19-Dec-2018

Jessica Dooling
XTO Energy
21459 CR5
Rifle, CO 81650

Re: **YCF 35-12** Work Order: **18121006**

Dear Jessica,

ALS Environmental received 7 samples on 15-Dec-2018 09:00 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 14.

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,

Electronically approved by: Chad Whelton

Chad Whelton
Project Manager

Report of Laboratory Analysis

Certificate No: MN 998501

ALS Group, USA

Date: 19-Dec-18

Client: XTO Energy
Project: YCF 35-12
Work Order: **18121006**

Work Order Sample Summary

Lab Samp ID	Client Sample ID	Matrix	Tag Number	Collection Date	Date Received	Hold
18121006-01	Background As #1	Soil		12/14/2018 09:03	12/15/2018 09:00	☐
18121006-02	Background As #2	Soil		12/14/2018 09:07	12/15/2018 09:00	☐
18121006-03	Background As #3	Soil		12/14/2018 09:12	12/15/2018 09:00	☐
18121006-04	Background As #4	Soil		12/14/2018 09:17	12/15/2018 09:00	☐
18121006-05	Background As #5	Soil		12/14/2018 09:23	12/15/2018 09:00	☐
18121006-06	Background As #6	Soil		12/14/2018 09:31	12/15/2018 09:00	☐
18121006-07	Background As #7	Soil		12/14/2018 09:42	12/15/2018 09:00	☐

ALS Group, USA

Date: 19-Dec-18

Client: XTO Energy
Project: YCF 35-12
WorkOrder: **18121006**

QUALIFIERS, ACRONYMS, UNITS

Qualifier	Description
*	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.

Acronym	Description
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

Units Reported	Description
% of sample	Percent of Sample
mg/Kg-dry	Milligrams per Kilogram Dry Weight

ALS Group, USA

Date: *19-Dec-18*

Client: XTO Energy
Project: YCF 35-12
Sample ID: Background As #1
Collection Date: 12/14/2018 09:03 AM

Work Order: 18121006
Lab ID: 18121006-01
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS		Method: **SW6020A**			Prep: SW3050B / 12/17/18		Analyst: **STP**
Arsenic	**4.0**		**0.067**	**0.45**	**mg/Kg-dry**	1	12/17/2018 16:22
MOISTURE		Method: **SW3550C**					Analyst: **KTP**
Moisture	**26**		**0.10**	**0.10**	**% of sample**	1	12/17/2018 15:15

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

ALS Group, USA

Date: *19-Dec-18*

Client: XTO Energy
Project: YCF 35-12
Sample ID: Background As #2
Collection Date: 12/14/2018 09:07 AM

Work Order: 18121006
Lab ID: 18121006-02
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS		Method: **SW6020A**			Prep: SW3050B / 12/17/18		Analyst: **STP**
Arsenic	**4.7**		**0.074**	**0.50**	**mg/Kg-dry**	1	12/17/2018 16:24
MOISTURE		Method: **SW3550C**					Analyst: **KTP**
Moisture	**19**		**0.10**	**0.10**	**% of sample**	1	12/17/2018 15:15

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

ALS Group, USA

Date: *19-Dec-18*

Client: XTO Energy
Project: YCF 35-12
Sample ID: Background As #3
Collection Date: 12/14/2018 09:12 AM

Work Order: 18121006
Lab ID: 18121006-03
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS		Method: **SW6020A**			Prep: SW3050B / 12/17/18		Analyst: **STP**
Arsenic	**7.0**		**0.070**	**0.47**	**mg/Kg-dry**	1	12/17/2018 16:26
MOISTURE		Method: **SW3550C**					Analyst: **KTP**
Moisture	**19**		**0.10**	**0.10**	**% of sample**	1	12/17/2018 15:15

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

ALS Group, USA

Date: *19-Dec-18*

Client: XTO Energy
Project: YCF 35-12
Sample ID: Background As #4
Collection Date: 12/14/2018 09:17 AM

Work Order: 18121006
Lab ID: 18121006-04
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS		Method: **SW6020A**			Prep: SW3050B / 12/17/18		Analyst: **STP**
Arsenic	**9.1**		**0.066**	**0.45**	**mg/Kg-dry**	1	12/17/2018 16:28
MOISTURE		Method: **SW3550C**					Analyst: **KTP**
Moisture	**22**		**0.10**	**0.10**	**% of sample**	1	12/17/2018 15:15

