

Technical Report for

XTO Energy

PCU T78X-12G

Accutest Job Number: D40648

Sampling Date: 11/06/12

Report to:

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Total number of pages in report: 20



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.



Brad Madadian
Laboratory Director

Client Service contact: Renea Jackson 303-425-6021

Certifications: CO, ID, NE, NM, ND (R-027) (PW), UT (NELAP CO00049), TX (T104704511-12-1)

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Sample Summary

XTO Energy

Job No: D40648

PCU T78X-12G

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
D40648-1	11/06/12	00:00 DK	11/07/12	SO	Soil	CUT 1 DISCRETE AS #1
D40648-2	11/06/12	00:00 DK	11/07/12	SO	Soil	CUT 1 DISCRETE AS #2
D40648-3	11/06/12	00:00 DK	11/07/12	SO	Soil	CUT 1 DISCRETE AS #3
D40648-4	11/06/12	00:00 DK	11/07/12	SO	Soil	CUT 1 DISCRETE AS #4
D40648-5	11/06/12	00:00 DK	11/07/12	SO	Soil	CUT 1 DISCRETE AS #5

Soil samples reported on a dry weight basis unless otherwise indicated on result page.



CASE NARRATIVE / CONFORMANCE SUMMARY

Client: XTO Energy

Job No D40648

Site: PCU T78X-12G

Report Date 11/12/2012 11:04:24 A

On 11/07/2012, 5 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 2.7 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D40648 was assigned to the project. The lab sample ID, client sample ID, and date of sample collection are detailed in the report's Results Summary.

Specified quality control criteria were achieved for this job except as noted below. For more information, please refer to the analytical results and QC summary pages.

Metals By Method SW846 6020A

Matrix SO	Batch ID: MP8841
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- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D40653-1MS, D40653-1MSD, D40653-1SDL were used as the QC samples for the metals analysis.

Wet Chemistry By Method SM19 2540B M

Matrix SO	Batch ID: GN17595
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- The data for SM19 2540B M meets quality control requirements.

AMS certifies that data reported for samples received, listed on the associated custody chain or analytical task order, were produced to specifications meeting AMS's Quality System precision, accuracy and completeness objectives except as noted.

Estimated non-standard method measurement uncertainty data is available on request, based on quality control bias and implicit for standard methods. Acceptable uncertainty requires tested parameter quality control data to meet method criteria.

AMS is not responsible for data quality assumptions if partial reports are used and recommends that this report be used in its entirety. This report is authorized by AMS indicated via signature on the report cover.

Summary of Hits

Job Number: D40648
Account: XTO Energy
Project: PCU T78X-12G
Collected: 11/06/12



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D40648-1	CUT 1 DISCRETE AS #1					
Arsenic		12.5	0.11		mg/kg	SW846 6020A
D40648-2	CUT 1 DISCRETE AS #2					
Arsenic		9.8	0.10		mg/kg	SW846 6020A
D40648-3	CUT 1 DISCRETE AS #3					
Arsenic		16.4	0.10		mg/kg	SW846 6020A
D40648-4	CUT 1 DISCRETE AS #4					
Arsenic		9.0	0.10		mg/kg	SW846 6020A
D40648-5	CUT 1 DISCRETE AS #5					
Arsenic		8.6	0.11		mg/kg	SW846 6020A

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: CUT 1 DISCRETE AS #1	Date Sampled: 11/06/12
Lab Sample ID: D40648-1	Date Received: 11/07/12
Matrix: SO - Soil	Percent Solids: 93.0
Project: PCU T78X-12G	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	12.5	0.11	mg/kg	5	11/08/12	11/11/12 JB	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2985

(2) Prep QC Batch: MP8841

RL = Reporting Limit

4.1
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Report of Analysis

Client Sample ID: CUT 1 DISCRETE AS #2 Lab Sample ID: D40648-2 Matrix: SO - Soil Project: PCU T78X-12G	Date Sampled: 11/06/12 Date Received: 11/07/12 Percent Solids: 97.8
---	--

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	9.8	0.10	mg/kg	5	11/08/12	11/11/12 JB	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2985

(2) Prep QC Batch: MP8841

RL = Reporting Limit

4.2
4

Report of Analysis

Client Sample ID: CUT 1 DISCRETE AS #3	Date Sampled: 11/06/12
Lab Sample ID: D40648-3	Date Received: 11/07/12
Matrix: SO - Soil	Percent Solids: 96.5
Project: PCU T78X-12G	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	16.4	0.10	mg/kg	5	11/08/12	11/11/12 JB	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2985

(2) Prep QC Batch: MP8841

RL = Reporting Limit

4.3
4

Report of Analysis

Client Sample ID: CUT 1 DISCRETE AS #4 Lab Sample ID: D40648-4 Matrix: SO - Soil Project: PCU T78X-12G	Date Sampled: 11/06/12 Date Received: 11/07/12 Percent Solids: 96.6
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Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	9.0	0.10	mg/kg	5	11/08/12	11/11/12 JB	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2985

(2) Prep QC Batch: MP8841

RL = Reporting Limit

4.4
4

Report of Analysis

Client Sample ID: CUT 1 DISCRETE AS #5	Date Sampled: 11/06/12
Lab Sample ID: D40648-5	Date Received: 11/07/12
Matrix: SO - Soil	Percent Solids: 94.9
Project: PCU T78X-12G	

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Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	8.6	0.11	mg/kg	5	11/08/12	11/11/12 JB	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2985

(2) Prep QC Batch: MP8841

RL = Reporting Limit

Misc. Forms

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Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody



CHAIN OF CUSTODY

4036 Youngfield Street, Wheat Ridge, CO 80033
TEL: 303-425-6021 FAX: 303-425-6854
www.accutest.com

FED-EX Tracking #	Bottle Order Control #
Accutest Quote #	Accutest Job # D40648

Client / Reporting Information		Project Information				Requested Analysis (see TEST CODE sheet)										Matrix Codes										
Company Name KRW Consulting		Project Name: PCU 78-12				Arsenic										DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OL - Oil LIQ - Other Liquid AIR - Air SOL - Other Solid WP - Wipe FB - Field Blank EB - Equipment Blank RB - Rinse Blank TB - Trip Blank										
Street Address 800 West 14th Street, Suite 200		Street																								
City Lakewood, CO 80214		City		State													Billing Information (if different from Report to) Company Name XTO Energy Street Address 21459 CR5 City Rifle, CO 81650									
Project Contact Dwayne Knudson		Project #		Client Purchase Order #																						
Phone # (970) 488-1098		Project Manager Joe Hess		Attention: Jessica Dooling																						
Sample(s) Name(s)		MEOH/DAI Vol #		Date		Time		Sampled by		Matrix		# of bottles		Number of preserved Bottles						LAB USE ONLY						
Field ID / Point of Collection														<input type="checkbox"/> HCl <input type="checkbox"/> NaOH <input type="checkbox"/> HNO3 <input type="checkbox"/> H2SO4 <input type="checkbox"/> NONE <input type="checkbox"/> MEQ <input type="checkbox"/> ENCORE												
Cut 1 Discrete AS #1				11-6-12				DK		SO		1								01						
Cut 1 Discrete AS #2				"								1								02						
" " #3				"								1								03						
" " #4				"								1								04						
" " #5				"								1								05						

DK 117

Turnaround Time (Business days)		Data Deliverable Information				Comments / Special Instructions
<input type="checkbox"/> Std. 10 Business Days <input checked="" type="checkbox"/> 5 Business Days <input type="checkbox"/> 6 Day RUSH <input checked="" type="checkbox"/> 3 Day Emergency <input type="checkbox"/> 2 Day Emergency <input type="checkbox"/> 1 Day Emergency <input type="checkbox"/> Emergency & Rush T/A data available VIA Leblink		Approved By (Accutest PM) / Date:		<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> COMMBN <input type="checkbox"/> COMMBN+		<input type="checkbox"/> State Forms Required <input type="checkbox"/> Send Forms to State <input type="checkbox"/> Report by Fax <input checked="" type="checkbox"/> Report by PDF ONLY <input type="checkbox"/> EDD Format Commercial "A" = Results Only Commercial "B" = Results + QC Summary Commercial BN = Results/QC Narrative (+ chromatograms)
Please Email Results to KRW Piceance Team						

Sample Custody must be documented below each time samples change possession, including courier delivery.					
Relinquished by Sampler: 1 Lore Peterson	Date Time: 11/7/12 15:30	Received By: 1 Rifle Service Center	Relinquished By: 2	Date Time: 11/7/12 11:50	Received By: 4
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:	Received By:
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # HDCO	<input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Preserved where applicable <input checked="" type="checkbox"/> Office <input type="checkbox"/> Cooler Temp. 2.7

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Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D40648

Client: KRW CONSULTING

Immediate Client Services Action Required: No

Date / Time Received: 11/7/2012 11:50:00 AM

No. Coolers: 1

Client Service Action Required at Login: No

Project: PCU 78-12

Airbill #'s: HDCCO

<u>Cooler Security</u>	<u>Y or N</u>		<u>Y or N</u>	
1. Custody Seals Present:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	3. COC Present:	<input checked="" type="checkbox"/> <input type="checkbox"/>
2. Custody Seals Intact:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	4. Smp'l Dates/Time OK	<input checked="" type="checkbox"/> <input type="checkbox"/>

<u>Cooler Temperature</u>	<u>Y or N</u>	
1. Temp criteria achieved:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Cooler temp verification:	Infrared gun	
3. Cooler media:	Ice (bag)	

