

# State of Colorado Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203  
Phone: (303) 894-2100 Fax: (303) 894-2109



Document Number:

402235840

Receive Date:

11/12/2019

Report taken by:

Alex Fischer

## Site Investigation and Remediation Workplan (Initial Form)

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. However, this shall not preclude the Operator from taking immediate action to protect public health or safety, the environment, wildlife, or livestock.

This Form 27 describes site conditions as currently understood by the Operator; approval of this Form 27 by COGCC is based on the site conditions accurately described herein; any changes in site conditions identified during or subsequent to the performance of the approved workplan may necessitate additional investigation or remediation which shall be described on a supplemental Form 27. This Form 27 is intended to provide basic information regarding the proposed site investigation and remediation actions, but the workplan may be more fully described in attached documentation.

Refer to Rules 340, 905, 906, 907, 908, 909, and 910

### OPERATOR INFORMATION

Name of Operator: <u>XTO ENERGY INC</u>	Operator No: <u>100264</u>	<b>Phone Numbers</b>
Address: <u>110 W 7TH STREET</u>		Phone: <u>(970) 675-4089</u>
City: <u>FORTH WORTH</u> State: <u>TX</u> Zip: <u>76102</u>		Mobile: <u>(970) 250-4867</u>
Contact Person: <u>Natalie Steiner</u>	Email: <u>natalie_steiner@xtoenergy.com</u>	

### PROJECT, PURPOSE & SITE INFORMATION

#### PROJECT INFORMATION

Remediation Project #: \_\_\_\_\_ Initial Form 27 Document #: 402235840

#### PURPOSE INFORMATION

- |  |  |
|--|--|
| <input type="checkbox"/> 901.e. Sensitive Area Determination                                       | <input type="checkbox"/> 909.c.(5), Rule 910.b.(4): Remediation of impacted ground water                   |
| <input type="checkbox"/> 909.c.(1), Rule 905: Pit or PW vessel closure                             | <input type="checkbox"/> Rule 909.e.(2)A.: Notice completion of remediation in accordance with Rule 909.b. |
| <input checked="" type="checkbox"/> 909.c.(2), Rule 906: Spill/Release Remediation                 | <input type="checkbox"/> Rule 909.e.(2)B.: Closure of remediation project                                  |
| <input type="checkbox"/> 909.c.(3), Rule 907.e.: Land treatment of oily waste                      | <input type="checkbox"/> Rule 906.c.: Director request   |
| <input type="checkbox"/> 909.c.(4), Rule 908.g.: Centralized E&P Waste Management Facility closure | <input type="checkbox"/> Other _____   |

#### SITE INFORMATION

N Multiple Facilities ( in accordance with Rule 909.c. )

Facility Type: <u>LOCATION</u>	Facility ID: <u>316678</u>	API #: _____	County Name: <u>RIO BLANCO</u>
Facility Name: <u>YELLOW CREEK-61S98W 2NWSE</u>	Latitude: <u>39.991300</u>	Longitude: <u>-108.355590</u>	
** correct Lat/Long if needed: Latitude: <u>39.990995</u>		Longitude: <u>-108.355973</u>	
QtrQtr: <u>NWSE</u>	Sec: <u>2</u>	Twp: <u>1S</u>	Range: <u>98W</u> Meridian: <u>6</u> Sensitive Area? <u>No</u>

#### SITE CONDITIONS

General soil type - USCS Classifications CL Most Sensitive Adjacent Land Use Non-Crop land

Is domestic water well within 1/4 mile? No Is surface water within 1/4 mile? Yes

Is groundwater less than 20 feet below ground surface? Yes

Other Potential Receptors within 1/4 mile

# SITE INVESTIGATION PLAN

## TYPE OF WASTE:

- ☒ E&P Waste      ☐ Other E&P Waste      ☐ Non-E&P Waste
- ☒ Produced Water      ☐ Workover Fluids      \_\_\_\_\_
- ☐ Oil      ☐ Tank Bottoms
- ☐ Condensate      ☐ Pigging Waste
- ☐ Drilling Fluids      ☐ Rig Wash
- ☐ Drill Cuttings      ☐ Spent Filters
- ☐ Pit Bottoms
- ☐ Other (as described by EPA) \_\_\_\_\_

## DESCRIPTION OF IMPACT

Impacted?	Impacted Media	Extent of Impact	How Determined
Yes	SOILS	216'X90'	Soil sampling

## INITIAL ACTION SUMMARY

Description of initial action or emergency response measures take to abate, investigate, and/or remediate impacts associated with E&P Waste.

An initial form 19 supplemental was submitted on 10/25/2019 (Document #402222077)  
On 10/13/2019 ~6:30 AM lease operator discovered the manifold on a produced water tank had frozen and broke causing the Produced water to release. All tanks were locked out until all repairs to the manifold are complete. The impacted soil was removed through excavation activities. After excavation activities were completed, confirmation soil samples were collected from the excavation and submitted for laboratory analysis. (COGCC Table 910-1). See Table 1 and Site Map for sampled areas

## PROPOSED SAMPLING PLAN

### Proposed Soil Sampling

☒ Will soil samples be collected as part of this investigation? ( Number, type (grab/composite), analyses, and locations of samples ):

7 discrete samples have been taken - see Site Map with samples

### Proposed Groundwater Sampling

☐ Will groundwater samples be collected as part of this investigation? ( Number, analyses, and locations of samples ):

### Proposed Surface Water Sampling

☐ Will surface water samples be collected as part of this investigation? ( Number, analyses, and locations of samples ):

## Additional Investigative Actions

☒ Additional alternative investigative actions described in attached Site Investigation Plan ( summary ):

XTO Energy will remove all gravel from secondary containment and visually inspect liner for any holes or rips and make repairs if needed

# SITE INVESTIGATION REPORT

## SAMPLE SUMMARY

### Soil

Number of soil samples collected 7

Number of soil samples exceeding 910-1 0

Was the areal and vertical extent of soil contamination delineated? No

Approximate areal extent (square feet) 0

### NA / ND

-- Highest concentration of TPH (mg/kg) 30.3

-- Highest concentration of SAR 15

BTEX > 910-1 No

Vertical Extent > 910-1 (in feet) 0

### Groundwater

Number of groundwater samples collected 0

Was extent of groundwater contaminated delineated? No

Depth to groundwater (below ground surface, in feet) 0'

Number of groundwater monitoring wells installed 0

Number of groundwater samples exceeding 910-1 0

NA Highest concentration of Benzene (µg/l)

NA Highest concentration of Toluene (µg/l)

NA Highest concentration of Ethylbenzene (µg/l)

NA Highest concentration of Xylene (µg/l)

NA Highest concentration of Methane (mg/l)

### Surface Water

0 Number of surface water samples collected

0 Number of surface water samples exceeding 910-1

If surface water is impacted, other agency notification may be required.

## OTHER INVESTIGATION INFORMATION

☐ Were impacts to adjacent property or offsite impacts identified?

☐ Were background samples collected as part of this site investigation?

☐ Was investigation derived waste (IDW) generated as part of this investigation?

Volume of solid waste (cubic yards)

Volume of liquid waste (barrels)

☐ Is further site investigation required?

# REMEDIAL ACTION PLAN

## SOURCE REMOVAL SUMMARY

Describe how source is to be removed.

Impacted material will be excavated and will be removed and transported off site for disposal at Wray Gulch Landfill

## REMEDIATION SUMMARY

Describe how remediation of existing impacts to soil and groundwater is to be accomplished (i.e. summarize remedial action plan). Provide a brief narrative description including: technical justification, schedule for implementation, estimated time to attain NFA status, plus plans and specifications for the selected remedial action technology.

Impacted material will be removed and transported off site to disposal at Wray Gulch Landfill, Meeker Co. All gravel from the secondary containment will be removed and a visual inspection will be made on the liner. Any and all repairs will be made immediately upon finding.

## Soil Remediation Summary

☐ In Situ

\_\_\_\_\_ Bioremediation ( or enhanced bioremediation )  
\_\_\_\_\_ Chemical oxidation  
\_\_\_\_\_ Air sparge / Soil vapor extraction  
\_\_\_\_\_ Natural Attenuation  
\_\_\_\_\_ Other \_\_\_\_\_

☒ Ex Situ

Yes \_\_\_\_\_ Excavate and offsite disposal  
\_\_\_\_\_ If Yes: Estimated Volume (Cubic Yards) \_\_\_\_\_ 50  
\_\_\_\_\_ Name of Licensed Disposal Facility or COGCC Facility ID # \_\_\_\_\_  
No \_\_\_\_\_ Excavate and onsite remediation  
\_\_\_\_\_ Land Treatment  
\_\_\_\_\_ Bioremediation (or enhanced bioremediation)  
\_\_\_\_\_ Chemical oxidation  
\_\_\_\_\_ Other \_\_\_\_\_

## Groundwater Remediation Summary

No \_\_\_\_\_ Bioremediation ( or enhanced bioremediation )  
No \_\_\_\_\_ Chemical oxidation  
No \_\_\_\_\_ Air sparge / Soil vapor extraction  
No \_\_\_\_\_ Natural Attenuation  
☐ Other \_\_\_\_\_

## GROUNDWATER MONITORING

If groundwater has been impacted, describe proposed monitoring plan, including # of wells or sample points, monitoring schedule, analytical methods, points of compliance. Attach a groundwater monitoring location diagram.

Groundwater was not encountered during assessment activities

# REMEDIATION PROGRESS UPDATE

## PERIODIC REPORTING

**Frequency:** ☐ Quarterly ☐ Semi-Annually ☐ Annually ☒ Other Supplemental Form 27

**Report Type:** ☐ Groundwater Monitoring ☐ Land Treatment Progress Report ☐ O&M Report

☐ Other \_\_\_\_\_

## WASTE DISPOSAL INFORMATION

Was E&P waste generated as part of this remediation? Yes \_\_\_\_\_

Describe beneficial use, if any, of E&P Waste derived from this remediation project:

Soil removed from the excavation will be mix/blended and processed to below Table 910-1 concentration levels or transported offsite to a permitted disposal/recycling facility.

Volume of E&P Waste (solid) in cubic yards \_\_\_\_\_ 0

E&P waste (solid) description \_\_\_\_\_

COGCC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-COGCC Disposal Facility: \_\_\_\_\_

Volume of E&P Waste (liquid) in barrels \_\_\_\_\_ 0

E&P waste (liquid) description \_\_\_\_\_

COGCC Disposal Facility ID #, if applicable: \_\_\_\_\_

Non-COGCC Disposal Facility: \_\_\_\_\_

## RECLAMATION PLAN

### RECLAMATION PLANNING

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing.

Any disturbances associated with this project will be reclaimed as specified by CPW

Is the described reclamation complete? \_\_\_\_\_

Does the reclamation described herein constitute interim or final reclamation of the Oil and Gas Location?

☐ Interim? ☐ Final?

Did the Surface Owner approve the seed mix? \_\_\_\_\_

If NO, does the seed mix comply with local soil conservation district recommendations? \_\_\_\_\_

## IMPLEMENTATION SCHEDULE

### PRIOR DATES

Date of Surface Owner notification/consultation, if required. 10/13/2019

Actual Spill or Release date, if known. 10/12/2019

### SITE INVESTIGATION DATES

Date of Initial Actions described in Site Investigation Plan (start date). 10/14/2019

Date of commencement of Site Investigation. 10/14/2019

Date of completion of Site Investigation. \_\_\_\_\_

### REMEDIAL ACTION DATES

Date of commencement of Remediation. 10/14/2019

Date of completion of Remediation. \_\_\_\_\_

### SITE RECLAMATION DATES

Date of commencement of Reclamation. \_\_\_\_\_

Date of completion of Reclamation. \_\_\_\_\_

**OPERATOR COMMENT**

For Review by John Heil:

XTO Energy is submitting this workplan for the YCF 2-35-1 (Form 19 #402222077) Spill ID 468770. To determine the vertical aerial extent of impact within the footprint of the tank battery, all gravel will be removed from the secondary containment. liner will be thoroughly inspected for any holes or rips. Repairs will be done immediately upon finding . Table 910-1 sampling has been completed, see attached report and table.

I hereby certify all statements made in this form are to the best of my knowledge true, correct, and complete.

Signed: ` Natalie Steiner

Title: SSHE Technician

Submit Date: ` 11/12/2019

Email: natalie\_steiner@xtoenergy.com

Based on the information provided herein, this Application for Site Investigation and Remediation Workplan complies with COGCC Rules and applicable orders and is hereby approved.

COGCC Approved: \_\_\_\_\_

Date: \_\_\_\_\_

Remediation Project Number: \_\_\_\_\_

**COA Type****Description**

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**Attachment Check List**

Upon approval, the approved Form 27 and all listed attachments will be indexed to the Remediation Project file. Only the approved Form 27 will also be indexed to the related Facilities.