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

ALS Group, USA

Date: *19-Dec-18*

Client: XTO Energy
Project: YCF 35-12
Sample ID: Background As #5
Collection Date: 12/14/2018 09:23 AM

Work Order: 18121006
Lab ID: 18121006-05
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS		Method: **SW6020A**			Prep: SW3050B / 12/17/18		Analyst: **STP**
Arsenic	**5.6**		**0.062**	**0.42**	**mg/Kg-dry**	1	12/17/2018 16:30
MOISTURE		Method: **SW3550C**					Analyst: **KTP**
Moisture	**23**		**0.10**	**0.10**	**% of sample**	1	12/17/2018 15:15

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

ALS Group, USA

Date: *19-Dec-18*

Client: XTO Energy
Project: YCF 35-12
Sample ID: Background As #6
Collection Date: 12/14/2018 09:31 AM

Work Order: 18121006
Lab ID: 18121006-06
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS		Method: **SW6020A**		Prep: SW3050B / 12/17/18			Analyst: **STP**
Arsenic	**4.2**		**0.081**	**0.55**	**mg/Kg-dry**	1	12/17/2018 16:31
MOISTURE		Method: **SW3550C**					Analyst: **KTP**
Moisture	**32**		**0.10**	**0.10**	**% of sample**	1	12/17/2018 15:15

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

ALS Group, USA

Date: *19-Dec-18*

Client: XTO Energy
Project: YCF 35-12
Sample ID: Background As #7
Collection Date: 12/14/2018 09:42 AM

Work Order: 18121006
Lab ID: 18121006-07
Matrix: SOIL

Analyses	Result	Qual	MDL	Report Limit	Units	Dilution Factor	Date Analyzed
METALS BY ICP-MS		Method: **SW6020A**			Prep: SW3050B / 12/17/18		Analyst: **STP**
Arsenic	**4.0**		**0.071**	**0.48**	**mg/Kg-dry**	1	12/17/2018 16:38
MOISTURE		Method: **SW3550C**					Analyst: **KTP**
Moisture	**26**		**0.10**	**0.10**	**% of sample**	1	12/17/2018 15:15

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

ALS Group, USA

Date: 19-Dec-18

Client: XTO Energy

Work Order: 18121006

Project: YCF 35-12

QC BATCH REPORT

Batch ID: **129481** Instrument ID **ICPMS3** Method: **SW6020A**

MBLK Sample ID: **MBLK-129481-129481** Units: **mg/Kg** Analysis Date: **12/17/2018 04:19 PM**

Client ID: Run ID: **ICPMS3_181217A** SeqNo: **5442182** Prep Date: **12/17/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	U	0.25								

LCS Sample ID: **LCS-129481-129481** Units: **mg/Kg** Analysis Date: **12/17/2018 04:20 PM**

Client ID: Run ID: **ICPMS3_181217A** SeqNo: **5442183** Prep Date: **12/17/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	5.21	0.25	5	0	104	80-120	0			

MS Sample ID: **1812958-01BMS** Units: **mg/Kg** Analysis Date: **12/17/2018 04:47 PM**

Client ID: Run ID: **ICPMS3_181217A** SeqNo: **5442334** Prep Date: **12/17/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	7.819	0.33	6.536	1.117	103	75-125	0			

MSD Sample ID: **1812958-01BMSD** Units: **mg/Kg** Analysis Date: **12/17/2018 04:49 PM**

Client ID: Run ID: **ICPMS3_181217A** SeqNo: **5442335** Prep Date: **12/17/2018** DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Arsenic	7.845	0.33	6.562	1.117	103	75-125	7.819	0.329	20	

The following samples were analyzed in this batch:

18121006-01A	18121006-02A	18121006-03A
18121006-04A	18121006-05A	18121006-06A
18121006-07A		

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

Client: XTO Energy
Work Order: 18121006
Project: YCF 35-12

QC BATCH REPORT

Batch ID: **R251585** Instrument ID **MOIST** Method: **SW3550C**

MBLK Sample ID: **WBLKS-R251585** Units: **% of sample** Analysis Date: **12/17/2018 03:15 PM**
Client ID: Run ID: **MOIST_181217B** SeqNo: **5443192** 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-R251585** Units: **% of sample** Analysis Date: **12/17/2018 03:15 PM**
Client ID: Run ID: **MOIST_181217B** SeqNo: **5443191** 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: **1812991-02C DUP** Units: **% of sample** Analysis Date: **12/17/2018 03:15 PM**
Client ID: Run ID: **MOIST_181217B** SeqNo: **5443186** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	18.36	0.10	0	0	0	0-0	14.77	21.7	10	R