<u>Quality Control Preservation</u>	<u>Y or N</u>		<u>N/A</u>
1. Trip Blank present / cooler:	<input type="checkbox"/>	<input type="checkbox"/>	
2. Trip Blank listed on COC:	<input type="checkbox"/>	<input type="checkbox"/>	
3. Samples preserved properly:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. VOCs headspace free:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

<u>Sample Integrity - Documentation</u>	<u>Y or N</u>	
1. Sample labels present on bottles:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Container labeling complete:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Sample container label / COC agree:	<input checked="" type="checkbox"/>	<input type="checkbox"/>

<u>Sample Integrity - Condition</u>	<u>Y or N</u>	
1. Sample recvd within HT:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. All containers accounted for:	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Condition of sample:	Intact	

<u>Sample Integrity - Instructions</u>	<u>Y or N</u>		<u>N/A</u>
1. Analysis requested is clear:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
2. Bottles received for unspecified tests	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. Sufficient volume rec'd for analysis:	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
4. Compositing instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Filtering instructions clear:	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Comments

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Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: D40648
Account: XTOKRWR - XTO Energy
Project: PCU T78X-12G

QC Batch ID: MP8841
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 11/08/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.006	.06	0.0084	<0.10
Barium	1.0	.0065	.037		
Beryllium	0.10	.016	.09		
Boron	20	1.2	1.2		
Cadmium	0.050	.014	.021		
Calcium	200	7.9	8		
Chromium	1.0	.033	.19		
Cobalt	0.10	.0012	.015		
Copper	1.0	.017	.065		
Iron	20	.8	5		
Lead	0.25	.0011	.024		
Magnesium	50	.44	.85		
Manganese	0.50	.0043	.02		
Molybdenum	0.50	.018	.018		
Nickel	1.0	.0049	.011		
Phosphorus	30	1.4	3.6		
Potassium	100	9.8	10		
Selenium	0.20	.029	.14		
Silver	0.050	.0009	.0065		
Sodium	250	1.5	2.3		
Strontium	10	.036	.036		
Thallium	0.10	.00095	.0095		
Tin	5.0	.023	.34		
Titanium	1.0	.044	.1		
Uranium	0.25	.00085	.001		
Vanadium	2.0	.12	.21		
Zinc	5.0	.033	.35		

Associated samples MP8841: D40648-1, D40648-2, D40648-3, D40648-4, D40648-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D40648
 Account: XTOKRWR - XTO Energy
 Project: PCU T78X-12G

QC Batch ID: MP8841
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: mg/kg

Prep Date: 11/08/12

Metal	D40653-1 Original MS		SpikeLot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	9.0	181	163	105.4	75-125
Barium					
Beryllium					
Boron					
Cadmium					
Calcium					
Chromium					
Cobalt					
Copper					
Iron					
Lead					
Magnesium					
Manganese					
Molybdenum					
Nickel					
Phosphorus					
Potassium					
Selenium					
Silver					
Sodium					
Strontium					
Thallium					
Tin					
Titanium					
Uranium					
Vanadium					
Zinc					

Associated samples MP8841: D40648-1, D40648-2, D40648-3, D40648-4, D40648-5

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D40648
 Account: XTOKRWR - XTO Energy
 Project: PCU T78X-12G

QC Batch ID: MP8841
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: mg/kg

Prep Date: 11/08/12

Metal	D40653-1 Original MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit	
Aluminum						
Antimony						
Arsenic	9.0	175	168	98.8	3.4	20
Barium						
Beryllium						
Boron						
Cadmium						
Calcium						
Chromium						
Cobalt						
Copper						
Iron						
Lead						
Magnesium						
Manganese						
Molybdenum						
Nickel						
Phosphorus						
Potassium						
Selenium						
Silver						
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Uranium						
Vanadium						
Zinc						

Associated samples MP8841: D40648-1, D40648-2, D40648-3, D40648-4, D40648-5

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D40648
 Account: XTOKRWR - XTO Energy
 Project: PCU T78X-12G

QC Batch ID: MP8841
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: mg/kg

Prep Date: 11/08/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	109	100	109.0	80-120
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP8841: D40648-1, D40648-2, D40648-3, D40648-4, D40648-5

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: D40648
 Account: XTOKRWR - XTO Energy
 Project: PCU T78X-12G

QC Batch ID: MP8841
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: ug/l

Prep Date: 11/08/12

Metal	D40653-1			QC
	Original	SDL 5:25	%DIF	Limits

Aluminum				
Antimony				
Arsenic	55.8	53.1	4.9	0-10
Barium				
Beryllium				
Boron				
Cadmium				
Calcium				
Chromium				
Cobalt				
Copper				
Iron				
Lead				
Magnesium				
Manganese				
Molybdenum				
Nickel				
Phosphorus				
Potassium				
Selenium				
Silver				
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Uranium				
Vanadium				
Zinc				

Associated samples MP8841: D40648-1, D40648-2, D40648-3, D40648-4, D40648-5

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

6.1.4

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