

Technical Report for

XTO Energy

PCU 197-36A

1203-02

Accutest Job Number: D40716

Sampling Date: 11/06/12

Report to:

KRW Consulting, Inc.
8000 West 14th Avenue
Lakewood, CO 80214
dknudson@krwconsulting.com; jhess@krwconsulting.com;
crachak@krwconsulting.com; rrasnic@krwconsulting.com;
ATTN: Dwayne Knudson

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)

This report shall not be reproduced, except in its entirety, without the written approval of Accutest Laboratories. Test results relate only to samples analyzed.

Table of Contents

-1-

Section 1: Sample Summary	3
Section 2: Case Narrative/Conformance Summary	4
Section 3: Summary of Hits	5
Section 4: Sample Results	6
4.1: D40716-1: CUT 1 DISCRETE AS (1)	7
4.2: D40716-2: CUT 1 DISCRETE AS (2)	8
4.3: D40716-3: CUT 1 DISCRETE AS (3)	9
4.4: D40716-4: CUT 1 DISCRETE AS (4)	10
4.5: D40716-5: CUT 1 DISCRETE AS (5)	11
Section 5: Misc. Forms	12
5.1: Chain of Custody	13
Section 6: Metals Analysis - QC Data Summaries	15
6.1: Prep QC MP8857: As	16

1

2

3

4

5

6



Sample Summary

XTO Energy

Job No: D40716

PCU 197-36A

Project No: 1203-02

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
D40716-1	11/06/12	11:05 DS	11/08/12	SO	Soil	CUT 1 DISCRETE AS (1)
D40716-2	11/06/12	11:10 DS	11/08/12	SO	Soil	CUT 1 DISCRETE AS (2)
D40716-3	11/06/12	11:15 DS	11/08/12	SO	Soil	CUT 1 DISCRETE AS (3)
D40716-4	11/06/12	11:20 DS	11/08/12	SO	Soil	CUT 1 DISCRETE AS (4)
D40716-5	11/06/12	11:25 DS	11/08/12	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 D40716

Site: PCU 197-36A

Report Date 11/14/2012 1:23:08 PM

On 11/08/2012, 5 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D40716 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: MP8857

- All samples were digested within the recommended method holding time.
- All samples were analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D40712-1MS, D40712-1SDL, D40712-1MSD were used as the QC samples for the metals analysis.
- The RPD(s) for the MS and MSD recoveries of Arsenic are outside control limits for sample MP8857-S2. High RPD due to possible sample matrix or nonhomogeneity.

Wet Chemistry By Method SM19 2540B M

Matrix SO

Batch ID: GN17606

- 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: D40716
Account: XTO Energy
Project: PCU 197-36A
Collected: 11/06/12



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
D40716-1	CUT 1 DISCRETE AS (1)					
Arsenic		14.0	0.11		mg/kg	SW846 6020A
D40716-2	CUT 1 DISCRETE AS (2)					
Arsenic		16.2	0.12		mg/kg	SW846 6020A
D40716-3	CUT 1 DISCRETE AS (3)					
Arsenic		14.9	0.12		mg/kg	SW846 6020A
D40716-4	CUT 1 DISCRETE AS (4)					
Arsenic		12.7	0.11		mg/kg	SW846 6020A
D40716-5	CUT 1 DISCRETE AS (5)					
Arsenic		18.2	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: D40716-1	Date Received: 11/08/12
Matrix: SO - Soil	Percent Solids: 85.3
Project: PCU 197-36A	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	14.0	0.11	mg/kg	5	11/09/12	11/14/12 JB	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2996

(2) Prep QC Batch: MP8857

RL = Reporting Limit

4.1
 4

Report of Analysis

Client Sample ID: CUT 1 DISCRETE AS (2)	Date Sampled: 11/06/12
Lab Sample ID: D40716-2	Date Received: 11/08/12
Matrix: SO - Soil	Percent Solids: 81.4
Project: PCU 197-36A	

4.2
4

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	16.2	0.12	mg/kg	5	11/09/12	11/14/12 JB	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2996

(2) Prep QC Batch: MP8857

RL = Reporting Limit

Report of Analysis

Client Sample ID: CUT 1 DISCRETE AS (3)	
Lab Sample ID: D40716-3	Date Sampled: 11/06/12
Matrix: SO - Soil	Date Received: 11/08/12
	Percent Solids: 83.9
Project: PCU 197-36A	

4.3
4

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	14.9	0.12	mg/kg	5	11/09/12	11/14/12 JB	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2996

(2) Prep QC Batch: MP8857

RL = Reporting Limit

Report of Analysis

Client Sample ID: CUT 1 DISCRETE AS (4)	Date Sampled: 11/06/12
Lab Sample ID: D40716-4	Date Received: 11/08/12
Matrix: SO - Soil	Percent Solids: 87.2
Project: PCU 197-36A	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	12.7	0.11	mg/kg	5	11/09/12	11/14/12 JB	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2996

(2) Prep QC Batch: MP8857

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: D40716-5	Date Received: 11/08/12
Matrix: SO - Soil	Percent Solids: 86.4
Project: PCU 197-36A	