DUP Sample ID: **1812991-04C DUP** Units: **% of sample** Analysis Date: **12/17/2018 03:15 PM**
Client ID: Run ID: **MOIST_181217B** SeqNo: **5443189** Prep Date: DF: **1**

Analyte	Result	PQL	SPK Val	SPK Ref Value	%REC	Control Limit	RPD Ref Value	%RPD	RPD Limit	Qual
Moisture	14.14	0.10	0	0	0	0-0	14.53	2.72	10	

The following samples were analyzed in this batch:

18121006-01A	18121006-02A	18121006-03A
18121006-04A	18121006-05A	18121006-06A
18121006-07A		

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

1812006

ALS Laboratory Group

CHAIN OF CUSTODY

Failure to complete all section of this form may delay analysis.

COC number (for client tracking)

Page 1 of 1

CLIENT CONTACT AND REPORTING INFORMATION		INVOICE ADDRESS (if other than reporting address)	
Company Name:	XTO Energy Inc	Company Name:	SAME
Project Manager:	Jessica Dooling	Contact Name:	SAME
Address:	21459 CR 5	Address:	SAME
Rifle, CO			
Phone:	970.675.4122	PROJECT INFORMATION	
Email 1:	jessica_dooling@xtoenergy.com	Project ID:	YCF 35-12
Email 2:	cmckisson@ltenv.com	Site:	
SERVICE REQUEST (Express services subject to availability)		PO No:	
☐ Regular (default)		ALS Quote No:	
☑ Express	3 day		

ANALYSIS REQUIRED (suite codes must be listed to attract suite prices)

ALS ID #	SAMPLE IDENTIFICATION (this description will appear on report)	MATRIX (a)	SAMPLING AND CONTAINER INFO Date	Time	Tot Bottle	REMARKS	BTEX	TPH (DRO/GRO)	EC, SAR, and pH	Table 910 PAHs	Table 910 Metals	Arsenic	CROSS THE REQUESTED ANALYSIS
	Background As #1	S	12/14/2018	0903	1							X	
	Background As #2	S	12/14/2018	0907	1							X	
	Background As #3	S	12/14/2018	0912	1							X	
	Background As #4	S	12/14/2018	0917	1							X	
	Background As #5	S	12/14/2018	0923	1							X	
	Background As #6	S	12/14/2018	0931	1							X	
	Background As #7	S	12/14/2018	0942	1							X	

CLIENT SIGNATURES	For lab use only				
Client's Signature:	Cooler Security Seal	Sample Temp	No of Cooler Received	Received by (lab)	Date and Time
	☐ sealed	☐ chilled deg °C	carton / cooler box		12/15/18 0900
Client's Date and Time of Completion: 12-14-18 1500	☐ broken	☐ ambient 1	Courier Name: ALS	Committed by	Date and Time
	☐ not available				

Note: (a) DW (Drinking water), SW (Surface water), GW (Ground water), WW (Waste water), S (Soil), SL (Sludge), SE (Sediment), OS (Other solid material)

ALS Technichem (HK) Pty Ltd Address: 11/F, Chung Shun Knitting Centre, 1-3 Wing Yip Street, Kwai Chung, N.T., Hong Kong Tel: +852 2610 1044 Fax: +852 2610 2021 Email: HongKong@alsglobal.com

4.8°c SR2

ALS Group, USA

Sample Receipt Checklist

Client Name: **XTO - CO** Date/Time Received: **15-Dec-18 09:00**

Work Order: **18121006** Received by: **KRW**

Checklist completed by Keith Wierenga (eSignature) 17-Dec-18 (Date) Reviewed by: Chad Whelton (eSignature) 17-Dec-18 (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):	4.8/4.8 C	SR2	
Cooler(s)/Kit(s):			
Date/Time sample(s) sent to storage:	12/17/2018 9:12:24 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:

Client Contacted: Date Contacted: Person Contacted:

Contacted By: Regarding:

Comments:

CorrectiveAction: