducing a lateral delineation sampling location(s) to be significantly further from the Site.
- Upon receipt and review of delineation soil laboratory results, WPX will determine the appropriate measure of corrective actions that will include:
  - i. Documenting the absence of impacted soil at the Site with a subsequent Closure Report detailing assessment and sampling activities or
  - ii. Preparing a RWP Addendum detailing the next course of remedial actions to address the presence of soil impacts at the Site, based off an estimated lateral and vertical extent of impacted soil from assessment and delineation activities.

WPX believes this RWP will meet requirements set forth in NMAC 19.15.29.13 and be protective of human health, the environment and groundwater. As such, WPX respectfully requests approval of this RWP from NMOCD.

If you have any questions or comments, please do not hesitate to contact Joseph Hernandez at (281) 702-2329 or joseph@etechenv.com or Anna Byers at (575) 200-6754 or anna@etechenv.com.

Sincerely,

eTECH Environmental and Safety Solutions, Inc.

"nna byers

Anna Byers Senior Geologist

Joynetty

Joseph S. Hernandez Senior Managing Geologist

cc: Jim Raley, WPX New Mexico Oil Conservation Division Bureau of Land Management

#### Appendices:

Appendix A: Figure 1: Site Map

Figure 2: Delineation Soil Sample Locations

Figure 3: Proposed Delineation Locations

- Appendix B: Referenced Well Records
- Appendix C: Karst Survey



- Appendix D: Photographic Log
- Appendix E: Soil Sampling Logs
- Appendix F: Tables
- Appendix G: Laboratory Analytical Reports & Chain-of-Custody Documentation
- Appendix F: NMOCD Notifications

Remediation Work Plan Incident Numbers NRM2011128650 and nAB1428734057 Yates Federal #001

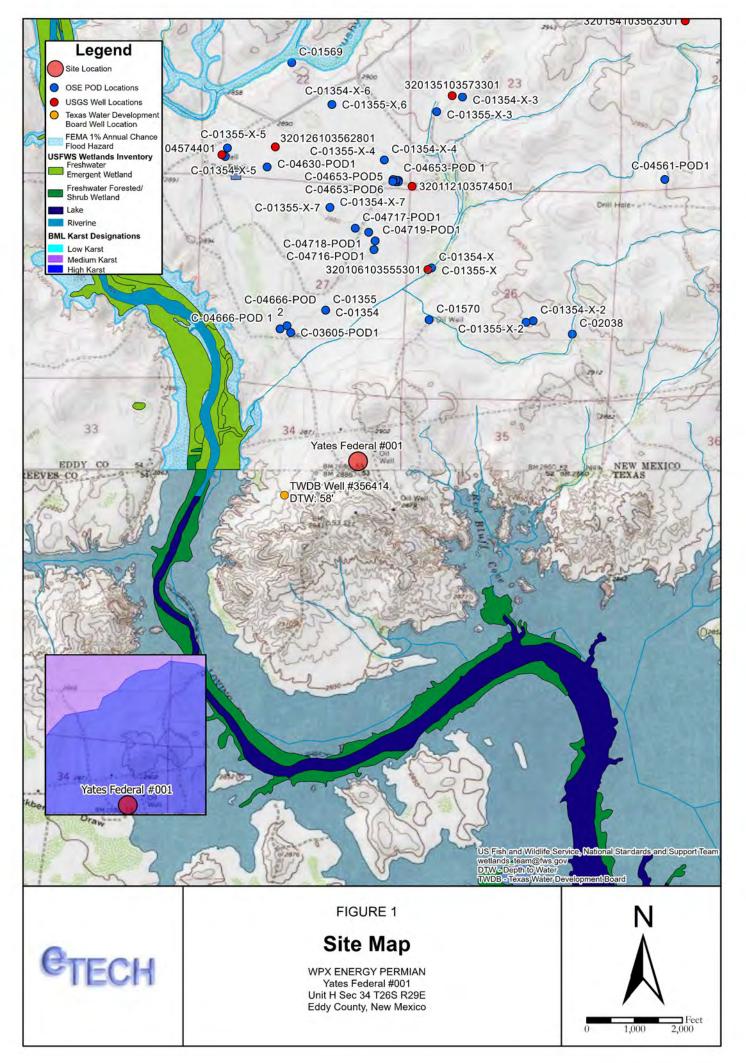
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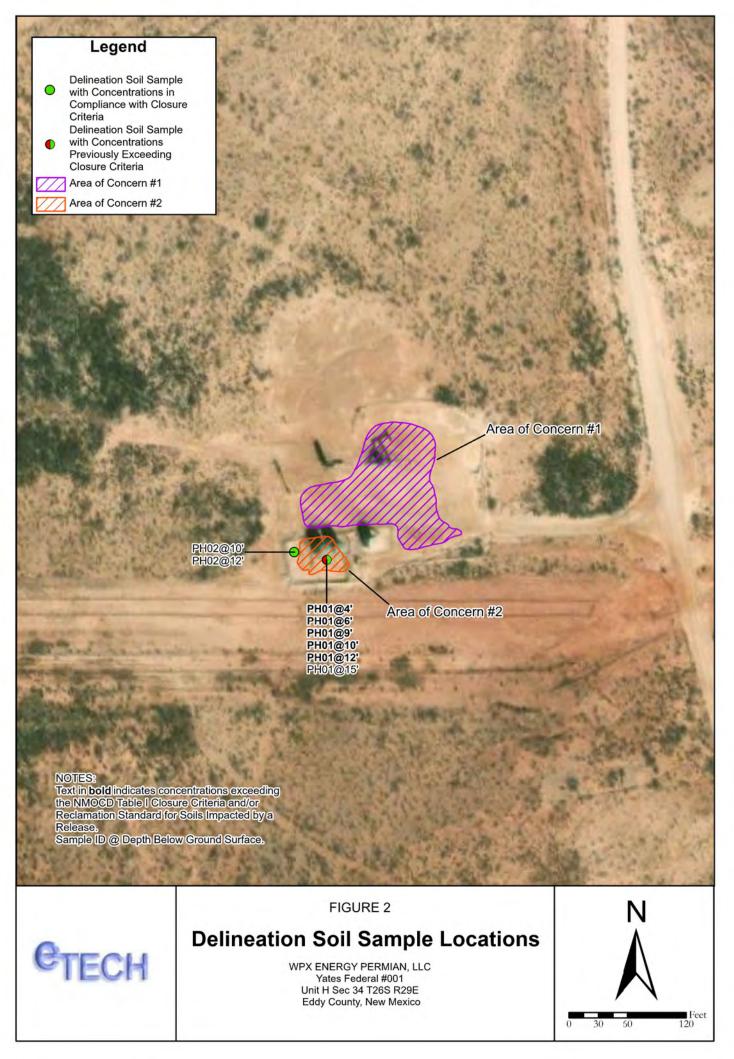
## **APPENDIX A**

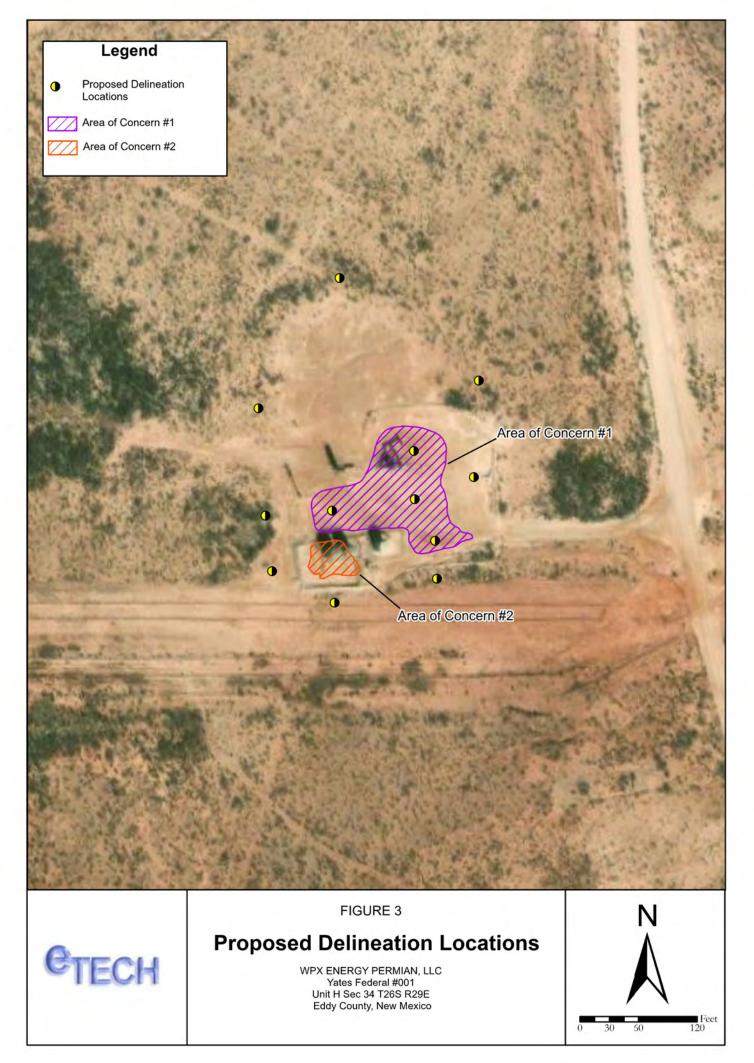
## Figures

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## **APPENDIX B**

## **Referenced Well Records**

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Owner:	BHP BILLITON PI	ETROLEUM	(	Owner Well #:	JOHNSON#	4-2
	115 W 3RD ST, ST		(	Grid #:	46-01-1	
	PECOS, TX 7977	5 mi N of ORLA, 3.3 mi E of HWY , & .1 mi S of N MEX line LA, TX 79770		Latitude:	31°59'54"N	
	285, & .1 mi S of I			ongitude:	103° 58' 25	" w
	·			Elevation:	2866 ft. abo	ve sea level
Well County:	Loving					
Type of Work:	New Well		l	Proposed Use:	Rig Supply	,
Borehole:		neter (in.)	Top De		Bottom Depth	(ft.)
Drilling Method:	Air Hamme				505	
Borehole Comple		ked; CASED				
	Top Depth (i		nth (ft )	Filter Mater	ial	Size
Filter Pack Interva		303		Gravel		1/4"
	Top Depth	(ft.) Bottor	m Depth (ft.)	Descrip	tion (number of sac	ks & material)
			20		5 CEMENT	
Annular Seal Data	a: <b>0</b>					
Annular Seal Data Seal Metho	Ū		Dis	stance to Prope	erty Line (ft.): 50	00+
Seal Metho	Ū		Dista	nce to Septic F		
Seal Metho	od: HAND		Dista conce	nce to Septic F entrated contar	ield or other	Ά
Seal Metho	od: HAND		Dista conce	nce to Septic F entrated contar Distance to Sep	ield or other nination (ft.): <b>N/</b>	A Data
Seal Metho Sealed E	od: HAND By: Driller	eeve Installed	Dista conce	nce to Septic F entrated contar Distance to Sep	ield or other nination (ft.): <b>N/</b> tic Tank (ft.): <b>Nc</b>	A Data
Seal Metho Sealed E	od: HAND By: Driller on: Surface Slo	eeve Installed	Dista conc	nce to Septic F entrated contar Distance to Sep Method of	ield or other nination (ft.): <b>N/</b> tic Tank (ft.): <b>No</b> Verification: <b>O</b>	A Data
Seal Metho Sealed E Surface Completi	od: HAND By: Driller on: Surface Slo		Dista conc	nce to Septic F entrated contar Distance to Sep Method of	ield or other nination (ft.): <b>N/</b> tic Tank (ft.): <b>No</b> Verification: <b>O</b>	A Data WNER INFO
Sealed E Surface Completi Water Level:	od: HAND By: Driller on: Surface Slo 58 ft. belo		Dista conc	nce to Septic F entrated contar Distance to Sep Method of	ield or other nination (ft.): <b>N/</b> tic Tank (ft.): <b>No</b> Verification: <b>O</b>	A Data WNER INFO

.

	Strata Depth (ft.)	Water Type		
Water Quality:	70-100 & 268-280	SALTY		
		Chemical Analysis Ma	ade: <b>No</b>	
		ingly penetrate any strata wh contained injurious constituen		
Certification Data:	driller's direct supervision) correct. The driller unders	e driller drilled this well (or the and that each and all of the stood that failure to complete ed for completion and resubm	statements her the required ite	ein are true and
Certification Data: Company Information	driller's direct supervision) correct. The driller unders the report(s) being returne	and that each and all of the stood that failure to complete	statements her the required ite	ein are true and
	driller's direct supervision) correct. The driller unders the report(s) being returne	and that each and all of the stood that failure to complete	statements her the required ite	ein are true and
	driller's direct supervision) correct. The driller unders the report(s) being returne SKINNER'S DRILLING P.O. BOX 544	and that each and all of the stood that failure to complete d for completion and resubm	statements her the required ite	ein are true and
Company Information	driller's direct supervision) correct. The driller unders the report(s) being returne SKINNER'S DRILLING P.O. BOX 544 ALPINE, TX 79831	and that each and all of the stood that failure to complete of for completion and resubm	statements her the required ite ittal.	ein are true and ems will result in 2838

#### Lithology: DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing: BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description	Dia. (in.) New/Used Type Setting From/To (ft.)
0	4	TOPSOIL	8 N STEEL 1.5A 8
4	25	LIGHT BROWN CLAY	6 N PVC SCH 40 0 60
25	55	RED CLAY	6 N PVC SCH 40 SLOT. 60 100 .035
55	115	CRYSTAL FORMATIONS	6 N PVC SCH 40 100 263
115	175	BROWN CLAY	6 N PVC SCH 40 SLOT. 263 283 .035
175	185	CRYSTAL FORMATIONS	6 N PVC SCH 40 283 303
185	270	<b>RED CLAY &amp; SANDSTONE</b>	
270	303	CRYSTAL FORMATIONS	

### IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

#### Texas Department of Licensing and Regulation P.O. Box 12157 Austin, TX 78711 (512) 334-5540

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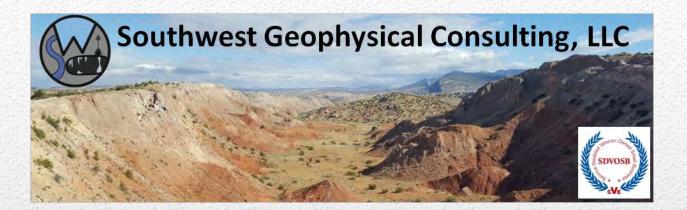
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## APPENDIX C

# Karst Survey

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# Cave and Karst Resource Inventory Report Yates Federal #001 Eddy County, New Mexico

# Prepared for: LT Environmental, Inc. 3300 North A Street Building 1, Unit 222 Midland, TX 79705

Positive – HKOZ remediation process required

☑ Negative – Oil Conservation Division may approve MKOZ remediation process at their discretion

## September 14, 2020

LTE-022-20200901

i

### Published by:

Southwest Geophysical Consulting, LLC 5117 Fairfax Dr. NW Albuquerque, NM 87114 (505) 585-2550 www.swgeophys.com

### Prepared by:

David D. Decker, Ph.D. Principal, Chief Executive Officer dave@swgeophys.com

### Prepared for:

LT Environmental, Inc. 3300 North A Street Building 1, Unit 222 Midland, TX 79705

### **Point of Contact:**

Joseph Hernandez (432) 894-5641 jhernandez@ltenv.com

MMXX

LTE-022-20200901

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2.1 Description of Site
2.2 Local Geology
2.3 Description of Survey
2.4 Description of Karst Features
3.0 RECOMMENDATIONS
4.0 REFERENCES
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### **1.0 INTRODUCTION**

A pedestrian surface karst survey was commissioned by LT Environmental, Inc. (hereinafter referred to as "the client") on September 01, 2020 for the purpose of determining what, if any, karst-related surface features are present near the Yates Federal #001 pad (hereinafter termed "Yates") and to provide guidance on the level of remediation required. This study does not include subsurface features, which would require a geophysical survey. The study area that this report covers is in a **HIGH** karst occurrence zone and located within Bureau of Land Management - Carlsbad Field Office and privately managed lands.

As indicated in section **1.3** *Affected Environment*, the bedrock and overlying soil at the survey site are susceptible to sinkhole development and karst features may be hidden beneath the existing soil stratum. Risk associated with sinkhole formation can be minimized during remediation by careful excavation of the spill site and the control of site hydrology. The Owner/Developer must recognize that a risk of sinkhole-induced damage to infrastructure remains even after site remediation. The Owner/Developer must evaluate the risks and attendant costs of performing a geophysical survey prior to remediation, versus no geophysical survey, and must be willing to accept these risks if it is decided that a surface karst survey is sufficient. Southwest Geophysical Consulting, LLC can provide a geophysical survey. If the decision is made to conduct a geophysical survey, a cost estimate and timeline will be provided upon request.

### 1.1 Goals of this Study

To provide the client with the location, description, photos, and boundaries of any surface karst-related features within a 200-meter buffer surrounding the Yates pad as provided by the client via email on September 01, 2020.

### 1.2 Summary of Findings

No surface karst features were located within the pedestrian survey area. However, unknown hidden features may still exist beneath the surface. Caution should be exercised during any remediation efforts.

LTE-022-20200901

### 1.3 Affected Environment

The Yates project site is located in evaporite karst terrain, a landform that is characterized by underground drainage through solutionally enlarged conduits. Evaporite karst terrain may contain sinkholes, sinking streams, caves, and springs. Sinkholes leading to underground drainages and voids are common. These karst features, as well as occasional fissures and discontinuities in the bedrock, provide the primary sources for rapid recharge of the groundwater aquifers of the region.

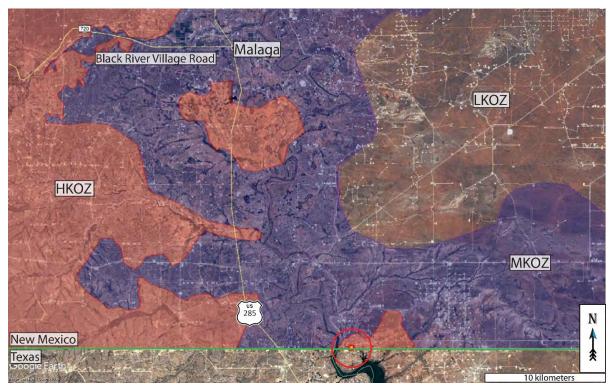


Figure 1: Karst occurrence overview. Red transparent area is a high karst occurrence zone; blue transparent area is a medium karst occurrence zone; no color is a low karst occurrence zone. Study area is the red outlined area in the lowermiddle portion of the image. Background image credit: Google Earth. Image date: February 21, 2019. Datum: WGS-84.

The Bureau of Land Management (BLM) categorizes all areas within the Carlsbad Field Office (CFO) zone of responsibility as having either low, medium, or high cave potential based on geology, occurrence of known caves, density of karst features, and potential impacts to freshwater aquifers<sup>[1]</sup>. These designations are also recognized by the New Mexico State Land Office (NMSLO). This project occurs within a **HIGH** karst occurrence zone (HKOZ) (**Figure 1**).

A high karst occurrence zone is defined as areas in known soluble rock types that contain a high frequency of significant caves and karst features such as sinkholes, bedrock fractures that provide rapid recharge of karst aquifers, and springs that provide riparian habitat<sup>[2]</sup>.

### LTE-022-20200901

### 2.0 LOCATION AND DESCRIPTION OF STUDY AREA

### 2.1 Description of Site

The Yates project site is located in Eddy County, New Mexico, 26.7 kilometers (16.6 miles) south-southeast of Malaga, New Mexico, along the Texas-New Mexico border (**Figure 1** and **Figure 2**). The survey area is located within section 34 of NM T26S R29E. This area is within the Chihuahuan Desert Thornscrub defined by the Southwestern Regional ReGAP Vegetation map<sup>[3]</sup> and the vegetation consists mostly of areas of grass, sparse creosote, and sparse yucca with very good visibility in most locations. See section *2.2 Local Geology* for the geology of the area. The entirety of the project site and surrounding survey area is within a HKOZ (**Figure 1**). Seventy-two percent of the survey area is located in BLM-CFO managed lands, while the remaining 28% is within privately managed lands in Texas (**Figure 2**).



Figure 2: Land ownership overview. Yellow transparent area: BLM-CFO managed land. Blue transparent area: New Mexico State Land Office managed land. No color: private land. Background image credit: Google Earth. Image date: February 21, 2019. Datum: WGS-84.

### 2.2 Local Geology

The area surveyed for the Yates project is located at an elevation of 880 meters (2,887 feet), ± 3 meters (10 feet), within an area underlain by the Permian Rustler and Dewey Lakes Formations (Pru and Pdl). The area is mantled by thin gypsiferous soils, and Quaternary alluvial sands and gravels (Qal and Qp)<sup>[4]</sup> between 0 and 3 meters in depth (**Figure 3**). The Rustler Formation is an evaporite facies and is composed mainly of thin siltstones and sandstones interbedded with claystones, dolomite and gypsum<sup>[5]</sup>, and contains both karstforming strata (the Forty-niner and Tamarisk Members) and two shallow aquifers (the Magenta and Culebra Dolomite Members). The Pru overlies the Permian Salado Formation (Psl, not shown on map), a layer of extremely soluble halite which can easily be dissolved to create caves, sinkholes, and other karst features<sup>[6]</sup>. The Pru may be subject to collapse if a void has developed beneath it in the Salado Formation. The survey area is covered by the Geologic Map of New Mexico (2003) at 1:500,000 scale<sup>[4]</sup>, and the Geologic Atlas of Texas - Hobbs Sheet (1976) at 1:250,000 scale.



Figure 3: Geology overview. Pru: Permian Rustler Formation. Pdl/Pqr: Permian Dewey Lake Formation (formerly known as the Permian Quartermaster Formation). Qp: Quaternary piedmont deposits. Qal: Quaternary alluvium. Red polygon is the study area. Yellow polygon is the YATES pad perimeter. Map credit: Geologic Map of New Mexico (2003) at 1:500,000 scale, and Google Earth. Image date: February 21, 2019. Datum: WGS-84.

LTE-022-20200901

### 2.3 Description of Survey

For this survey 4 lines were walked in a raster pattern at 50-meter (165 feet) intervals in the designated area, providing 90 to 100% coverage for features greater than 50 centimeters (20 inches) in diameter (**Table 1**, **Figure 4**).

The northeast section of the study area was covered during a previous survey completed by Dave Decker on September 14, 2019. The remainder of the study area within New Mexico was surveyed by Garrett Jorgensen on September 09, 2020. While permission was obtained to enter the Texas portion of the study area, this information was not received by the field geologist (Mr. Jorgensen) by the time of the survey; therefore, this section was not covered. The total distance walked was 3.3 kilometers (2.0 miles) and the total area covered was 0.12 square kilometers (30.4 acres).

Table 1: Survey Track Data Files				
File Name	Surveyor	Date	Length (km/miles)	Area (km²/Ac)
SWGSrv_clipped.kmz	Decker	09/14/2019	1.82/1.13	0.12/30.4
YatesSrv_D1S1.kmz	Jorgensen	09/09/2020	1.44/0.89	

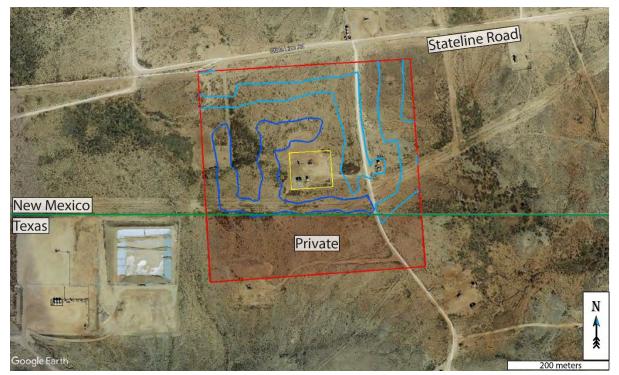


Figure 4: Survey overview. Red polygon is the study area. Shaded red polygon is the study area within Texas. Yellow polygon is the Yates well pad. Blue wavy lines are the actual survey lines walked (Dark blue: survey by Garrett Jorgensen. Light blue: Survey by Dave Decker). Background image credit: Google Earth. Image date: February 21, 2019. Datum: WGS-84.

LTE-022-20200901

The area in Texas that was not covered by the pedestrian karst survey is located within an area where the Dewey Lake red beds are exposed at the surface (which, as stated in section *2.2 Local Geology*, is a medium to fine-grained sandstone that does not support karst formation). A close inspection of the satellite imagery and a check of the New Mexico Cave and Karst Database revealed no previously known features in this area, and I am confident in stating that there are no surface karst features located within this zone.

### 2.4 Description of Karst Features

No surface karst features were located within the boundary of the pedestrian survey area for the Yates project site.

### **3.0 RECOMMENDATIONS**

No surface karst features were located during this survey. Based on these findings, allowing use of medium karst occurrence zone (versus high karst occurrence zone) spill remediation procedures may be considered by the Oil Conservation Division within the survey area. Confirmation to use a lower remediation level should be received from the Oil Conservation Division before proceeding.

Vigilance during remediation is paramount. If voids are encountered during trenching or digging contact the New Mexico State Oil Conservation Division if on State land, and the Bureau of Land Management – Carlsbad Field Office at (575) 234-5972 if on BLM land and request an on-site investigation from a karst expert. A karst consultant can generally be on site in Eddy County within five hours.

## **4.0 REFERENCES**

- 1. Rybacki, K., Karst Potential Map. CFO Basemap, 2019.
- 2. Scholle, P.A., *Geologic Map of New Mexico*. 2003. (1:500,000).
- 3. Johnson, K.S., *Evaporite Karst in the United States*. Carbonates and Evaporites, 1997. **12(1)**: p. 2-14.
- 4. Martinez, J.D., K.S. Johnson, and J.T. Neal, *Sinkholes in Evaporite Rocks*. American Scientist, 1998. **86(1-2)**: p. 38-51.
- 5. Whitehead, W. and C. Flynn, *Plant Utilization in Southeastern New Mexico: Botany, Ethnobotany, and Archaeology.* 2017, Carlsbad, NM: Bureau of Land Management, Carlsbad Field Office.
- 6. Vine, J.D., Surface *Geology of Nash Draw Quadrangle Eddy County New Mexico*, 1963.

#### **5.0 GLOSSARY OF TERMS**

BLM	Bureau of Land Management
CFO	Carlsbad Field Office
cave	A natural opening at the surface, large enough for a person to enter.
GPS	Global Positioning System
NMSLO	New Mexico State Land Office
OCD	Oil Conservation Division
playa lake	A natural depression on the surface that collects rainwater. Some contain
	swallets and/or caves, others do not.
pseudokarst	Karst-like terrain that forms through processes other than dissolution.
swallet	A natural opening in the surface, too small for a person, that drains water
	to an aquifer. Some are "open," meaning a void can be seen below; some
	are "closed," meaning they are full of sediment.
WGS	World Geodetic System



LTE-022-20200901

# APPENDIX D

# Photographic Log

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# APPENDIX E

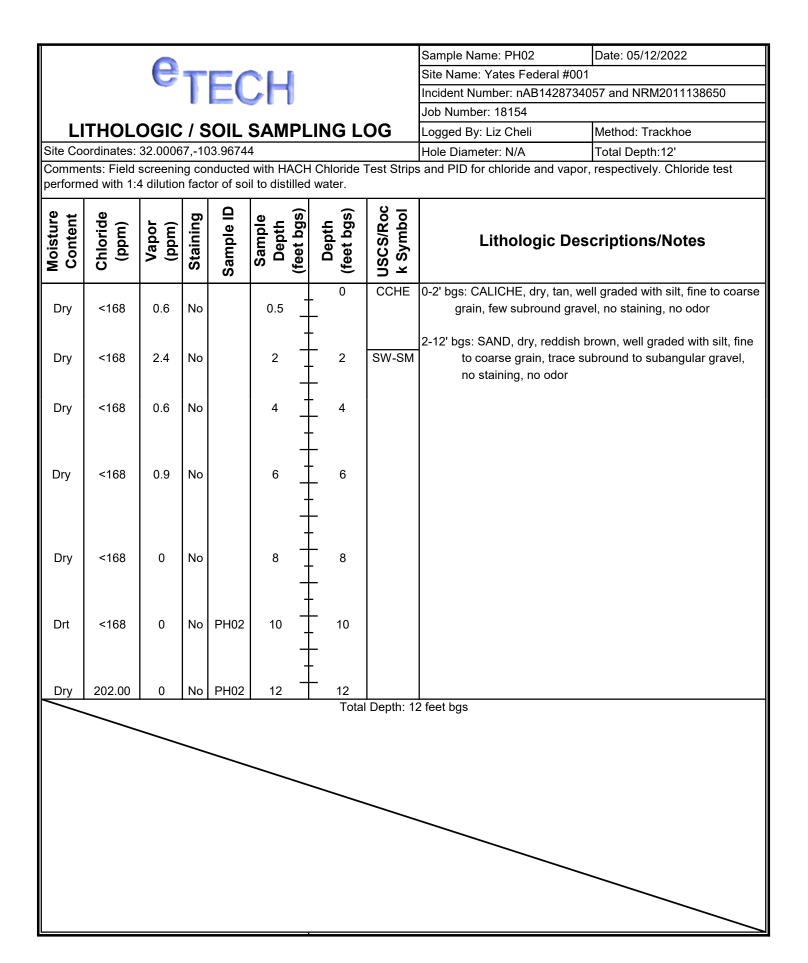
# Soil Sampling Logs

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									D 1 11/00/0000
								Sample Name: PH01	Date: 11/09/2022
		C	T	Fr	H			Site Name: Yates Federal #001	
					<b>/    </b>			Incident Number: nAB1428734	057 and NRM2011138650
								Job Number: 18154	
						LING L		Logged By: GM	Method: Trackhoe
	ordinates:							Hole Diameter: N/A	Total Depth:15'
Comments: Field screening conducted with HACH Chloride Test Strips performed with 1:4 dilution factor of soil to distilled water.								, respectively. Chionde test	
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample ID	Sample Depth (feet bgs)	Depth (feet bgs)	USCS/Roc k Symbol		scriptions/Notes
						0	CCHE		ell graded with silt, fine to coarse
					-	+		grain, few subround grav	vel, no staining, no odor
						+		2-14' bgs: SAND, dry, reddish b	prown well graded with silt fine
					-	+- + +-	SW-SM	• •	ubround to subangular gravel,
Dry	1,814.4	0	No	PH01	4 _	+ + +		grain, well consolided	red, well sorted, very fine to fine l, abundant greyish green m), no staining, no odor
Dry	3,404.8	0	No	PH01	6	5			
Dry	3,404.8	0		PH01	9	+ + +			
Dry	8,607.2	0	No	PH01	10 -	10 			
Dry	1,394.4	0	No	PH01	12 -	+			
Dry	952.0	0	No		14	+	SP-S		
Dry	806.4	0	No	PH01	15	15			
							Depth: 1	5 feet bgs	
			-						



# APPENDIX F

# Tables

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.

e <sub>TEC</sub>	н			WPX Ene Yates	Table 1 ANALYTICAL RES rgy Permian, LLC Federal #001 unty, New Mexico				
Sample I.D.	Sample Date	Sample Depth (feet bgs)	Benzene (mg/kg)	Total BTEX (mg/kg)	TPH GRO (mg/kg)	TPH DRO (mg/kg)	TPH ORO (mg/kg)	Total TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table I Closure Release (NMAC 19.15.2		s Impacted by a	10	50	NE	NE	NE	100	600
			Delir	neation Soil Samples -	nAB1428734057 and N	RM2011138650			
PH01	05/12/2022	4	<0.00201	<0.00402	<50.0	<50.0	<50.0	<50.0	1,700
PH01	11/09/2022	6	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	3,050
PH01	11/09/2022	9	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	3,320
PH01	05/12/2022	10	<0.00200	<0.00401	<49.9	<49.9	<49.9	<49.9	5,270
PH01	11/09/2022	12	<0.00200	<0.00401	<50.0	<50.0	<50.0	<50.0	1,210
PH01	11/09/2022	15	<0.00199	<0.00398	<49.8	<49.9	55.8	55.8	37.0
PH02	05/12/2022	10	<0.00202	<0.00404	<50.0	<50.0	<50.0	<50.0	157
PH02	05/12/2022	12	<0.00202	<0.00403	<49.9	<49.9	<49.9	<49.9	177

Notes:

bgs: below ground surface

mg/kg: milligrams per kilogram

BTEX: Benzene, Toluene, Ethylbenzene, and Xylenes

GRO: Gasoline Range Organics

DRO: Diesel Range Organics

ORO: Oil Range Organics

TPH: Total Petroleum Hydrocarbon

NMOCD: New Mexico Oil Conservation Division

NMAC: New Mexico Administrative Code

Concentrations in **bold** exceed the NMOCD Table I Closure Criteria and/or Reclamation Standard for Soils Impacted by a Release

# APPENDIX G

Laboratory Analytical Reports & Chain-of-Custody Documentation

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Received by OCD: 6/14/2023 10:34:54 AM



**Environment Testing** 

# **ANALYTICAL REPORT**

# PREPARED FOR

Attn: Devon Team Ensolum 705 W. Wadley Suite 210 Midland Texas 79701 Generated 11/22/2022 3:23:06 PM

# JOB DESCRIPTION

Yates Federal #001 SDG NUMBER Rural Eddy Co

# **JOB NUMBER**

890-3424-1

Eurofins Carlsbad 1089 N Canal St. Carlsbad NM 88220



Laboratory Job ID: 890-3424-1 SDG: Rural Eddy Co

# **Table of Contents**

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Table of Contents	2
Definitions/Glossary	3
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QC Sample Results	9
QC Association Summary	13
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Certification Summary	16
Method Summary	17
Sample Summary	18
Chain of Custody	19
	20
Appendix	22

	Demitions/Glossary	
Client: Ensolum Project/Site: Ya	Job ID: 890-3424-1 tes Federal #001 SDG: Rural Eddy Co	2
Qualifiers	·	3
GC VOA		3
Qualifier	Qualifier Description	
U	Indicates the analyte was analyzed for but not detected.	
GC Semi VOA		5
Qualifier	Qualifier Description	
U	Indicates the analyte was analyzed for but not detected.	6
HPLC/IC		
Qualifier	Qualifier Description	7
F1	MS and/or MSD recovery exceeds control limits.	
U	Indicates the analyte was analyzed for but not detected.	8
Glossary		9
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	10
%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	12
DL	Detection Limit (DoD/DOE)	13
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample	
DLC	Decision Level Concentration (Radiochemistry)	
EDL	Estimated Detection Limit (Dioxin)	
LOD	Limit of Detection (DoD/DOE)	
LOQ	Limit of Quantitation (DoD/DOE)	
MCL	EPA recommended "Maximum Contaminant Level"	
MDA	Minimum Detectable Activity (Radiochemistry)	
MDC	Minimum Detectable Concentration (Radiochemistry)	
MDL	Method Detection Limit	

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

Minimum Level (Dioxin)

PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control

ML

QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)

Toxicity Equivalent Quotient (Dioxin) TEQ

TNTC Too Numerous To Count

Eurofins Carlsbad

4

5

#### Job ID: 890-3424-1 SDG: Rural Eddy Co

#### Job ID: 890-3424-1

Client: Ensolum

#### Laboratory: Eurofins Carlsbad

Project/Site: Yates Federal #001

#### Narrative

Job Narrative 890-3424-1

#### Receipt

The samples were received on 11/9/2022 4:19 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 4.4°C

#### **Receipt Exceptions**

The following samples were received and analyzed from an unpreserved bulk soil jar: PH01 (890-3424-1), PH01 (890-3424-2) and PH01 (890-3424-3).

#### GC VOA

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

#### GC Semi VOA

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

#### HPLC/IC

Method 300\_ORGFM\_28D: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-39760 and analytical batch 880-39789 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

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

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Job ID: 890-3424-1 SDG: Rural Eddy Co

# **Client Sample ID: PH01**

Project/Site: Yates Federal #001

Date Collected: 11/09/22 09:30 Date Received: 11/09/22 16:19

Sample Depth: 6

Client: Ensolum

# Lab Sample ID: 890-3424-1

Matrix: Solid

Bareme         40.0199         U         0.00199         mgKg         1114/422 1647         112222 00.25           Folume         <0.00199         U         0.00199         mgKg         1114/422 1647         112222 00.25           mXytene &         <0.00199         U         0.00199         mgKg         1114/422 1647         112222 00.25           xXytene &         <0.00390         U         0.00398         mgKg         1114/422 1647         112222 00.25           Skrigenes, Total         <0.00390         U         0.00398         mgKg         1114/422 1647         112222 00.25           Skrigenes, Total         <0.00398         mgKg         1114/422 1647         112222 00.25         01158           Skrigenes, Total         <0.00398         mgKg         1114/422 1647         112222 00.25         01158           Skrigenes, Total         0.00398         mgKg         1114/422 1647         112222 00.25         01158           Skrigenes, Total	Method: SW846 8021B - Volatile C						_			
Totuene         <100199	Analyte				MDL		D	Prepared	Analyzed	Dil Fac
Enylenceme         <0.00190         0.00190         mg/kg         111/1422 15-47         11/2222 00.25           m-Xylane & p-Xylene         <0.00398										1
mx Sylene & p-Xylene       <0.00398										1
o-Xylene <th< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>1</td></th<>										1
Xytenes, Total         -0.00398         U         0.00398         mgKg         11/14/22 15.47         11/22/22 00.25           Surrogate         Secorety         Qualifier         Limits         Prepared         Analyzed         Dil Fa           Adjound/unclenzene (Surr)         113         70.130         11/14/22 15.47         11/22/22 00.25         11/14/22 15.47         11/22/22 00.25           Method:         TAL SOP Total BTEX - Total BTEX Calculation         Mol. Unit         D         Prepared         Analyzed         Dil Fa           Analyte         Result Qualifier         RL         MOL         Unit         D         Prepared         Analyzed         Dil Fa           Analyte         Result Qualifier         RL         MDL         Unit         D         Prepared         Analyzed         Dil Fa           Analyte         Result Qualifier         RL         MDL         Unit         D         Prepared         Analyzed         Dil Fa           Gall FPH         <49.9         U         49.9         mgKg         11/11/22 11.45         11/14/22 13.58         Dil Fa           GRO)-C6-C10         Desel Range Organics (DRO) (GC)         Analyzed         Dil Fa         Mol. Unit         D         Prepared         Analyzed         Di										1
Surrogate         %Recovery         Quelifier         Limits           4-Bronndiluorobenzene (Surr)         118         70.130         11/1/4221547         11/22220025         11/22220025           Method: TAL SOP Total BTEX - Total BTEX Calculation         Analyte         Result Qualifier         RL         MDL         Unit         D         Propared         Analyzed         DII Far           Total BTEX         <0.00396	-									1
4-Bromofiluorobenzene (Surr)       119       70.130       11/14/22 15:47       11/22/22 00.25         1.4-Difluorobenzene (Surr)       108       70.130       11/14/22 15:47       11/22/22 00.25         Method: TAL SOP Total BTEX - Total BTEX Calculation       Analyte       Result Qualifier       RL       MDL       Unit       D       Prepared       Analyzed       DIFa         Total BTEX       <0.00398	Xylenes, Total	<0.00398	U	0.00398		mg/Kg		11/14/22 15:47	11/22/22 00:25	1
1.4-Diffuorobenzene (Surr)       108       70.130       11/14/22 15.47       11/22/22 00.25         Method: TAL SOP Total BTEX - Total BTEX Calculation       Analyte       Result Qualifier       RL       MDL       Unit       D       Prepared       Analyzed       DII Far         Total BTEX       <0.00398	Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Method: TAL SOP Total BTEX - Total BTEX Calculation Analyte         Result Qualifier         RL         MDL         Unit         D         Prepared         Analyzed         DII Far           Total BTEX         <0.00398	4-Bromofluorobenzene (Surr)	118		70 - 130				11/14/22 15:47	11/22/22 00:25	1
Analyte         Result         Qualifier         RL         MDL         Unit         D         Prepared         Analyzed         Dil Fai           Total BTEX         <0.00398	1,4-Difluorobenzene (Surr)	108		70 - 130				11/14/22 15:47	11/22/22 00:25	1
Analyte         Result         Qualifier         RL         MDL         Unit         D         Prepared         Analyzed         Dil Fail           Total BTEX         <0.00398	Method: TAL SOP Total BTEX - T	otal BTEX Cal	culation							
Total BTEX         <0.00398         U         0.00398         mg/kg         11/22/2 15.30           Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)         Result Qualifier         RL         MDL         Unit         D         Prepared         Analyzed         Dil Fai           Total TPH         <49.9				RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Analyte         Result         Qualifier         RL         MDL         Unit         D         Prepared         Analyzed         Dil Fac           Total TPH         <49.9										1
Analyte         Result         Qualifier         RL         MDL         Unit         D         Prepared         Analyzed         Dil Fac           Total TPH         -49.9         U         49.9         mg/Kg         11/15/22 09.26         1           Method: SW846 8015B NM - Diesel Range Organics         (DC) (GC)         MDL         Unit         D         Prepared         Analyzed         Dil Fac           Gasoline Range Organics         <49.9										
Total TPH         <49.9         U         49.9         mg/Kg         11/15/22 09.26           Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)         Result Qualifier         RL         MDL Unit         D         Prepared         Analyzed         Dil Fac           Gasoline Range Organics         <49.9							_			
Method:         SW846 8015B NM - Diesel Range Organics (DRO) (GC)         Malt         Unit         D         Prepared         Analyzed         Dil Fac           Gasoline Range Organics         <49.9					MDL		D	Prepared		Dil Fac
Analyte         Result         Qualifier         RL         MDL         Unit         D         Prepared         Analyzed         Dil Fac           Gasoline Range Organics         <49.9	Total TPH	<49.9	U	49.9		mg/Kg			11/15/22 09:26	1
Analyte         Result         Qualifier         RL         MDL         Unit         D         Prepared         Analyzed         Dil Fac           Gasoline Range Organics         <49.9	Method: SW846 8015B NM - Dies	el Range Orga	anics (DRO)	) (GC)						
(GRO)-C6-C10       Diesel Range Organics (Over       <49.9	Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over         <49.9         U         49.9         mg/Kg         11/11/22 11:45         11/14/22 13:58           C10-C28)         OII Range Organics (Over C28-C36)         <49.9	0 0	<49.9	U	49.9		mg/Kg		11/11/22 11:45	11/14/22 13:58	1
Oll Range Organics (Over C28-C36)         <49.9         U         49.9         mg/Kg         11/11/22 11:45         11/14/22 13:58           Surrogate         %Recovery         Qualifier         Limits         Prepared         Analyzed         Dil Fac           1-Chlorooctane         88         70 - 130         11/11/22 11:45         11/14/22 13:58         Dil Fac           0-Terphenyl         88         70 - 130         11/11/22 11:45         11/14/22 13:58         Dil Fac           Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble         Result         Qualifier         RL         MDL         Unit         D         Prepared         Analyzed         Dil Fac           Chloride         3050         100         mg/Kg         11/11/22 11:45         11/14/22 13:58         Dil Fac           Chloride         3050         100         mg/Kg         11/17/22 09:47         20           Client Sample ID: PH01         Lab Sample ID: 890-3424-2         Matrix: Solid         Matrix: Solid           Sample Depth: 9         Method: SW846 8021B - Volatile Organic Compounds (GC)         MDL         Unit         D         Prepared         Analyzed         Dil Fac           Benzene         <0.00199	Diesel Range Organics (Over	<49.9	U	49.9		mg/Kg		11/11/22 11:45	11/14/22 13:58	1
Surrogate         %Recovery         Qualifier         Limits           1-Chlorooctane         88         70 - 130         11/11/22 11:45         11/14/22 13:58         11/11/22 11:45         11/14/22 13:58         11/11/22 11:45         11/14/22 13:58         11/11/22 11:45         11/14/22 13:58         11/11/22 11:45         11/11/22 11:45         11/14/22 13:58         11/11/22 11:45         11/11/22 11:45         11/11/22 11:45         11/11/22 11:45         11/11/22 11:45         11/11/22 11:45         11/11/22 11:45         11/11/22 01:47         11/11/22 01:47         11/11/22 01:47         11/11/22 01:47         11/11/22 01:47         11/11/22 01:47         11/11/22 01:47         11/11/22 01:47         11/11/22 01:47         11/12/22 00:46         11/11/22 11:45         11/11/22 11:45         11/11/22 01:47         11/11/22 01:47         11/11/22 01:47         11/11/22 01:47         11/11/22 01:47         11/11/22 01:47         11/11/22 01:47         11/11/22 01:47         11/11/22 01:47         11/11/22 01:47         11/11/22 01:47         11/12/22 00:46         11/14/22 15:47         11/12/22 00:46         11/14/22 15:47         11/12/22 00:46         11/14/22 15:47         11/12/22 00:46         11/14/22 15:47         11/12/22 00:46         11/12/22 00:46         11/14/22 15:47         11/12/22 00:46         11/14/22 15:47         11/12/22 00:46         11/14/22 15:47         11/12/22 00:46         <										
1-Chlorooctane       88       70 - 130       11/11/22 11:45       11/11/22 13:58         o-Terphenyl       88       70 - 130       11/11/22 11:45       11/11/22 13:58         Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble       11/11/22 11:45       11/11/22 13:58       11/11/22 13:58         Analyte       Result       Qualifier       RL       MDL       Unit       D       Prepared       Analyzed       Dil Fac         Chloride       3050       100       mg/Kg       11/11/22 11:45       11/11/22 09:47       20         Chloride       3050       100       mg/Kg       Prepared       Analyzed       Dil Fac         Chloride       3050       100       mg/Kg       11/11/22 11:45       11/11/22 09:47       20         Chloride       3050       100       mg/Kg       11/11/22 09:47       20       20         Chloride       11/09/22 09:40       Lab Sample ID: 890-3424-22       Matrix: Solid       Matrix: Solid         Method: SW846 8021B - Volatile Organic Compounds (GC)       Malyte       MDL       Unit       D       Prepared       Analyzed       Dil Fac         Benzene       <0.00199	Oll Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		11/11/22 11:45	11/14/22 13:58	1
o-Terphenyl         88         70 - 130         11/11/22 11:45         11/14/22 13:58           Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble Analyte         Result         Qualifier         RL         MDL         Unit         D         Prepared         Analyzed         Dil Fax           Chloride         3050         100         mg/Kg         11/17/22 09:47         20           Client Sample ID: PH01 Date Collected: 11/09/22 09:40 Date Received: 11/09/22 16:19 Sample Depth: 9         Lab Sample ID: 890-3424-2 Matrix: Solid           Method: SW846 8021B - Volatile Organic Compounds (GC) Analyte         Result         Qualifier         RL         MDL         Unit         D         Prepared         Analyzed         Dil Fax           Benzene         <0.00199	Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
Method: MCAWW 300.0 - Anions, Ion Chromatography - Soluble           Analyte         Result         Qualifier         RL         MDL         Unit         D         Prepared         Analyzed         Dil Fac           Chloride         3050         100         mg/Kg         D         Prepared         Analyzed         Dil Fac           Chloride         3050         100         mg/Kg         D         Prepared         Analyzed         Dil Fac           Chloride         3050         100         mg/Kg         D         Prepared         Analyzed         Dil Fac           Chloride         11/109/22 09:40         X         Katrix: Solid         Matrix: Solid         Matrix: Solid           Sample Depth: 9         Sample Depth: 9         Method: SW846 8021B - Volatile Organic Compounds (GC)         Malyte         Result         Qualifier         RL         MDL         Unit         D         Prepared         Analyzed         Dil Fac           Benzene         <0.00199	1-Chlorooctane	88		70 - 130				11/11/22 11:45	11/14/22 13:58	1
AnalyteResultQualifierRLMDLUnitDPreparedAnalyzedDil FacChloride3050100mg/Kg100mg/Kg11/17/22 09:4720Client Sample ID: PH01 Date Collected: 11/09/22 09:40 Date Received: 11/09/22 16:19 Sample Depth: 9Lab Sample ID: 890-3424-2 Matrix: Solid Sample Depth: 9Method: SW846 8021B - Volatile Organic Compounds (GC) AnalyteResult QualifierRL MDLMDLUnit UnitDPrepared PreparedAnalyzed Matrix: Solid Dil Fac 11/14/22 15:47Dil Fac AnalyzedBenzene<0.00199	o-Terphenyl	88		70 - 130				11/11/22 11:45	11/14/22 13:58	1
AnalyteResultQualifierRLMDLUnitDPreparedAnalyzedDil FacChloride3050100100mg/Kg11/17/22 09:4720Client Sample ID: PH01 Date Collected: 11/09/22 09:40 Date Received: 11/09/22 16:19 Sample Depth: 9Lab Sample ID: 890-3424-2 Matrix: Solid Sample Depth: 9Method: SW846 8021B - Volatile Organic Compounds (GC) AnalyteResult QualifierRL MDLMDL UnitD PreparedPrepared AnalyzedAnalyzed Dil Fac Dil Dil Dil Dil Dil Dil Dil Dil Dil Dil	Method: MCAWW 300.0 - Anions	. Ion Chromate	ography - S	oluble						
Client Sample ID: PH01       Lab Sample ID: 890-3424-2         Date Collected: 11/09/22 09:40       Matrix: Solid         Date Received: 11/09/22 16:19       Matrix: Solid         Sample Depth: 9       Method: SW846 8021B - Volatile Organic Compounds (GC)         Analyte       Result       Qualifier         Benzene       <0.00199					MDL	Unit	D	Prepared	Analyzed	Dil Fac
Matrix: Solid         Matrix: Solid         Matrix: Solid         Matrix: Solid         Matrix: Solid         Sample Depth: 9         Method: SW846 8021B - Volatile Organic Compounds (GC)         Analyte       Result       Qualifier       RL       MDL       Unit       D       Prepared       Analyzed       Dil Fac         Benzene       <0.00199	Chloride	3050		100	,	mg/Kg			11/17/22 09:47	20
Matrix: Solid         Matrix: Solid         Matrix: Solid         Matrix: Solid         Sample Depth: 9         Method: SW846 8021B - Volatile Organic Compounds (GC)         Analyte       Result       Qualifier       RL       MDL       Unit       D       Prepared       Analyzed       Dil Fax         Benzene       <0.00199	Vient Comple ID: DU01							Lab Sar		2424.2
Method:         SW846         8021B         Volatile Organic Compounds (GC)           Analyte         Result         Qualifier         RL         MDL         Unit         D         Prepared         Analyzed         Dil Fac           Benzene         <0.00199								Lap San		
Method:         SW846         8021B - Volatile Organic Compounds (GC)           Analyte         Result         Qualifier         RL         MDL         Unit         D         Prepared         Analyzed         Dil Fac           Benzene         <0.00199									Matri	x: Solia
Method:         SW846 8021B - Volatile Organic Compounds (GC)           Analyte         Result         Qualifier         RL         MDL         Unit         D         Prepared         Analyzed         Dil Fac           Benzene         <0.00199										
Analyte         Result         Qualifier         RL         MDL         Unit         D         Prepared         Analyzed         Dil Fac           Benzene         <0.00199	ample Depth: 9									
Analyte         Result         Qualifier         RL         MDL         Unit         D         Prepared         Analyzed         Dil Fac           Benzene         <0.00199	Method: SW846 8021B - Volatile (	Organic Comr	ounds (GC	a						
Toluene       <0.00199       U       0.00199       mg/Kg       11/14/22 15:47       11/22/22 00:46         Ethylbenzene       <0.00199				· · · · · · · · · · · · · · · · · · ·	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Toluene         <0.00199         U         0.00199         mg/Kg         11/14/22 15:47         11/22/22 00:46           Ethylbenzene         <0.00199		< 0.00199	U			mg/Kg				1
Ethylbenzene         <0.00199         U         0.00199         mg/Kg         11/14/22 15:47         11/22/22 00:46           m-Xylene & p-Xylene         <0.00398	Toluene									1
m-Xylene & p-Xylene       <0.00398       U       0.00398       mg/Kg       11/14/22 15:47       11/22/22 00:46         o-Xylene       <0.00199										1
o-Xylene <0.00199 U 0.00199 mg/Kg 11/14/22 15:47 11/22/22 00:46										1
			-	-						
			П	0 00199		ma/Ka		11/14/22 15:47	11/22/22 00:46	1

Xylenes, Total	<0.00398 U	0.00398	mg/Kg	11/14/22 15:47	11/22/22 00:46	1
Surrogate	%Recovery Qualifier	Limits		Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	121	70 - 130		11/14/22 15:47	11/22/22 00:46	1

Eurofins Carlsbad

## **Client Sample Results**

Job ID: 890-3424-1 SDG: Rural Eddy Co

Matrix: Solid

5

Lab Sample ID: 890-3424-2

# Project/Site: Yates Federal #001 **Client Sample ID: PH01**

Date Collected: 11/09/22 09:40 Date Received: 11/09/22 16:19

Sample Depth: 9

Client: Ensolum

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1,4-Difluorobenzene (Surr)	102		70 - 130				11/14/22 15:47	11/22/22 00:46	1
Method: TAL SOP Total BTEX - 1	Total BTEX Calo	culation							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00398	U	0.00398		mg/Kg			11/22/22 15:30	1
Method: SW846 8015 NM - Diese	el Range Organ	ics (DRO) (	GC)						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<50.0	U	50.0		mg/Kg			11/15/22 09:26	
Method: SW846 8015B NM - Die	sel Range Orga	nics (DRO)	(GC)						
Analyte	Result	Qualifier	RL	MDL		D	Prepared	Analyzed	Dil Fac
Analyte Gasoline Range Organics		Qualifier		MDL	<mark>Unit</mark> mg/Kg	<u>D</u>	Prepared 11/11/22 11:45	Analyzed	Dil Fa
Analyte Gasoline Range Organics (GRO)-C6-C10	Result	Qualifier U	RL	MDL		<u>D</u>	<u> </u>		Dil Fac
Analyte Gasoline Range Organics	Result <50.0	Qualifier U	<b>RL</b> 50.0	MDL	mg/Kg	D	11/11/22 11:45	11/14/22 14:20	Dil Fac
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Result <50.0	Qualifier U U	<b>RL</b> 50.0	MDL	mg/Kg	<u> </u>	11/11/22 11:45	11/14/22 14:20	Dil Fac
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	<b>Result</b> <50.0	Qualifier U U U	RL 50.0	MDL	mg/Kg mg/Kg	<u> </u>	11/11/22 11:45	11/14/22 14:20 11/14/22 14:20	
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36)	Result <50.0 <50.0 <50.0	Qualifier U U U	RL 50.0 50.0 50.0	MDL	mg/Kg mg/Kg	<u> </u>	11/11/22 11:45 11/11/22 11:45 11/11/22 11:45	11/14/22 14:20 11/14/22 14:20 11/14/22 14:20	Dil Fac
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36) Surrogate	Result <50.0 <50.0 <50.0 %Recovery	Qualifier U U U	RL 50.0 50.0 50.0 <i>Limits</i>	MDL	mg/Kg mg/Kg	<u> </u>	11/11/22 11:45 11/11/22 11:45 11/11/22 11:45 <b>Prepared</b>	11/14/22 14:20 11/14/22 14:20 11/14/22 14:20 11/14/22 14:20 Analyzed	,

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3320		99.6		mg/Kg			11/17/22 09:53	20

## **Client Sample ID: PH01**

Date Collected: 11/09/22 09:50 Date Received: 11/09/22 16:19 Sample Depth: 12

#### Method: SW846 8021B - Volatile Organic Compounds (GC) Analyte Result Qualifier RL MDL Unit D Prepared Analyzed Dil Fac Benzene <0.00200 U 0.00200 mg/Kg 11/14/22 15:47 11/22/22 03:11 Toluene <0.00200 U 0.00200 11/14/22 15:47 11/22/22 03:11 mg/Kg 1 Ethylbenzene <0.00200 U 0.00200 mg/Kg 11/14/22 15:47 11/22/22 03:11 <0.00401 U 0.00401 11/14/22 15:47 11/22/22 03:11 m-Xylene & p-Xylene mg/Kg 1 o-Xylene <0.00200 U 0.00200 mg/Kg 11/14/22 15:47 11/22/22 03:11 1 Xylenes, Total <0.00401 U 0.00401 mg/Kg 11/14/22 15:47 11/22/22 03:11 1 %Recovery Qualifier Limits Dil Fac Surrogate Prepared Analvzed 109 70 - 130 11/14/22 15:47 4-Bromofluorobenzene (Surr) 11/22/22 03.11 1 1,4-Difluorobenzene (Surr) 97 70 - 130 11/14/22 15:47 11/22/22 03:11 1 Method: TAL SOP Total BTEX - Total BTEX Calculation Analyte Result Qualifier RL MDL Unit D Dil Fac Prepared Analyzed Total BTEX <0.00401 U 0.00401 11/22/22 15:30 mg/Kg 1 Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC) Analyte Result Qualifier RL MDL Unit D Prepared Analyzed Dil Fac Total TPH <50.0 U 50.0 mg/Kg 11/15/22 09:26

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Lab Sample ID: 890-3424-3 Matrix: Solid

Released to Imaging: 11/27/2023 9:51:17 AM

# **Client Sample Results**

Job ID: 890-3424-1 SDG: Rural Eddy Co

# **Client Sample ID: PH01**

Project/Site: Yates Federal #001

Date Collected: 11/09/22 09:50 Date Received: 11/09/22 16:19

# Sample Depth: 12

Client: Ensolum

Method: SW846 8015B NM - Dies			· · ·						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		11/11/22 11:45	11/14/22 14:42	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		11/11/22 11:45	11/14/22 14:42	1
Oll Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		11/11/22 11:45	11/14/22 14:42	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	81		70 - 130				11/11/22 11:45	11/14/22 14:42	1
o-Terphenyl	81		70 - 130				11/11/22 11:45	11/14/22 14:42	1
Method: MCAWW 300.0 - Anions	s, Ion Chromato	ography - S	oluble						
		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Analyte	Result	Quaimer	NL.		Unit		Fiepaieu	Analyzeu	DirFac

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Lab Sample ID: 890-3424-3 Matrix: Solid

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Client: Ensolum Project/Site: Yates Federal #001

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

Matrix: Solid

				Percent Surrogate Recovery (Acceptance Limits)
		BFB1	DFBZ1	
ab Sample ID	Client Sample ID	(70-130)	(70-130)	
90-3423-A-1-D MS	Matrix Spike	104	94	
90-3423-A-1-E MSD	Matrix Spike Duplicate	113	87	
90-3424-1	PH01	118	108	
90-3424-2	PH01	121	102	
90-3424-3	PH01	109	97	
CS 880-39546/1-A	Lab Control Sample	91	82	
CSD 880-39546/2-A	Lab Control Sample Dup	99	93	
IB 880-39546/5-A	Method Blank	112	92	
	Method Blank	101	92	

BFB = 4-Bromofluorobenzene (Surr)

DFBZ = 1,4-Difluorobenzene (Surr)

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

Matrix: Solid

_				Percent Surrogate Recovery (Acceptance Limits)	
		1CO1	OTPH1		
Lab Sample ID	Client Sample ID	(70-130)	(70-130)		
890-3423-A-1-B MS	Matrix Spike	120	111		
890-3423-A-1-C MSD	Matrix Spike Duplicate	102	96		
890-3424-1	PH01	88	88		
890-3424-2	PH01	86	86		
890-3424-3	PH01	81	81		
LCS 880-39324/2-A	Lab Control Sample	103	103		
LCSD 880-39324/3-A	Lab Control Sample Dup	98	99		
MB 880-39324/1-A	Method Blank	99	98		

#### Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

Prep Type: Total/NA

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**Client Sample ID: Method Blank** 

#### Job ID: 890-3424-1 SDG: Rural Eddy Co

Prep Type: Total/NA

Project/Site: Yates Federal #001 Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid Analysis Batch: 40037

Client: Ensolum

Analysis Batch: 40037								Prep Batch	n: 39546
	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		11/14/22 15:47	11/21/22 22:20	1
Toluene	<0.00200	U	0.00200		mg/Kg		11/14/22 15:47	11/21/22 22:20	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		11/14/22 15:47	11/21/22 22:20	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		11/14/22 15:47	11/21/22 22:20	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		11/14/22 15:47	11/21/22 22:20	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		11/14/22 15:47	11/21/22 22:20	1
	МВ	МВ							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		70 - 130				11/14/22 15:47	11/21/22 22:20	1
1,4-Difluorobenzene (Surr)	92		70 - 130				11/14/22 15:47	11/21/22 22:20	1

#### Lab Sample ID: LCS 880-39546/1-A Matrix: Solid

## Analysis Batch: 40037

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	0.100	0.06955		mg/Kg		70	70 - 130	
Toluene	0.100	0.08190		mg/Kg		82	70 - 130	
Ethylbenzene	0.100	0.08788		mg/Kg		88	70 - 130	
m-Xylene & p-Xylene	0.200	0.1753		mg/Kg		88	70 - 130	
o-Xylene	0.100	0.1027		mg/Kg		103	70 - 130	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	91		70 - 130
1,4-Difluorobenzene (Surr)	82		70 - 130

#### Lab Sample ID: LCSD 880-39546/2-A

## Matrix: Solid

Analysis Batch: 40037							Prep	Batch:	39546
	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	0.100	0.07665		mg/Kg		77	70 - 130	10	35
Toluene	0.100	0.08944		mg/Kg		89	70 - 130	9	35
Ethylbenzene	0.100	0.09524		mg/Kg		95	70 - 130	8	35
m-Xylene & p-Xylene	0.200	0.1909		mg/Kg		95	70 - 130	9	35
o-Xylene	0.100	0.1111		mg/Kg		111	70 - 130	8	35

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	93		70 - 130

# Lab Sample ID: 890-3423-A-1-D MS

#### Matrix: Solid alveie Ratch: 40027

Analysis Batch: 40037									Prep	Batch: 39546
	Sample	Sample	Spike	MS	MS				%Rec	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	<0.00199	U	0.0998	0.07603		mg/Kg		76	70 - 130	
Toluene	<0.00199	U	0.0998	0.08510		mg/Kg		85	70 - 130	

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Prep Type: Total/NA

**Client Sample ID: Matrix Spike** 

## Client Sample ID: Lab Control Sample

Prep Type: Total/NA **Prep Bat** 

Prep Type: Total/NA

tch:	39546	

70	70 - 130	 
82	70 - 130	
88	70 - 130	
88	70 - 130	
103	70 - 130	

Client Sample ID: Lab Control Sample Dup

# **QC Sample Results**

Client: Ensolum Project/Site: Yates Federal #001

4-Bromofluorobenzene (Surr)

1,4-Difluorobenzene (Surr)

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

Lab Sample ID: 890-3423-A-1-	D MS							Client ?	Sample ID: N		
Matrix: Solid										pe: Total	
Analysis Batch: 40037	· ·									Batch: 39	/546
		Sample	Spike	MS		•.		· ··-	%Rec		
Analyte		Qualifier	Added		Qualifier	Unit	'	<u>D</u> %Rec	Limits		
Ethylbenzene			0.0998	0.08975		mg/Kg		90	70 - 130		
m-Xylene & p-Xylene	<0.00398		0.200	0.1800		mg/Kg		90	70 - 130		
o-Xylene	<0.00199	U	0.0998	0.1033		mg/Kg		103	70 - 130		
	MS	MS									
Surrogate	%Recovery	Qualifier	Limits								
4-Bromofluorobenzene (Surr)	104		70 - 130								
1,4-Difluorobenzene (Surr)	94		70 - 130								
Lab Sample ID: 890-3423-A-1-						c	lionf	+ Samula ID	: Matrix Spik	ko Dunli	cate
Matrix: Solid						-	lient	, Sampie i.e.		pe: Total	
Analysis Batch: 40037										Batch: 39	
Allarysis Daton. 40007	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	-	Qualifier	Added	Result		Unit		D %Rec	Limits		Limit
Benzene			0.0996	0.07504		mg/Kg	·		70 - 130	1	35
Toluene	< 0.00199		0.0996	0.08927		mg/Kg		90	70 - 130	5	35
Ethylbenzene	<0.00199		0.0996	0.09882		mg/Kg		99	70 - 130	10	35
m-Xylene & p-Xylene	<0.00398		0.199	0.1954		mg/Kg		98	70 - 130	8	35
o-Xylene	<0.00199		0.0996	0.1117		mg/Kg		112	70 - 130	8	35
	MSD	MSD									
Surrogate	%Recovery		Limits								
4-Bromofluorobenzene (Surr)	113		70 - 130								
1,4-Difluorobenzene (Surr)	87		70 - 130								
· •											
Lab Sample ID: MB 880-40068	/ <b>5-A</b>							Client Sa	ample ID: Me		
Matrix: Solid										pe: Total	
Analysis Batch: 40037									Prep B	Batch: 40	/068
• • •	-	MB MB	D'				~	Descended	A male mar		
Analyte		Result Qualifier			MDL Unit		<u>D</u>	Prepared	Analyzed		il Fac
Benzene Toluene		0200 U 0200 U	0.00200 0.00200		mg/k mg/k	-		11/21/22 09:48			1 1
					mg/k	-		11/21/22 09:48			1 1
Ethylbenzene		0200 U	0.00200 0.00400		mg/k			11/21/22 09:48			1  1
m-Xylene & p-Xylene o-Xylene		0400 U			mg/k mg/k			11/21/22 09:48			1
•		0200 U 0400 U	0.00200 0.00400		mg/k mg/k	-		11/21/22 09:48 11/21/22 09:48			1
Xylenes, Total	~0.00		0.00-100		mg/k	٠g	'	1/21/22 UJ. <del>T</del> U	11/21/22 11.	40	
		MB MB									
Surrogate	- · · -	overy Qualifier	· Limits					Prepared	Analyzed	ч D;	il Fac

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

101

92

Lab Sample ID: MB 880-39324/1-A Matrix: Solid Analysis Batch: 39383	мв	мв					Client Sa	mple ID: Metho Prep Type: ٦ Prep Batcl	Total/NA
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<50.0	U	50.0		mg/Kg		11/11/22 11:45	11/14/22 08:54	1
(GRO)-C6-C10									

70 - 130

70 - 130

Job ID: 890-3424-1 SDG: Rural Eddy Co

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11/21/22 09:48

11/21/22 09:48

11/21/22 11:40

11/21/22 11:40

# **QC Sample Results**

#### Job ID: 890-3424-1 SDG: Rural Eddy Co

Lab Sample ID: MB 880-39324/1-	Δ								Client	Sample ID:	Methor	Blank
Matrix: Solid	^								onem		Type: To	
Analysis Batch: 39383											p Batch:	
		мв	мв									
Analyte	Re		Qualifier	RL		MDL Un	it	D	Prepared	Analy	zed	Dil Fa
Diesel Range Organics (Over		50.0 l					/Kg		11/22 11:			Diriu
C10-C28)		00.0	0	00.0			, rug	,				
Oll Range Organics (Over C28-C36)	<	50.0 l	U	50.0		mg	/Kg	11/	11/22 11:	45 11/14/22	2 08:54	1
			МВ									
Surrogate	%Reco	<u> </u>	Qualifier	Limits					Prepared	Analy		Dil Fac
1-Chlorooctane		99		70 - 130					11/22 11:			1
p-Terphenyl		98		70 - 130				11,	11/22 11:	45 11/14/22	2 08:54	1
Lab Sample ID: LCS 880-39324/2	<b>!-A</b>							Clier	t Samp	le ID: Lab C		
Matrix: Solid											Type: To	
Analysis Batch: 39383											p Batch:	39324
				Spike	LCS					%Rec		
Analyte				Added		Qualifie		D	%Rec	Limits		
Gasoline Range Organics				1000	861.6		mg/Kg		86	70 - 130		
(GRO)-C6-C10				1000	0010					70 100		
Diesel Range Organics (Over				1000	964.6		mg/Kg		96	70 - 130		
C10-C28)												
	LCS	LCS										
Surrogate	%Recovery		fier	Limits								
Surrogate			fier	Limits 70 - 130								
1-Chlorooctane o-Terphenyl	%Recovery 103 103		fier				Cli	ent Sai	nple ID	: Lab Contr	ol Samp	le Dup
	%Recovery 103 103		fier	70 - 130			Cli	ent Sai	nple ID	Prep	ol Samp Type: To p Batch:	otal/NA
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid	%Recovery 103 103		fier	70 - 130	LCSD	LCSD	Cli	ent Sai	nple ID	Prep	Type: To	otal/NA
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid	%Recovery 103 103		fier	70 - 130 70 - 130		LCSD Qualifie		ent Sai	nple ID %Rec	Prep Pre	Type: To	otal/NA 39324
1-Chlorooctane o-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics	%Recovery 103 103		fier	70 - 130 70 - 130 Spike					-	Prep Pre %Rec	Type: To p Batch	otal/NA 39324 RPD
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10	%Recovery 103 103		fier	70 - 130 70 - 130 <b>Spike</b> Added	Result 795.7		<mark>Unit</mark> mg/Kg		<b>%Rec</b> 80	Prep Pre %Rec Limits 70 - 130	Type: To p Batch: RPD 8	stal/NA 39324 RPD Limit
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	%Recovery 103 103		fier	70 - 130 70 - 130 Spike Added	Result		Unit		%Rec	Prep Pre %Rec Limits	Type: To p Batch: 	39324 RPD Limit
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10	%Recovery 103 103		fier	70 - 130 70 - 130 <b>Spike</b> Added	Result 795.7		<mark>Unit</mark> mg/Kg		<b>%Rec</b> 80	Prep Pre %Rec Limits 70 - 130	Type: To p Batch: RPD 8	stal/NA 39324 RPD Limit
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	%Recovery 103 103	Qualif		70 - 130 70 - 130 <b>Spike</b> Added	Result 795.7		<mark>Unit</mark> mg/Kg		<b>%Rec</b> 80	Prep Pre %Rec Limits 70 - 130	Type: To p Batch: RPD 8	stal/NA 39324 RPD Limit
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	%Recovery 103 103 /3-A	LCSD		70 - 130 70 - 130 <b>Spike</b> Added	Result 795.7		<mark>Unit</mark> mg/Kg		<b>%Rec</b> 80	Prep Pre %Rec Limits 70 - 130	Type: To p Batch: RPD 8	stal/NA 39324 RPD Limit
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	%Recovery 103 103 /3-A LCSD	LCSD		70 - 130 70 - 130 <b>Spike</b> Added 1000	Result 795.7		unit		<b>%Rec</b> 80	Prep Pre %Rec Limits 70 - 130	Type: To p Batch: RPD 8	stal/NA 39324 RPD Limit
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Surrogate	%Recovery 103 103 /3-A /2-A /2-A	LCSD		70 - 130 70 - 130 Spike Added 1000 1000	Result 795.7		unit		<b>%Rec</b> 80	Prep Pre %Rec Limits 70 - 130	Type: To p Batch: RPD 8	stal/NA 39324 RPD Limit
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Surrogate 1-Chlorooctane p-Terphenyl	%Recovery 103 103 /3-A /3-A <i>LCSD</i> %Recovery 98 99	LCSD		70 - 130 70 - 130 Spike Added 1000 1000 Limits 70 - 130	Result 795.7		unit		<b>%Rec</b> 80 94	Prep Pre %Rec Limits 70 - 130 70 - 130	Type: To p Batch: RPD 8 3	Stal/NA 39324 RPD Limit 20
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Surrogate 1-Chlorooctane	%Recovery 103 103 /3-A /3-A <i>LCSD</i> %Recovery 98 99	LCSD		70 - 130 70 - 130 Spike Added 1000 1000 Limits 70 - 130	Result 795.7		unit		<b>%Rec</b> 80 94	Prep           %Rec           Limits           70 - 130           70 - 130	Type: To p Batch:	stal/NA 39324 RPD Limit 20 20
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Surrogate 1-Chlorooctane p-Terphenyl Lab Sample ID: 890-3423-A-1-B	%Recovery 103 103 /3-A /3-A <i>LCSD</i> %Recovery 98 99	LCSD		70 - 130 70 - 130 Spike Added 1000 1000 Limits 70 - 130	Result 795.7		unit		<b>%Rec</b> 80 94	Prep Pre %Rec Limits 70 - 130 70 - 130	Type: To p Batch:	A Spike
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Surrogate 1-Chlorooctane p-Terphenyl Lab Sample ID: 890-3423-A-1-B	%Recovery 103 103 /3-A /3-A <i>LCSD</i> %Recovery 98 99	LCSD		70 - 130 70 - 130 Spike Added 1000 1000 Limits 70 - 130	Result 795.7		unit		<b>%Rec</b> 80 94	Prep Pre %Rec Limits 70 - 130 70 - 130	Type: To p Batch:	A Spike
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Surrogate 1-Chlorooctane p-Terphenyl Lab Sample ID: 890-3423-A-1-B	%Recovery 103 103 /3-A /3-A <i>LCSD</i> %Recovery 98 99	Qualif LCSD Qualif		70 - 130 70 - 130 Spike Added 1000 1000 Limits 70 - 130	Result 795.7	Qualifie	unit		<b>%Rec</b> 80 94	Prep Pre %Rec Limits 70 - 130 70 - 130	Type: To p Batch:	A Spike
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Surrogate 1-Chlorooctane p-Terphenyl Lab Sample ID: 890-3423-A-1-B	%Recovery 103 103 /3-A /3-A /3-A %Recovery 98 99 WS	Qualif LCSD Qualif Samp	fier	70 - 130 70 - 130 <b>Spike</b> Added 1000 1000 <i>Limits</i> 70 - 130 70 - 130	Result 795.7 939.5 MS	Qualifie	mg/Kg		<b>%Rec</b> 80 94	Prep Pre %Rec Limits 70 - 130 70 - 130 70 - 130	Type: To p Batch:	A Spike
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Surrogate 1-Chlorooctane p-Terphenyl Lab Sample ID: 890-3423-A-1-B Matrix: Solid Analysis Batch: 39383	%Recovery 103 103 //3-A //3-A //3-A //3-A //3-A //3-A	Qualif LCSD Qualif Qualif	fier	70 - 130 70 - 130 <b>Spike</b> Added 1000 1000 <i>Limits</i> 70 - 130 70 - 130 70 - 130	Result 795.7 939.5 MS	Qualifie	mg/Kg	<u>D</u>	%Rec 80 94	Prep Pre %Rec Limits 70 - 130 70 - 130 70 - 130 70 - 130	Type: To p Batch:	A Spike
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Surrogate 1-Chlorooctane p-Terphenyl Lab Sample ID: 890-3423-A-1-B Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10	%Recovery           103           103           /3-A           //3-A           %Recovery           98           99           VIS           Sample           Result           <50.0	Qualif LCSD Qualif Qualif	fier	70 - 130         70 - 130         70 - 130         1000         1000         1000         1000         1000         5pike         70 - 130         70 - 130         70 - 130         997	Result           795.7           939.5           MS           Result           854.7	Qualifie	<u>Unit</u> mg/Kg mg/Kg	<u>D</u>	%Rec 80 94 Clief	Prep Pre %Rec Limits 70 - 130 70 - 130 70 - 130	Type: To p Batch:	A Spike
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Surrogate 1-Chlorooctane p-Terphenyl Lab Sample ID: 890-3423-A-1-B Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	*Recovery 103 103 /3-A /3-A *CSD *Recovery 98 99 VIS Sample Result	Qualif LCSD Qualif Qualif	fier	70 - 130 70 - 130 <b>Spike</b> Added 1000 1000 <i>Limits</i> 70 - 130 70 - 130 70 - 130	Result           795.7           939.5           MS           Result	Qualifie	Unit	<u>D</u>	%Rec 80 94 Cliet	Prep Pre %Rec Limits 70 - 130 70 - 130 70 - 130 70 - 130	Type: To p Batch:	A Spike
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Surrogate 1-Chlorooctane p-Terphenyl Lab Sample ID: 890-3423-A-1-B Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10	%Recovery           103           103           /3-A           //3-A           %Recovery           98           99           VIS           Sample           Result           <50.0	Qualif LCSD Qualif Qualif	fier	70 - 130         70 - 130         70 - 130         1000         1000         1000         1000         1000         5pike         70 - 130         70 - 130         70 - 130         997	Result           795.7           939.5           MS           Result           854.7	Qualifie	<u>Unit</u> mg/Kg mg/Kg	<u>D</u>	%Rec 80 94 Clief	Prep Pre %Rec Limits 70 - 130 70 - 130 70 - 130	Type: To p Batch:	A Spike
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Surrogate 1-Chlorooctane p-Terphenyl Lab Sample ID: 890-3423-A-1-B Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	%Recovery           103           103           /3-A           //3-A           %Recovery           98           99           VIS           Sample           Result           <50.0	Qualif LCSD Qualif Qualif U	fier	70 - 130         70 - 130         70 - 130         1000         1000         1000         1000         1000         5pike         70 - 130         70 - 130         70 - 130         997	Result           795.7           939.5           MS           Result           854.7	Qualifie	<u>Unit</u> mg/Kg mg/Kg	<u>D</u>	%Rec 80 94 Clief	Prep Pre %Rec Limits 70 - 130 70 - 130 70 - 130	Type: To p Batch:	A Spike
1-Chlorooctane p-Terpheny/ Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Surrogate 1-Chlorooctane p-Terpheny/ Lab Sample ID: 890-3423-A-1-B Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	%Recovery           103           103           /3-A           /3-A           %Recovery           98           99           VIS           Sample           Result           <50.0	Qualif LCSD Qualif Qualif U U MS	fier	70 - 130         70 - 130         70 - 130         1000         1000         1000         1000         1000         5pike         70 - 130         70 - 130         70 - 130         997	Result           795.7           939.5           MS           Result           854.7	Qualifie	<u>Unit</u> mg/Kg mg/Kg	<u>D</u>	%Rec 80 94 Clief	Prep Pre %Rec Limits 70 - 130 70 - 130 70 - 130	Type: To p Batch:	A Spike
1-Chlorooctane p-Terphenyl Lab Sample ID: LCSD 880-39324 Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Surrogate 1-Chlorooctane p-Terphenyl Lab Sample ID: 890-3423-A-1-B Matrix: Solid Analysis Batch: 39383 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	%Recovery           103           103           /3-A           /3-A           %Recovery           98           99           MS           Sample           Result           <50.0	Qualif LCSD Qualif Qualif U U MS	fier	70 - 130         70 - 130         70 - 130         1000         1000         1000         1000         1000         1000         1000         1000         1000         997         997	Result           795.7           939.5           MS           Result           854.7	Qualifie	<u>Unit</u> mg/Kg mg/Kg	<u>D</u>	%Rec 80 94 Clief	Prep Pre %Rec Limits 70 - 130 70 - 130 70 - 130	Type: To p Batch:	A Spike

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# **QC Sample Results**

Client: Ensolum Project/Site: Yates Federal #001 Job ID: 890-3424-1

SDG: Rural Eddy Co

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

Matrix: Solid								Clier			Pron 1	Гуре: To	
Matrix: Solid Analysis Batch: 39383												Batch:	
Analysis Daten. 55505	Sample	Sample	Spike		MSD	MSD					%Rec	Daten.	RPI
Analyte	-	Qualifier	Added	F		Qualifie	r Unit		D	%Rec	Limits	RPD	Limi
Gasoline Range Organics	<50.0	·	999		825.4	Quanne	mg/Kg		_	80	70 - 130	3	2
(GRO)-C6-C10	-50.0	0	333		020.4		mg/rtg			00	70 - 150	5	2
Diesel Range Organics (Over C10-C28)	<50.0	U	999		857.8		mg/Kg			86	70 - 130	14	2
	MSD	MSD											
Surrogate 9	%Recovery		Limits										
1-Chlorooctane	102		70 - 130										
o-Terphenyl	96		70 - 130										
lethod: 300.0 - Anions, Ion C Lab Sample ID: MB 880-39760/1-A Matrix: Solid		ography								Client S	ample ID: Prep	Method Type: S	
Analysis Batch: 39789													
	_	MB MB						_	_	<u>.</u>			
Analyte		esult Qualifier		RL _		MDL Ur	-	_ <u>D</u> .	PI	epared	Analyz		Dil Fa
Chloride		<5.00 U		5.00		m	g/Kg				11/17/22	06.39	
Lab Sample ID: LCS 880-39760/2-, Matrix: Solid Analysis Batch: 39789										oumpro	ID: Lab Co Prep	Type: S	
			Spike		LCS	LCS					%Rec		
Analyte			Added	F	Result	Qualifie	r Unit		D	%Rec	Limits		
Chloride			250		253.2		mg/Kg		_	101	90 - 110		
Lab Sample ID: LCSD 880-39760/3 Matrix: Solid	8-A						c	lient	Sam	ple ID: I	ab Contro Prep	ol Sampl Type: S	
Analysis Batch: 39789			0								0/ D		
A			Spike		LCSD				_	0/ <b>D</b> = =	%Rec		RF
Analyte			Added		251.7	Qualifie	r Unit mg/Kg		<u>D</u>	%Rec 101	Limits	RPD	Lim
			050							101	90 _ 110		
Chloride			250		201.7		iiig/itg					1	4
Lab Sample ID: 890-3423-A-1-I MS Matrix: Solid	5		250		201.7		ing/rtg				Sample ID Prep		Spik
Lab Sample ID: 890-3423-A-1-I MS Matrix: Solid							ing/rtg				Prep	: Matrix	Spik
Chloride Lab Sample ID: 890-3423-A-1-I MS Matrix: Solid Analysis Batch: 39789		Sample	250 Spike		MS	MS	ing ty					: Matrix	Spik
Lab Sample ID: 890-3423-A-1-I MS Matrix: Solid	Sample Result	Qualifier	Spike Added		MS Result	Qualifie	r Unit		D	Client %Rec	Prep	: Matrix	Spik
Lab Sample ID: 890-3423-A-1-I MS Matrix: Solid Analysis Batch: 39789 Analyte	Sample	Qualifier	Spike		MS	Qualifie			<u>D</u>	Client	Prep %Rec	: Matrix	Spik
Lab Sample ID: 890-3423-A-1-I MS Matrix: Solid Analysis Batch: 39789	Sample Result 6570	Qualifier	Spike Added		MS Result	Qualifie	r Unit		_	Client %Rec 132	Prep %Rec Limits 90 - 110 : Matrix Sp	: Matrix Type: S	Spik olubl
Lab Sample ID: 890-3423-A-1-I MS Matrix: Solid Analysis Batch: 39789 Analyte Chloride Lab Sample ID: 890-3423-A-1-J MS Matrix: Solid	Sample Result 6570	Qualifier	Spike Added		MS Result	Qualifie F1	r Unit		_	Client %Rec 132	Prep %Rec Limits 90 - 110 : Matrix Sp	: Matrix Type: S	olubl

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# **QC Association Summary**

Client: Ensolum Project/Site: Yates Federal #001

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Job ID: 890-3424-1 SDG: Rural Eddy Co

# GC VOA

## Prep Batch: 39546

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3424-1	PH01	Total/NA	Solid	5035	
890-3424-2	PH01	Total/NA	Solid	5035	
890-3424-3	PH01	Total/NA	Solid	5035	
MB 880-39546/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-39546/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-39546/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-3423-A-1-D MS	Matrix Spike	Total/NA	Solid	5035	
890-3423-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch	
890-3424-1	PH01	Total/NA	Solid	8021B	39546	
890-3424-2	PH01	Total/NA	Solid	8021B	39546	
890-3424-3	PH01	Total/NA	Solid	8021B	39546	
MB 880-39546/5-A	Method Blank	Total/NA	Solid	8021B	39546	
MB 880-40068/5-A	Method Blank	Total/NA	Solid	8021B	40068	
LCS 880-39546/1-A	Lab Control Sample	Total/NA	Solid	8021B	39546	
LCSD 880-39546/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	39546	
890-3423-A-1-D MS	Matrix Spike	Total/NA	Solid	8021B	39546	
890-3423-A-1-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	39546	

#### Prep Batch: 40068

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
MB 880-40068/5-A	Method Blank	Total/NA	Solid	5035	

#### Analysis Batch: 40232

	•	Prep Type Total/NA	Matrix Solid	Method P Total BTEX	rep Batch
390-3424-2 P	H01	Total/NA	Solid	Total BTEX	
390-3424-3 P	H01	Total/NA	Solid	Total BTEX	

#### GC Semi VOA

#### Prep Batch: 39324

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
890-3424-1	PH01	Total/NA	Solid	8015NM Prep	
890-3424-2	PH01	Total/NA	Solid	8015NM Prep	
890-3424-3	PH01	Total/NA	Solid	8015NM Prep	
MB 880-39324/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-39324/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-39324/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3423-A-1-B MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3423-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

#### Analysis Batch: 39383

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3424-1	PH01	Total/NA	Solid	8015B NM	39324
890-3424-2	PH01	Total/NA	Solid	8015B NM	39324
890-3424-3	PH01	Total/NA	Solid	8015B NM	39324
MB 880-39324/1-A	Method Blank	Total/NA	Solid	8015B NM	39324
LCS 880-39324/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	39324

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# **QC Association Summary**

Client: Ensolum Project/Site: Yates Federal #001

## GC Semi VOA (Continued)

## Analysis Batch: 39383 (Continued)

PH01

PH01

Lab Sample ID	Client Sample ID Lab Control Sample Dup	Prep Type Total/NA	Matrix	Method 8015B NM	Prep Batch 39324
890-3423-A-1-B MS	Matrix Spike	Total/NA	Solid	8015B NM	39324
890-3423-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	39324
Analysis Batch: 39583					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3424-1	PH01	Total/NA	Solid	8015 NM	

Total/NA

Total/NA

Solid

Solid

8015 NM

8015 NM

#### HPLC/IC

890-3424-2

890-3424-3

#### Leach Batch: 39760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3424-1	PH01	Soluble	Solid	DI Leach	
890-3424-2	PH01	Soluble	Solid	DI Leach	
890-3424-3	PH01	Soluble	Solid	DI Leach	
MB 880-39760/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-39760/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-39760/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-3423-A-1-I MS	Matrix Spike	Soluble	Solid	DI Leach	
890-3423-A-1-J MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

#### Analysis Batch: 39789

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3424-1	PH01	Soluble	Solid	300.0	39760
890-3424-2	PH01	Soluble	Solid	300.0	39760
890-3424-3	PH01	Soluble	Solid	300.0	39760
MB 880-39760/1-A	Method Blank	Soluble	Solid	300.0	39760
LCS 880-39760/2-A	Lab Control Sample	Soluble	Solid	300.0	39760
LCSD 880-39760/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	39760
890-3423-A-1-I MS	Matrix Spike	Soluble	Solid	300.0	39760
890-3423-A-1-J MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	39760

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## Job ID: 890-3424-1 SDG: Rural Eddy Co

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#### Job ID: 890-3424-1 SDG: Rural Eddy Co

### Lab Sample ID: 890-3424-1 Matrix: Solid

Lab Sample ID: 890-3424-2

Lab Sample ID: 890-3424-3

Matrix: Solid

Matrix: Solid

Date Collected: 11/09/22 09:30 Date Received: 11/09/22 16:19

**Client Sample ID: PH01** 

Project/Site: Yates Federal #001

Client: Ensolum

	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	39546	11/14/22 15:47	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	40037	11/22/22 00:25	SM	EET MID
Total/NA	Analysis	Total BTEX		1			40232	11/22/22 15:30	SM	EET MID
Total/NA	Analysis	8015 NM		1			39583	11/15/22 09:26	SM	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	39324	11/11/22 11:45	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	39383	11/14/22 13:58	SM	EET MID
Soluble	Leach	DI Leach			4.98 g	50 mL	39760	11/16/22 21:48	KS	EET MID
Soluble	Analysis	300.0		20			39789	11/17/22 09:47	СН	EET MID

## Client Sample ID: PH01

# Date Collected: 11/09/22 09:40

Date Received: 11/09/22 16:19

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Ргер Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	39546	11/14/22 15:47	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	40037	11/22/22 00:46	SM	EET MID
Total/NA	Analysis	Total BTEX		1			40232	11/22/22 15:30	SM	EET MID
Total/NA	Analysis	8015 NM		1			39583	11/15/22 09:26	SM	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	39324	11/11/22 11:45	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	39383	11/14/22 14:20	SM	EET MID
Soluble	Leach	DI Leach			5.02 g	50 mL	39760	11/16/22 21:48	KS	EET MID
Soluble	Analysis	300.0		20			39789	11/17/22 09:53	СН	EET MID

#### Client Sample ID: PH01 Date Collected: 11/09/22 09:50

#### Date Received: 11/09/22 16:19

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	39546	11/14/22 15:47	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	40037	11/22/22 03:11	SM	EET MID
Total/NA	Analysis	Total BTEX		1			40232	11/22/22 15:30	SM	EET MID
Total/NA	Analysis	8015 NM		1			39583	11/15/22 09:26	SM	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	39324	11/11/22 11:45	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	39383	11/14/22 14:42	SM	EET MID
Soluble	Leach	DI Leach			5.03 g	50 mL	39760	11/16/22 21:48	KS	EET MID
Soluble	Analysis	300.0		10			39789	11/17/22 09:59	СН	EET MID

#### Laboratory References:

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

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Accreditation/Certification Summary

Laboratory: Eurofins Midland

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

hority	P	rogram	Identification Number	Expiration Date
as	N	IELAP	T104704400-22-24	06-30-23
The following analytes	are included in this report, b	out the laboratory is not certif	ied by the governing authority. This list ma	ay include analytes for v
the agency does not o				
the agency does not o Analysis Method	fer certification. Prep Method	Matrix	Analyte	
0,		Matrix Solid	Analyte Total TPH	

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Job ID: 890-3424-1

SDG: Rural Eddy Co

Eurofins Carlsbad

Client: Ensolum Project/Site: Yates Federal #001

Job ID: 890-3424-1 SDG: Rural Eddy Co

lethod	Method Description	Protocol	Laboratory
021B	Volatile Organic Compounds (GC)	SW846	EET MID
otal BTEX	Total BTEX Calculation	TAL SOP	EET MID
015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
00.0	Anions, Ion Chromatography	MCAWW	EET MID
035	Closed System Purge and Trap	SW846	EET MID
015NM Prep	Microextraction	SW846	EET MID
I Leach	Deionized Water Leaching Procedure	ASTM	EET 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:

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

Client: Ensolum Project/Site: Yates Federal #001

#### Job ID: 890-3424-1 SDG: Rural Eddy Co

ab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth	
90-3424-1	PH01	Solid	11/09/22 09:30	11/09/22 16:19	6	4
90-3424-2	PH01	Solid	11/09/22 09:40	11/09/22 16:19	9	
90-3424-3	PH01	Solid	11/09/22 09:50	11/09/22 16:19	12	5
						8
						9
						1
						1

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					1	10/002	רוטטטט, ואוא (סרס) ספררססט, כמוושאמע, ואוא (סרס) סטטיס ושט	13Daw, 111	101010	00-01-00				WWW	www.xenco.com	iom	Page	-	of	-
Project Manager: Jo	Joseph Hernandez		B	Bill to: (if different)		Jim Raley	Ϋ́Υ							V	ork Orc	Work Order Comments	nments			
	Ensolum		0	Company Name:		WPX						Program: UST/PST  PRP Brownfields RRC	1: UST/P	ST   F		rownfie	Ids 🗌 F		Superfund	und
	3122 National Parks HWY	WY	Ac	Address:		5315 Bu	5315 Buena Vista Dr	Dr.				State of Project:	Project:					1		]
e ZIP:	Carlsbad, NM 88220		Ω	City, State ZIP:		Carlsbau	Carlsbad, NM 88220	220				Reporting: Level II CLevel III PST/UST TRRP	g: Level			PST/U	ST 🗌 T			
	281-702-2329		Email: ih	jhernandez@Ensolum.com, jim.raley@dvn.com	nsolur	n.com.	im.rale	@dvn.	com			Deliverables: EDD	bles: EL	Image: Second se	A	ADaPT		Other:		
Name:	Yates Federal #001		Turn Around	round						ANALYS	SIS REQUEST	QUEST					Pres	ervativ	Preservative Codes	S
	03A1987020	FT	Routine	Rush	Pres.						$\vdash$					NC	None: NO		DI Water: H <sub>2</sub> O	r: H <sub>2</sub> O
	Rural Eddy, NM	D	Due Date:	5 Day TAT		_										CC	Cool: Cool		MeOH: Me	Vie
	Gilbert Moreno	-	hed	ay received by												H	HCL: HC	_	HNO3: HN	Ż
	1061159301		the lab, if received by 4:30pm	ed by 4:30pm	rs		+									H <sub>2</sub>	H <sub>2</sub> S0 <sub>4</sub> : H <sub>2</sub>		NaOH: Na	Va
SAMPLE RECEIPT	Temp Blank:	Wes No	Wet Ice:	Yes No	nete	.0)										H3	H <sub>3</sub> PO <sub>4</sub> : HP	U		
Samples Received Intact:		Thermometer ID?	IDX W	FOR	aran	300										Na	NaHSO4: NABIS	NABIS		
Cooler Custody Seals:	No	Correction Factor:	ctor:	0.0	Pa	EPA:		1									Na2S2U3: NASU3	NaSU3	1	_
Sample Custody Seals:	Yes No N/A	Temperature Reading:	+	4.6			-			090-04	+24 Cha	opu-o424 Chain of Custody	ypc			2	Acetate	Zn Acetate+NaUH: Zn	11 20	5
TOTAL CONTAINERS.		Contected reinberdute.	11			-	_	-				_	_	_	_					
Sample Identification	cation Matrix	Date	Sampled D	Depth Comp	# of Cont	CHLC	TPH (										Sam	Iple Co	Sample Comments	S
PH01	s	11.9.22	9:30 6'	Grab/	-	×	××				$\vdash$									
PH01	S	11.9.22		Grab/		×	××			-	$\vdash$		$\left  \right $	$\uparrow$		-				
PH01	S	11.9.22	9:50 12'	2' Grab/		×	××	$\left  \right $		-	+		-			-		Incident ID	ntiD	
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Total 200.7 / 6010	200.8 / 6020:		8RCRA 13PPM	M Texas 11		Sb As	Ba Be	B Cd (	Ca Cr		u Fe Pb	Pb Mg Mn	Mn Mo Ni	K Se	Ag SiO <sub>2</sub>	D <sub>2</sub> Na S	Sr TI S	$\subset$	Zn Zn	
Circle Method(s) and Metal(s) to be analyzed	Metal(s) to be analy	zed	TCLP / SPL	TCLP / SPLP 6010: 8RCRA	CRA	Sb As	Sb As Ba Be Cd Cr Co Cu Pb	Cd C	Co Co	u Pb M	In Mo	Mn Mo NI Se Ag II U			Hg It	Hg: 1631/245.1//4/0	0.11/4	HU ~	/4/1	
Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses for any the control by the cost of samples and shall not assume any responsibility for any losses or expenses for any the cost of samples and shall not assume any responsibility for any losses or expenses for any the cost of the cost of samples and shall not assume any responsibility for any losses or expenses for any the cost of the	ument and relinquishment III be llable only for the co	of samples consti st of samples and	tutes a valid pur shall not assum	chase order from e any responsibili	ity for ar	ompany t ly losses	o Eurofins or expens	Xenco, it	s affiliates d by the c		h losses a	contractors. It assigns standard terms and conditions uch losses are due to circumstances beyond the control These terms will be enforced unless newtousty peoplated	standard cumstanc	es beyon	d the cont	noi Iated				
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3								4												

# Received by OCD: 6/14/2023 10:34:54 AM

5 6

12 13 14

# 🔅 eurofins

Chain of Custody Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300

## Login Sample Receipt Checklist

Client: Ensolum

## Login Number: 3424 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.	N/A	Refer to Job Narrative for details.
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	

List Source: Eurofins Carlsbad

## Login Sample Receipt Checklist

Client: Ensolum

Login Number: 3424 List Number: 2 Creator: Rodriguez, Leticia

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
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	N/A	

Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").

Job Number: 890-3424-1

SDG Number: Rural Eddy Co List Source: Eurofins Midland

List Creation: 11/11/22 10:46 AM

Received by OCD: 6/14/2023 10:34:54 AM

15

# **Eurofins Carlsbad**

**Job Notes** 

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

# Authorization

RAMER

Generated 11/22/2022 3:23:06 PM

Authorized for release by Jessica Kramer, Project Manager Jessica.Kramer@et.eurofinsus.com (432)704-5440

Eurofins Carlsbad is a laboratory within Eurofins Environment Testing South Central, LLC, a company within Eurofins Environment Testing Group of Companies

Received by OCD: 6/14/2023 10:34:54 AM

🛟 eurofins

# **Environment Testing**

# **ANALYTICAL REPORT**

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

# Laboratory Job ID: 890-3425-1

Laboratory Sample Delivery Group: 03A1987020 Client Project/Site: YATES FEDERAL #001

# For:

Ensolum 705 W. Wadley Suite 210 Midland, Texas 79701

Attn: Devon Team

RAMER

Authorized for release by: 11/14/2022 1:22:45 PM Jessica Kramer, Project Manager (432)704-5440 Jessica.Kramer@et.eurofinsus.com

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

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

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.



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SDG: 03A1987020

Laboratory Job ID: 890-3425-1

# **Table of Contents**

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EDL

LOD LOQ

MCL

MDA

MDC

MDL

MPN

MQL

NC

ND NEG

POS

PQL PRES

QC

RER

RPD

TEF

TEQ TNTC

RL

ML

	Definitions/Glossary		
Client: Ensolu	-	Job ID: 890-3425-1	
Project/Site: Y	ATES FEDERAL #001	SDG: 03A1987020	
Qualifiers			
GC VOA			
Qualifier	Qualifier Description		
F1	MS and/or MSD recovery exceeds control limits.		
U	Indicates the analyte was analyzed for but not detected.		ļ
GC Semi VOA			
Qualifier	Qualifier Description		
*1	LCS/LCSD RPD exceeds control limits.		
S1+	Surrogate recovery exceeds control limits, high biased.		
U	Indicates the analyte was analyzed for but not detected.		
HPLC/IC			8
Qualifier	Qualifier Description		
U	Indicates the analyte was analyzed for but not detected.		
Glossary			
Abbreviation	These commonly used abbreviations may or may not be present in this report.		
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis		
%R	Percent Recovery		
CFL	Contains Free Liquid		
CFU	Colony Forming Unit		
CNF	Contains No Free Liquid		
DER	Duplicate Error Ratio (normalized absolute difference)		1
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)		

Estimated Detection Limit (Dioxin) Limit of Detection (DoD/DOE)

Limit of Quantitation (DoD/DOE)

Method Detection Limit

Minimum Level (Dioxin)

Most Probable Number

Not Calculated

Negative / Absent

Positive / Present Practical Quantitation Limit

Presumptive

Quality Control

Method Quantitation Limit

Relative Error Ratio (Radiochemistry)

Toxicity Equivalent Factor (Dioxin) Toxicity Equivalent Quotient (Dioxin)

Too Numerous To Count

Reporting Limit or Requested Limit (Radiochemistry)

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

EPA recommended "Maximum Contaminant Level"

Minimum Detectable Concentration (Radiochemistry)

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

Minimum Detectable Activity (Radiochemistry)

4

Job ID: 890-3425-1 SDG: 03A1987020

#### Job ID: 890-3425-1

Client: Ensolum

#### Laboratory: Eurofins Carlsbad

Project/Site: YATES FEDERAL #001

#### Narrative

Job Narrative 890-3425-1

#### Receipt

The sample was received on 11/9/2022 4:19 PM. 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 4.4°C

#### **Receipt Exceptions**

The following samples were received and analyzed from an unpreserved bulk soil jar: PH01 (890-3425-1).

#### GC VOA

Method 8021B: The matrix spike duplicate (MSD) recoveries for preparation batch 880-39278 and analytical batch 880-39279 were outside control limits. Non-homogeneity is 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 surrogate recovery for the blank associated with preparation batch 880-39172 and analytical batch 880-39269 was outside the upper control limits.

Method 8015MOD\_NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-39172 and analytical batch 880-39269 recovered outside control limits for the following analytes: Gasoline Range Organics (GRO)-C6-C10.

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.

**Released to Imaging: 11/27/2023 9:51:17 AM** 

RL

0.00199

0.00199

0.00199

0.00398

0.00199

0.00398

Limits

70 - 130

70 - 130

RL

RL

49.8

0.00398

MDL

MDL Unit

MDL Unit

Unit

mg/Kg

mg/Kg

mg/Kg

mg/Kg

mg/Kg

mg/Kg

mg/Kg

mg/Kg

Job ID: 890-3425-1 SDG: 03A1987020

## Client Sample ID: PH01

Project/Site: YATES FEDERAL #001

Method: SW846 8021B - Volatile Organic Compounds (GC)

Method: TAL SOP Total BTEX - Total BTEX Calculation

Method: SW846 8015 NM - Diesel Range Organics (DRO) (GC)

Result Qualifier

Qualifier

<0.00199 U

<0.00199 U

<0.00199 U

<0.00398 U

<0.00199 U

<0.00398 U

91

98

Result Qualifier

U

Result Qualifier

55.8

%Recovery

<0.00398

Date Collected: 11/09/22 10:00 Date Received: 11/09/22 16:19

Sample Depth: 15

Client: Ensolum

Analyte

Benzene

Toluene

o-Xylene

Surrogate

Analyte

Analyte

**Total TPH** 

Total BTEX

Ethylbenzene

Xylenes, Total

m-Xylene & p-Xylene

4-Bromofluorobenzene (Surr)

1,4-Difluorobenzene (Surr)

Lab Sample ID: 890-3425-1 Matrix: Solid

D

D

Prepared

11/11/22 07:54

11/11/22 07:54

11/11/22 07:54

11/11/22 07:54

11/11/22 07:54

11/11/22 07:54

Prepared

11/11/22 07:54

11/11/22 07:54

Prepared

 Analyzed
 Dil Fac

 11/11/22 13:45
 1

 11/11/22 13:45
 1

 11/11/22 13:45
 1

8
9
2

1

1

1

Dil Fac

Dil Fac

5

 D
 Prepared
 Analyzed
 Dil Fac

 11/11/22
 11/11/22
 14:06
 1

11/11/22 13:45

11/11/22 13:45

11/11/22 13:45

Analyzed

11/11/22 13:45

11/11/22 13:45

Analyzed

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<49.8	U *1	49.8		mg/Kg		11/11/22 10:00	11/11/22 13:01	1
(GRO)-C6-C10									
Diesel Range Organics (Over	<49.8	U	49.8		mg/Kg		11/11/22 10:00	11/11/22 13:01	1
C10-C28)									
Oll Range Organics (Over	55.8		49.8		mg/Kg		11/11/22 10:00	11/11/22 13:01	1
C28-C36)									
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	90		70 - 130				11/11/22 10:00	11/11/22 13:01	1
o-Terphenyl	96		70 - 130				11/11/22 10:00	11/11/22 13:01	1
- Method: MCAWW 300.0 - Anio	ns, Ion Chromato	ography - So	pluble						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	37.0		5.03		mg/Kg			11/11/22 21:19	

Eurofins Carlsbad

Project/Site: YATES FEDERAL #001

#### Job ID: 890-3425-1 SDG: 03A1987020

Prep Type: Total/NA

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

Matrix: Solid

Client: Ensolum

				Percent Surrogate Recovery (Acceptance Limits)	
		BFB1	DFBZ1		
Lab Sample ID	Client Sample ID	(70-130)	(70-130)		5
880-21410-A-7-D MS	Matrix Spike	98	118		
880-21410-A-7-E MSD	Matrix Spike Duplicate	98	116		6
890-3425-1	PH01	91	98		
LCS 880-39278/1-A	Lab Control Sample	96	112		
LCSD 880-39278/2-A	Lab Control Sample Dup	91	118		
MB 880-39278/5-A	Method Blank	79	95		8
<b>.</b>					
Surrogate Legend					9
BFB = 4-Bromofluorobe	nzene (Surr)				3

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 (70-130) Lab Sample ID **Client Sample ID** (70-130) 890-3402-A-1-G MS Matrix Spike 86 79 890-3402-A-1-H MSD Matrix Spike Duplicate 82 73 890-3425-1 PH01 90 96 LCS 880-39172/2-A Lab Control Sample 94 97 LCSD 880-39172/3-A Lab Control Sample Dup 107 109 MB 880-39172/1-A Method Blank 119 134 S1+

#### Surrogate Legend

1CO = 1-Chlorooctane

OTPH = o-Terphenyl

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

Job ID: 890-3425-1 SDG: 03A1987020
Client Sample ID: Method Blank Prep Type: Total/NA Prep Batch: 39278

**Client Sample ID: Lab Control Sample** 

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Type: Total/NA

Prep Batch: 39278

Lab Sample ID: MB 880-39278/5-A
Matrix: Solid
Analysis Batch: 39279

	MB	МВ							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		11/11/22 07:54	11/11/22 11:29	1
Toluene	<0.00200	U	0.00200		mg/Kg		11/11/22 07:54	11/11/22 11:29	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		11/11/22 07:54	11/11/22 11:29	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		11/11/22 07:54	11/11/22 11:29	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		11/11/22 07:54	11/11/22 11:29	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		11/11/22 07:54	11/11/22 11:29	1
	МВ	МВ							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	79		70 - 130				11/11/22 07:54	11/11/22 11:29	1
1,4-Difluorobenzene (Surr)	95		70 - 130				11/11/22 07:54	11/11/22 11:29	1

#### Lab Sample ID: LCS 880-39278/1-A Matrix: Solid

#### Analysis Batch: 39279

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	0.100	0.1078		mg/Kg		108	70 - 130	
Toluene	0.100	0.09299		mg/Kg		93	70 - 130	
Ethylbenzene	0.100	0.09158		mg/Kg		92	70 - 130	
m-Xylene & p-Xylene	0.200	0.1884		mg/Kg		94	70 - 130	
o-Xylene	0.100	0.09176		mg/Kg		92	70 - 130	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	96		70 - 130
1,4-Difluorobenzene (Surr)	112		70 - 130

#### Lab Sample ID: LCSD 880-39278/2-A

## Matrix: Solid

Analysis Batch: 39279								Batch:	39278
	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	0.100	0.1105		mg/Kg		111	70 - 130	2	35
Toluene	0.100	0.09284		mg/Kg		93	70 - 130	0	35
Ethylbenzene	0.100	0.08721		mg/Kg		87	70 - 130	5	35
m-Xylene & p-Xylene	0.200	0.1780		mg/Kg		89	70 - 130	6	35
o-Xylene	0.100	0.08684		mg/Kg		87	70 - 130	6	35

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	91		70 - 130
1,4-Difluorobenzene (Surr)	118		70 - 130

## Lab Sample ID: 880-21410-A-7-D MS

## Matrix: Solid

Analysis Batch: 39279									Prep	Batch: 392	278
	Sample	Sample	Spike	MS	MS				%Rec		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits		
Benzene	<0.00201	U	0.100	0.09370		mg/Kg		94	70 - 130		
Toluene	<0.00201	U	0.100	0.07829		mg/Kg		78	70 - 130		

**Eurofins Carlsbad** 

Prep Type: Total/NA

**Client Sample ID: Matrix Spike** 

MS MS

0.07774

0.1580

0.07763

**Result Qualifier** 

Unit

mg/Kg

mg/Kg

mg/Kg

D

Spike

Added

0.100

0.200

0.100

Limits

70 - 130

70 - 130

70 - 130

Client: Ensolum Project/Site: YATES FEDERAL #001

Lab Sample ID: 880-21410-A-7-D MS

Matrix: Solid

Analyte

o-Xylene

Surrogate

Ethylbenzene

m-Xylene & p-Xylene

Analysis Batch: 39279

Sample Sample

MS MS

98

118

116

Qualifier

<0.00201 U F1

<0.00402 U

<0.00201 U

%Recovery

Result Qualifier

			3
Client	Sample ID: Matrix Prep Type: To	tal/NA	4
	Prep Batch: %Rec	39278	5
%Rec	Limits		
78	70 - 130		6
79	70 - 130		
77	70 - 130		7
			8
			9
mple ID	: Matrix Spike Duj Prep Type: To		10
	Prep Batch: %Rec	39278 RPD	11

## **Client Sample**

Matrix: Solid Analysis Batch: 39279

Lab Sample ID: 880-21410-A-7-E MSD

4-Bromofluorobenzene (Surr)

1,4-Difluorobenzene (Surr)

1,4-Difluorobenzene (Surr)

Analysis Daton. 00210									i i cp	Duton.	00210	
	Sample	Sample	Spike	MSD	MSD				%Rec		RPD	
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit	
Benzene	<0.00201	U	0.0996	0.08232		mg/Kg		83	70 - 130	13	35	
Toluene	<0.00201	U	0.0996	0.06954		mg/Kg		70	70 - 130	12	35	ī
Ethylbenzene	<0.00201	U F1	0.0996	0.06887	F1	mg/Kg		69	70 - 130	12	35	
m-Xylene & p-Xylene	<0.00402	U	0.199	0.1411		mg/Kg		71	70 - 130	11	35	ï
o-Xylene	<0.00201	U	0.0996	0.07014		mg/Kg		70	70 - 130	10	35	
	MSD	MSD										
Surrogate	%Recovery	Qualifier	Limits									
4-Bromofluorobenzene (Surr)	98		70 - 130									

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

Lab Sample ID: MB 880-39172/1-A Matrix: Solid Analysis Batch: 39269	A.						Client Sa	mple ID: Metho Prep Type: 1 Prep Batch	otal/NA
	МВ	МВ							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		11/10/22 08:48	11/11/22 09:30	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		11/10/22 08:48	11/11/22 09:30	1
Oll Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		11/10/22 08:48	11/11/22 09:30	1
	MB	МВ							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	119		70 - 130				11/10/22 08:48	11/11/22 09:30	1
o-Terphenyl	134	S1+	70 - 130				11/10/22 08:48	11/11/22 09:30	1
Lab Sample ID: LCS 880-39172/2-	A					C	lient Sample I	D: Lab Control	Sample

## Lab Sample ID: LCS 880-39172/2-A Matrix: Solid Analysis Batch: 39269

	Spike	LCS	LCS				%Rec
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits
Gasoline Range Organics	1000	815.5		mg/Kg		82	70 - 130
(GRO)-C6-C10							
Diesel Range Organics (Over	1000	846.7		mg/Kg		85	70 - 130
C10-C28)							

**Eurofins Carlsbad** 

Prep Type: Total/NA

Prep Batch: 39172

Client: Ensolum Project/Site: YATES FEDERAL #001

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

Lab Sample ID: LCS 880-39	172/2-A						Client	Sample	ID: Lab Co	ontrol Sa	mple
Matrix: Solid									Prep T	ype: Tot	al/NA
Analysis Batch: 39269									Prep	Batch:	39172
	1.05	LCS									
0			1								
Surrogate	%Recovery 	Qualifier	<u>Limits</u> 70 - 130								
1-Chlorooctane											
o-Terphenyl	97		70 - 130								
Lab Sample ID: LCSD 880-3	9172/3-A					Clier	nt Sam	nple ID: I	_ab Contro	l Sample	e Dup
Matrix: Solid										ype: Tot	
Analysis Batch: 39269										Batch:	
· · · · · <b>,</b> · · · · · · · · · · · · · · · · · · ·			Spike	LCSD	LCSD				%Rec		RPD
Analyte			Added		Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics			1000	1003		mg/Kg		100	70 - 130	21	20
(GRO)-C6-C10											
Diesel Range Organics (Over			1000	950.2		mg/Kg		95	70 - 130	12	20
C10-C28)											
	LCSD	LCSD									
Surrogate	%Recovery	Qualifier	Limits								
1-Chlorooctane	107		70 - 130								
o-Terphenyl	109		70 - 130								
Analysis Batch: 39269		Sample	Spike		MS				%Rec	Batch: 3	
Analyte		Qualifier	Added		Qualifier	Unit	D	%Rec	Limits		
Gasoline Range Organics (GRO)-C6-C10	55.1	*1	997	1007		mg/Kg		95	70 - 130		
Diesel Range Organics (Over	<50.0	U	997	861.7		mg/Kg		84	70 - 130		
C10-C28)											
	MS	MS									
Surrogate	%Recovery	Qualifier	Limits								
1-Chlorooctane	86		70 - 130								
o-Terphenyl	79		70 - 130								
Lab Sample ID: 890-3402-A-	1-H MSD					CI	ient Sa	ample ID	: Matrix Sp		
Matrix: Solid										ype: Tot	
a second s			_							Batch:	
Analysis Batch: 39269		•	Spike	MSD	MSD		_	~ =	%Rec	<b>B</b>	RPD
		Sample	-			Unit	D	%Rec	Limits	RPD	Limit
Analyte	Result	Qualifier	Added		Qualifier						
Analyte Gasoline Range Organics		Qualifier	-	<b>Result</b> 978.6	Qualifier	mg/Kg		92	70 - 130	3	20
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Result	Qualifier *1	Added		Qualifier						
Analysis Batch: 39269 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)		Qualifier *1	Added 999	978.6	Qualifier	mg/Kg		92	70 - 130	3	20 20
Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over		Qualifier *1 U MSD	Added 999	978.6	Qualifier	mg/Kg		92	70 - 130	3	

o-Terphenyl 73 70 - 130

Project/Site: YATES FEDERAL #001

Client: Ensolum

## **QC Sample Results**

Job ID: 890-3425-1 SDG: 03A1987020

Method: 300.0 - Anions, Ion Chromatography

_ Lab Sample ID: MB 880-39268/1-/ Matrix: Solid	4										Cli	ent S	ample ID:	Method Type: S	
Analysis Batch: 39312													Frep	Type: 5	oluble
Analysis Batch: 55512		мв	MD												
Analyte	R		Qualifier		RL		MDL	Unit		D	Prepa	arod	Analy	20d	Dil Fac
Chloride		<5.00			5.00			mg/Kg	1		Пере		11/11/22		1
		0.00	0		0.00			ing/itg	,				11,11,22	00.21	
Lab Sample ID: LCS 880-39268/2	-A									Clie	nt Sa	mple	ID: Lab C	ontrol S	ample
Matrix: Solid													Prep	Type: S	oluble
Analysis Batch: 39312															
				Spike		LCS	LCS						%Rec		
Analyte				Added		Result	Qual	ifier	Unit	0	) %	Rec	Limits		
Chloride				250		265.6			mg/Kg			106	90 - 110		
	<b>.</b>												ah Oantu		Dur
Lab Sample ID: LCSD 880-39268/ Matrix: Solid	3-А								CI	ent Sa	impie	; ID: I	ab Contro		
Analysis Batch: 39312													Frep	Type: S	oluble
Analysis Datch. 55512				Spike		LCSD	LCS	D					%Rec		RPD
Analyte				Added		Result			Unit		<b>)</b> %	Rec	Limits	RPD	Limit
Chloride				250		263.2			mg/Kg			105	90 - 110	1	20
Ξ															
Lab Sample ID: 880-21445-A-1-B	MS										C	lient	Sample ID		
Matrix: Solid													Prep	Type: S	oluble
Analysis Batch: 39312	0	0	-1-	0			MS						%Rec		
Aucha	Sample			Spike		MS			11		<b>.</b>	<b>D</b>			
Analyte	Result 44.5	Quai		Added 248		289.0	Quai	ITIEr	Unit mg/Kg	L	<u>    %</u>	Rec 99	Limits 90 - 110		
	44.5			240		209.0			iiig/Kg			99	90 - 110		
Lab Sample ID: 880-21445-A-1-C	MSD									Client	Sam	ole ID	: Matrix S	pike Dup	olicate
Matrix: Solid														Type: S	
Analysis Batch: 39312															
Analysis Batch: 39312	Sample	Sam	ple	Spike		MSD	MSD						%Rec		RPD
Analysis Batch: 39312 Analyte	Sample Result			Spike Added		MSD Result			Unit	Γ	<b>)</b> %	Rec	%Rec Limits	RPD	RPD Limit

## **QC Association Summary**

Client: Ensolum Project/Site: YATES FEDERAL #001 Page 79 of 116

Job ID: 890-3425-1 SDG: 03A1987020

#### **GC VOA**

#### Prep Batch: 39278

ab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
390-3425-1	PH01	Total/NA	Solid	5035	
MB 880-39278/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-39278/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-39278/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-21410-A-7-D MS	Matrix Spike	Total/NA	Solid	5035	
880-21410-A-7-E MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	
nalysis Batch: 39279					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3425-1	PH01	Total/NA	Solid	8021B	39278
MB 880-39278/5-A	Method Blank	Total/NA	Solid	8021B	39278
LCS 880-39278/1-A	Lab Control Sample	Total/NA	Solid	8021B	39278
LCSD 880-39278/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	39278
880-21410-A-7-D MS	Matrix Spike	Total/NA	Solid	8021B	39278
880-21410-A-7-E MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	39278
nalysis Batch: 39344					
	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
Lab Sample ID			Solid	Total BTEX	

#### Prep Batch: 39172

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3425-1	PH01	Total/NA	Solid	8015NM Prep	
MB 880-39172/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-39172/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-39172/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-3402-A-1-G MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-3402-A-1-H MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

#### Analysis Batch: 39269

od Blank	Total/NA Total/NA	Solid	8015B NM	39172
od Blank	Total/NA	0 11 1		
	Iotal/INA	Solid	8015B NM	39172
Control Sample	Total/NA	Solid	8015B NM	39172
Control Sample Dup	Total/NA	Solid	8015B NM	39172
x Spike	Total/NA	Solid	8015B NM	39172
x Spike Duplicate	Total/NA	Solid	8015B NM	39172
	Control Sample Control Sample Dup x Spike x Spike Duplicate	Control Sample Dup Total/NA x Spike Total/NA	Control Sample Dup     Total/NA     Solid       x Spike     Total/NA     Solid	Control Sample DupTotal/NASolid8015B NMx SpikeTotal/NASolid8015B NM

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-3425-1	PH01	Total/NA	Solid	8015 NM	

#### HPLC/IC

#### Leach Batch: 39268

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
890-3425-1	PH01	Soluble	Solid	DI Leach	
MB 880-39268/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-39268/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-39268/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	

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## HPLC/IC (Continued)

#### Leach Batch: 39268 (Continued)

Lab Sample ID 880-21445-A-1-B MS	Client Sample ID Matrix Spike	Prep Type Soluble	Matrix Solid	Method DI Leach	Prep Batch
880-21445-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	
Analysis Batch: 39312					

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch	
890-3425-1	PH01	Soluble	Solid	300.0	39268	
MB 880-39268/1-A	Method Blank	Soluble	Solid	300.0	39268	
LCS 880-39268/2-A	Lab Control Sample	Soluble	Solid	300.0	39268	8
LCSD 880-39268/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	39268	
880-21445-A-1-B MS	Matrix Spike	Soluble	Solid	300.0	39268	9
880-21445-A-1-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	39268	

SDG: 03A1987020

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5 6 7

Job ID: 890-3425-1

Eurofins Carlsbad

Project/Site: YATES FEDERAL #001

Job ID: 890-3425-1 SDG: 03A1987020

### Lab Sample ID: 890-3425-1 Matrix: Solid

Client Sample ID: PH01 Date Collected: 11/09/22 10:00 Date Received: 11/09/22 16:19

Client: Ensolum

	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	39278	11/11/22 07:54	MNR	EET MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	39279	11/11/22 13:45	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			39344	11/11/22 15:05	SM	EET MID
Total/NA	Analysis	8015 NM		1			39338	11/11/22 14:06	SM	EET MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	39172	11/11/22 10:00	DM	EET MID
Total/NA	Analysis	8015B NM		1	1 uL	1 uL	39269	11/11/22 13:01	SM	EET MID
Soluble	Leach	DI Leach			4.97 g	50 mL	39268	11/11/22 15:00	KS	EET MID
Soluble	Analysis	300.0		1			39312	11/11/22 21:19	СН	EET MID

Laboratory References:

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

Eurofins Carlsbad

Accreditation/Certification Summary

Client: Ensolum Project/Site: YATES FEDERAL #001

#### Laboratory: Eurofins Midland

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

Authority		rogram	Identification Number	Expiration Date
as	N	ELAP	T104704400-22-24	06-30-23
The following analytes	are included in this report, b	ut the laboratory is not certif	ied by the governing authority. This list ma	ay include analytes for
the agency does not o Analysis Method		Matrix	Analyte	
Analysis Method	fer certification Prep Method	Matrix	Analyte	
0,		Matrix Solid	Analyte Total TPH	

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Job ID: 890-3425-1

SDG: 03A1987020

Job ID: 890-3425-1 SDG: 03A1987020

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	MCAWW	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
8015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID
SW846 =	<ul> <li>"Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, Mai</li> <li>"Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Ed</li> <li>TestAmerica Laboratories, Standard Operating Procedure</li> </ul>		
Laboratory R	eferences: = Eurofins Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440		

#### Protocol References:

#### Laboratory References:

## **Sample Summary**

Client: Ensolum Project/Site: YATES FEDERAL #001 Job ID: 890-3425-1 SDG: 03A1987020

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth	
890-3425-1 PH01	Solid	11/09/22 10:00	11/09/22 16:19	15	4	
						5
						8
						9
						12
						13

			1.9.22 110142		Chin	(Jue	Ing	2 ( July
nature) Date/Time	Received by: (Signature)	Relinquished by: (Signature)	Date/Time	ture)	Received by: (Signature)	R	d by: (Signature)	Retinquished b
rol liated.	uch losses are due to circumstances beyond the control These terms will be enforced unless previously negotlated	Notice: Signature of this document and reiniquisionent or samples constitutes a vario purchase over in our chain company to Eurority Activor, in summer or second of service. Eurofins Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of service. Eurofins Xenco, A minimum charge of \$85,00 will be applied to each project and a charge of \$5 for each sample submitted to Eurofins Xenco, but not analyzed. These terms will be enforced unless previously negotiat of Eurofins Xenco.	r any losses or expenses h ple submitted to Eurofins )	ne any responsibility for arge of \$5 for each samp	amples constitutes a valid amples and shall not assi d to each project and a c	or the cost of sa 00 will be applie	document and relinqu co will be liable only f nimum charge of \$85.0	Notice: Signature of this of service. Eurofins Xer of Eurofins Xenco. A mi
Hg: 1631 / 245.1 / 7470 / 7471	TI U andard terms and o	Mn Mo h	Sb As Ba Be Cd Cr Co Cu Pb	TCLP / SPLP 6010: 8RCRA	TCLP / S	e analyzed	nd Metal(s) to be	Circle Method(s) and Metal(s) to be analyzed
)₂ Na Sr TI Sn U V Zn	Ao Ni K Se A	Cd Ca Cr Co Cu Fe Pb Mg	Sb As Ba Be B	PM Texas 11 Al	8RCRA 13PPM	020:	010 200.8 / 6020:	Total 200.7 / 6010
						_		
						X		
						A Charles		
NKMZU11138650					A 1 9.22			
NAB1428734057								
-								
			× × ×	15' Grab/ 1	10:00	S 11.9.22	01	PH01
Sample Comments				Depth Comp Cont	Date Time Sampled Sampled	Matrix San	ntification	Sample Identification
			0RID		diem	( Corr		Total Containers:
NaOH+Ascorbic Acid: SAPC	-	-	i)	ц.е	Temperature Reading:	NIA	als: Yes No	Sample Custody Seals:
Zn AnatatatNaOH: Zn	ustody	890-3425 Chain of Custody	EPA	į.	Correction Factor:	INIA		Cooler Custody Seals:
Narson Nason			: 30	UNOT ara	Thermometer ID: / )	R	act: (Yes)	Samples Received Intact:
H3PO4: HP			0.0)	Yes No	No Wet Ice:	lank: Yes No	IPT Temp Blank:	SAMPLE RECEIPT
				the lab, if received by 4: Jupm	-		1061159301	CC 井
				TAT starts the day received by	TAT starts the		Gilbert Moreno	Sampler's Name:
2				24 HR	Due Date:		Rural Eddy, NM	Project Location:
None: NO DI Water: H <sub>2</sub> O				Rush Code	Routine		03A1987020	Project Number:
ervativ	ST	ANALYSIS REQUEST		Turn Around	Turn	£001	Yates Federal #001	Project Name:
ADaPT D Other:	Deliverables: EDD L A		Email: jhernandez@Ensolum.com, jim.raley@dvn.com	hernandez@Enso	Email:		281-702-2329	Phone:
			Carlsbad, NM 88220	City, State ZIP:		8220	Carlsbad, NM 88220	City, State ZIP:
	State of Project:		5315 Buena Vista Dr.	Address:		arks HWY	3122 National Parks HWY	Address:
] PRP Brownfields RRC Superfund	TC	Pr	WPX	Company Name:			Ensolum	Company Name:
Work Order Comments	Work Orc		Jim Raley	Bill to: (if different)		dez	Joseph Hernandez	Project Manager:
com Page 1 of 1	www.xenco.com							
		ck, TX (806) 794-1296 d, NM (575) 988-3199	EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296 Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199	EL Paso, T. Hobbs, NM		Xenco	Xe	
No:	Work Order No:	S, TX (214) 902-0300	Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300	Houston, 1	Environment Testing	lvironme	eurotins	euro

### Received by OCD: 6/14/2023 10:34;54 AM

### 11/14/2022

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#### Login Sample Receipt Checklist

Client: Ensolum

Login Number: 3425 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.	N/A	Refer to Job Narrative for details.
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	

#### Job Number: 890-3425-1 SDG Number: 03A1987020

List Source: Eurofins Carlsbad

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Job Number: 890-3425-1 SDG Number: 03A1987020

List Source: Eurofins Midland

List Creation: 11/11/22 10:46 AM

### Login Sample Receipt Checklist

Client: Ensolum

<6mm (1/4").

Login Number: 3425 List Number: 2 Creator: Rodriguez, Leticia

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
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	N/A	

Received by OCD: 6/14/2023 10:34:54 AM



**Environment Testing** 

# **ANALYTICAL REPORT**

## PREPARED FOR

Attn: Anna Byers Ensolum 601 N. Marienfeld St. Suite 400 Midland, Texas 79701 Generated 5/26/2023 11:51:34 AM Revision 2

## JOB DESCRIPTION

Yates Fed #001 SDG NUMBER 03a1987020

## **JOB NUMBER**

890-2309-1

Eurofins Carlsbad 1089 N Canal St. Carlsbad NM 88220

See page two for job notes and contact information.



## **Eurofins Carlsbad**

## Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

Analytical test results meet all requirements of the associated regulatory program (i.e., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis.

## **Authorization**

Generated 5/26/2023 11:51:34 AM Revision 2

Authorized for release by Holly Taylor, Project Manager Holly.Taylor@et.eurofinsus.com Designee for Jessica Kramer, Project Manager Jessica.Kramer@et.eurofinsus.com (432)704-5440

Eurofins Carlsbad is a laboratory within Eurofins Environment Testing South Central, LLC, a company within Eurofins Environment Testing Group of Companies

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Method Summary	20
Sample Summary	21
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## **Definitions/Glossary**

Client: Ensolum Project/Site: Yates Fed #001 Job ID: 890-2309-1 SDG: 03a1987020

#### -1:6:

Qualifiers		3
GC VOA Qualifier	Qualifier Description	
U	Indicates the analyte was analyzed for but not detected.	
GC Semi VO		5
Qualifier	Qualifier Description	0
U	Indicates the analyte was analyzed for but not detected.	6
	······································	
HPLC/IC Qualifier	Qualifier Description	
F1	MS and/or MSD recovery exceeds control limits.	
U	Indicates the analyte was analyzed for but not detected.	8
	······································	
Glossary		9
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	10
%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	10
DL	Detection Limit (DoD/DOE)	13
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample	
DLC	Decision Level Concentration (Radiochemistry)	
EDL	Estimated Detection Limit (Dioxin)	
LOD	Limit of Detection (DoD/DOE)	
LOQ	Limit of Quantitation (DoD/DOE)	
MCL	EPA recommended "Maximum Contaminant Level"	
MDA	Minimum Detectable Activity (Radiochemistry)	
MDC	Minimum Detectable Concentration (Radiochemistry)	
MDL	Method Detection Limit	
ML	Minimum Level (Dioxin)	
MPN	Most Probable Number	
MQL	Method Quantitation Limit	
NC	Not Calculated	
ND	Not Detected at the reporting limit (or MDL or EDL if shown)	
NEG	Negative / Absent	
POS	Positive / Present	
PQL	Practical Quantitation Limit Procumptive	
PRES	Presumptive	
QC RER	Quality Control	
	Relative Error Ratio (Radiochemistry)	
RL	Reporting Limit or Requested Limit (Radiochemistry)	
RPD	Relative Percent Difference, a measure of the relative difference between two points	

- TEF Toxicity Equivalent Factor (Dioxin)
- Toxicity Equivalent Quotient (Dioxin) TEQ
- TNTC Too Numerous To Count

## **Case Narrative**

Client: Ensolum Project/Site: Yates Fed #001

#### Job ID: 890-2309-1

#### Laboratory: Eurofins Carlsbad

Narrative

Job Narrative 890-2309-1

#### Comments

No additional comments.

#### Revision

The report being provided is a revision of the original report sent on 5/18/2022. The report (revision 2) is being revised to change sample ID from PH02 @2' to PH02 @12' per Gilbert Moreno (email).

#### Report revision history

Revision 1 - 11/15/2022 - Reason - Per client email, requesting letters A and B be removed from sample names.

#### Receipt

The samples were received on 5/12/2022 4:43 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 8.2° C.

#### GC VOA

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

#### GC Semi VOA

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

#### **General Chemistry**

Method 300.0: The matrix spike / matrix spike duplicate (MS/MSD) recoveries and precision for preparation batch 880-25610 and analytical batch 880-25679 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample / laboratory sample control duplicate (LCS/LCSD) precision was within acceptance limits.

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

#### **Organic Prep**

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

#### VOA Prep

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

#### Job ID: 890-2309-1 SDG: 03a1987020

## **Client Sample Results**

Client: Ensolum Project/Site: Yates Fed #001

#### **Client Sample ID: PH01** Date Collected: 05/12/22 10:25 Date Received: 05/12/22 16:43

Page	<b>93</b>	of 116	

Job ID: 890-2309-1 SDG: 03a1987020

## Lab Sample ID: 890-2309-1

Matrix: Solid

5

Sample Depth: 4

Benzene       <0.         Toluene       <0.         Ethylbenzene       <0.         m-Xylene & p-Xylene       <0.         o-Xylene       <0.         Xylenes, Total       <0.         Surrogate       %Red         4-Bromofluorobenzene (Surr)       %Red         1,4-Difluorobenzene (Surr)          Method: TAL SOP Total BTEX - Total Analyte          Total BTEX       <0.         Method: SW846 8015 NM - Diesel Ranalyte          Total TPH          Method: SW846 8015B NM - Diesel I          Analyte          Gasoline Range Organics       (GRO)-C6-C10         Diesel Range Organics (Over C28-C36)          OII Range Organics (Over C28-C36)	.00201 .00201 .00201 .00402 .00402 .00402 covery 114 .94 I BTE Result .00402 ange Result <50.0 Range	U U U U Qualifier U Crganics ( Qualifier U Organics ( Qualifier U U U	RL           0.00402           (DRO) (GC)           RL           50.0	MDL	Unit mg/Kg mg/Kg mg/Kg mg/Kg mg/Kg Unit mg/Kg Unit mg/Kg mg/Kg	D D D	05/16/22 13:04 05/16/22 13:04 05/16/22 13:04 05/16/22 13:04 <b>Prepared</b> 05/16/22 13:04 <b>Prepared</b> <b>Prepared</b> <b>Prepared</b> 05/16/22 08:41	05/17/22 00:05 05/17/22 00:05 05/17/22 00:05 05/17/22 00:05 05/17/22 00:05 <b>Analyzed</b> 05/17/22 00:05 05/17/22 00:05 <b>Analyzed</b> 05/17/22 11:08 <b>Analyzed</b> 05/17/22 09:43	Dil Fa Dil Fa Dil Fa
Toluene       <0.	.00201 .00201 .00402 .00201 .00402 covery 114 94 I BTE Result .00402 ange Result <50.0 Rango Result <50.0	U U U U Qualifier U Crganics ( Qualifier U Organics ( Qualifier U U U	0.00201 0.00201 0.00402 0.00201 0.00402 <i>Limits</i> 70 - 130 70 - 130 70 - 130 tion RL 0.00402 (DRO) (GC) RL 50.0 S (DRO) (GC) RL 50.0	MDL	mg/Kg mg/Kg mg/Kg mg/Kg Unit mg/Kg Unit mg/Kg	D	05/16/22 13:04 05/16/22 13:04 05/16/22 13:04 05/16/22 13:04 05/16/22 13:04 05/16/22 13:04 05/16/22 13:04 Prepared Prepared 05/16/22 08:41	05/17/22 00:05 05/17/22 00:05 05/17/22 00:05 05/17/22 00:05 05/17/22 00:05 <b>Analyzed</b> 05/17/22 00:05 05/17/22 00:05 <b>Analyzed</b> 05/17/22 11:08 <b>Analyzed</b> 05/17/22 09:43	Dil Fa Dil Fa Dil Fa
m-Xylene & p-Xylene <0. o-Xylene <0. Xylenes, Total <0. Surrogate    Surrogate    4-Bromofluorobenzene (Surr)    1,4-Difluorobenzene (Surr)   Method: TAL SOP Total BTEX - Total Analyte    Total BTEX <0.	.00402 .00201 .00402 covery 114 94 I BTE Result .00402 ange Result <50.0 Range covery 114 94 State Sta	U U U Qualifier U Crganics ( Qualifier U e Organics Qualifier U U	0.00402 0.00201 0.00402 <u>Limits</u> 70 - 130 70 - 130 tion <u>RL</u> 0.00402 (DRO) (GC) <u>RL</u> 50.0 <u>S</u> (DRO) (GC) <u>RL</u> 50.0	MDL	mg/Kg mg/Kg mg/Kg mg/Kg Unit mg/Kg Unit mg/Kg	D	05/16/22 13:04 05/16/22 13:04 05/16/22 13:04 <i>Prepared</i> 05/16/22 13:04 05/16/22 13:04 <i>Prepared</i> <i>Prepared</i> 05/16/22 08:41	05/17/22 00:05 05/17/22 00:05 05/17/22 00:05 <b>Analyzed</b> 05/17/22 00:05 05/17/22 00:05 <b>Analyzed</b> 05/17/22 11:08 <b>Analyzed</b> 05/17/22 09:43 <b>Analyzed</b> 05/16/22 15:15	Dil Fa Dil Fa
m-Xylene & p-Xylene <0. o-Xylene <0. Xylenes, Total <0. Surrogate    Surrogate    4-Bromofluorobenzene (Surr)   1,4-Difluorobenzene (Surr)   Method: TAL SOP Total BTEX - Total Analyte    Total BTEX <0.	.00402 .00201 .00402 covery 114 94 I BTE Result .00402 ange Result <50.0 Range covery 114 94 State Sta	U U U Qualifier U Crganics ( Qualifier U e Organics Qualifier U U	0.00402 0.00201 0.00402 <u>Limits</u> 70 - 130 70 - 130 tion <u>RL</u> 0.00402 (DRO) (GC) <u>RL</u> 50.0 <u>S</u> (DRO) (GC) <u>RL</u> 50.0	MDL	mg/Kg mg/Kg mg/Kg Unit mg/Kg Unit mg/Kg	D	05/16/22 13:04 05/16/22 13:04 05/16/22 13:04 <i>Prepared</i> 05/16/22 13:04 05/16/22 13:04 <i>Prepared</i> <i>Prepared</i> 05/16/22 08:41	05/17/22 00:05 05/17/22 00:05 05/17/22 00:05 <b>Analyzed</b> 05/17/22 00:05 05/17/22 00:05 <b>Analyzed</b> 05/17/22 11:08 <b>Analyzed</b> 05/17/22 09:43 <b>Analyzed</b> 05/16/22 15:15	Dil Fa
o-Xylene       <0.	.00201 .00402 covery 114 94 I BTE Result .00402 ange Result <50.0 Range <50.0 <50.0	U U Qualifier U Crganics ( Qualifier U Organics Qualifier U U U	0.00201 0.00402 <u>Limits</u> 70 - 130 70 - 130 tion <u>RL</u> 0.00402 (DRO) (GC) <u>RL</u> 50.0 <u>RL</u> 50.0	MDL	mg/Kg mg/Kg Unit mg/Kg Unit mg/Kg	D	05/16/22 13:04 05/16/22 13:04 <i>Prepared</i> 05/16/22 13:04 05/16/22 13:04 Prepared Prepared 05/16/22 08:41	05/17/22 00:05 05/17/22 00:05 <b>Analyzed</b> 05/17/22 00:05 <b>Analyzed</b> 05/17/22 11:08 <b>Analyzed</b> 05/17/22 09:43 <b>Analyzed</b> 05/16/22 15:15	Dil Fa
Xylenes, Total       <0.	.00402 covery 114 94 II BTE Result .00402 ange Result <50.0 <50.0	U Qualifier Qualifier U Organics ( Qualifier U e Organics Qualifier U U	0.00402 <u>Limits</u> 70 - 130 70 - 130 tion <u>RL</u> 0.00402 (DRO) (GC) <u>RL</u> 50.0 (DRO) (GC) <u>RL</u> 50.0	MDL	mg/Kg Unit mg/Kg Unit mg/Kg Unit mg/Kg	D	05/16/22 13:04 Prepared 05/16/22 13:04 05/16/22 13:04 Prepared Prepared 05/16/22 08:41	05/17/22 00:05 Analyzed 05/17/22 00:05 05/17/22 00:05 Analyzed 05/17/22 11:08 Analyzed 05/17/22 09:43 Analyzed 05/16/22 15:15	Dil Fa
4-Bromofluorobenzene (Surr)         1,4-Difluorobenzene (Surr)         Method: TAL SOP Total BTEX - Tota         Analyte         Total BTEX         Total BTEX         Method: SW846 8015 NM - Diesel Ra         Analyte         Total TPH         Method: SW846 8015B NM - Diesel I         Analyte         Gasoline Range Organics         (GRO)-C6-C10         Diesel Range Organics (Over C10-C28)         Oll Range Organics (Over C28-C36)         Surrogate       %Red         1-Chlorooctane         o-Terphenyl	114 94 II BTE Result .00402 ange Result <50.0 Result <50.0 <50.0	Calculat Qualifier U Organics ( Qualifier U C Organics Qualifier U U	70 - 130 70 - 130 tion <u>RL</u> 0.00402 (DRO) (GC) <u>RL</u> 50.0 (DRO) (GC) <u>RL</u> 50.0	MDL	Unit mg/Kg Unit mg/Kg	D	05/16/22 13:04 05/16/22 13:04 Prepared Prepared 05/16/22 08:41	05/17/22 00:05           05/17/22 00:05           Analyzed           05/17/22 11:08           Analyzed           05/17/22 09:43           Analyzed           05/17/22 15:15	Dil Fa
1,4-Difluorobenzene (Surr)         Method: TAL SOP Total BTEX - Total Analyte         Total BTEX         Total BTEX         Method: SW846 8015 NM - Diesel Rate         Analyte         Total TPH         Method: SW846 8015B NM - Diesel I         Analyte         Gasoline Range Organics         (GRO)-C6-C10         Diesel Range Organics (Over C10-C28)         Oll Range Organics (Over C28-C36)         Surrogate         1-Chlorooctane         o-Terphenyl	94 Result .00402 ange Result <50.0 Range Result <50.0 <50.0	Constant of the second state of the second sta	70 - 130 tion RL 0.00402 (DRO) (GC) RL 50.0 5 (DRO) (GC) RL 50.0	MDL	Unit mg/Kg Unit mg/Kg	D	05/16/22 13:04 Prepared Prepared 05/16/22 08:41	05/17/22 00:05 Analyzed 05/17/22 11:08 Analyzed 05/17/22 09:43 Analyzed 05/16/22 15:15	Dil F
Method: TAL SOP Total BTEX - Total         Analyte         Total BTEX         Method: SW846 8015 NM - Diesel Rate         Analyte         Total TPH         Method: SW846 8015B NM - Diesel I         Analyte         Gasoline Range Organics         (GRO)-C6-C10         Diesel Range Organics (Over         C10-C28)         Oll Range Organics (Over C28-C36)         Surrogate         ^%Red         0-Terphenyl	I BTE Result .00402 ange Result <50.0 Range Result <50.0 <50.0	Constant of the second state of the second sta	tion <u>RL</u> 0.00402 (DRO) (GC) <u>RL</u> 50.0 (DRO) (GC) <u>RL</u> 50.0	MDL	Unit mg/Kg Unit mg/Kg	D	Prepared Prepared Prepared 05/16/22 08:41	Analyzed 05/17/22 11:08 Analyzed 05/17/22 09:43 Analyzed 05/16/22 15:15	Dil F
Analyte       <0.	Result .00402 ange Result <50.0 Range Result <50.0 <50.0	Qualifier U Organics ( Qualifier U e Organics Qualifier U U	RL         0.00402         (DRO) (GC)         RL         50.0         (DRO) (GC)         RL         50.0	MDL	Unit mg/Kg Unit mg/Kg	D	Prepared Prepared 05/16/22 08:41	05/17/22 11:08 Analyzed 05/17/22 09:43 Analyzed 05/16/22 15:15	Dil F
Total BTEX       <0.	.00402 ange Result <50.0 Range Result <50.0 <50.0	U Organics ( Qualifier U e Organics Qualifier U U	0.00402 (DRO) (GC) RL 50.0 (DRO) (GC) RL 50.0	MDL	Unit mg/Kg Unit mg/Kg	D	Prepared Prepared 05/16/22 08:41	05/17/22 11:08 Analyzed 05/17/22 09:43 Analyzed 05/16/22 15:15	Dil F
Method: SW846 8015 NM - Diesel Ra         Analyte         Total TPH         Method: SW846 8015B NM - Diesel I         Analyte         Gasoline Range Organics         (GRO)-C6-C10         Diesel Range Organics (Over         C10-C28)         Oll Range Organics (Over C28-C36)         Surrogate         1-Chlorooctane         o-Terphenyl	Result <50.0 Range Result <50.0 <50.0	Organics ( Qualifier U e Organics Qualifier U	(DRO) (GC) <u>RL</u> <u>50.0</u> (DRO) (GC) <u>RL</u> <u>50.0</u>		Unit mg/Kg Unit mg/Kg		Prepared 05/16/22 08:41	Analyzed 05/17/22 09:43 Analyzed 05/16/22 15:15	
Analyte       I         Total TPH       I         Method: SW846 8015B NM - Diesel I       Analyte         Gasoline Range Organics       I         (GRO)-C6-C10       I         Diesel Range Organics (Over       I         C10-C28)       I         OII Range Organics (Over C28-C36)       %Red         Surrogate       %Red         I-Chlorooctane       I         D-Terphenyl       I	Result           <50.0	Qualifier U e Organics Qualifier U U	RL           50.0           Gold (GC)           RL           50.0		mg/Kg Unit mg/Kg		Prepared 05/16/22 08:41	05/17/22 09:43 <b>Analyzed</b> 05/16/22 15:15	
Analyte       I         Total TPH       I         Method: SW846 8015B NM - Diesel I       Analyte         Gasoline Range Organics       I         (GRO)-C6-C10       I         Diesel Range Organics (Over       I         C10-C28)       OII Range Organics (Over C28-C36)         Surrogate       %Red         1-Chlorooctane       I         o-Terphenyl       I	Result           <50.0	Qualifier U e Organics Qualifier U U	RL           50.0           Gold (GC)           RL           50.0		mg/Kg Unit mg/Kg		Prepared 05/16/22 08:41	05/17/22 09:43 <b>Analyzed</b> 05/16/22 15:15	
Total TPH         Method: SW846 8015B NM - Diesel I         Analyte         Gasoline Range Organics         (GRO)-C6-C10         Diesel Range Organics (Over         C10-C28)         Oll Range Organics (Over C28-C36)         Surrogate         1-Chlorooctane         o-Terphenyl	<50.0 Range Result <50.0 <50.0	U e Organics Qualifier U U	50.0 5 (DRO) (GC) RL 50.0		mg/Kg Unit mg/Kg		Prepared 05/16/22 08:41	05/17/22 09:43 <b>Analyzed</b> 05/16/22 15:15	
Method: SW846 8015B NM - Diesel I         Analyte       Image of the second	Range Result <50.0 <50.0	e Organics Qualifier U	<b>6 (DRO) (GC)</b> <u> RL</u> <u> 50.0</u>	MDL	Unit mg/Kg	<u>D</u>	05/16/22 08:41	Analyzed 05/16/22 15:15	Dil F
Analyte       I         Gasoline Range Organics       (GRO)-C6-C10         Diesel Range Organics (Over       C10-C28)         OII Range Organics (Over C28-C36)       %Red         Surrogate       %Red         1-Chlorooctane       o-Terphenyl	<b>Result</b> <50.0 <50.0	Qualifier U U	RL	MDL	mg/Kg	<u>D</u>	05/16/22 08:41	05/16/22 15:15	Dil F
Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36) Surrogate %Red 1-Chlorooctane p-Terphenyl	<50.0 <50.0	U	50.0	MDL	mg/Kg	D	05/16/22 08:41	05/16/22 15:15	Dil F
(GRO)-C6-C10 Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36) Surrogate %Red 1-Chlorooctane o-Terphenyl	<50.0	U							
Diesel Range Organics (Over C10-C28) Oll Range Organics (Over C28-C36) Surrogate <u>%Red</u> 1-Chlorooctane o-Terphenyl			50.0		mg/Kg		05/16/00 00.44	05/16/22 15.15	
Oll Range Organics (Over C28-C36) Surrogate %Red 1-Chlorooctane o-Terphenyl	<50.0						05/16/22 08:41	05/16/22 15:15	
1-Chlorooctane o-Terphenyl		U	50.0		mg/Kg		05/16/22 08:41	05/16/22 15:15	
o-Terphenyl	covery	Qualifier	Limits				Prepared	Analyzed	Dil F
	100		70 - 130				05/16/22 08:41	05/16/22 15:15	
Method: EPA 300.0 - Anione Jon Ch	101		70 - 130				05/16/22 08:41	05/16/22 15:15	
			- Soluble						
		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil F
Chloride	1700	F1	50.0		mg/Kg			05/17/22 21:46	
lient Sample ID: PH01							Lab Samp	le ID: 890-2	309.
ate Collected: 05/12/22 10:30								Matrix	: Sol
ate Received: 05/12/22 16:43									
ample Depth: 10									
Method: SW846 8021B - Volatile Org	nanic	Compour	ds (GC)						
	-	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil F
	.00200		0.00200		mg/Kg		05/16/22 13:04	05/17/22 00:25	
	.00200		0.00200		mg/Kg				
	.00200		0.00200		mg/Kg			05/17/22 00:25	
	.00401		0.00401		mg/Kg			05/17/22 00:25	
	.00200		0.00200		mg/Kg			05/17/22 00:25	
•	.00200		0.00200		mg/Kg		05/16/22 13:04		

Analyzed 05/16/22 13:04 05/17/22 00:25 1

Prepared

**Eurofins Carlsbad** 

Dil Fac

Released to Imaging: 11/27/2023 9:51:17 AM

Surrogate

4-Bromofluorobenzene (Surr)

Limits

70 - 130

%Recovery Qualifier

115

5

Job ID: 890-2309-1 SDG: 03a1987020

## Lab Sample ID: 890-2309-2

Lab Sample ID: 890-2309-3

Matrix: Solid

Matrix: Solid

Date Collected: 05/12/22 10:30 **Date Receiv** Sample Dep

Project/Site: Yates Fed #001

**Client Sample ID: PH01** 

Client: Ensolum

Date Received: 05/12/22 16: Sample Depth: 10	43									
Method: SW846 8021B - Vo	latile Organic	Compoun	ds (GC) (Con	tinued)						
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac	
1,4-Difluorobenzene (Surr)	95		70 - 130				05/16/22 13:04	05/17/22 00:25	1	
Method: TAL SOP Total BT Analyte		X Calculat Qualifier	tion RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Total BTEX	<0.00401	U	0.00401		mg/Kg			05/17/22 11:08	1	
Method: SW846 8015 NM - Analyte	• • •	Organics ( Qualifier	(DRO) (GC) RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
Total TPH	<49.9	U	49.9		mg/Kg			05/17/22 09:43	1	

#### Method: SW846 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		05/16/22 08:41	05/16/22 15:36	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9		mg/Kg		05/16/22 08:41	05/16/22 15:36	1
Oll Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		05/16/22 08:41	05/16/22 15:36	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	100		70 - 130				05/16/22 08:41	05/16/22 15:36	1
o-Terphenyl	104		70 - 130				05/16/22 08:41	05/16/22 15:36	1

Method: EPA 300.0 - Anions, Ion Chromatography - Soluble											
	Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac	
	Chloride	5270		99.8		mg/Kg			05/17/22 22:05	20	

#### **Client Sample ID: PH02** Date Collected: 05/12/22 12:00 Date Received: 05/12/22 16:43

#### Sample Depth: 10

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202		mg/Kg		05/16/22 13:04	05/17/22 00:45	1
Toluene	<0.00202	U	0.00202		mg/Kg		05/16/22 13:04	05/17/22 00:45	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		05/16/22 13:04	05/17/22 00:45	1
m-Xylene & p-Xylene	<0.00404	U	0.00404		mg/Kg		05/16/22 13:04	05/17/22 00:45	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		05/16/22 13:04	05/17/22 00:45	1
Xylenes, Total	<0.00404	U	0.00404		mg/Kg		05/16/22 13:04	05/17/22 00:45	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	109		70 - 130				05/16/22 13:04	05/17/22 00:45	1
1,4-Difluorobenzene (Surr)	97		70 - 130				05/16/22 13:04	05/17/22 00:45	1
Method: TAL SOP Total BT	EX - Total BTE	X Calculat	ion						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00404	U	0.00404		mg/Kg			05/17/22 11:08	1
Method: SW846 8015 NM -	Diesel Range	Organics (	DRO) (GC)						
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
····· <b>·</b>									

## **Client Sample Results**

Client: Ensolum Project/Site: Yates Fed #001

## **Client Sample ID: PH02**

Date Collected: 05/12/22 12:00 Date Received: 05/12/22 16:43

Sample Depth: 10

Method: SW846 8015B NM - I	Diesel Range	Organics	s (DRO) (GC)						
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		05/16/22 08:41	05/16/22 15:58	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		05/16/22 08:41	05/16/22 15:58	1
Oll Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		05/16/22 08:41	05/16/22 15:58	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	104		70 - 130				05/16/22 08:41	05/16/22 15:58	1
o-Terphenyl	107		70 - 130				05/16/22 08:41	05/16/22 15:58	1
Mothod: EDA 200.0 Aniono	lon Chromo	tography	Solubla						
Method: EPA 300.0 - Anions, Analyte		Qualifier	RL	мы	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	157	Quanter	25.0		mg/Kg		Tieparea	05/17/22 22:11	5
					5. 5				
Client Sample ID: PH02							Lab Samp	le ID: 890-2	
Date Collected: 05/12/22 12:05								Matrix	: Solid
Date Received: 05/12/22 16:43									
Sample Depth: 12									
Method: SW846 8021B - Volat	tile Organic	Compoun	ds (GC)						
Analyte	-	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202		mg/Kg		05/16/22 13:04	05/17/22 01:06	1
Toluene	<0.00202	U	0.00202		mg/Kg		05/16/22 13:04	05/17/22 01:06	1
Ethylbenzene	<0.00202	U	0.00202		mg/Kg		05/16/22 13:04	05/17/22 01:06	1
m-Xylene & p-Xylene	<0.00403	U	0.00403		mg/Kg		05/16/22 13:04	05/17/22 01:06	1
o-Xylene	<0.00202	U	0.00202		mg/Kg		05/16/22 13:04	05/17/22 01:06	1
Xylenes, Total	<0.00403	U	0.00403		mg/Kg		05/16/22 13:04	05/17/22 01:06	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	115		70 - 130				05/16/22 13:04	05/17/22 01:06	1
1,4-Difluorobenzene (Surr)	96		70 - 130				05/16/22 13:04	05/17/22 01:06	1
Method: TAL SOP Total BTEX	( - Total BTE	Y Calcula	tion						
Analyte		Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total BTEX	<0.00403		0.00403		mg/Kg			05/17/22 11:08	1
	0.000.000	•	0.00100						·
Method: SW846 8015 NM - Di	esel Range	<b>Organics</b>	(DRO) (GC)						
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total TPH	<49.9	U	49.9		mg/Kg			05/17/22 09:43	1
Method: SW846 8015B NM - I	Diacol Bango	Organico							
Analyte		Qualifier		MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics	<49.9		49.9		mg/Kg		05/16/22 08:41		1
(GRO)-C6-C10 Diesel Range Organics (Over	<49.9	U	49.9		mg/Kg		05/16/22 08:41	05/16/22 16:20	1
C10-C28) Oll Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		05/16/22 08:41	05/16/22 16:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
1-Chlorooctane	107		70 - 130				05/16/22 08:41		1
o-Terphenyl	107		70 - 130					05/16/22 16:20	1
							<u></u>		

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Job ID: 890-2309-1 SDG: 03a1987020

# Lab Sample ID: 890-2309-3

Matrix: Solid

		Client S	Sample F	Resul	ts					
Client: Ensolum Project/Site: Yates Fed #001								Job ID: 890 SDG: 03a1		2
Client Sample ID: PH02 Date Collected: 05/12/22 12:05						I	Lab Samp	ple ID: 890-2 Matrix	2309-4 x: Solid	
Date Received: 05/12/22 16:43 Sample Depth: 12										4
Method: EPA 300.0 - Anions, Ior		tography - S Qualifier	Soluble RL	MDI	Unit	D	Droporod	Analyzad		5
Analyte Chloride	177 Result		24.8		mg/Kg		Prepared	Analyzed 05/17/22 22:18	Dil Fac 5	
										8
										9
										13

## **Surrogate Summary**

Client: Ensolum Project/Site: Yates Fed #001

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

			Percent	Surrogate Recovery (Acceptance Limits)
		BFB1	DFBZ1	
Lab Sample ID	Client Sample ID	(70-130)	(70-130)	
890-2308-A-1-C MS	Matrix Spike	105	94	
890-2308-A-1-D MSD	Matrix Spike Duplicate	106	96	
890-2309-1	PH01	114	94	
890-2309-2	PH01	115	95	
890-2309-3	PH02	109	97	
890-2309-4	PH02	115	96	
LCS 880-25634/1-A	Lab Control Sample	103	95	
LCSD 880-25634/2-A	Lab Control Sample Dup	101	94	
MB 880-25578/5-A	Method Blank	101	93	
MB 880-25634/5-A	Method Blank	103	92	
0				

#### Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DFBZ = 1,4-Difluorobenzene (Surr)

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

			Per
		1CO1	OTPH1
Lab Sample ID	Client Sample ID	(70-130)	(70-130)
890-2307-A-1-C MS	Matrix Spike	100	88
890-2307-A-1-D MSD	Matrix Spike Duplicate	98	87
890-2309-1	PH01	100	101
890-2309-2	PH01	100	104
890-2309-3	PH02	104	107
890-2309-4	PH02	107	107
LCS 880-25590/2-A	Lab Control Sample	113	104
LCSD 880-25590/3-A	Lab Control Sample Dup	108	104
MB 880-25590/1-A	Method Blank	113	123

Surrogate Legend

1CO = 1-Chlorooctane OTPH = o-Terphenyl

OTPH = 0-Terpheny

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Prep Type: Total/NA

Prep Type: Total/NA

**Client Sample ID: Method Blank** 

**Client Sample ID: Method Blank** 

**Client Sample ID: Lab Control Sample** 

Prep Type: Total/NA

Prep Type: Total/NA

Prep Batch: 25634

Prep Batch: 25634

Job ID: 890-2309-1 SDG: 03a1987020

Prep Type: Total/NA Prep Batch: 25578

Client: Ensolum Project/Site: Yates Fed #001

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

Lab Sample ID: MB 880-25578/5-A
Matrix: Solid
Analysis Batch: 25591

	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		05/15/22 16:33	05/16/22 11:44	1
Toluene	<0.00200	U	0.00200		mg/Kg		05/15/22 16:33	05/16/22 11:44	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		05/15/22 16:33	05/16/22 11:44	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		05/15/22 16:33	05/16/22 11:44	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		05/15/22 16:33	05/16/22 11:44	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		05/15/22 16:33	05/16/22 11:44	1
	MB	MB							
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	101		70 - 130				05/15/22 16:33	05/16/22 11:44	1
1,4-Difluorobenzene (Surr)	93		70 - 130				05/15/22 16:33	05/16/22 11:44	1

#### Lab Sample ID: MB 880-25634/5-A **Matrix: Solid** Analysis Batch: 25591

#### MB MB Analyte **Result Qualifier** RL MDL Unit D Prepared Analyzed Dil Fac Benzene 05/16/22 13:04 05/16/22 22:21 <0.00200 U 0.00200 mg/Kg Toluene mg/Kg 05/16/22 13:04 05/16/22 22:21 <0.00200 U 0.00200 1 Ethylbenzene mg/Kg 05/16/22 13:04 05/16/22 22:21 <0.00200 U 0.00200 1 m-Xylene & p-Xylene <0.00400 U 0.00400 mg/Kg 05/16/22 13:04 05/16/22 22:21 1 o-Xylene <0.00200 U 0.00200 mg/Kg 05/16/22 13:04 05/16/22 22:21 1 Xylenes, Total <0.00400 U 0.00400 mg/Kg 05/16/22 13:04 05/16/22 22:21 1 MB MB Limits Surrogate %Recovery Qualifier Prepared Analyzed Dil Fac 4-Bromofluorobenzene (Surr) 103 70 - 130 05/16/22 13:04 05/16/22 22:21 1 70 - 130 05/16/22 13:04 05/16/22 22:21 1,4-Difluorobenzene (Surr) 92 1

#### Lab Sample ID: LCS 880-25634/1-A Matrix: Solid Analysis Batch: 25591

	Spike	LCS	LCS				%Rec	
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	
Benzene	0.100	0.09542		mg/Kg		95	70 - 130	
Toluene	0.100	0.1003		mg/Kg		100	70 - 130	
Ethylbenzene	0.100	0.1024		mg/Kg		102	70 - 130	
m-Xylene & p-Xylene	0.200	0.2061		mg/Kg		103	70 - 130	
o-Xylene	0.100	0.1042		mg/Kg		104	70 - 130	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		70 - 130
1,4-Difluorobenzene (Surr)	95		70 - 130

Lab Sample ID: LCSD 880-25634/2-A Matrix: Solid			C	Client Sa	mple	ID: Lab	Control S Prep Ty		
Analysis Batch: 25591	Spike		LCSD				Prep E %Rec		
Analyte	Added	-	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	0.100	0.08697	Quanner	mg/Kg		87	70 - 130	9	35

Client: Ensolum Project/Site: Yates Fed #001

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

Lab Sample ID: LCSD 880-25634/2-A Matrix: Solid Analysis Batch: 25591			C	Client Sa	mple	ID: Lat	Control Prep Ty Prep E	pe: Ťot	al/NA
	Spike	LCSD	LCSD				%Rec		RPD
Analyte	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Toluene	0.100	0.09254		mg/Kg		93	70 - 130	8	35
Ethylbenzene	0.100	0.09409		mg/Kg		94	70 - 130	8	35
m-Xylene & p-Xylene	0.200	0.1904		mg/Kg		95	70 - 130	8	35
o-Xylene	0.100	0.09588		mg/Kg		96	70 - 130	8	35
LCSD LCSD	1								

	2005	2002	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	101		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

#### Lab Sample ID: 890-2308-A-1-C MS Matrix: Solid Analysis Batch: 25591

Analysis Batch: 25591									Prep Batch: 25634
	Sample	Sample	Spike	MS	MS				%Rec
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits
Benzene	<0.00199	U	0.101	0.07755		mg/Kg		77	70 - 130
Toluene	<0.00199	U	0.101	0.08392		mg/Kg		83	70 - 130
Ethylbenzene	<0.00199	U	0.101	0.08638		mg/Kg		86	70 - 130
m-Xylene & p-Xylene	<0.00398	U	0.201	0.1758		mg/Kg		87	70 - 130
o-Xylene	<0.00199	U	0.101	0.08967		mg/Kg		89	70 - 130

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
4-Bromofluorobenzene (Surr)	105		70 - 130
1,4-Difluorobenzene (Surr)	94		70 - 130

#### Lab Sample ID: 890-2308-A-1-D MSD Matrix: Solid Analysis Batch: 25591

4-Bromofluorobenzene (Surr)

1,4-Difluorobenzene (Surr)

Analysis Batch: 25591									Prep E	atch:	25634
	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Benzene	< 0.00199	U	0.100	0.08053		mg/Kg		80	70 - 130	4	35
Toluene	<0.00199	U	0.100	0.08566		mg/Kg		85	70 - 130	2	35
Ethylbenzene	<0.00199	U	0.100	0.08559		mg/Kg		85	70 - 130	1	35
m-Xylene & p-Xylene	<0.00398	U	0.200	0.1783		mg/Kg		89	70 - 130	1	35
o-Xylene	<0.00199	U	0.100	0.09019		mg/Kg		90	70 - 130	1	35
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								

70 - 130

70 - 130

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

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Lab Sample ID: MB 880-25590/1-A Matrix: Solid Analysis Batch: 25580								le ID: Method Prep Type: To Prep Batch:	otal/NA
	MB	MB							
Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		05/16/22 08:41	05/16/22 11:32	1

5 7

Prep Type: Total/NA

**Client Sample ID: Matrix Spike Duplicate** 

**Client Sample ID: Matrix Spike** 

**Prep Type: Total/NA** 

Client: Ensolum Project/Site: Yates Fed #001

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

Lab Sample ID: MB 880-25 Matrix: Solid	590/1-A									Clie	nt Samp	ole ID: M Prep Ty		
Analysis Batch: 25580														25590
Analysis Batch. 2000		мв	MR									гіерь	Jaten.	20090
Analyte			Qualifier	RL		MDL	Unit		D	Pr	epared	Analyz	zed	Dil Fac
Diesel Range Organics (Over		50.0		50.0			mg/Kg	J			6/22 08:41			1
C10-C28) Oll Range Organics (Over C28-C36	i) <5	50.0	U	50.0			mg/Kg	9		05/16	6/22 08:41	05/16/22	11:32	1
		ΜВ	MB											
Surrogate			Qualifier	Limits							repared	Analyz		Dil Fac
1-Chlorooctane		113		70 - 130							6/22 08:41			1
o-Terphenyl		123		70 - 130						05/16	5/22 08:41	05/16/22	11:32	1
Lab Sample ID: LCS 880-2	5590/2-A							Clie	ənt	San	nple ID:	Lab Cor		
Matrix: Solid												Prep Ty		
Analysis Batch: 25580				•									<b>Batch</b> :	25590
				Spike	_	LCS				_	a/ <b>-</b>	%Rec		
Analyte				Added	Result	Qua	IITIEr	Unit		<u>D</u>	%Rec	Limits		
Gasoline Range Organics (GRO)-C6-C10				1000	1299			mg/Kg			130	70 - 130		
Diesel Range Organics (Over C10-C28)				1000	927.4			mg/Kg			93	70 - 130		
	LCS													
Surrogate	%Recovery	Qual	ifier	Limits										
1-Chlorooctane o-Terphenyl	113 104			70 - 130 70 - 130										
Lab Sample ID: LCSD 880- Matrix: Solid Analysis Batch: 25580	25590/3-A						С	lient S	am	ple	ID: Lab	Control Prep Ty Prep E	pe: To	
· ····· <b>,</b> ··· · ·······················				Spike	LCSD	LCS	D					%Rec		RPD
Analyte				Added	Result	Qua	lifier	Unit		D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10				1000	1165			mg/Kg		_	117	70 - 130	11	20
Diesel Range Organics (Over C10-C28)				1000	884.5			mg/Kg			88	70 - 130	5	20
	LCSD	LCSI	D											
Surrogate	%Recovery	Qual	ifier	Limits										
1-Chlorooctane	108			70 - 130										
o-Terphenyl	104			70 - 130										
Lab Sample ID: 890-2307-A										Cli	ent San	n <mark>ple ID</mark> : I		
	-1-C MS													stal/NA
Matrix: Solid	A-1-C MS											Prep Ty		
Matrix: Solid Analysis Batch: 25580		0.		Quille								Prep E		25590
Analysis Batch: 25580	Sample			Spike		MS	1141 6	11				Prep E %Rec		
Analysis Batch: 25580 Analyte	Sample Result	Qual		Added	Result	Qua	lifier	Unit mg/Kg			%Rec	Prep E %Rec Limits		
Analysis Batch: 25580 Analyte Gasoline Range Organics	Sample	Qual		•		Qua	lifier	Unit mg/Kg				Prep E %Rec		
Analysis Batch: 25580 Analyte	Sample Result	Qual U		Added	Result	Qua	lifier				%Rec	Prep E %Rec Limits		
Analysis Batch: 25580 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Sample Result <50.0	Qual U U		<b>Added</b>	Result 1269	Qua	lifier	mg/Kg			<b>%Rec</b>	Prep E %Rec Limits 70 - 130		
Analysis Batch: 25580 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over	Sample Result <50.0 <50.0	Qual U U MS	ifier	<b>Added</b>	Result 1269	Qua	lifier	mg/Kg			<b>%Rec</b>	Prep E %Rec Limits 70 - 130		
Analysis Batch: 25580 Analyte Gasoline Range Organics (GRO)-C6-C10 Diesel Range Organics (Over C10-C28)	Sample Result <50.0 <50.0 MS	Qual U U MS	ifier	Added	Result 1269	Qua	lifier	mg/Kg			<b>%Rec</b>	Prep E %Rec Limits 70 - 130		

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

Matrix: Solid	-A-1-D MSD								latrix Spil Prep Ty	pe: Tot	tal/NA
Analysis Batch: 25580									Prep E	Batch: 2	2559(
	Sample	Sample	Spike	MSD	MSD				%Rec		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limi
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	998	1250		mg/Kg		121	70 - 130	2	20
Diesel Range Organics (Over C10-C28)	<50.0	U	998	948.0		mg/Kg		95	70 - 130	5	2
	MSD	MSD									
Surrogate	%Recovery	Qualifier	Limits								
1-Chlorooctane	98		70 - 130	_							
o-Terphenyl	87		70 - 130								
lethod: 300.0 - Anion	s, Ion Chro	omatograp	ohy								
Lab Sample ID: MB 880-2 Matrix: Solid	5610/1-A						Clie	ent Sam	ple ID: M Prep Ty		
Analysis Batch: 25679											
Amelia	<b>D</b> -	MB MB		ы		-			A web w		
Analyte		5.00 U		<b>RL</b> 5.00	MDL Unit	<u>_</u>	р <u>Р</u>	repared	Analyz		Dil Fa
Chloride		5.00 0		5.00	mg/K	.g			05/17/22	21.27	
Matrix: Solid									Prep T	ype: So	olubl
Analysis Batch: 25679											
Analysis Batch: 25679			Spike	LCS	LCS				%Rec		
Analyte			Added	Result	LCS Qualifier	Unit	D	%Rec	Limits		
Analyte			•	_		Unit mg/Kg	<u>D</u>	%Rec 110			
Analyte Chloride Lab Sample ID: LCSD 880	0-25610/3-A		Added	Result	Qualifier	mg/Kg		110	Limits 90 - 110		
Analyte Chloride Lab Sample ID: LCSD 880 Matrix: Solid	0-25610/3-A		Added 250	Result 274.3	Qualifier	mg/Kg		110	Limits 90 - 110 O Control Prep T		olubl
Analyte Chloride Lab Sample ID: LCSD 880 Matrix: Solid Analysis Batch: 25679	0-25610/3-A		Added 250 Spike	Result 274.3 LCSD	Qualifier	mg/Kg Client Sa	mple	110 ID: Lat	Limits 90 - 110 Control Prep Ty %Rec	ype: So	olubl RP
Analyte Chloride Lab Sample ID: LCSD 880 Matrix: Solid Analysis Batch: 25679 Analyte	0-25610/3-A		Added 250 Spike Added	Result 274.3 LCSD Result	Qualifier	mg/Kg Client Sa Unit		110 ID: Lak	Limits 90 - 110 Control Prep Ty %Rec Limits	ype: So RPD	RP Lim
Analyte Chloride Lab Sample ID: LCSD 880 Matrix: Solid Analysis Batch: 25679 Analyte	0-25610/3-A		Added 250 Spike	Result 274.3 LCSD	Qualifier	mg/Kg Client Sa	mple	110 ID: Lat	Limits 90 - 110 Control Prep Ty %Rec	ype: So	RP Lim
Analyte Chloride Lab Sample ID: LCSD 880 Matrix: Solid Analysis Batch: 25679 Analyte Chloride Lab Sample ID: 890-2309			Added 250 Spike Added	Result 274.3 LCSD Result	Qualifier	mg/Kg Client Sa Unit	mple	110 ID: Lat %Rec 104	Limits 90 - 110 O Control Prep Ty %Rec Limits 90 - 110	RPD 5 ple ID:	PH0
Analyte Chloride Lab Sample ID: LCSD 880 Matrix: Solid Analysis Batch: 25679 Analyte Chloride Lab Sample ID: 890-2309 Matrix: Solid			Added 250 Spike Added	Result 274.3 LCSD Result	Qualifier	mg/Kg Client Sa Unit	mple	110 ID: Lat %Rec 104	Limits 90 - 110 O Control Prep Ty %Rec Limits 90 - 110	RPD 5 ple ID:	PH0
Analyte Chloride Lab Sample ID: LCSD 880 Matrix: Solid Analysis Batch: 25679 Analyte Chloride Lab Sample ID: 890-2309 Matrix: Solid	-1 MS		Added 250 Spike Added 250	Result 274.3 LCSD Result 260.6	Qualifier LCSD Qualifier	mg/Kg Client Sa Unit	mple	110 ID: Lat %Rec 104	Limits 90 - 110 O Control Prep Ty %Rec Limits 90 - 110 lient Sam Prep Ty	RPD 5 ple ID:	PH0
Analyte Chloride Lab Sample ID: LCSD 880 Matrix: Solid Analysis Batch: 25679 Analyte Chloride Lab Sample ID: 890-2309 Matrix: Solid Analysis Batch: 25679	-1 MS Sample		Added 250 Spike Added	Result 274.3 LCSD Result 260.6	Qualifier LCSD Qualifier MS	mg/Kg Client Sa Unit	mple	110 ID: Lak %Rec 104	Limits 90 - 110 O Control Prep Ty %Rec Limits 90 - 110	RPD 5 ple ID:	PH0
Analyte Chloride Lab Sample ID: LCSD 880 Matrix: Solid Analysis Batch: 25679 Analyte Chloride Lab Sample ID: 890-2309 Matrix: Solid Analysis Batch: 25679 Analyte	-1 MS Sample Result	Qualifier	Added 250 Spike Added 250 Spike Added	Result 274.3 LCSD Result 260.6 MS Result	Qualifier LCSD Qualifier	mg/Kg Client Sa Unit mg/Kg	mple	110 ID: Lak %Rec 104 Cl	Limits 90 - 110 Control Prep Ty %Rec Limits 90 - 110 lient Sam Prep Ty %Rec Limits	RPD 5 ple ID:	RPI Lim 2 PH0
Analyte Chloride Lab Sample ID: LCSD 880 Matrix: Solid Analysis Batch: 25679 Analyte Chloride Lab Sample ID: 890-2309 Matrix: Solid Analysis Batch: 25679 Analyte	-1 MS Sample	Qualifier	Added 250 Spike Added 250 Spike	Result 274.3 LCSD Result 260.6	Qualifier LCSD Qualifier MS	mg/Kg Client Sa Unit mg/Kg	D	110 ID: Lak %Rec 104	Limits 90 - 110 Control Prep Ty %Rec Limits 90 - 110 lient Sam Prep Ty %Rec	RPD 5 ple ID:	PH0
Analyte Chloride Lab Sample ID: LCSD 880 Matrix: Solid Analysis Batch: 25679 Analyte Chloride Lab Sample ID: 890-2309 Matrix: Solid Analysis Batch: 25679 Analyte Chloride Lab Sample ID: 890-2309	-1 MS Sample <u>Result</u> 1700	Qualifier	Added 250 Spike Added 250 Spike Added	Result 274.3 LCSD Result 260.6 MS Result	Qualifier LCSD Qualifier MS	mg/Kg Client Sa Unit mg/Kg	D	110 ID: Lak %Rec 104 C %Rec 102	Limits 90 - 110 Prep Ty %Rec Limits 90 - 110 lient Sam 90 - 110 %Rec Limits 90 - 110	ype: So <u>RPD</u> 5 ple ID: ype: So ple ID:	PH0
Analyte Chloride Lab Sample ID: LCSD 880 Matrix: Solid Analysis Batch: 25679 Analyte Chloride Lab Sample ID: 890-2309 Matrix: Solid Analyte Chloride Lab Sample ID: 890-2309 Matrix: Solid	-1 MS Sample <u>Result</u> 1700	Qualifier	Added 250 Spike Added 250 Spike Added	Result 274.3 LCSD Result 260.6 MS Result	Qualifier LCSD Qualifier MS	mg/Kg Client Sa Unit mg/Kg	mple	110 ID: Lak %Rec 104 C %Rec 102	Limits 90 - 110 Prep Ty %Rec Limits 90 - 110 lient Sam Prep Ty %Rec Limits 90 - 110	ype: So <u>RPD</u> 5 ple ID: ype: So ple ID:	PH0
Analyte Chloride Lab Sample ID: LCSD 880 Matrix: Solid Analysis Batch: 25679 Analyte Chloride Lab Sample ID: 890-2309 Matrix: Solid Analyte Chloride Lab Sample ID: 890-2309 Matrix: Solid	-1 MS Sample <u>Result</u> 1700 -1 MSD	Qualifier	Added 250 Spike Added 250 Spike Added	Result 274.3 LCSD Result 260.6 MS Result 4240	Qualifier LCSD Qualifier MS	mg/Kg Client Sa Unit mg/Kg	mple	110 ID: Lak %Rec 104 C %Rec 102	Limits 90 - 110 Prep Ty %Rec Limits 90 - 110 lient Sam 90 - 110 %Rec Limits 90 - 110	ype: So <u>RPD</u> 5 ple ID: ype: So ple ID:	PH0 Dlubl
Analysis Batch: 25679 Analyte Chloride Lab Sample ID: LCSD 880 Matrix: Solid Analysis Batch: 25679 Analyte Chloride Lab Sample ID: 890-2309 Matrix: Solid Analysis Batch: 25679 Analyte Chloride Lab Sample ID: 890-2309 Matrix: Solid Analyte Chloride Lab Sample ID: 890-2309 Matrix: Solid Analyte Analyte Analyte Analysis Batch: 25679 Analyte	-1 MS Sample <u>Result</u> 1700 -1 MSD Sample	Qualifier F1	Added 250 Spike Added 250 Spike Added 2500	Result 274.3 LCSD Result 260.6 MS Result 4240	Qualifier LCSD Qualifier MS Qualifier	mg/Kg Client Sa Unit mg/Kg	mple	110 ID: Lak %Rec 104 C %Rec 102	Limits 90 - 110 O Control Prep Ty %Rec Limits 90 - 110 lient Sam Prep Ty %Rec Limits 90 - 110	ype: So <u>RPD</u> 5 ple ID: ype: So ple ID:	PH0