**Att Doc Num****Name**

402235840	FORM 27-INITIAL-SUBMITTED
402236558	ANALYTICAL RESULTS
402236560	OTHER
402236569	SOIL SAMPLE LOCATION MAP

Total Attach: 4 Files

**General Comments****User Group****Comment****Comment Date**

		Stamp Upon Approval
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Total: 0 comment(s)

**TABLE 1**  
**LABORATORY RESULTS SUMMARY TABLE**  
**YCF 2-35-1**  
**RIO BLANCO COUNTY, COLORADO**  
**XTO ENERGY, INC**

PARAMETER	COGCC CONCENTRATION LEVELS	UNITS	#1	#2	#3	#4	#5	#6	#7
			19101476	19101476	19101476	19101476	19101476	19101476	19101476
Sample Date			10/16/2019	10/16/2019	10/16/2019	10/16/2019	10/16/2019	10/16/2019	10/16/2019
Arsenic	0.39	mg/kg	<b>5.7</b>	<b>5</b>	<b>5.9</b>	<b>6.7</b>	<b>8.2</b>	<b>4.9</b>	<b>7.5</b>
Barium	15,000	mg/kg	310	220	340	380	380	210	750
Cadmium	70	mg/kg	0.13	0.092	0.15	0.19	0.16	0.14	0.20
Chromium (III)	120,000	mg/kg	28	24	30	31	26	13	31
Chromium (VI)	23	mg/kg	ND	ND	ND	ND	ND	ND	1.3
Copper	3,100	mg/kg	12	11	14	17	14	9	17
Lead	400	mg/kg	13	11	16	18	15	7.7	16
Mercury	23	mg/kg	0.013	0.012	0.033	0.020	0.016	0.017	0.020
Nickel	1,600	mg/kg	15	19	15	17	14	19	20
Selenium	390	mg/kg	0.87	0.74	0.94	0.61	0.67	0.42	0.74
Silver	390	mg/kg	ND	ND	ND	ND	ND	ND	0.20
Zinc	23,000	mg/kg	52	45	63	64	57	32	66
EC	4.0	mmhos/cm	2.7	1.4	1.5	1.1	1.9	1.1	2.0
pH	6 - 9	SU	8.56	7.91	7.95	8.36	8.55	<b>9.03</b>	7.94
SAR	12	unitless	8.7	2.7	2.3	7.1	<b>15</b>	4.4	3.1
TPH-GRO		mg/kg	ND	ND	6.3	ND	8.1	ND	ND
TPH-DRO		mg/kg	11	5.2	24	17	21	19	8.1
TPH	500	mg/kg	11	5.2	30.3	17	29.1	19	8.1
Benzene	0.17	mg/kg	ND	ND	ND	0.10	0.11	ND	ND
Toluene	85	mg/kg	ND	ND	0.026	0.67	0.71	ND	ND
Ethylbenzene	100	mg/kg	ND	ND	ND	0.019	0.052	ND	ND
Total Xylenes	175	mg/kg	ND	ND	ND	0.31	1.3	ND	ND
Acenaphthene	1000	mg/kg	ND	ND	ND	ND	ND	ND	ND
Anthracene	1000	mg/kg	ND	ND	ND	ND	ND	ND	ND
Benzo(A)anthracene	0.22	mg/kg	ND	ND	ND	ND	ND	ND	ND
Benzo(B)fluoranthene	0.22	mg/kg	ND	ND	ND	ND	ND	ND	ND
Benzo(K)fluoranthene	2.2	mg/kg	ND	ND	ND	ND	ND	ND	ND
Benzo(A)pyrene	0.022	mg/kg	ND	ND	ND	ND	ND	ND	ND
Chrysene	22	mg/kg	ND	ND	ND	ND	ND	ND	ND
Dibenzo(A,H)anthracene	0.022	mg/kg	ND	ND	ND	ND	ND	ND	ND
Fluoranthene	1000	mg/kg	ND	ND	ND	ND	ND	ND	ND
Fluorene	1000	mg/kg	ND	ND	0.0036	ND	0.0079	ND	ND
Indeno(1,2,3,C,D)pyrene	0.22	mg/kg	ND	ND	ND	ND	ND	ND	ND
Naphthalene	23	mg/kg	ND	ND	0.017	ND	0.09	ND	ND
Pyrene	1000	mg/kg	ND	ND	ND	ND	ND	ND	ND

**NOTES:**

ND - analyte not detected above the stated reporting limit

NA - not analyzed

**BOLD** - indicates result exceeds the COGCC concentration level

**BOLD** - indicates result is below approved background concentration

COGCC - Colorado Oil and Gas Conservation Commission

EC - electrical conductivity

SAR - sodium adsorption ratio



# YELLOW CREEK FEDERAL 2-35-1

## Produced Water Release



**X** Release Point

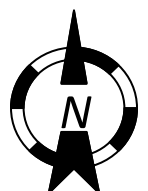


Spill Areas

**X** Sample Locations



YELLOW CREEK FEDERAL 2-35-1  
NWSE, SECTION 2, TOWNSHIP 1S, RANGE 98W  
39.990995 -108.355973







28-Oct-2019

Natalie Steiner  
XTO Energy  
21459 CR5  
Rifle, CO 81650

Re: **YCF 2-35-1**

Work Order: **19101476**

Dear Natalie,

ALS Environmental received 7 samples on 18-Oct-2019 09:30 AM for the analyses presented in the following report.

The analytical data provided relates directly to the samples received by ALS Environmental - Holland and for only the analyses requested.

Sample results are compliant with industry accepted practices and Quality Control results achieved laboratory specifications. Any exceptions are noted in the Case Narrative, or noted with qualifiers in the report or QC batch information. Should this laboratory report need to be reproduced, it should be reproduced in full unless written approval has been obtained from ALS Environmental. Samples will be disposed in 30 days unless storage arrangements are made.

The total number of pages in this report is 38.

If you have any questions regarding this report, please feel free to contact me:

ADDRESS: 3352 128th Avenue, Holland, MI, USA  
PHONE: +1 (616) 399-6070 FAX: +1 (616) 399-6185

Sincerely,

A handwritten signature in black ink, appearing to read "Chad Whelton".

Electronically approved by: Chad Whelton

Chad Whelton  
Project Manager

## Report of Laboratory Analysis

Certificate No: MN 026-999-449

ALS GROUP USA, CORP Part of the ALS Laboratory Group A Campbell Brothers Limited Company

Environmental 

[www.alsglobal.com](http://www.alsglobal.com)

RIGHT SOLUTIONS RIGHT PARTNER

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**Client:** XTO Energy  
**Project:** YCF 2-35-1  
**Work Order:** 19101476

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**Work Order Sample Summary**

<u>Lab Samp ID</u>	<u>Client Sample ID</u>	<u>Matrix</u>	<u>Tag Number</u>	<u>Collection Date</u>	<u>Date Received</u>	<u>Hold</u>
19101476-01	#1	Soil		10/16/2019 10:00	10/18/2019 09:30	<input type="checkbox"/>
19101476-02	#2	Soil		10/16/2019 10:05	10/18/2019 09:30	<input type="checkbox"/>
19101476-03	#3	Soil		10/16/2019 10:10	10/18/2019 09:30	<input type="checkbox"/>
19101476-04	#4	Soil		10/16/2019 10:15	10/18/2019 09:30	<input type="checkbox"/>
19101476-05	#5	Soil		10/16/2019 10:20	10/18/2019 09:30	<input type="checkbox"/>
19101476-06	#6	Soil		10/16/2019 10:25	10/18/2019 09:30	<input type="checkbox"/>
19101476-07	#7	Soil		10/16/2019 10:30	10/18/2019 09:30	<input type="checkbox"/>

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**Client:** XTO Energy**Project:** YCF 2-35-1**Work Order:** 19101476**Case Narrative**

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Batch 144589, Method CR6\_7196\_S, Sample 19101476-07A MS/MSD: The MS/MSD recovery was below the lower control limit for Hexavalent Chromium. The corresponding result in the parent sample may be biased low.

<b><u>Qualifier</u></b>	<b><u>Description</u></b>
*	Value exceeds Regulatory Limit
**	Estimated Value
a	Analyte is non-accredited
B	Analyte detected in the associated Method Blank above the Reporting Limit
E	Value above quantitation range
H	Analyzed outside of Holding Time
Hr	BOD/CBOD - Sample was reset outside Hold Time, value should be considered estimated.
J	Analyte is present at an estimated concentration between the MDL and Report Limit
ND	Not Detected at the Reporting Limit
O	Sample amount is > 4 times amount spiked
P	Dual Column results percent difference > 40%
R	RPD above laboratory control limit
S	Spike Recovery outside laboratory control limits
U	Analyzed but not detected above the MDL
X	Analyte was detected in the Method Blank between the MDL and Reporting Limit, sample results may exhibit background or reagent contamination at the observed level.

<b><u>Acronym</u></b>	<b><u>Description</u></b>
DUP	Method Duplicate
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
LOD	Limit of Detection (see MDL)
LOQ	Limit of Quantitation (see PQL)
MBLK	Method Blank
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
PQL	Practical Quantitation Limit
RPD	Relative Percent Difference
TDL	Target Detection Limit
TNTC	Too Numerous To Count
A	APHA Standard Methods
D	ASTM
E	EPA
SW	SW-846 Update III

<b><u>Units Reported</u></b>	<b><u>Description</u></b>
% of sample	Percent of Sample
°C	Degrees Celcius
µg/Kg-dry	Micrograms per Kilogram Dry Weight
mg/Kg	Milligrams per Kilogram
mg/Kg-dry	Milligrams per Kilogram Dry Weight
mg/L	Milligrams per Liter
mmhos/cm @25°C	Millimhos-Centimeter at 25 Degrees Celcius

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none	
s.u.	Standard Units

# ALS Group, USA

Date: 28-Oct-19

Client: XTO Energy  
Project: YCF 2-35-1  
Sample ID: #1  
Collection Date: 10/16/2019 10:00 AM

Work Order: 19101476  
Lab ID: 19101476-01  
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: SW8015M		Prep: SW3550 / 10/21/19		Analyst: KB
DRO (C10-C28)	11		3.4	6.0	mg/Kg-dry	1	10/22/2019 12:38
Surr: 4-Terphenyl-d14	73.7			33-111	%REC	1	10/22/2019 12:38
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: SW8015D		Prep: SW5035 / 10/21/19		Analyst: KB
GRO (C6-C10)	U		3.1	7.5	mg/Kg	1	10/26/2019 19:04
Surr: Toluene-d8	94.3			71-123	%REC	1	10/26/2019 19:04
<b>MERCURY BY CVAA</b>							
			Method: SW7471B		Prep: SW7471 / 10/23/19		Analyst: RSH
Mercury	0.013	J	0.0020	0.020	mg/Kg-dry	1	10/23/2019 16:56
<b>METALS BY ICP-MS</b>							
			Method: SW6020A		Prep: SW3050B / 10/23/19		Analyst: STP
Arsenic	5.7		0.059	0.49	mg/Kg-dry	1	10/23/2019 19:36
Barium	310		4.5	4.9	mg/Kg-dry	10	10/24/2019 17:19
Boron	13		1.9	2.0	mg/Kg-dry	1	10/23/2019 19:36
Cadmium	0.13	J	0.030	0.20	mg/Kg-dry	1	10/23/2019 19:36
Chromium	28		2.2	4.9	mg/Kg-dry	10	10/24/2019 17:19
Copper	12		0.49	0.49	mg/Kg-dry	1	10/23/2019 19:36
Lead	13		0.24	0.49	mg/Kg-dry	1	10/23/2019 19:36
Nickel	15		0.26	0.49	mg/Kg-dry	1	10/23/2019 19:36
Selenium	0.87		0.45	0.49	mg/Kg-dry	1	10/23/2019 19:36
Silver	U		0.065	0.49	mg/Kg-dry	1	10/23/2019 19:36
Zinc	52		9.7	9.9	mg/Kg-dry	10	10/24/2019 17:19
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: SW6020A		Prep: USDA Method 20B / 10/24/19		Analyst: STP
Calcium	130		2.5	5.0	mg/L	10	10/24/2019 18:15
Magnesium	33		0.50	2.0	mg/L	10	10/24/2019 18:15
Sodium	430		0.45	2.0	mg/L	10	10/24/2019 18:15
<b>SODIUM ADSORPTION RATIO</b>							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/24/19		Analyst: STP
Sodium Adsorption Ratio	8.7		0.010	0.010	none	1	10/24/2019
<b>POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS)</b>							
			Method: SW846 8270D		Prep: SW3546 / 10/22/19		Analyst: EEW
Acenaphthene	U		0.99	5.1	µg/Kg-dry	1	10/22/2019 21:56
Anthracene	U		1.7	5.1	µg/Kg-dry	1	10/22/2019 21:56
Benzo(a)anthracene	U		2.1	5.1	µg/Kg-dry	1	10/22/2019 21:56
Benzo(a)pyrene	U		1.4	5.1	µg/Kg-dry	1	10/22/2019 21:56
Benzo(b)fluoranthene	U		1.2	5.1	µg/Kg-dry	1	10/22/2019 21:56
Benzo(k)fluoranthene	U		1.5	5.1	µg/Kg-dry	1	10/22/2019 21:56
Chrysene	U		1.0	5.1	µg/Kg-dry	1	10/22/2019 21:56
Dibenzo(a,h)anthracene	U		1.2	5.1	µg/Kg-dry	1	10/22/2019 21:56

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group, USA

Date: 28-Oct-19

**Client:** XTO Energy  
**Project:** YCF 2-35-1  
**Sample ID:** #1  
**Collection Date:** 10/16/2019 10:00 AM

**Work Order:** 19101476  
**Lab ID:** 19101476-01  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluoranthene	U		0.94	5.1	µg/Kg-dry	1	10/22/2019 21:56
Fluorene	U		1.7	5.1	µg/Kg-dry	1	10/22/2019 21:56
Indeno(1,2,3-cd)pyrene	U		1.8	5.1	µg/Kg-dry	1	10/22/2019 21:56
Naphthalene	U		2.2	5.1	µg/Kg-dry	1	10/22/2019 21:56
Pyrene	U		0.84	5.1	µg/Kg-dry	1	10/22/2019 21:56
Surr: 2-Fluorobiphenyl	66.5			20-140	%REC	1	10/22/2019 21:56
Surr: 4-Terphenyl-d14	51.6			22-172	%REC	1	10/22/2019 21:56
Surr: Nitrobenzene-d5	63.7			28-140	%REC	1	10/22/2019 21:56
<b>VOLATILE ORGANIC COMPOUNDS</b>			Method: <b>SW8260C</b>		Prep: SW5035 / 10/21/19		Analyst: <b>WH</b>
Benzene	U		0.0077	0.045	mg/Kg	1	10/21/2019 23:15
Ethylbenzene	U		0.0095	0.045	mg/Kg	1	10/21/2019 23:15
m,p-Xylene	U		0.060	0.090	mg/Kg	1	10/21/2019 23:15
o-Xylene	U		0.017	0.045	mg/Kg	1	10/21/2019 23:15
Toluene	U		0.012	0.045	mg/Kg	1	10/21/2019 23:15
Xylenes, Total	U		0.060	0.13	mg/Kg	1	10/21/2019 23:15
Surr: 1,2-Dichloroethane-d4	97.6			70-130	%REC	1	10/21/2019 23:15
Surr: 4-Bromofluorobenzene	101			70-130	%REC	1	10/21/2019 23:15
Surr: Dibromofluoromethane	88.6			70-130	%REC	1	10/21/2019 23:15
Surr: Toluene-d8	95.4			70-130	%REC	1	10/21/2019 23:15
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 10/24/19		Analyst: <b>QTN</b>
Electrical Conductivity @ Saturation	2.7		0.011	0.10	mmhos/cm @25°	20	10/25/2019 09:59
<b>CHROMIUM, TRIVALENT</b>			Method: <b>CALCULATION</b>				Analyst: <b>JZB</b>
Chromium, Trivalent	28		0.38	1.2	mg/Kg-dry	1	10/25/2019 15:06
<b>CHROMIUM, HEXAVALENT</b>			Method: <b>SW7196A</b>		Prep: SW3060A / 10/22/19		Analyst: <b>RZM</b>
Chromium, Hexavalent	U		1.0	1.2	mg/Kg-dry	1	10/22/2019 15:31
<b>MOISTURE</b>			Method: <b>SW3550C</b>				Analyst: <b>KTP</b>
Moisture	18		0.10	0.10	% of sample	1	10/21/2019 13:08
<b>PH</b>			Method: <b>SW9045D</b>		Prep: EXTRACT / 10/21/19		Analyst: <b>DNW</b>
pH	8.56		0.10	0.100	s.u.	1	10/21/2019 10:00
Temperature	22.0		0.10	0.100	°C	1	10/21/2019 10:00

**Note:** See Qualifiers page for a list of qualifiers and their definitions.



# ALS Group, USA

Date: 28-Oct-19

Client: XTO Energy  
Project: YCF 2-35-1  
Sample ID: #2  
Collection Date: 10/16/2019 10:05 AM

Work Order: 19101476  
Lab ID: 19101476-02  
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: SW8015M		Prep: SW3550 / 10/21/19		Analyst: KB
DRO (C10-C28)	5.2	J	3.4	5.9	mg/Kg-dry	1	10/22/2019 13:07
Surr: 4-Terphenyl-d14	69.6			33-111	%REC	1	10/22/2019 13:07
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: SW8015D		Prep: SW5035 / 10/21/19		Analyst: KB
GRO (C6-C10)	U		3.1	7.5	mg/Kg	1	10/26/2019 19:34
Surr: Toluene-d8	99.3			71-123	%REC	1	10/26/2019 19:34
<b>MERCURY BY CVAA</b>							
			Method: SW7471B		Prep: SW7471 / 10/23/19		Analyst: RSH
Mercury	0.012	J	0.0023	0.023	mg/Kg-dry	1	10/23/2019 16:58
<b>METALS BY ICP-MS</b>							
			Method: SW6020A		Prep: SW3050B / 10/23/19		Analyst: STP
Arsenic	5.0		0.060	0.50	mg/Kg-dry	1	10/23/2019 19:38
Barium	220		4.6	5.0	mg/Kg-dry	10	10/24/2019 17:21
Boron	7.5		1.9	2.0	mg/Kg-dry	1	10/23/2019 19:38
Cadmium	0.092	J	0.030	0.20	mg/Kg-dry	1	10/23/2019 19:38
Chromium	24		2.2	5.0	mg/Kg-dry	10	10/24/2019 17:21
Copper	11		0.50	0.50	mg/Kg-dry	1	10/23/2019 19:38
Lead	11		0.24	0.50	mg/Kg-dry	1	10/23/2019 19:38
Nickel	19		2.6	5.0	mg/Kg-dry	10	10/24/2019 17:21
Selenium	0.74		0.46	0.50	mg/Kg-dry	1	10/23/2019 19:38
Silver	U		0.066	0.50	mg/Kg-dry	1	10/23/2019 19:38
Zinc	45		9.8	10	mg/Kg-dry	10	10/24/2019 17:21
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: SW6020A		Prep: USDA Method 20B / 10/24/19		Analyst: STP
Calcium	110		2.5	5.0	mg/L	10	10/24/2019 18:17
Magnesium	38		0.50	2.0	mg/L	10	10/24/2019 18:17
Sodium	130		0.45	2.0	mg/L	10	10/24/2019 18:17
<b>SODIUM ADSORPTION RATIO</b>							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/24/19		Analyst: STP
Sodium Adsorption Ratio	2.7		0.010	0.010	none	1	10/24/2019
<b>POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS)</b>							
			Method: SW846 8270D		Prep: SW3546 / 10/22/19		Analyst: EEW
Acenaphthene	U		0.99	5.1	µg/Kg-dry	1	10/22/2019 22:11
Anthracene	U		1.7	5.1	µg/Kg-dry	1	10/22/2019 22:11
Benzo(a)anthracene	U		2.1	5.1	µg/Kg-dry	1	10/22/2019 22:11
Benzo(a)pyrene	U		1.4	5.1	µg/Kg-dry	1	10/22/2019 22:11
Benzo(b)fluoranthene	U		1.2	5.1	µg/Kg-dry	1	10/22/2019 22:11
Benzo(k)fluoranthene	U		1.5	5.1	µg/Kg-dry	1	10/22/2019 22:11
Chrysene	U		1.1	5.1	µg/Kg-dry	1	10/22/2019 22:11
Dibenzo(a,h)anthracene	U		1.2	5.1	µg/Kg-dry	1	10/22/2019 22:11

Note: See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group, USA

Date: 28-Oct-19

Client: XTO Energy  
Project: YCF 2-35-1  
Sample ID: #2  
Collection Date: 10/16/2019 10:05 AM

Work Order: 19101476  
Lab ID: 19101476-02  
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluoranthene	U		0.95	5.1	µg/Kg-dry	1	10/22/2019 22:11
Fluorene	U		1.7	5.1	µg/Kg-dry	1	10/22/2019 22:11
Indeno(1,2,3-cd)pyrene	U		1.8	5.1	µg/Kg-dry	1	10/22/2019 22:11
Naphthalene	U		2.2	5.1	µg/Kg-dry	1	10/22/2019 22:11
Pyrene	U		0.85	5.1	µg/Kg-dry	1	10/22/2019 22:11
Surr: 2-Fluorobiphenyl	87.0			20-140	%REC	1	10/22/2019 22:11
Surr: 4-Terphenyl-d14	67.6			22-172	%REC	1	10/22/2019 22:11
Surr: Nitrobenzene-d5	84.6			28-140	%REC	1	10/22/2019 22:11
<b>VOLATILE ORGANIC COMPOUNDS</b>			Method: <b>SW8260C</b>		Prep: SW5035 / 10/21/19		Analyst: <b>WH</b>
Benzene	U		0.0077	0.045	mg/Kg	1	10/21/2019 23:32
Ethylbenzene	U		0.0095	0.045	mg/Kg	1	10/21/2019 23:32
m,p-Xylene	U		0.060	0.090	mg/Kg	1	10/21/2019 23:32
o-Xylene	U		0.017	0.045	mg/Kg	1	10/21/2019 23:32
Toluene	U		0.012	0.045	mg/Kg	1	10/21/2019 23:32
Xylenes, Total	U		0.060	0.13	mg/Kg	1	10/21/2019 23:32
Surr: 1,2-Dichloroethane-d4	98.2			70-130	%REC	1	10/21/2019 23:32
Surr: 4-Bromofluorobenzene	101			70-130	%REC	1	10/21/2019 23:32
Surr: Dibromofluoromethane	87.2			70-130	%REC	1	10/21/2019 23:32
Surr: Toluene-d8	95.4			70-130	%REC	1	10/21/2019 23:32
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 10/24/19		Analyst: <b>QTN</b>
Electrical Conductivity @ Saturation	1.4		0.011	0.10	mmhos/cm @25°	20	10/25/2019 09:59
<b>CHROMIUM, TRIVALENT</b>			Method: <b>CALCULATION</b>				Analyst: <b>JZB</b>
Chromium, Trivalent	24		0.38	1.2	mg/Kg-dry	1	10/25/2019 15:06
<b>CHROMIUM, HEXAVALENT</b>			Method: <b>SW7196A</b>		Prep: SW3060A / 10/22/19		Analyst: <b>RZM</b>
Chromium, Hexavalent	U		1.0	1.2	mg/Kg-dry	1	10/22/2019 15:31
<b>MOISTURE</b>			Method: <b>SW3550C</b>				Analyst: <b>KTP</b>
Moisture	19		0.10	0.10	% of sample	1	10/21/2019 14:27
<b>PH</b>			Method: <b>SW9045D</b>		Prep: EXTRACT / 10/21/19		Analyst: <b>DNW</b>
pH	7.91		0.10	0.100	s.u.	1	10/21/2019 10:00
Temperature	22.0		0.10	0.100	°C	1	10/21/2019 10:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group, USA

Date: 28-Oct-19

Client: XTO Energy  
Project: YCF 2-35-1  
Sample ID: #3  
Collection Date: 10/16/2019 10:10 AM

Work Order: 19101476  
Lab ID: 19101476-03  
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: SW8015M		Prep: SW3550 / 10/21/19		Analyst: KB
DRO (C10-C28)	24		3.6	6.4	mg/Kg-dry	1	10/22/2019 14:05
Surr: 4-Terphenyl-d14	67.7			33-111	%REC	1	10/22/2019 14:05
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: SW8015D		Prep: SW5035 / 10/21/19		Analyst: KB
GRO (C6-C10)	6.3	J	3.6	8.7	mg/Kg	1	10/26/2019 20:03
Surr: Toluene-d8	95.7			71-123	%REC	1	10/26/2019 20:03
<b>MERCURY BY CVAA</b>							
			Method: SW7471B		Prep: SW7471 / 10/23/19		Analyst: RSH
Mercury	0.033		0.0024	0.024	mg/Kg-dry	1	10/23/2019 17:01
<b>METALS BY ICP-MS</b>							
			Method: SW6020A		Prep: SW3050B / 10/23/19		Analyst: STP
Arsenic	5.9		0.054	0.45	mg/Kg-dry	1	10/23/2019 19:40
Barium	340		4.2	4.5	mg/Kg-dry	10	10/24/2019 17:22
Boron	11		1.7	1.8	mg/Kg-dry	1	10/23/2019 19:40
Cadmium	0.15	J	0.027	0.18	mg/Kg-dry	1	10/23/2019 19:40
Chromium	30		2.0	4.5	mg/Kg-dry	10	10/24/2019 17:22
Copper	14		0.45	0.45	mg/Kg-dry	1	10/23/2019 19:40
Lead	16		0.22	0.45	mg/Kg-dry	1	10/23/2019 19:40
Nickel	15		0.24	0.45	mg/Kg-dry	1	10/23/2019 19:40
Selenium	0.94		0.42	0.45	mg/Kg-dry	1	10/23/2019 19:40
Silver	U		0.060	0.45	mg/Kg-dry	1	10/23/2019 19:40
Zinc	63		8.9	9.0	mg/Kg-dry	10	10/24/2019 17:22
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: SW6020A		Prep: USDA Method 20B / 10/24/19		Analyst: STP
Calcium	130		2.5	5.0	mg/L	10	10/24/2019 18:18
Magnesium	46		0.50	2.0	mg/L	10	10/24/2019 18:18
Sodium	120		0.45	2.0	mg/L	10	10/24/2019 18:18
<b>SODIUM ADSORPTION RATIO</b>							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/24/19		Analyst: STP
Sodium Adsorption Ratio	2.3		0.010	0.010	none	1	10/24/2019
<b>POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS)</b>							
			Method: SW846 8270D		Prep: SW3546 / 10/22/19		Analyst: EEW
Acenaphthene	U		1.1	5.5	µg/Kg-dry	1	10/22/2019 22:26
Anthracene	U		1.9	5.5	µg/Kg-dry	1	10/22/2019 22:26
Benzo(a)anthracene	U		2.3	5.5	µg/Kg-dry	1	10/22/2019 22:26
Benzo(a)pyrene	U		1.5	5.5	µg/Kg-dry	1	10/22/2019 22:26
Benzo(b)fluoranthene	U		1.3	5.5	µg/Kg-dry	1	10/22/2019 22:26
Benzo(k)fluoranthene	U		1.6	5.5	µg/Kg-dry	1	10/22/2019 22:26
Chrysene	U		1.1	5.5	µg/Kg-dry	1	10/22/2019 22:26
Dibenzo(a,h)anthracene	U		1.3	5.5	µg/Kg-dry	1	10/22/2019 22:26

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group, USA

Date: 28-Oct-19

Client: XTO Energy  
Project: YCF 2-35-1  
Sample ID: #3  
Collection Date: 10/16/2019 10:10 AM

Work Order: 19101476  
Lab ID: 19101476-03  
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluoranthene	U		1.0	5.5	µg/Kg-dry	1	10/22/2019 22:26
<b>Fluorene</b>	<b>3.6</b>	J	<b>1.8</b>	<b>5.5</b>	<b>µg/Kg-dry</b>	1	10/22/2019 22:26
Indeno(1,2,3-cd)pyrene	U		2.0	5.5	µg/Kg-dry	1	10/22/2019 22:26
<b>Naphthalene</b>	<b>17</b>		<b>2.4</b>	<b>5.5</b>	<b>µg/Kg-dry</b>	1	10/22/2019 22:26
Pyrene	U		0.91	5.5	µg/Kg-dry	1	10/22/2019 22:26
Surr: 2-Fluorobiphenyl	86.9			20-140	%REC	1	10/22/2019 22:26
Surr: 4-Terphenyl-d14	67.3			22-172	%REC	1	10/22/2019 22:26
Surr: Nitrobenzene-d5	84.1			28-140	%REC	1	10/22/2019 22:26
<b>VOLATILE ORGANIC COMPOUNDS</b>			Method: <b>SW8260C</b>		Prep: SW5035 / 10/21/19		Analyst: <b>WH</b>
Benzene	U		0.0089	0.052	mg/Kg	1	10/21/2019 23:49
Ethylbenzene	U		0.011	0.052	mg/Kg	1	10/21/2019 23:49
m,p-Xylene	U		0.069	0.10	mg/Kg	1	10/21/2019 23:49
o-Xylene	U		0.020	0.052	mg/Kg	1	10/21/2019 23:49
<b>Toluene</b>	<b>0.026</b>	J	<b>0.014</b>	<b>0.052</b>	<b>mg/Kg</b>	1	10/21/2019 23:49
Xylenes, Total	U		0.069	0.16	mg/Kg	1	10/21/2019 23:49
Surr: 1,2-Dichloroethane-d4	97.4			70-130	%REC	1	10/21/2019 23:49
Surr: 4-Bromofluorobenzene	102			70-130	%REC	1	10/21/2019 23:49
Surr: Dibromofluoromethane	87.2			70-130	%REC	1	10/21/2019 23:49
Surr: Toluene-d8	96.2			70-130	%REC	1	10/21/2019 23:49
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 10/24/19		Analyst: <b>QTN</b>
Electrical Conductivity @ Saturation	1.5		0.011	0.10	mmhos/cm @25°	20	10/25/2019 09:59
<b>CHROMIUM, TRIVALENT</b>			Method: <b>CALCULATION</b>				Analyst: <b>JZB</b>
Chromium, Trivalent	30		0.42	1.3	mg/Kg-dry	1	10/25/2019 15:06
<b>CHROMIUM, HEXAVALENT</b>			Method: <b>SW7196A</b>		Prep: SW3060A / 10/22/19		Analyst: <b>RZM</b>
Chromium, Hexavalent	U		1.1	1.3	mg/Kg-dry	1	10/22/2019 15:31
<b>MOISTURE</b>			Method: <b>SW3550C</b>				Analyst: <b>KTP</b>
Moisture	26		0.10	0.10	% of sample	1	10/21/2019 14:27
<b>PH</b>			Method: <b>SW9045D</b>		Prep: EXTRACT / 10/21/19		Analyst: <b>DNW</b>
pH	7.95		0.10	0.100	s.u.	1	10/21/2019 10:00
Temperature	21.9		0.10	0.100	°C	1	10/21/2019 10:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group, USA

Date: 28-Oct-19

Client: XTO Energy  
Project: YCF 2-35-1  
Sample ID: #4  
Collection Date: 10/16/2019 10:15 AM

Work Order: 19101476  
Lab ID: 19101476-04  
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: SW8015M		Prep: SW3550 / 10/21/19		Analyst: KB
DRO (C10-C28)	17		4.0	7.0	mg/Kg-dry	1	10/22/2019 14:34
Surr: 4-Terphenyl-d14	68.7			33-111	%REC	1	10/22/2019 14:34
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: SW8015D		Prep: SW5035 / 10/21/19		Analyst: KB
GRO (C6-C10)	U		3.7	8.9	mg/Kg	1	10/26/2019 20:33
Surr: Toluene-d8	105			71-123	%REC	1	10/26/2019 20:33
<b>MERCURY BY CVAA</b>							
			Method: SW7471B		Prep: SW7471 / 10/23/19		Analyst: RSH
Mercury	0.020	J	0.0025	0.025	mg/Kg-dry	1	10/23/2019 17:09
<b>METALS BY ICP-MS</b>							
			Method: SW6020A		Prep: SW3050B / 10/23/19		Analyst: STP
Arsenic	6.7		0.065	0.54	mg/Kg-dry	1	10/23/2019 19:42
Barium	380		5.0	5.4	mg/Kg-dry	10	10/24/2019 17:24
Boron	21		2.0	2.2	mg/Kg-dry	1	10/23/2019 19:42
Cadmium	0.19	J	0.033	0.22	mg/Kg-dry	1	10/23/2019 19:42
Chromium	31		2.4	5.4	mg/Kg-dry	10	10/24/2019 17:24
Copper	17		0.54	0.54	mg/Kg-dry	1	10/23/2019 19:42
Lead	18		0.26	0.54	mg/Kg-dry	1	10/23/2019 19:42
Nickel	17		0.28	0.54	mg/Kg-dry	1	10/23/2019 19:42
Selenium	0.61		0.50	0.54	mg/Kg-dry	1	10/23/2019 19:42
Silver	U		0.072	0.54	mg/Kg-dry	1	10/23/2019 19:42
Zinc	64		11	11	mg/Kg-dry	10	10/24/2019 17:24
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: SW6020A		Prep: USDA Method 20B / 10/24/19		Analyst: STP
Calcium	36		2.5	5.0	mg/L	10	10/24/2019 18:20
Magnesium	9.9		0.50	2.0	mg/L	10	10/24/2019 18:20
Sodium	190		0.45	2.0	mg/L	10	10/24/2019 18:20
<b>SODIUM ADSORPTION RATIO</b>							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/24/19		Analyst: STP
Sodium Adsorption Ratio	7.1		0.010	0.010	none	1	10/24/2019
<b>POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS)</b>							
			Method: SW846 8270D		Prep: SW3546 / 10/22/19		Analyst: EEW
Acenaphthene	U		1.1	5.8	µg/Kg-dry	1	10/22/2019 22:42
Anthracene	U		1.9	5.8	µg/Kg-dry	1	10/22/2019 22:42
Benzo(a)anthracene	U		2.4	5.8	µg/Kg-dry	1	10/22/2019 22:42
Benzo(a)pyrene	U		1.6	5.8	µg/Kg-dry	1	10/22/2019 22:42
Benzo(b)fluoranthene	U		1.4	5.8	µg/Kg-dry	1	10/22/2019 22:42
Benzo(k)fluoranthene	U		1.7	5.8	µg/Kg-dry	1	10/22/2019 22:42
Chrysene	U		1.2	5.8	µg/Kg-dry	1	10/22/2019 22:42
Dibenzo(a,h)anthracene	U		1.4	5.8	µg/Kg-dry	1	10/22/2019 22:42

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group, USA

Date: 28-Oct-19

Client: XTO Energy  
Project: YCF 2-35-1  
Sample ID: #4  
Collection Date: 10/16/2019 10:15 AM

Work Order: 19101476  
Lab ID: 19101476-04  
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluoranthene	U		1.1	5.8	µg/Kg-dry	1	10/22/2019 22:42
Fluorene	U		1.9	5.8	µg/Kg-dry	1	10/22/2019 22:42
Indeno(1,2,3-cd)pyrene	U		2.1	5.8	µg/Kg-dry	1	10/22/2019 22:42
Naphthalene	U		2.5	5.8	µg/Kg-dry	1	10/22/2019 22:42
Pyrene	U		0.95	5.8	µg/Kg-dry	1	10/22/2019 22:42
Surr: 2-Fluorobiphenyl	86.3			20-140	%REC	1	10/22/2019 22:42
Surr: 4-Terphenyl-d14	66.2			22-172	%REC	1	10/22/2019 22:42
Surr: Nitrobenzene-d5	84.0			28-140	%REC	1	10/22/2019 22:42
<b>VOLATILE ORGANIC COMPOUNDS</b>			Method: <b>SW8260C</b>		Prep: SW5035 / 10/21/19		Analyst: <b>WH</b>
Benzene	0.10		0.0091	0.053	mg/Kg	1	10/22/2019 12:06
Ethylbenzene	0.019	J	0.011	0.053	mg/Kg	1	10/22/2019 12:06
m,p-Xylene	0.24		0.071	0.11	mg/Kg	1	10/22/2019 12:06
o-Xylene	0.067		0.021	0.053	mg/Kg	1	10/22/2019 12:06
Toluene	0.67		0.015	0.053	mg/Kg	1	10/22/2019 12:06
Xylenes, Total	0.31		0.071	0.16	mg/Kg	1	10/22/2019 12:06
Surr: 1,2-Dichloroethane-d4	98.6			70-130	%REC	1	10/22/2019 12:06
Surr: 4-Bromofluorobenzene	98.3			70-130	%REC	1	10/22/2019 12:06
Surr: Dibromofluoromethane	88.6			70-130	%REC	1	10/22/2019 12:06
Surr: Toluene-d8	94.4			70-130	%REC	1	10/22/2019 12:06
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 10/24/19		Analyst: <b>QTN</b>
Electrical Conductivity @ Saturation	1.1		0.011	0.10	mmhos/cm @25°	20	10/25/2019 09:59
<b>CHROMIUM, TRIVALENT</b>			Method: <b>CALCULATION</b>				Analyst: <b>JZB</b>
Chromium, Trivalent	31		0.43	1.4	mg/Kg-dry	1	10/25/2019 15:06
<b>CHROMIUM, HEXAVALENT</b>			Method: <b>SW7196A</b>		Prep: SW3060A / 10/22/19		Analyst: <b>RZM</b>
Chromium, Hexavalent	U		1.2	1.4	mg/Kg-dry	1	10/22/2019 15:31
<b>MOISTURE</b>			Method: <b>SW3550C</b>				Analyst: <b>KTP</b>
Moisture	29		0.10	0.10	% of sample	1	10/21/2019 14:27
<b>PH</b>			Method: <b>SW9045D</b>		Prep: EXTRACT / 10/21/19		Analyst: <b>DNW</b>
pH	8.36		0.10	0.100	s.u.	1	10/21/2019 10:00
Temperature	21.9		0.10	0.100	°C	1	10/21/2019 10:00

Note: See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group, USA

Date: 28-Oct-19

Client: XTO Energy  
Project: YCF 2-35-1  
Sample ID: #5  
Collection Date: 10/16/2019 10:20 AM

Work Order: 19101476  
Lab ID: 19101476-05  
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: SW8015M		Prep: SW3550 / 10/21/19		Analyst: KB
DRO (C10-C28)	21		3.7	6.5	mg/Kg-dry	1	10/22/2019 15:04
Surr: 4-Terphenyl-d14	65.1			33-111	%REC	1	10/22/2019 15:04
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: SW8015D		Prep: SW5035 / 10/21/19		Analyst: KB
GRO (C6-C10)	8.1	J	3.7	8.8	mg/Kg	1	10/26/2019 21:03
Surr: Toluene-d8	103			71-123	%REC	1	10/26/2019 21:03
<b>MERCURY BY CVAA</b>							
			Method: SW7471B		Prep: SW7471 / 10/23/19		Analyst: RSH
Mercury	0.016	J	0.0023	0.023	mg/Kg-dry	1	10/23/2019 17:11
<b>METALS BY ICP-MS</b>							
			Method: SW6020A		Prep: SW3050B / 10/23/19		Analyst: STP
Arsenic	8.2		0.063	0.53	mg/Kg-dry	1	10/23/2019 19:44
Barium	380		4.9	5.3	mg/Kg-dry	10	10/24/2019 17:26
Boron	22		2.0	2.1	mg/Kg-dry	1	10/23/2019 19:44
Cadmium	0.16	J	0.032	0.21	mg/Kg-dry	1	10/23/2019 19:44
Chromium	26		2.3	5.3	mg/Kg-dry	10	10/24/2019 17:26
Copper	14		0.53	0.53	mg/Kg-dry	1	10/23/2019 19:44
Lead	15		0.25	0.53	mg/Kg-dry	1	10/23/2019 19:44
Nickel	14		0.28	0.53	mg/Kg-dry	1	10/23/2019 19:44
Selenium	0.67		0.49	0.53	mg/Kg-dry	1	10/23/2019 19:44
Silver	U		0.070	0.53	mg/Kg-dry	1	10/23/2019 19:44
Zinc	57		10	11	mg/Kg-dry	10	10/24/2019 17:26
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: SW6020A		Prep: USDA Method 20B / 10/24/19		Analyst: STP
Calcium	40		2.5	5.0	mg/L	10	10/24/2019 18:21
Magnesium	8.8		0.50	2.0	mg/L	10	10/24/2019 18:21
Sodium	400		0.45	2.0	mg/L	10	10/24/2019 18:21
<b>SODIUM ADSORPTION RATIO</b>							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/24/19		Analyst: STP
Sodium Adsorption Ratio	15		0.010	0.010	none	1	10/24/2019
<b>POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS)</b>							
			Method: SW846 8270D		Prep: SW3546 / 10/22/19		Analyst: EEW
Acenaphthene	U		1.1	5.6	µg/Kg-dry	1	10/22/2019 22:58
Anthracene	U		1.9	5.6	µg/Kg-dry	1	10/22/2019 22:58
Benzo(a)anthracene	U		2.3	5.6	µg/Kg-dry	1	10/22/2019 22:58
Benzo(a)pyrene	U		1.5	5.6	µg/Kg-dry	1	10/22/2019 22:58
Benzo(b)fluoranthene	U		1.3	5.6	µg/Kg-dry	1	10/22/2019 22:58
Benzo(k)fluoranthene	U		1.6	5.6	µg/Kg-dry	1	10/22/2019 22:58
Chrysene	U		1.2	5.6	µg/Kg-dry	1	10/22/2019 22:58
Dibenzo(a,h)anthracene	U		1.3	5.6	µg/Kg-dry	1	10/22/2019 22:58

**Note:** See Qualifiers page for a list of qualifiers and their definitions.



# ALS Group, USA

Date: 28-Oct-19

Client: XTO Energy  
Project: YCF 2-35-1  
Sample ID: #5  
Collection Date: 10/16/2019 10:20 AM

Work Order: 19101476  
Lab ID: 19101476-05  
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluoranthene	U		1.0	5.6	µg/Kg-dry	1	10/22/2019 22:58
<b>Fluorene</b>	<b>7.9</b>		<b>1.8</b>	<b>5.6</b>	<b>µg/Kg-dry</b>	1	10/22/2019 22:58
Indeno(1,2,3-cd)pyrene	U		2.0	5.6	µg/Kg-dry	1	10/22/2019 22:58
<b>Naphthalene</b>	<b>90</b>		<b>2.4</b>	<b>5.6</b>	<b>µg/Kg-dry</b>	1	10/22/2019 22:58
Pyrene	U		0.92	5.6	µg/Kg-dry	1	10/22/2019 22:58
Surr: 2-Fluorobiphenyl	82.3			20-140	%REC	1	10/22/2019 22:58
Surr: 4-Terphenyl-d14	62.6			22-172	%REC	1	10/22/2019 22:58
Surr: Nitrobenzene-d5	79.4			28-140	%REC	1	10/22/2019 22:58
<b>VOLATILE ORGANIC COMPOUNDS</b>			Method: <b>SW8260C</b>		Prep: SW5035 / 10/21/19		Analyst: <b>WH</b>
<b>Benzene</b>	<b>0.11</b>		<b>0.0090</b>	<b>0.053</b>	<b>mg/Kg</b>	1	10/22/2019 12:23
<b>Ethylbenzene</b>	<b>0.052</b>	J	<b>0.011</b>	<b>0.053</b>	<b>mg/Kg</b>	1	10/22/2019 12:23
<b>m,p-Xylene</b>	<b>0.98</b>		<b>0.070</b>	<b>0.11</b>	<b>mg/Kg</b>	1	10/22/2019 12:23
<b>o-Xylene</b>	<b>0.33</b>		<b>0.020</b>	<b>0.053</b>	<b>mg/Kg</b>	1	10/22/2019 12:23
<b>Toluene</b>	<b>0.71</b>		<b>0.014</b>	<b>0.053</b>	<b>mg/Kg</b>	1	10/22/2019 12:23
<b>Xylenes, Total</b>	<b>1.3</b>		<b>0.070</b>	<b>0.16</b>	<b>mg/Kg</b>	1	10/22/2019 12:23
Surr: 1,2-Dichloroethane-d4	96.0			70-130	%REC	1	10/22/2019 12:23
Surr: 4-Bromofluorobenzene	99.8			70-130	%REC	1	10/22/2019 12:23
Surr: Dibromofluoromethane	86.2			70-130	%REC	1	10/22/2019 12:23
Surr: Toluene-d8	97.2			70-130	%REC	1	10/22/2019 12:23
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 10/24/19		Analyst: <b>QTN</b>
<b>Electrical Conductivity @ Saturation</b>	<b>1.9</b>		<b>0.011</b>	<b>0.10</b>	<b>mmhos/cm @25°</b>	20	10/25/2019 09:59
<b>CHROMIUM, TRIVALENT</b>			Method: <b>CALCULATION</b>				Analyst: <b>JZB</b>
<b>Chromium, Trivalent</b>	<b>26</b>		<b>0.42</b>	<b>1.4</b>	<b>mg/Kg-dry</b>	1	10/25/2019 15:06
<b>CHROMIUM, HEXAVALENT</b>			Method: <b>SW7196A</b>		Prep: SW3060A / 10/22/19		Analyst: <b>RZM</b>
<b>Chromium, Hexavalent</b>	U		1.1	1.4	mg/Kg-dry	1	10/22/2019 15:31
<b>MOISTURE</b>			Method: <b>SW3550C</b>				Analyst: <b>KTP</b>
<b>Moisture</b>	<b>26</b>		<b>0.10</b>	<b>0.10</b>	<b>% of sample</b>	1	10/21/2019 14:27
<b>PH</b>			Method: <b>SW9045D</b>		Prep: EXTRACT / 10/21/19		Analyst: <b>DNW</b>
<b>pH</b>	<b>8.55</b>		<b>0.10</b>	<b>0.100</b>	<b>s.u.</b>	1	10/21/2019 10:00
<b>Temperature</b>	<b>21.8</b>		<b>0.10</b>	<b>0.100</b>	<b>°C</b>	1	10/21/2019 10:00

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group, USA

Date: 28-Oct-19

Client: XTO Energy  
Project: YCF 2-35-1  
Sample ID: #6  
Collection Date: 10/16/2019 10:25 AM

Work Order: 19101476  
Lab ID: 19101476-06  
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: SW8015M		Prep: SW3550 / 10/21/19		Analyst: KB
DRO (C10-C28)	19		3.0	5.2	mg/Kg-dry	1	10/22/2019 15:33
Surr: 4-Terphenyl-d14	67.3			33-111	%REC	1	10/22/2019 15:33
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: SW8015D		Prep: SW5035 / 10/21/19		Analyst: KB
GRO (C6-C10)	U		2.6	6.2	mg/Kg	1	10/26/2019 21:33
Surr: Toluene-d8	101			71-123	%REC	1	10/26/2019 21:33
<b>MERCURY BY CVAA</b>							
			Method: SW7471B		Prep: SW7471 / 10/23/19		Analyst: RSH
Mercury	0.017	J	0.0018	0.018	mg/Kg-dry	1	10/23/2019 17:13
<b>METALS BY ICP-MS</b>							
			Method: SW6020A		Prep: SW3050B / 10/23/19		Analyst: STP
Arsenic	4.9		0.043	0.36	mg/Kg-dry	1	10/23/2019 19:46
Barium	210		3.3	3.6	mg/Kg-dry	10	10/24/2019 17:27
Boron	5.3		1.4	1.4	mg/Kg-dry	1	10/23/2019 19:46
Cadmium	0.14		0.022	0.14	mg/Kg-dry	1	10/23/2019 19:46
Chromium	13		0.16	0.36	mg/Kg-dry	1	10/23/2019 19:46
Copper	9.0		0.36	0.36	mg/Kg-dry	1	10/23/2019 19:46
Lead	7.7		0.17	0.36	mg/Kg-dry	1	10/23/2019 19:46
Nickel	19		1.9	3.6	mg/Kg-dry	10	10/24/2019 17:27
Selenium	0.42		0.33	0.36	mg/Kg-dry	1	10/23/2019 19:46
Silver	U		0.047	0.36	mg/Kg-dry	1	10/23/2019 19:46
Zinc	32		7.0	7.2	mg/Kg-dry	10	10/24/2019 17:27
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: SW6020A		Prep: USDA Method 20B / 10/24/19		Analyst: STP
Calcium	80		2.5	5.0	mg/L	10	10/24/2019 18:23
Magnesium	6.2		0.50	2.0	mg/L	10	10/24/2019 18:23
Sodium	150		0.45	2.0	mg/L	10	10/24/2019 18:23
<b>SODIUM ADSORPTION RATIO</b>							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/24/19		Analyst: STP
Sodium Adsorption Ratio	4.4		0.010	0.010	none	1	10/24/2019
<b>POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS)</b>							
			Method: SW846 8270D		Prep: SW3546 / 10/22/19		Analyst: EEW
Acenaphthene	U		0.88	4.5	µg/Kg-dry	1	10/22/2019 19:20
Anthracene	U		1.5	4.5	µg/Kg-dry	1	10/22/2019 19:20
Benzo(a)anthracene	U		1.9	4.5	µg/Kg-dry	1	10/22/2019 19:20
Benzo(a)pyrene	U		1.2	4.5	µg/Kg-dry	1	10/22/2019 19:20
Benzo(b)fluoranthene	U		1.1	4.5	µg/Kg-dry	1	10/22/2019 19:20
Benzo(k)fluoranthene	U		1.3	4.5	µg/Kg-dry	1	10/22/2019 19:20
Chrysene	U		0.93	4.5	µg/Kg-dry	1	10/22/2019 19:20
Dibenzo(a,h)anthracene	U		1.1	4.5	µg/Kg-dry	1	10/22/2019 19:20

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group, USA

Date: 28-Oct-19

**Client:** XTO Energy  
**Project:** YCF 2-35-1  
**Sample ID:** #6  
**Collection Date:** 10/16/2019 10:25 AM

**Work Order:** 19101476  
**Lab ID:** 19101476-06  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluoranthene	U		0.83	4.5	µg/Kg-dry	1	10/22/2019 19:20
Fluorene	U		1.5	4.5	µg/Kg-dry	1	10/22/2019 19:20
Indeno(1,2,3-cd)pyrene	U		1.6	4.5	µg/Kg-dry	1	10/22/2019 19:20
Naphthalene	U		2.0	4.5	µg/Kg-dry	1	10/22/2019 19:20
Pyrene	U		0.75	4.5	µg/Kg-dry	1	10/22/2019 19:20
Surr: 2-Fluorobiphenyl	73.8			20-140	%REC	1	10/22/2019 19:20
Surr: 4-Terphenyl-d14	59.1			22-172	%REC	1	10/22/2019 19:20
Surr: Nitrobenzene-d5	72.1			28-140	%REC	1	10/22/2019 19:20
<b>VOLATILE ORGANIC COMPOUNDS</b>			Method: <b>SW8260C</b>		Prep: SW5035 / 10/21/19		Analyst: <b>WH</b>
Benzene	U		0.0064	0.037	mg/Kg	1	10/22/2019 12:41
Ethylbenzene	U		0.0079	0.037	mg/Kg	1	10/22/2019 12:41
m,p-Xylene	U		0.050	0.075	mg/Kg	1	10/22/2019 12:41
o-Xylene	U		0.014	0.037	mg/Kg	1	10/22/2019 12:41
Toluene	U		0.010	0.037	mg/Kg	1	10/22/2019 12:41
Xylenes, Total	U		0.050	0.11	mg/Kg	1	10/22/2019 12:41
Surr: 1,2-Dichloroethane-d4	95.0			70-130	%REC	1	10/22/2019 12:41
Surr: 4-Bromofluorobenzene	99.2			70-130	%REC	1	10/22/2019 12:41
Surr: Dibromofluoromethane	86.0			70-130	%REC	1	10/22/2019 12:41
Surr: Toluene-d8	93.7			70-130	%REC	1	10/22/2019 12:41
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 10/24/19		Analyst: <b>QTN</b>
Electrical Conductivity @ Saturation	1.1		0.011	0.10	mmhos/cm @25°	20	10/25/2019 09:59
<b>CHROMIUM, TRIVALENT</b>			Method: <b>CALCULATION</b>				Analyst: <b>JZB</b>
Chromium, Trivalent	13		0.33	1.1	mg/Kg-dry	1	10/25/2019 15:06
<b>CHROMIUM, HEXAVALENT</b>			Method: <b>SW7196A</b>		Prep: SW3060A / 10/22/19		Analyst: <b>RZM</b>
Chromium, Hexavalent	U		0.92	1.1	mg/Kg-dry	1	10/22/2019 15:31
<b>MOISTURE</b>			Method: <b>SW3550C</b>				Analyst: <b>KTP</b>
Moisture	7.6		0.10	0.10	% of sample	1	10/21/2019 14:27
<b>PH</b>			Method: <b>SW9045D</b>		Prep: EXTRACT / 10/21/19		Analyst: <b>DNW</b>
pH	9.03		0.10	0.100	s.u.	1	10/21/2019 10:00
Temperature	22.0		0.10	0.100	°C	1	10/21/2019 10:00

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group, USA

Date: 28-Oct-19

Client: XTO Energy  
Project: YCF 2-35-1  
Sample ID: #7  
Collection Date: 10/16/2019 10:30 AM

Work Order: 19101476  
Lab ID: 19101476-07  
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
<b>DIESEL RANGE ORGANICS BY GC-FID</b>							
			Method: SW8015M		Prep: SW3550 / 10/21/19		Analyst: KB
DRO (C10-C28)	8.1		4.1	7.2	mg/Kg-dry	1	10/22/2019 16:02
Surr: 4-Terphenyl-d14	66.6			33-111	%REC	1	10/22/2019 16:02
<b>GASOLINE RANGE ORGANICS BY GC-FID</b>							
			Method: SW8015D		Prep: SW5035 / 10/21/19		Analyst: KB
GRO (C6-C10)	U		3.7	8.8	mg/Kg	1	10/26/2019 22:03
Surr: Toluene-d8	104			71-123	%REC	1	10/26/2019 22:03
<b>MERCURY BY CVAA</b>							
			Method: SW7471B		Prep: SW7471 / 10/23/19		Analyst: RSH
Mercury	0.020	J	0.0022	0.022	mg/Kg-dry	1	10/23/2019 17:15
<b>METALS BY ICP-MS</b>							
			Method: SW6020A		Prep: SW3050B / 10/23/19		Analyst: STP
Arsenic	7.5		0.068	0.57	mg/Kg-dry	1	10/23/2019 19:48
Barium	750		5.2	5.7	mg/Kg-dry	10	10/24/2019 17:29
Boron	12		2.1	2.3	mg/Kg-dry	1	10/23/2019 19:48
Cadmium	0.20	J	0.034	0.23	mg/Kg-dry	1	10/23/2019 19:48
Chromium	32		2.5	5.7	mg/Kg-dry	10	10/24/2019 17:29
Copper	17		0.57	0.57	mg/Kg-dry	1	10/23/2019 19:48
Lead	16		0.27	0.57	mg/Kg-dry	1	10/23/2019 19:48
Nickel	20		0.30	0.57	mg/Kg-dry	1	10/23/2019 19:48
Selenium	0.74		0.52	0.57	mg/Kg-dry	1	10/23/2019 19:48
Silver	0.20	J	0.075	0.57	mg/Kg-dry	1	10/23/2019 19:48
Zinc	66		11	11	mg/Kg-dry	10	10/24/2019 17:29
<b>SOLUBLE CATIONS FOR SAR</b>							
			Method: SW6020A		Prep: USDA Method 20B / 10/24/19		Analyst: STP
Calcium	160		2.5	5.0	mg/L	10	10/24/2019 18:26
Magnesium	59		0.50	2.0	mg/L	10	10/24/2019 18:26
Sodium	180		0.45	2.0	mg/L	10	10/24/2019 18:26
<b>SODIUM ADSORPTION RATIO</b>							
			Method: USDA H60 METHOD 2		Prep: USDA Method 20B / 10/24/19		Analyst: STP
Sodium Adsorption Ratio	3.1		0.010	0.010	none	1	10/24/2019
<b>POLYNUCLEAR AROMATIC HYDROCARBONS (PAHS)</b>							
			Method: SW846 8270D		Prep: SW3546 / 10/22/19		Analyst: EEW
Acenaphthene	U		2.7	14	µg/Kg-dry	1	10/22/2019 23:13
Anthracene	U		4.7	14	µg/Kg-dry	1	10/22/2019 23:13
Benzo(a)anthracene	U		5.8	14	µg/Kg-dry	1	10/22/2019 23:13
Benzo(a)pyrene	U		3.8	14	µg/Kg-dry	1	10/22/2019 23:13
Benzo(b)fluoranthene	U		3.4	14	µg/Kg-dry	1	10/22/2019 23:13
Benzo(k)fluoranthene	U		4.1	14	µg/Kg-dry	1	10/22/2019 23:13
Chrysene	U		2.9	14	µg/Kg-dry	1	10/22/2019 23:13
Dibenzo(a,h)anthracene	U		3.3	14	µg/Kg-dry	1	10/22/2019 23:13

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

# ALS Group, USA

Date: 28-Oct-19

**Client:** XTO Energy  
**Project:** YCF 2-35-1  
**Sample ID:** #7  
**Collection Date:** 10/16/2019 10:30 AM

**Work Order:** 19101476  
**Lab ID:** 19101476-07  
**Matrix:** SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
Fluoranthene	U		2.6	14	µg/Kg-dry	1	10/22/2019 23:13
Fluorene	U		4.6	14	µg/Kg-dry	1	10/22/2019 23:13
Indeno(1,2,3-cd)pyrene	U		5.0	14	µg/Kg-dry	1	10/22/2019 23:13
Naphthalene	U		6.1	14	µg/Kg-dry	1	10/22/2019 23:13
Pyrene	U		2.3	14	µg/Kg-dry	1	10/22/2019 23:13
Surr: 2-Fluorobiphenyl	89.8			20-140	%REC	1	10/22/2019 23:13
Surr: 4-Terphenyl-d14	73.2			22-172	%REC	1	10/22/2019 23:13
Surr: Nitrobenzene-d5	87.1			28-140	%REC	1	10/22/2019 23:13
<b>VOLATILE ORGANIC COMPOUNDS</b>			Method: <b>SW8260C</b>		Prep: SW5035 / 10/21/19		Analyst: <b>WH</b>
Benzene	U		0.0091	0.053	mg/Kg	1	10/22/2019 12:58
Ethylbenzene	U		0.011	0.053	mg/Kg	1	10/22/2019 12:58
m,p-Xylene	U		0.071	0.11	mg/Kg	1	10/22/2019 12:58
o-Xylene	U		0.020	0.053	mg/Kg	1	10/22/2019 12:58
Toluene	U		0.014	0.053	mg/Kg	1	10/22/2019 12:58
Xylenes, Total	U		0.071	0.16	mg/Kg	1	10/22/2019 12:58
Surr: 1,2-Dichloroethane-d4	98.0			70-130	%REC	1	10/22/2019 12:58
Surr: 4-Bromofluorobenzene	101			70-130	%REC	1	10/22/2019 12:58
Surr: Dibromofluoromethane	89.2			70-130	%REC	1	10/22/2019 12:58
Surr: Toluene-d8	96.5			70-130	%REC	1	10/22/2019 12:58
<b>ELECTRICAL CONDUCTIVITY (SAR)</b>			Method: <b>USDA H60 METHOD 2</b>		Prep: USDA Method 20B / 10/24/19		Analyst: <b>QTN</b>
Electrical Conductivity @ Saturation	2.0		0.011	0.10	mmhos/cm @25°	20	10/25/2019 09:59
<b>CHROMIUM, TRIVALENT</b>			Method: <b>CALCULATION</b>				Analyst: <b>JZB</b>
Chromium, Trivalent	31		0.45	1.5	mg/Kg-dry	1	10/25/2019 15:06
<b>CHROMIUM, HEXAVALENT</b>			Method: <b>SW7196A</b>		Prep: SW3060A / 10/24/19		Analyst: <b>RZM</b>
Chromium, Hexavalent	1.3	J	1.2	1.5	mg/Kg-dry	1	10/24/2019 15:44
<b>MOISTURE</b>			Method: <b>SW3550C</b>				Analyst: <b>KTP</b>
Moisture	31		0.10	0.10	% of sample	1	10/21/2019 14:27
<b>PH</b>			Method: <b>SW9045D</b>		Prep: EXTRACT / 10/21/19		Analyst: <b>DNW</b>
pH	7.94		0.10	0.100	s.u.	1	10/21/2019 10:00
Temperature	22.0		0.10	0.100	°C	1	10/21/2019 10:00

**Note:** See Qualifiers page for a list of qualifiers and their definitions.

Client: XTO Energy  
 Work Order: 19101476  
 Project: YCF 2-35-1

## QC BATCH REPORT

Batch ID: 144293 Instrument ID GC8 Method: SW8015M

<b>MBLK</b>		Sample ID: <b>DBLKS1-144293-144293</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/22/2019 08:45 A</b>		
Client ID:		Run ID: <b>GC8_191022A</b>				SeqNo: <b>6004142</b>		Prep Date: <b>10/21/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	U	5.0								
<i>Surr: 4-Terphenyl-d14</i>	2.043	0	3.33	0	61.3	33-111	0			

<b>LCS</b>		Sample ID: <b>DLCSS1-144293-144293</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/22/2019 09:14 A</b>		
Client ID:		Run ID: <b>GC8_191022A</b>				SeqNo: <b>6004143</b>		Prep Date: <b>10/21/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	324.5	5.0	333	0	97.4	58-111	0			
<i>Surr: 4-Terphenyl-d14</i>	2.029	0	3.33	0	60.9	33-111	0			

<b>MS</b>		Sample ID: <b>19101536-01A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/22/2019 11:40 A</b>		
Client ID:		Run ID: <b>GC8_191022A</b>				SeqNo: <b>6004148</b>		Prep Date: <b>10/21/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	558.3	5.0	332.1	269	87.1	58-111	0			
<i>Surr: 4-Terphenyl-d14</i>	2.336	0	3.321	0	70.4	33-111	0			

<b>MSD</b>		Sample ID: <b>19101536-01A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/22/2019 12:09 P</b>		
Client ID:		Run ID: <b>GC8_191022A</b>				SeqNo: <b>6004151</b>		Prep Date: <b>10/21/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

DRO (C10-C28)	522.6	5.0	332.8	269	76.2	58-111	558.3	6.59	30	
<i>Surr: 4-Terphenyl-d14</i>	2.281	0	3.328	0	68.5	33-111	2.336	2.39	30	

The following samples were analyzed in this batch:

19101476-01A	19101476-02A	19101476-03A
19101476-04A	19101476-05A	19101476-06A
19101476-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: XTO Energy  
 Work Order: 19101476  
 Project: YCF 2-35-1

# QC BATCH REPORT

Batch ID: **144313** Instrument ID **GC9** Method: **SW8015D**

<b>MBLK</b>		Sample ID: <b>MBLK-144313-144313</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>10/22/2019 12:30 P</b>		
Client ID:		Run ID: <b>GC9_191020B</b>				SeqNo: <b>6002479</b>		Prep Date: <b>10/21/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	U	5,000								
Surr: Toluene-d8	4014	0	5000	0	80.3	71-123	0			

<b>LCS</b>		Sample ID: <b>LCS-144313-144313</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>10/22/2019 12:01 P</b>		
Client ID:		Run ID: <b>GC9_191020B</b>				SeqNo: <b>6002478</b>		Prep Date: <b>10/21/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	455800	5,000	500000	0	91.2	71-123	0			
Surr: Toluene-d8	5458	0	5000	0	109	71-123	0			

<b>MS</b>		Sample ID: <b>19101560-01A MS</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>10/22/2019 02:28 A</b>		
Client ID:		Run ID: <b>GC9_191020B</b>				SeqNo: <b>6002476</b>		Prep Date: <b>10/21/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	643400	6,200	617300	0	104	71-123	0			
Surr: Toluene-d8	7188	0	6173	0	116	71-123	0			

<b>MSD</b>		Sample ID: <b>19101560-01A MSD</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>10/22/2019 02:57 A</b>		
Client ID:		Run ID: <b>GC9_191020B</b>				SeqNo: <b>6002477</b>		Prep Date: <b>10/21/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

GRO (C6-C10)	675300	5,900	588700	0	115	71-123	643400	4.84	30	
Surr: Toluene-d8	7658	0	5887	0	130	71-123	7188	6.34	30	S

The following samples were analyzed in this batch:

19101476-01A	19101476-02A	19101476-03A
19101476-04A	19101476-05A	19101476-06A
19101476-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



Client: XTO Energy  
 Work Order: 19101476  
 Project: YCF 2-35-1

## QC BATCH REPORT

Batch ID: **144482** Instrument ID **HG4** Method: **SW7471B**

<b>MBLK</b>		Sample ID: <b>MBLK-144482-144482</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/23/2019 04:44 P</b>		
Client ID:		Run ID: <b>HG4_191023A</b>				SeqNo: <b>6008556</b>		Prep Date: <b>10/23/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.003	0.020								J

<b>LCS</b>		Sample ID: <b>LCS-144482-144482</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/23/2019 04:46 P</b>		
Client ID:		Run ID: <b>HG4_191023A</b>				SeqNo: <b>6008557</b>		Prep Date: <b>10/23/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1888	0.020	0.1665	0	113	80-120	0			

<b>MS</b>		Sample ID: <b>19101424-01BMS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/23/2019 04:50 P</b>		
Client ID:		Run ID: <b>HG4_191023A</b>				SeqNo: <b>6008559</b>		Prep Date: <b>10/23/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.1457	0.015	0.1274	0.01139	105	75-125	0			

<b>MSD</b>		Sample ID: <b>19101424-01BMSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/23/2019 04:52 P</b>		
Client ID:		Run ID: <b>HG4_191023A</b>				SeqNo: <b>6008560</b>		Prep Date: <b>10/23/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Mercury	0.15	0.015	0.1279	0.01139	108	75-125	0.1457	2.89	35	

The following samples were analyzed in this batch:

19101476-01A	19101476-02A	19101476-03A
19101476-04A	19101476-05A	19101476-06A
19101476-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: XTO Energy  
 Work Order: 19101476  
 Project: YCF 2-35-1

# QC BATCH REPORT

Batch ID: **144473** Instrument ID **ICPMS3** Method: **SW6020A**

<b>MBLK</b>		Sample ID: <b>MBLK-144473-144473</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/23/2019 04:24 P</b>		
Client ID:		Run ID: <b>ICPMS3_191023B</b>				SeqNo: <b>6007396</b>		Prep Date: <b>10/23/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								
Barium	U	0.25								
Boron	U	1.0								
Cadmium	U	0.10								
Chromium	U	0.25								
Copper	U	0.25								
Lead	U	0.25								
Nickel	U	0.25								
Selenium	U	0.25								
Silver	U	0.25								
Zinc	U	0.50								

<b>LCS</b>		Sample ID: <b>LCS-144473-144473</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/23/2019 04:25 P</b>		
Client ID:		Run ID: <b>ICPMS3_191023B</b>				SeqNo: <b>6007397</b>		Prep Date: <b>10/23/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	4.527	0.25	5	0	90.5	80-120	0			
Barium	4.722	0.25	5	0	94.4	80-120	0			
Cadmium	4.722	0.10	5	0	94.4	80-120	0			
Chromium	4.814	0.25	5	0	96.3	80-120	0			
Copper	4.745	0.25	5	0	94.9	80-120	0			
Lead	4.85	0.25	5	0	97	80-120	0			
Nickel	4.639	0.25	5	0	92.8	80-120	0			
Selenium	4.587	0.25	5	0	91.7	80-120	0			
Silver	4.847	0.25	5	0	96.9	80-120	0			
Zinc	4.913	0.50	5	0	98.3	80-120	0			

<b>LCS</b>		Sample ID: <b>LCS-144473-144473</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/24/2019 04:38 P</b>		
Client ID:		Run ID: <b>ICPMS3_191024B</b>				SeqNo: <b>6010922</b>		Prep Date: <b>10/23/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	23.91	1.0	25	0	95.6	80-120	0			

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

Client: XTO Energy  
 Work Order: 19101476  
 Project: YCF 2-35-1

# QC BATCH REPORT

Batch ID: 144473 Instrument ID ICPMS3 Method: SW6020A

MS				Sample ID: 19101546-07BMS			Units: mg/Kg		Analysis Date: 10/23/2019 04:46 P	
Client ID:		Run ID: ICPMS3_191023B			SeqNo: 6007578		Prep Date: 10/23/2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	6.955	0.37	7.418	1.202	77.6	75-125	0			
Barium	85.57	0.37	7.418	53.56	431	75-125	0			SO
Cadmium	6.071	0.15	7.418	0.3834	76.7	75-125	0			
Chromium	13.29	0.37	7.418	10.12	42.6	75-125	0			S
Lead	27.66	0.37	7.418	43.37	-212	75-125	0			SO
Nickel	9.147	0.37	7.418	7.422	23.3	75-125	0			S
Selenium	6.913	0.37	7.418	0.8713	81.4	75-125	0			
Silver	6.332	0.37	7.418	0.7652	75	75-125	0			

MS				Sample ID: 19101546-07BMS			Units: mg/Kg		Analysis Date: 10/24/2019 04:47 P	
Client ID:		Run ID: ICPMS3_191024B			SeqNo: 6010926		Prep Date: 10/23/2019		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	43.37	15	37.09	8.355	94.4	75-125	0			
Copper	14.55	3.7	7.418	16.98	-32.7	75-125	0			S
Zinc	50.13	7.4	7.418	80.64	-411	75-125	0			SO

MSD				Sample ID: 19101546-07BMSD			Units: mg/Kg		Analysis Date: 10/23/2019 04:47 P	
Client ID:		Run ID: ICPMS3_191023B			SeqNo: 6007579		Prep Date: 10/23/2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	7.664	0.37	7.331	1.202	88.2	75-125	6.955	9.71	20	
Barium	34.11	0.37	7.331	53.56	-265	75-125	85.57	86	20	SRO
Cadmium	6.822	0.15	7.331	0.3834	87.8	75-125	6.071	11.6	20	
Chromium	13.1	0.37	7.331	10.12	40.6	75-125	13.29	1.41	20	S
Lead	26.23	0.37	7.331	43.37	-234	75-125	27.66	5.31	20	SO
Nickel	10.34	0.37	7.331	7.422	39.8	75-125	9.147	12.3	20	S
Selenium	7.502	0.37	7.331	0.8713	90.4	75-125	6.913	8.18	20	
Silver	7.357	0.37	7.331	0.7652	89.9	75-125	6.332	15	20	

MSD				Sample ID: 19101546-07BMSD			Units: mg/Kg		Analysis Date: 10/24/2019 04:48 P	
Client ID:		Run ID: ICPMS3_191024B			SeqNo: 6010927		Prep Date: 10/23/2019		DF: 10	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Boron	39.21	15	36.66	8.355	84.2	75-125	43.37	10.1	20	
Copper	13.99	3.7	7.331	16.98	-40.7	75-125	14.55	3.91	20	S
Zinc	49.86	7.3	7.331	80.64	-420	75-125	50.13	0.552	20	SO

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** XTO Energy  
**Work Order:** 19101476  
**Project:** YCF 2-35-1

**QC BATCH REPORT**

Batch ID: **144473**      Instrument ID **ICPMS3**      Method: **SW6020A**

The following samples were analyzed in this batch:

19101476-01A	19101476-02A	19101476-03A
19101476-04A	19101476-05A	19101476-06A
19101476-07A		

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** XTO Energy  
**Work Order:** 19101476  
**Project:** YCF 2-35-1

## QC BATCH REPORT

Batch ID: **144590** Instrument ID **ICPMS3** Method: **SW6020A**

<b>DUP</b>		Sample ID: <b>19101476-06ADUP</b>				Units: <b>mg/L</b>		Analysis Date: <b>10/24/2019 06:25 P</b>		
Client ID: <b>#6</b>		Run ID: <b>ICPMS3_191024A</b>				SeqNo: <b>6010850</b>		Prep Date: <b>10/24/2019</b>		DF: <b>10</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Calcium	92.29	5.0	0	0	0	0-0	79.96	14.3		
Magnesium	7.731	2.0	0	0	0	0-0	6.222	21.6		
Sodium	187.6	2.0	0	0	0	0-0	152.6	20.6		

The following samples were analyzed in this batch:

19101476-01A	19101476-02A	19101476-03A
19101476-04A	19101476-05A	19101476-06A
19101476-07A		

Batch ID: **144590** Instrument ID **SAR** Method: **USDA H60 Metho**

<b>DUP</b>		Sample ID: <b>19101476-06ADUP</b>				Units: <b>none</b>		Analysis Date: <b>10/24/2019</b>		
Client ID: <b>#6</b>		Run ID: <b>SAR_191024A</b>				SeqNo: <b>6011446</b>		Prep Date: <b>10/24/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Sodium Adsorption Ratio	5.04	0.010	0	0	0		4.424	13	50	

The following samples were analyzed in this batch:

19101476-01A	19101476-02A	19101476-03A
19101476-04A	19101476-05A	19101476-06A
19101476-07A		

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

Client: XTO Energy  
 Work Order: 19101476  
 Project: YCF 2-35-1

# QC BATCH REPORT

Batch ID: 144342 Instrument ID SVMS6 Method: SW846 8270D

MBLK				Sample ID: SBLKS1-144342-144342				Units: µg/Kg			Analysis Date: 10/22/2019 05:32 P		
Client ID:			Run ID: SVMS6_191022A				SeqNo: 6005984		Prep Date: 10/22/2019		DF: 1		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
Acenaphthene	U	4.2											
Anthracene	U	4.2											
Benzo(a)anthracene	U	4.2											
Benzo(a)pyrene	U	4.2											
Benzo(b)fluoranthene	U	4.2											
Benzo(k)fluoranthene	U	4.2											
Chrysene	U	4.2											
Dibenzo(a,h)anthracene	U	4.2											
Fluoranthene	U	4.2											
Fluorene	U	4.2											
Indeno(1,2,3-cd)pyrene	U	4.2											
Naphthalene	U	4.2											
Pyrene	U	4.2											
Surr: 2-Fluorobiphenyl	3050	0	3333	0	91.5	20-140	0						
Surr: 4-Terphenyl-d14	2326	0	3333	0	69.8	22-172	0						
Surr: Nitrobenzene-d5	2843	0	3333	0	85.3	28-140	0						

LCS				Sample ID: SLCSS1-144342-144342				Units: µg/Kg		Analysis Date: 10/22/2019 05:47 P	
Client ID:			Run ID: SVMS6_191022A			SeqNo: 6005985		Prep Date: 10/22/2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	1044	4.2	1333	0	78.3	40-140	0				
Anthracene	1122	4.2	1333	0	84.2	40-140	0				
Benzo(a)anthracene	1201	4.2	1333	0	90.1	40-140	0				
Benzo(a)pyrene	1173	4.2	1333	0	88	40-140	0				
Benzo(b)fluoranthene	1166	4.2	1333	0	87.4	40-140	0				
Benzo(k)fluoranthene	1089	4.2	1333	0	81.7	40-140	0				
Chrysene	1059	4.2	1333	0	79.5	40-140	0				
Dibenzo(a,h)anthracene	1232	4.2	1333	0	92.4	40-140	0				
Fluoranthene	1069	4.2	1333	0	80.2	40-140	0				
Fluorene	1094	4.2	1333	0	82.1	40-140	0				
Indeno(1,2,3-cd)pyrene	1309	4.2	1333	0	98.2	40-140	0				
Naphthalene	1096	4.2	1333	0	82.2	40-140	0				
Pyrene	1125	4.2	1333	0	84.4	40-140	0				
Surr: 2-Fluorobiphenyl	2963	0	3333	0	88.9	20-140	0				
Surr: 4-Terphenyl-d14	2199	0	3333	0	66	22-172	0				
Surr: Nitrobenzene-d5	2558	0	3333	0	76.8	28-140	0				

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: XTO Energy  
 Work Order: 19101476  
 Project: YCF 2-35-1

# QC BATCH REPORT

Batch ID: 144342 Instrument ID SVMS6 Method: SW846 8270D

MS				Sample ID: 19101476-06A MS			Units: µg/Kg		Analysis Date: 10/22/2019 06:49 P		
Client ID: #6			Run ID: SVMS6_191022A			SeqNo: 6005988		Prep Date: 10/22/2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	1096	4.2	1329	0	82.4	40-140		0			
Anthracene	1173	4.2	1329	0	88.3	40-140		0			
Benzo(a)anthracene	1262	4.2	1329	0	94.9	40-140		0			
Benzo(a)pyrene	1233	4.2	1329	0	92.7	40-140		0			
Benzo(b)fluoranthene	1213	4.2	1329	0	91.3	40-140		0			
Benzo(k)fluoranthene	1161	4.2	1329	0	87.4	40-140		0			
Chrysene	1114	4.2	1329	0	83.8	40-140		0			
Dibenzo(a,h)anthracene	1368	4.2	1329	0	103	40-140		0			
Fluoranthene	1120	4.2	1329	0	84.2	40-140		0			
Fluorene	1143	4.2	1329	0	86	40-140		0			
Indeno(1,2,3-cd)pyrene	1427	4.2	1329	0	107	40-140		0			
Naphthalene	1134	4.2	1329	0	85.3	40-140		0			
Pyrene	1133	4.2	1329	0	85.3	40-140		0			
Surr: 2-Fluorobiphenyl	3134	0	3323	0	94.3	20-140		0			
Surr: 4-Terphenyl-d14	2325	0	3323	0	70	22-172		0			
Surr: Nitrobenzene-d5	2691	0	3323	0	81	28-140		0			

MSD				Sample ID: 19101476-06A MSD			Units: µg/Kg		Analysis Date: 10/22/2019 07:05 P		
Client ID: #6			Run ID: SVMS6_191022A			SeqNo: 6005989		Prep Date: 10/22/2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	
Acenaphthene	1096	4.1	1317	0	83.2	40-140	1096	0.0383	30		
Anthracene	1173	4.1	1317	0	89	40-140	1173	0.0505	30		
Benzo(a)anthracene	1250	4.1	1317	0	94.9	40-140	1262	0.92	30		
Benzo(a)pyrene	1204	4.1	1317	0	91.5	40-140	1233	2.33	30		
Benzo(b)fluoranthene	1189	4.1	1317	0	90.3	40-140	1213	2.03	30		
Benzo(k)fluoranthene	1135	4.1	1317	0	86.2	40-140	1161	2.32	30		
Chrysene	1103	4.1	1317	0	83.8	40-140	1114	1	30		
Dibenzo(a,h)anthracene	1279	4.1	1317	0	97.1	40-140	1368	6.72	30		
Fluoranthene	1111	4.1	1317	0	84.4	40-140	1120	0.766	30		
Fluorene	1139	4.1	1317	0	86.5	40-140	1143	0.358	30		
Indeno(1,2,3-cd)pyrene	1332	4.1	1317	0	101	40-140	1427	6.86	30		
Naphthalene	1142	4.1	1317	0	86.7	40-140	1134	0.738	30		
Pyrene	1133	4.1	1317	0	86	40-140	1133	0.0301	30		
Surr: 2-Fluorobiphenyl	3034	0	3293	0	92.2	20-140	3134	3.22	0		
Surr: 4-Terphenyl-d14	2279	0	3293	0	69.2	22-172	2325	2.02	0		
Surr: Nitrobenzene-d5	2765	0	3293	0	84	28-140	2691	2.7	0		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.