4.5
4

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	18.2	0.11	mg/kg	5	11/09/12	11/14/12 JB	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2996

(2) Prep QC Batch: MP8857

RL = Reporting Limit

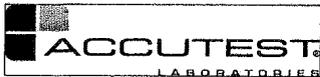
Misc. Forms

5

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 # D40716

Client / Reporting Information		Project Information				Requested Analysis (see TEST CODE sheet)												Matrix Codes
Company Name KRW Consulting		Project Name XTO PCU 197-36A				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 8000 West 14th Street, Suite 200		Street		Billing Information (If different from Report to)														
City Lakewood, CO 80214		City		Company Name XTO Energy														
Project Contact Dwayne Knudson		Project # 1203-02		Street Address 21459 CR5														
Phone # (970) 488-1098		Client Purchase Order #		City Rifle, CO 81850														
Sampler(s) Name(s) DAVID SANDERS		Project Manager Joe Hess		Attention Jessica Dooling														
Field ID / Point of Collection		MECH/DI/Vial #	Collection		Number of preserved Bottles												LAB USE ONLY	
			Date	Time	Sampled by	Matrix	# of bottles	HCl	NaOH	LNH3	H2SO4	HNO3	DI Water	MECH	ENHANCE	PRESERVE		
CWT 1 DISCRETE AS (1)			11-6-12	11:05	DS	SO	1											01
CWT 1 DISCRETE AS (2)			/	11:10	/	SO	1											02
CWT 1 DISCRETE AS (3)			/	11:15	/	SO	1											03
CWT 1 DISCRETE AS (4)			/	11:20	/	SO	1											04
CWT 1 DISCRETE AS (5)			11-6-12	11:25	DS	SO	1											05

Turnaround Time (Business days)		Data Deliverable Information				Comments / Special Instructions
<input type="checkbox"/> Std. 10 Business Days <input checked="" type="checkbox"/> Std. 5 Business Days <input type="checkbox"/> 6 Day RUSH <input 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 Lablink		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+ Commercial "A" = Results Only Commercial "B" = Results + QC Summary Commercial BN = Results/QC Narrative (+ = abnormalograms)		<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
Please Email Results to KRW Picaance Team						

Sample Custody must be documented below each time samples change possession, including courier delivery.

Relinquished by Sampler: 1 1021 A. WILSON	Date Time: 11/7/12 16:30	Received By: 1 [Signature] Service Center	Relinquished By: 2 [Signature]	Date Time: 11-8-12 12:30		
Relinquished by Sampler: 3	Date Time:	Received By: 3	Relinquished By: 4	Date Time:		
Relinquished by: 5	Date Time:	Received By: 5	Custody Seal # <input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Preserved where applicable <input checked="" type="checkbox"/>	On Ice <input checked="" type="checkbox"/>	Cooler Temp. 4.0

5.1
5



Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D40716

Client: KRW CONSULTING

Immediate Client Services Action Required: No

Date / Time Received: 11/8/2012 12:30:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: XTO PCU 197-36A

Airbill #'s: hdco

<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</u>	<u>or</u>	<u>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</u>	<u>or</u>	<u>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

Accutest Laboratories
V:(303) 425-6021

4036 Youngfield Street
F: (303) 425-6854

Wheat Ridge, CO
www.accutest.com

5.1
5

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: D40716
Account: XTOKRWR - XTO Energy
Project: PCU 197-36A

QC Batch ID: MP8857
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 11/09/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.006	.06	0.0095	<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 MP8857: D40716-1, D40716-2, D40716-3, D40716-4, D40716-5

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: D40716
 Account: XTOKRWR - XTO Energy
 Project: PCU 197-36A

QC Batch ID: MP8857
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: mg/kg

Prep Date: 11/09/12

Metal	D40712-1 Original MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	9.6	111	119	85.4 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 MP8857: D40716-1, D40716-2, D40716-3, D40716-4, D40716-5

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: D40716
 Account: XTOKRWR - XTO Energy
 Project: PCU 197-36A

QC Batch ID: MP8857
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: mg/kg

Prep Date: 11/09/12

Metal	D40712-1 Original MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum					
Antimony					
Arsenic	9.6	137	121	105.2	21.0 (a) 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 MP8857: D40716-1, D40716-2, D40716-3, D40716-4, D40716-5

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
 (a) High RPD due to possible sample matrix or nonhomogeneity.

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D40716
 Account: XTOKRWR - XTO Energy
 Project: PCU 197-36A

QC Batch ID: MP8857
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: mg/kg

Prep Date: 11/09/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	103	100	103.0	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 MP8857: D40716-1, D40716-2, D40716-3, D40716-4, D40716-5

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

6.1.3
 6

SERIAL DILUTION RESULTS SUMMARY

Login Number: D40716
 Account: XTOKRWR - XTO Energy
 Project: PCU 197-36A

QC Batch ID: MP8857
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: ug/l

Prep Date: 11/09/12

Metal	D40712-1			QC
	Original	SDL 5:25	%DIF	Limits

Aluminum				
Antimony				
Arsenic	82.6	82.5	0.1	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 MP8857: D40716-1, D40716-2, D40716-3, D40716-4, D40716-5

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

6.1.4
 6