PH02

Method Blank

Method Blank

Matrix Spike

Lab Control Sample

Lab Control Sample Dup

Matrix Spike Duplicate

## **QC Association Summary**

Client: Ensolum Project/Site: Yates Fed #001 Job ID: 890-2309-1 SDG: 03a1987020

### **GC VOA**

890-2309-4

MB 880-25578/5-A

MB 880-25634/5-A

LCS 880-25634/1-A

890-2308-A-1-C MS

LCSD 880-25634/2-A

890-2308-A-1-D MSD

#### Prep Batch: 25578

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
MB 880-25578/5-A	Method Blank	Total/NA	Solid	5035	
Analysis Batch: 25	591				
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
Lab Sample ID 890-2309-1		Prep Type Total/NA	Matrix Solid	Method 8021B	Prep Batch 25634
	Client Sample ID				

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Total/NA

Solid

Solid

Solid

Solid

Solid

Solid

Solid

8021B

8021B

8021B

8021B

8021B

8021B

8021B

Prep Batch: 25634					
Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2309-1	PH01	Total/NA	Solid	5035	
890-2309-2	PH01	Total/NA	Solid	5035	
890-2309-3	PH02	Total/NA	Solid	5035	
890-2309-4	PH02	Total/NA	Solid	5035	
MB 880-25634/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-25634/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-25634/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-2308-A-1-C MS	Matrix Spike	Total/NA	Solid	5035	
890-2308-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

#### Analysis Batch: 25708

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
890-2309-1	PH01	Total/NA	Solid	Total BTEX	
890-2309-2	PH01	Total/NA	Solid	Total BTEX	
890-2309-3	PH02	Total/NA	Solid	Total BTEX	
890-2309-4	PH02	Total/NA	Solid	Total BTEX	

## GC Semi VOA

#### Analysis Batch: 25580

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2309-1	PH01	Total/NA	Solid	8015B NM	25590
890-2309-2	PH01	Total/NA	Solid	8015B NM	25590
890-2309-3	PH02	Total/NA	Solid	8015B NM	25590
890-2309-4	PH02	Total/NA	Solid	8015B NM	25590
MB 880-25590/1-A	Method Blank	Total/NA	Solid	8015B NM	25590
LCS 880-25590/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	25590
LCSD 880-25590/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	25590
890-2307-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	25590
890-2307-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	25590
Prep Batch: 25590					
Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
890-2309-1	PH01	Total/NA	Solid	8015NM Prep	

**Eurofins Carlsbad** 

25634

25578

25634

25634

25634

25634

25634

8

## **QC Association Summary**

Client: Ensolum Project/Site: Yates Fed #001

## GC Semi VOA (Continued)

#### Prep Batch: 25590 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2309-2	PH01	Total/NA	Solid	8015NM Prep	
890-2309-3	PH02	Total/NA	Solid	8015NM Prep	
890-2309-4	PH02	Total/NA	Solid	8015NM Prep	
MB 880-25590/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-25590/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-25590/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-2307-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-2307-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

#### Analysis Batch: 25682

Lab Sample ID	Client Sample ID	Ргер Туре	Matrix	Method	Prep Batch
890-2309-1	PH01	Total/NA	Solid	8015 NM	
890-2309-2	PH01	Total/NA	Solid	8015 NM	
890-2309-3	PH02	Total/NA	Solid	8015 NM	
890-2309-4	PH02	Total/NA	Solid	8015 NM	

#### HPLC/IC

#### Leach Batch: 25610

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2309-1	PH01	Soluble	Solid	DI Leach	
890-2309-2	PH01	Soluble	Solid	DI Leach	
890-2309-3	PH02	Soluble	Solid	DI Leach	
890-2309-4	PH02	Soluble	Solid	DI Leach	
MB 880-25610/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-25610/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-25610/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
890-2309-1 MS	PH01	Soluble	Solid	DI Leach	
890-2309-1 MSD	PH01	Soluble	Solid	DI Leach	

#### Analysis Batch: 25679

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-2309-1	PH01	Soluble	Solid	300.0	25610
890-2309-2	PH01	Soluble	Solid	300.0	25610
890-2309-3	PH02	Soluble	Solid	300.0	25610
890-2309-4	PH02	Soluble	Solid	300.0	25610
MB 880-25610/1-A	Method Blank	Soluble	Solid	300.0	25610
LCS 880-25610/2-A	Lab Control Sample	Soluble	Solid	300.0	25610
LCSD 880-25610/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	25610
890-2309-1 MS	PH01	Soluble	Solid	300.0	25610
890-2309-1 MSD	PH01	Soluble	Solid	300.0	25610

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**8** 9

Job ID: 890-2309-1

SDG: 03a1987020

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9

Job ID: 890-2309-1 SDG: 03a1987020

Matrix: Solid

Lab Sample ID: 890-2309-1

#### **Client Sample ID: PH01** Date Collected: 05/12/22 10:25 Date Received: 05/12/22 16:43

Project/Site: Yates Fed #001

Client: Ensolum

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Туре	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	25634	05/16/22 13:04	MNR	EET MID
Total/NA	Analysis	8021B		1			25591	05/17/22 00:05	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			25708	05/17/22 11:08	SM	EET MID
Total/NA	Analysis	8015 NM		1			25682	05/17/22 09:43	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	25590	05/16/22 08:41	DM	EET MID
Total/NA	Analysis	8015B NM		1			25580	05/16/22 15:15	AJ	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	25610	05/16/22 10:43	СН	EET MID
Soluble	Analysis	300.0		10			25679	05/17/22 21:46	СН	EET MID

#### Lab Sample ID: 890-2309-2 Matrix: Solid

Lab Sample ID: 890-2309-3

Lab Sample ID: 890-2309-4

Matrix: Solid

**Client Sample ID: PH01** Date Collected: 05/12/22 10:30 Date Received: 05/12/22 16:43

	Batch	Batch		Dil	Initial	Final	Batch	Prepared			
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab	
Total/NA	Prep	5035			4.99 g	5 mL	25634	05/16/22 13:04	MNR	EET MID	
Total/NA	Analysis	8021B		1			25591	05/17/22 00:25	MNR	EET MID	
Total/NA	Analysis	Total BTEX		1			25708	05/17/22 11:08	SM	EET MID	
Total/NA	Analysis	8015 NM		1			25682	05/17/22 09:43	AJ	EET MID	
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	25590	05/16/22 08:41	DM	EET MID	
Total/NA	Analysis	8015B NM		1			25580	05/16/22 15:36	AJ	EET MID	
Soluble	Leach	DI Leach			5.01 g	50 mL	25610	05/16/22 10:43	СН	EET MID	
Soluble	Analysis	300.0		20			25679	05/17/22 22:05	СН	EET MID	

#### **Client Sample ID: PH02** Date Collected: 05/12/22 12:00 Date Received: 05/12/22 16:43

	Batch	Batch		Dil	Initial	Final	Batch	Prepared		
Prep Type	Туре	Method	Run	Factor	Amount	Amount	Number	or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.95 g	5 mL	25634	05/16/22 13:04	MNR	EET MID
Total/NA	Analysis	8021B		1			25591	05/17/22 00:45	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			25708	05/17/22 11:08	SM	EET MID
Total/NA	Analysis	8015 NM		1			25682	05/17/22 09:43	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	25590	05/16/22 08:41	DM	EET MID
Total/NA	Analysis	8015B NM		1			25580	05/16/22 15:58	AJ	EET MID
Soluble	Leach	DI Leach			5 g	50 mL	25610	05/16/22 10:43	СН	EET MID
Soluble	Analysis	300.0		5			25679	05/17/22 22:11	СН	EET MID

#### **Client Sample ID: PH02** Date Collected: 05/12/22 12:05 Date Received: 05/12/22 16:43

	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	25634	05/16/22 13:04	MNR	EET MID
Total/NA	Analysis	8021B		1			25591	05/17/22 01:06	MNR	EET MID
Total/NA	Analysis	Total BTEX		1			25708	05/17/22 11:08	SM	EET MID

**Eurofins Carlsbad** 

Matrix: Solid

Client: Ensolum Project/Site: Yates Fed #001

#### Client Sample ID: PH02 Date Collected: 05/12/22 12:05 Date Received: 05/12/22 16:43

Ргер Туре	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8015 NM		1			25682	05/17/22 09:43	AJ	EET MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	25590	05/16/22 08:41	DM	EET MID
Total/NA	Analysis	8015B NM		1			25580	05/16/22 16:20	AJ	EET MID
Soluble	Leach	DI Leach			5.05 g	50 mL	25610	05/16/22 10:43	СН	EET MID
Soluble	Analysis	300.0		5			25679	05/17/22 22:18	СН	EET MID

#### Laboratory References:

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

P. 10. 800-5300-1

Job ID: 890-2309-1 SDG: 03a1987020

## Lab Sample ID: 890-2309-4

Matrix: Solid

Eurofins Carlsbad

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**Accreditation/Certification Summary** 

Client: Ensolum Project/Site: Yates Fed #001 Job ID: 890-2309-1 SDG: 03a1987020

### Laboratory: Eurofins Midland

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

Authority		ogram	Identification Number	Expiration Date
Texas	NE	LAP	T104704400-22-25	06-30-22
The following analyter	are included in this repo	rt but the laboratory is r	not certified by the governing authority.	This list may include analytes for whic
the agency does not c	•		lot contined by the governing autionty.	This list may mendee analytes for which
• •	•	Matrix	Analyte	
the agency does not o	offer certification.		, , , , , ,	

## **Method Summary**

Client: Ensolum Project/Site: Yates Fed #001 Job ID: 890-2309-1 SDG: 03a1987020

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	EET MID
Total BTEX	Total BTEX Calculation	TAL SOP	EET MID
8015 NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
3015B NM	Diesel Range Organics (DRO) (GC)	SW846	EET MID
300.0	Anions, Ion Chromatography	EPA	EET MID
5035	Closed System Purge and Trap	SW846	EET MID
3015NM Prep	Microextraction	SW846	EET MID
DI Leach	Deionized Water Leaching Procedure	ASTM	EET MID

#### **Protocol References:**

ASTM = ASTM International

EPA = US Environmental Protection Agency

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:

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

Sample Summary

Client: Ensolum Project/Site: Yates Fed #001 Page 108 of 116

Job ID: 890-2309-1 SDG: 03a1987020

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
890-2309-1	PH01	Solid	05/12/22 10:25	05/12/22 16:43	4
890-2309-2	PH01	Solid	05/12/22 10:30	05/12/22 16:43	10
890-2309-3	PH02	Solid	05/12/22 12:00	05/12/22 16:43	10
890-2309-4	PH02	Solid	05/12/22 12:05	05/12/22 16:43	12

Work Order No: www.xenco.com Page 1 of 1	Work Order Comments Program: UST/PST PRP Brownfields RRC Superfund	Reporting: Level II Level III PST/UST TRRP Level N	Preservative Codes           None: NO         DI Water: H2O	Cool: C H204: H204: H204: H204: H204: H204: NaOH	g Mn Mo Ni K Se Ag SiO <sub>2</sub> Na Sr TI Sn U V Zn Se Ag TI U Hg: 1631/245.1/7470 /7471 rms and conditions	Received by: (Signature) Date/Time
<b>Chain of Custody</b> Houston, TX (281) 240-4200, Dallas, TX (214) 902-0300 Midland, TX (432) 704-5440, San Antonio, TX (210) 509-3334 EL Paso, TX (915) 585-3443, Lubbock, TX (806) 794-1296 Hobbs, NM (575) 392-7550, Carlsbad, NM (575) 988-3199	Jim Raley WP XI DEVON	Caribbud NM 88220 Rensolurn.com	ANALYSIS REQUEST	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	exas 11 AI Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K 010 : 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag TI U client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions for any tosses or expensions incurred by the elent if success and the control for any tosses or expensions incurred by the elent functions and the control	Date/Time Relinquished by: (Signature)
C Houston, T) Environment Testing Midland, TX (4 Xenco EL Paso, TX (4 Hobbs, NM(	Project Manager: ANNA BUELS Bill to: (if different) Company Name: ENSOLUM Company Name:	100-01-01-01-01-01-01-01-01-01-01-01-01-	Project Name: VCHES Fr. A. HOOI Tum Around Project Number: 039101210 Defourtine Bush 20	YATEL FEA.     HOOI     Due Date:       Liz.     C.h.e.li     Tal starts the day received by 43.0pm       PT     Tamp Blank:     Yes) No     Watke:     Yes No       Intract:     Yes No     Watke:     Yes No       als:     Yes No     Watke:     Yes No       als:     Yes No     Watke:     Yes No       Antract:     Yes No     Nate     F. 4       correction Factor:     -0.3     -0.3       eals:     Yes No     NA     Correction Factor:       Aentification     Matrix     Date     Time       Aentification     Matrix     Sampled     Sampled       S     S/12/22     10: '52     4'<'5'	Total         200.7 / 6010         200.8 / 6020:         8RCRA         13PPM         Texas         11         Al         Sb         B         Cd         Ca         Cu         Fe         Pb         Mg         Mn         Mo         N           Circle         Method(s)         and         Metal(s)         to be analyzed         TCLP / SPLP 6010         :         8RCRA         Sb         As         Ba         Be         Cd         Cr         Co         Cu         Pb         Mn         Mo         N         Se         TU         U           Notce:         Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Eurofins Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Eurofins Xenco, will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the density the control insection structure is and use order from client control in the control intermediate terms and control intermediate control intermediate terms.	of turofins kence. A minimum charge of 58.00 will be applied to schopoled and a charge of 50 minimum charge of 58.00 will be applied by: (Signature) Relinquished by: (Signature) Relinquished by: (Signature) R

4 5 6

12 13 14

### Login Sample Receipt Checklist

Client: Ensolum

<6mm (1/4").

#### Login Number: 2309 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	N/A	

Eurofins Carlsbad Released to Imaging: 11/27/2023 9:51:17 AM 14

Job Number: 890-2309-1 SDG Number: 03a1987020

List Source: Eurofins Carlsbad

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## Login Sample Receipt Checklist

Client: Ensolum

MS/MSDs

<6mm (1/4").

Sample bottles are completely filled. Sample Preservation Verified.

There is sufficient vol. for all requested analyses, incl. any requested

Containers requiring zero headspace have no headspace or bubble is

Login Number: 2309 List Number: 2 Creator: Rodriguez, Leticia	List Source: Eurofins Midland List Creation: 05/16/22 09:25 AM		
Question	Answer	Comment	
The cooler's custody seal, if present, is intact.	N/A		
Sample custody seals, if present, are intact.	N/A		
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		

True

N/A

True

N/A

Job Number: 890-2309-1 SDG Number: 03a1987020

## **APPENDIX H**

# **NMOCD** Notifications

P.O. Box 62228 Midland • TX • 79711 • Tel: 432-563-2200 • Fax: 432-563-2213



 
 From:
 Erick Herrera

 To:
 Joseph Hernandez

 Subject:
 FW: [EXTERNAL] WPX Site Sampling Activity Update (11/7 - 11/11)

 Date:
 Tuesday, December 20, 2022 4:46:57 PM

 Attachments:
 image001.png image002.png image003.png



Erick Herrera Staff Geologist 281-777-4152 Ensolum, LLC in f

image004.png

From: Nobui, Jennifer, EMNRD <Jennifer.Nobui@emnrd.nm.gov>
Sent: Wednesday, November 2, 2022 3:58 PM
To: Erick Herrera <eherrera@ensolum.com>
Cc: Bratcher, Michael, EMNRD <mike.bratcher@emnrd.nm.gov>
Subject: FW: [EXTERNAL] WPX Site Sampling Activity Update (11/7 - 11/11)

### [ \*\*EXTERNAL EMAIL\*\*]

Erick

Thank you for the notification. Please include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented in the project file.

Thanks, Jennifer Nobui

From: Enviro, OCD, EMNRD <<u>OCD.Enviro@emnrd.nm.gov></u>
Sent: Wednesday, November 2, 2022 11:54 AM
To: Bratcher, Michael, EMNRD <<u>mike.bratcher@emnrd.nm.gov></u>; Nobui, Jennifer, EMNRD
<<u>Jennifer.Nobui@emnrd.nm.gov></u>
Subject: FW: [EXTERNAL] WPX Site Sampling Activity Update (11/7 - 11/11)

Jocelyn Harimon • Environmental Specialist Environmental Bureau EMNRD - Oil Conservation Division 1220 South St. Francis Drive | Santa Fe, NM 87505 (505)469-2821 | Jocelyn.Harimon@state.nm.us http:// www.emnrd.nm.gov



From: Erick Herrera <<u>eherrera@ensolum.com></u>
Sent: Wednesday, November 2, 2022 11:52 AM
To: Enviro, OCD, EMNRD <<u>OCD.Enviro@emnrd.nm.gov></u>; 'CFO\_Spill, BLM\_NM'
<<u>blm\_nm\_cfo\_spill@blm.gov></u>
Cc: Raley, Jim <<u>jim.raley@dvn.com></u>; Devon-Team <<u>Devon-Team@ensolum.com></u>
Subject: [EXTERNAL] WPX Site Sampling Activity Update (11/7 - 11/11)

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

Good afternoon,

WPX anticipates conducting confirmation soil sampling activities at the following sites between November  $7^{th}$  – November  $11^{th}$ , 2022:

Site Name: LVP #001 API: 30-015-42234 Incident Number: nAPP2135033453

Site Name: RDX 21-44 API: 30-015-41193 Incident Number: nAPP2115533694

Site Name: UCBH WW ROW API: 30-015-24451, 30-015-24034 Incident Numbers: nAB1805133508, nAB1501655607, nAB1522341642, nAB1621453181, nAB1633639499

Site Name: Ross Draw Unit #034 API: 30-015-41578 Incident Numbers: nAPP2107554265, NAB1736055339, and NAB1528240224

Site Name: Yates Federal #001 API: 30-015-24602 Incident Number: NRM2011138650 and NAB1428734057

Site Name: Pecos Federal #001Y API: 30-015-24875 Incident Number: nAPP2208846424

Site Name: MWJ Federal 1 API: 30-015-24262 Incident Numbers: nAB1503440420, nAB1524652333, and nAB1719940724



Erick Hererra Staff Geologist 281-777-4152 Ensolum, LLC in f

#### PLEASE NOTE OUR NEW CORPORATE ADDRESS:

Ensolum, LLC 8330 LBJ Freeway, Ste. B830 Dallas, TX 75243

District I 1625 N. French Dr., Hobbs, NM 88240 Phone:(575) 393-6161 Fax:(575) 393-0720 District II

811 S. First St., Artesia, NM 88210 Phone:(575) 748-1283 Fax:(575) 748-9720

District III

1000 Rio Brazos Rd., Aztec, NM 87410 Phone:(505) 334-6178 Fax:(505) 334-6170

District IV

1220 S. St Francis Dr., Santa Fe, NM 87505 Phone:(505) 476-3470 Fax:(505) 476-3462

## **State of New Mexico Energy, Minerals and Natural Resources Oil Conservation Division** 1220 S. St Francis Dr. Santa Fe, NM 87505

CONDITIONS

Operator:	OGRID:
WPX Energy Permian, LLC	246289
Devon Energy - Regulatory	Action Number:
Oklahoma City, OK 73102	227725
	Action Type:
	[C-141] Release Corrective Action (C-141)

#### CONDITIONS

Created By	Condition	Condition Date
amaxwell	Work plan approved with the following condition:	11/27/2023
amaxwell	Horizontal delineation must meet the requirements of the reclamation standards 19.15.29.13 NMAC (600 mg/kg CI, 100 mg/kg TPH, 50 mg/kg BTEX, 10 mg/kg benzene) or OCD approved "background" values for the upper 4 feet of the impacted area.	11/27/2023
amaxwell	Submit report via the OCD permitting portal by February 19, 2024.	11/27/2023

Action 227725