**Client:** XTO Energy  
**Work Order:** 19101476  
**Project:** YCF 2-35-1

**QC BATCH REPORT**

Batch ID: **144342**      Instrument ID **SVMS6**      Method: **SW846 8270D**

The following samples were analyzed in this batch:

19101476-01A	19101476-02A	19101476-03A
19101476-04A	19101476-05A	19101476-06A
19101476-07A		

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

Client: XTO Energy  
 Work Order: 19101476  
 Project: YCF 2-35-1

# QC BATCH REPORT

Batch ID: 144312 Instrument ID VMS9 Method: SW8260C

<b>MBLK</b>		Sample ID: <b>MBLK-144312-144312</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>10/21/2019 12:02 P</b>		
Client ID:		Run ID: <b>VMS9_191021A</b>				SeqNo: <b>6001645</b>		Prep Date: <b>10/21/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	U	30								
Ethylbenzene	U	30								
m,p-Xylene	U	60								
o-Xylene	U	30								
Toluene	U	30								
Xylenes, Total	U	90								
Surr: 1,2-Dichloroethane-d4	948	0	1000	0	94.8	70-130	0			
Surr: 4-Bromofluorobenzene	959.5	0	1000	0	96	70-130	0			
Surr: Dibromofluoromethane	953	0	1000	0	95.3	70-130	0			
Surr: Toluene-d8	931.5	0	1000	0	93.2	70-130	0			

<b>LCS</b>		Sample ID: <b>LCS-144312-144312</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>10/21/2019 11:15 A</b>		
Client ID:		Run ID: <b>VMS9_191021A</b>				SeqNo: <b>6001644</b>		Prep Date: <b>10/21/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1044	30	1000	0	104	75-125	0			
Ethylbenzene	1082	30	1000	0	108	75-125	0			
m,p-Xylene	2144	60	2000	0	107	80-125	0			
o-Xylene	1086	30	1000	0	109	75-125	0			
Toluene	1058	30	1000	0	106	70-125	0			
Xylenes, Total	3230	90	3000	0	108	75-125	0			
Surr: 1,2-Dichloroethane-d4	950	0	1000	0	95	70-130	0			
Surr: 4-Bromofluorobenzene	1005	0	1000	0	100	70-130	0			
Surr: Dibromofluoromethane	1062	0	1000	0	106	70-130	0			
Surr: Toluene-d8	986.5	0	1000	0	98.6	70-130	0			

<b>MS</b>		Sample ID: <b>19101560-01A MS</b>				Units: <b>µg/Kg-dry</b>		Analysis Date: <b>10/21/2019 01:52 P</b>		
Client ID:		Run ID: <b>VMS9_191021A</b>				SeqNo: <b>6001651</b>		Prep Date: <b>10/21/2019</b>		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1338	37	1235	149.7	96.3	75-125	0			
Ethylbenzene	1234	37	1235	55.52	95.5	75-125	0			
m,p-Xylene	2599	74	2469	239	95.6	80-125	0			
o-Xylene	1288	37	1235	63.36	99.2	75-125	0			
Toluene	1478	37	1235	294.5	95.9	70-125	0			
Xylenes, Total	3887	110	3704	303	96.8	75-125	0			
Surr: 1,2-Dichloroethane-d4	1181	0	1235	0	95.6	70-130	0			
Surr: 4-Bromofluorobenzene	1270	0	1235	0	103	70-130	0			
Surr: Dibromofluoromethane	1204	0	1235	0	97.5	70-130	0			
Surr: Toluene-d8	1157	0	1235	0	93.8	70-130	0			

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: XTO Energy  
 Work Order: 19101476  
 Project: YCF 2-35-1

## QC BATCH REPORT

Batch ID: 144312 Instrument ID VMS9 Method: SW8260C

MSD				Sample ID: 19101560-01A MSD			Units: µg/Kg-dry		Analysis Date: 10/21/2019 02:07 P	
Client ID:			Run ID: VMS9_191021A			SeqNo: 6001652		Prep Date: 10/21/2019		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Benzene	1326	35	1177	149.7	99.9	75-125	1338	0.893	30	
Ethylbenzene	1274	35	1177	55.52	103	75-125	1234	3.19	30	
m,p-Xylene	2622	71	2355	239	101	80-125	2599	0.849	30	
o-Xylene	1298	35	1177	63.36	105	75-125	1288	0.809	30	
Toluene	1390	35	1177	294.5	93	70-125	1478	6.17	30	
Xylenes, Total	3920	110	3532	303	102	75-125	3887	0.835	30	
Surr: 1,2-Dichloroethane-d4	1124	0	1177	0	95.4	70-130	1181	4.95	30	
Surr: 4-Bromofluorobenzene	1212	0	1177	0	103	70-130	1270	4.69	30	
Surr: Dibromofluoromethane	1137	0	1177	0	96.6	70-130	1204	5.72	30	
Surr: Toluene-d8	1093	0	1177	0	92.8	70-130	1157	5.76	30	

The following samples were analyzed in this batch:

19101476-01A	19101476-02A	19101476-03A
19101476-04A	19101476-05A	19101476-06A
19101476-07A		

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: XTO Energy  
 Work Order: 19101476  
 Project: YCF 2-35-1

## QC BATCH REPORT

Batch ID: **144291** Instrument ID **WETCHEM** Method: **SW9045D**

LCS				Sample ID: LCS-144291-144291				Units: s.u.			Analysis Date: 10/21/2019 10:00 A		
Client ID:			Run ID: WETCHEM_191021B				SeqNo: 6000382			Prep Date: 10/21/2019		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual		
pH		3.97	0.10	4	0	99.2	90-110	0					

DUP				Sample ID: 19101476-04A DUP				Units: s.u.			Analysis Date: 10/21/2019 10:00 A			
Client ID: #4				Run ID: WETCHEM_191021B				SeqNo: 6000387			Prep Date: 10/21/2019		DF: 1	
Analyte		Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual			
pH		8.39	0.10	0	0	0	0-0	8.36	0.358	20				
Temperature		21.9	0.10	0	0	0		21.9	0					

DUP		Sample ID: 19101546-11B DUP				Units: s.u.		Analysis Date: 10/21/2019 10:00 A		
Client ID:			Run ID: WETCHEM_191021B		SeqNo: 6000393		Prep Date: 10/21/2019		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
pH	7.71	0.10	0	0	0	0-0	7.84	1.67	20	
Temperature	21.9	0.10	0	0	0		21.9	0		

The following samples were analyzed in this batch:

19101476-01A	19101476-02A	19101476-03A
19101476-04A	19101476-05A	19101476-06A
19101476-07A		

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.

Client: XTO Energy  
 Work Order: 19101476  
 Project: YCF 2-35-1

# QC BATCH REPORT

Batch ID: **144418** Instrument ID **WETCHEM** Method: **SW7196A**

<b>MBLK</b>		Sample ID: <b>MBLK-144418-144418</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/22/2019 03:31 P</b>		
Client ID:		Run ID: <b>WETCHEM_191022S</b>		SeqNo: <b>6004682</b>		Prep Date: <b>10/22/2019</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent U 1.0

<b>LCS</b>		Sample ID: <b>LCS-144418-144418</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/22/2019 03:31 P</b>		
Client ID:		Run ID: <b>WETCHEM_191022S</b>		SeqNo: <b>6004683</b>		Prep Date: <b>10/22/2019</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.54 1.0 5 0 90.8 80-120 0

<b>MS</b>		Sample ID: <b>19101560-01A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/22/2019 03:31 P</b>		
Client ID:		Run ID: <b>WETCHEM_191022S</b>		SeqNo: <b>6004692</b>		Prep Date: <b>10/22/2019</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent U 1.0 5 0.3 -6 75-125 0 S

<b>MS</b>		Sample ID: <b>19101560-01A MSI</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/22/2019 03:31 P</b>		
Client ID:		Run ID: <b>WETCHEM_191022S</b>		SeqNo: <b>6004694</b>		Prep Date: <b>10/22/2019</b>		DF: <b>100</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 1766 100 2349 0.3 75.2 75-125 0

<b>MSD</b>		Sample ID: <b>19101560-01A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/22/2019 03:31 P</b>		
Client ID:		Run ID: <b>WETCHEM_191022S</b>		SeqNo: <b>6004693</b>		Prep Date: <b>10/22/2019</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent U 1.0 5 0.3 -6 75-125 0.17 0 20 S

The following samples were analyzed in this batch:

19101476-01A	19101476-02A	19101476-03A
19101476-04A	19101476-05A	19101476-06A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: XTO Energy  
 Work Order: 19101476  
 Project: YCF 2-35-1

# QC BATCH REPORT

Batch ID: **144589** Instrument ID **WETCHEM** Method: **SW7196A**

<b>MBLK</b>		Sample ID: <b>MBLK-144589-144589</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/24/2019 03:44 P</b>		
Client ID:		Run ID: <b>WETCHEM_191024Q</b>		SeqNo: <b>6009989</b>		Prep Date: <b>10/24/2019</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent U 1.0

<b>LCS</b>		Sample ID: <b>LCS-144589-144589</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/24/2019 03:44 P</b>		
Client ID:		Run ID: <b>WETCHEM_191024Q</b>		SeqNo: <b>6009990</b>		Prep Date: <b>10/24/2019</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 4.75 1.0 5 0 95 80-120 0

<b>MS</b>		Sample ID: <b>19101476-07A MS</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/24/2019 03:44 P</b>		
Client ID: <b>#7</b>		Run ID: <b>WETCHEM_191024Q</b>		SeqNo: <b>6009993</b>		Prep Date: <b>10/24/2019</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 3.2 1.0 5 0.88 46.4 75-125 0 S

<b>MS</b>		Sample ID: <b>19101476-07A MSI</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/24/2019 03:44 P</b>		
Client ID: <b>#7</b>		Run ID: <b>WETCHEM_191024Q</b>		SeqNo: <b>6009995</b>		Prep Date: <b>10/24/2019</b>		DF: <b>200</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 3066 200 3186 0.88 96.2 75-125 0

<b>MSD</b>		Sample ID: <b>19101476-07A MSD</b>				Units: <b>mg/Kg</b>		Analysis Date: <b>10/24/2019 03:44 P</b>		
Client ID: <b>#7</b>		Run ID: <b>WETCHEM_191024Q</b>		SeqNo: <b>6009994</b>		Prep Date: <b>10/24/2019</b>		DF: <b>1</b>		
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Chromium, Hexavalent 3.85 1.0 5 0.88 59.4 75-125 3.2 18.4 20 S

The following samples were analyzed in this batch:

19101476-07A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

Client: XTO Energy  
 Work Order: 19101476  
 Project: YCF 2-35-1

# QC BATCH REPORT

Batch ID: **R273492** Instrument ID **MOIST** Method: **SW3550C**

MBLK		Sample ID: WBLKS-R273492				Units: % of sample		Analysis Date: 10/21/2019 01:08 P		
Client ID:		Run ID: MOIST_191021B				SeqNo: 6003486		Prep Date:		DF: 1
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.10

LCS		Sample ID: LCS-R273492					Units: % of sample		Analysis Date: 10/21/2019 01:08 P		
Client ID:			Run ID: MOIST_191021B			SeqNo: 6003485		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 100 0.10 100 0 100 98-102 0

DUP		Sample ID: 19101571-02A DUP					Units: % of sample		Analysis Date: 10/21/2019 01:08 P		
Client ID:			Run ID: MOIST_191021B			SeqNo: 6003478		Prep Date:		DF: 1	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual	

Moisture 2.2 0.10 0 0 0 0-0 2.31 4.88 10

<b>DUP</b>				Sample ID: <b>19101571-04A DUP</b>				Units: <b>% of sample</b>			Analysis Date: <b>10/21/2019 01:08 P</b>			
Client ID:				Run ID: <b>MOIST_191021B</b>				SeqNo: <b>6003481</b>			Prep Date:		DF: <b>1</b>	
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual				

Moisture 1.18 0.10 0 0 0 0-0 1.18 0 10

The following samples were analyzed in this batch:

19101476-01A

Note: See Qualifiers Page for a list of Qualifiers and their explanation.

**Client:** XTO Energy  
**Work Order:** 19101476  
**Project:** YCF 2-35-1

## QC BATCH REPORT

Batch ID: **R273493** Instrument ID **MOIST** Method: **SW3550C**

<b>MBLK</b>		Sample ID: <b>WBLKS-R273493</b>				Units: % of sample		Analysis Date: <b>10/21/2019 02:27 P</b>		
Client ID:		Run ID: <b>MOIST_191021C</b>				SeqNo: <b>6003510</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture U 0.10

<b>LCS</b>		Sample ID: <b>LCS-R273493</b>				Units: % of sample		Analysis Date: <b>10/21/2019 02:27 P</b>		
Client ID:		Run ID: <b>MOIST_191021C</b>				SeqNo: <b>6003509</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 100 0.10 100 0 100 98-102 0

<b>DUP</b>		Sample ID: <b>19101476-06A DUP</b>				Units: % of sample		Analysis Date: <b>10/21/2019 02:27 P</b>		
Client ID: <b>#6</b>		Run ID: <b>MOIST_191021C</b>				SeqNo: <b>6003492</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 7.67 0.10 0 0 0 0-0 7.63 0.523 10

<b>DUP</b>		Sample ID: <b>19101482-06B DUP</b>				Units: % of sample		Analysis Date: <b>10/21/2019 02:27 P</b>		
Client ID:		Run ID: <b>MOIST_191021C</b>				SeqNo: <b>6003498</b>		Prep Date:		DF: <b>1</b>
Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual

Moisture 20.61 0.10 0 0 0 0-0 20.21 1.96 10

The following samples were analyzed in this batch:

19101476-02A	19101476-03A	19101476-04A
19101476-05A	19101476-06A	19101476-07A

**Note:** See Qualifiers Page for a list of Qualifiers and their explanation.





Sample Receipt Checklist

Client Name: XTO - CO

Date/Time Received: 18-Oct-19 09:30

Work Order: 19101476

Received by: KRW

Checklist completed by Keith Wurenga  
eSignature

18-Oct-19  
Date

Reviewed by: Chad Whelton  
eSignature

18-Oct-19  
Date

Matrices: Soil

Carrier name: FedEx

Shipping container/cooler in good condition? Yes ☒ No ☐ Not Present ☐

Custody seals intact on shipping container/cooler? Yes ☒ No ☐ Not Present ☐

Custody seals intact on sample bottles? Yes ☐ No ☐ Not Present ☒

Chain of custody present? Yes ☒ No ☐

Chain of custody signed when relinquished and received? Yes ☒ No ☐

Chain of custody agrees with sample labels? Yes ☒ No ☐

Samples in proper container/bottle? Yes ☒ No ☐

Sample containers intact? Yes ☒ No ☐

Sufficient sample volume for indicated test? Yes ☒ No ☐

All samples received within holding time? Yes ☒ No ☐

Container/Temp Blank temperature in compliance? Yes ☒ No ☐

Sample(s) received on ice? Yes ☒ No ☐

Temperature(s)/Thermometer(s): 3.4/3.4 C SR2

Cooler(s)/Kit(s):

Date/Time sample(s) sent to storage: 10/18/2019 10:54:25 AM

Water - VOA vials have zero headspace? Yes ☐ No ☐ No VOA vials submitted ☒

Water - pH acceptable upon receipt? Yes ☐ No ☐ N/A ☒

pH adjusted? Yes ☐ No ☐ N/A ☒

pH adjusted by:

Login Notes:

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Client Contacted:

Date Contacted:

Person Contacted:

Contacted By:

Regarding:

Comments:

CorrectiveAction: