



09/18/12

## Technical Report for

**XTO Energy**

**PCU 197-36A**

**1203-02**

**Accutest Job Number: D38598**

**Sampling Date: 09/07/12**

### Report to:

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**Total number of pages in report: 23**



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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Test results relate only to samples analyzed.

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Sample Summary

XTO Energy

Job No: D38598

PCU 197-36A  
Project No: 1203-02

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D38598-1	09/07/12	13:40 DS	09/11/12	SO	Soil	BACKGROUND ARSENIC (1)
D38598-2	09/07/12	13:45 DS	09/11/12	SO	Soil	BACKGROUND ARSENIC (2)
D38598-3	09/07/12	13:50 DS	09/11/12	SO	Soil	BACKGROUND ARSENIC (3)
D38598-4	09/07/12	13:55 DS	09/11/12	SO	Soil	BACKGROUND ARSENIC (4)
D38598-5	09/07/12	14:00 DS	09/11/12	SO	Soil	BACKGROUND ARSENIC (5)
D38598-6	09/07/12	14:05 DS	09/11/12	SO	Soil	BACKGROUND ARSENIC (6)
D38598-7	09/07/12	14:10 DS	09/11/12	SO	Soil	BACKGROUND ARSENIC (7)
D38598-8	09/07/12	14:15 DS	09/11/12	SO	Soil	BACKGROUND ARSENIC (8)

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



## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** XTO Energy

**Job No** D38598

**Site:** PCU 197-36A

**Report Date** 9/18/2012 11:53:53 AM

On 09/11/2012, 8 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4.0 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D38598 was assigned to the project. The lab sample IDs, client sample IDs, 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:** MP8375

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D38290-1MS, D38290-1MSD, D38290-1SDL were used as the QC samples for the metals analysis.

### Wet Chemistry By Method SM19 2540B M

**Matrix** SO

**Batch ID:** GN16744

- 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

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**Job Number:** D38598  
**Account:** XTO Energy  
**Project:** PCU 197-36A  
**Collected:** 09/07/12



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
<b>D38598-1</b>	<b>BACKGROUND ARSENIC (1)</b>					
Arsenic		5.2	0.10		mg/kg	SW846 6020A
<b>D38598-2</b>	<b>BACKGROUND ARSENIC (2)</b>					
Arsenic		5.2	0.11		mg/kg	SW846 6020A
<b>D38598-3</b>	<b>BACKGROUND ARSENIC (3)</b>					
Arsenic		4.3	0.11		mg/kg	SW846 6020A
<b>D38598-4</b>	<b>BACKGROUND ARSENIC (4)</b>					
Arsenic		6.2	0.11		mg/kg	SW846 6020A
<b>D38598-5</b>	<b>BACKGROUND ARSENIC (5)</b>					
Arsenic		4.6	0.11		mg/kg	SW846 6020A
<b>D38598-6</b>	<b>BACKGROUND ARSENIC (6)</b>					
Arsenic		7.4	0.11		mg/kg	SW846 6020A
<b>D38598-7</b>	<b>BACKGROUND ARSENIC (7)</b>					
Arsenic		7.3	0.11		mg/kg	SW846 6020A
<b>D38598-8</b>	<b>BACKGROUND ARSENIC (8)</b>					
Arsenic		5.5	0.10		mg/kg	SW846 6020A

Sample Results

Report of Analysis

Report of Analysis

<b>Client Sample ID:</b>	BACKGROUND ARSENIC (1)	<b>Date Sampled:</b>	09/07/12
<b>Lab Sample ID:</b>	D38598-1	<b>Date Received:</b>	09/11/12
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	92.5
<b>Project:</b>	PCU 197-36A		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.2	0.10	mg/kg	5	09/12/12	09/18/12 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA2813  
(2) Prep QC Batch: MP8375

RL = Reporting Limit

Report of Analysis

**Client Sample ID:** BACKGROUND ARSENIC (2)  
**Lab Sample ID:** D38598-2  
**Matrix:** SO - Soil  
**Project:** PCU 197-36A

**Date Sampled:** 09/07/12  
**Date Received:** 09/11/12  
**Percent Solids:** 89.0

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.2	0.11	mg/kg	5	09/12/12	09/18/12 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA2813  
(2) Prep QC Batch: MP8375

RL = Reporting Limit



Report of Analysis

**Client Sample ID:** BACKGROUND ARSENIC (3)  
**Lab Sample ID:** D38598-3  
**Matrix:** SO - Soil  
**Project:** PCU 197-36A

**Date Sampled:** 09/07/12  
**Date Received:** 09/11/12  
**Percent Solids:** 93.8

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	4.3	0.11	mg/kg	5	09/12/12	09/18/12 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA2813  
(2) Prep QC Batch: MP8375

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	BACKGROUND ARSENIC (4)	<b>Date Sampled:</b>	09/07/12
<b>Lab Sample ID:</b>	D38598-4	<b>Date Received:</b>	09/11/12
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	92.3
<b>Project:</b>	PCU 197-36A		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	6.2	0.11	mg/kg	5	09/12/12	09/18/12 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA2813  
(2) Prep QC Batch: MP8375

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	BACKGROUND ARSENIC (5)	<b>Date Sampled:</b>	09/07/12
<b>Lab Sample ID:</b>	D38598-5	<b>Date Received:</b>	09/11/12
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	91.0
<b>Project:</b>	PCU 197-36A		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	4.6	0.11	mg/kg	5	09/12/12	09/18/12 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA2813  
(2) Prep QC Batch: MP8375

RL = Reporting Limit

Report of Analysis

**Client Sample ID:** BACKGROUND ARSENIC (6)  
**Lab Sample ID:** D38598-6  
**Matrix:** SO - Soil  
**Project:** PCU 197-36A

**Date Sampled:** 09/07/12  
**Date Received:** 09/11/12  
**Percent Solids:** 90.9

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	7.4	0.11	mg/kg	5	09/12/12	09/18/12 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA2813  
(2) Prep QC Batch: MP8375

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	BACKGROUND ARSENIC (7)	<b>Date Sampled:</b>	09/07/12
<b>Lab Sample ID:</b>	D38598-7	<b>Date Received:</b>	09/11/12
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	90.3
<b>Project:</b>	PCU 197-36A		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	7.3	0.11	mg/kg	5	09/12/12	09/18/12 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA2813  
(2) Prep QC Batch: MP8375

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	BACKGROUND ARSENIC (8)	<b>Date Sampled:</b>	09/07/12
<b>Lab Sample ID:</b>	D38598-8	<b>Date Received:</b>	09/11/12
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	92.0
<b>Project:</b>	PCU 197-36A		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.5	0.10	mg/kg	5	09/12/12	09/18/12 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA2813  
(2) Prep QC Batch: MP8375

RL = Reporting Limit

## Misc. Forms

5

### Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody

4036 Youngfield Street, Wheat Ridge, CO 80033  
TEL: 303-425-6021 FAX: 303-425-6854  
[www.acutest.com](http://www.acutest.com)

[illegible]

## D38598: Chain of Custody

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# Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D38598

Client: KRW CONSULTING

Immediate Client Services Action Required: No

Date / Time Received: 9/11/2012 12:00:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: XTO PCU 197-36A

Airbill #'s: HDCO

Cooler Security	Y	or	N		Y	or	N
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. Smpl Dates/Time OK	<input checked="" type="checkbox"/>		<input type="checkbox"/>

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

Quality Control Preservation	Y	or	N	N/A
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"/>

Sample Integrity - Documentation	Y	or	N
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"/>

Sample Integrity - Condition	Y	or	N
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

Sample Integrity - Instructions	Y	or	N	N/A
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

## Metals Analysis

### QC Data Summaries

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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: D38598  
Account: XTOKRWR - XTO Energy  
Project: PCU 197-36A

QC Batch ID: MP8375  
Matrix Type: SOLID

Methods: SW846 6020A  
Units: mg/kg

Prep Date: 09/12/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.006	.06	0.0073	<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 MP8375: D38598-1, D38598-2, D38598-3, D38598-4, D38598-5, D38598-6, D38598-7, D38598-8

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: D38598  
Account: XTOKRWR - XTO Energy  
Project: PCU 197-36A

QC Batch ID: MP8375  
Matrix Type: SOLID

Methods: SW846 6020A  
Units: mg/kg

Prep Date: 09/12/12

Metal	D38290-1 Original MS		Spikelot ICPALL2	% Rec	QC Limits
Aluminum					
Antimony					
Arsenic	3.1	131	114	111.8	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 MP8375: D38598-1, D38598-2, D38598-3, D38598-4, D38598-5, D38598-6, D38598-7, D38598-8

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: D38598  
Account: XTOKRWR - XTO Energy  
Project: PCU 197-36A

QC Batch ID: MP8375  
Matrix Type: SOLID

Methods: SW846 6020A  
Units: mg/kg

Prep Date: 09/12/12

Metal	D38290-1 Original	MSD	SpikeLot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	3.1	136	116	115.0	3.7	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 MP8375: D38598-1, D38598-2, D38598-3, D38598-4, D38598-5, D38598-6, D38598-7, D38598-8

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: D38598  
Account: XTOKRWR - XTO Energy  
Project: PCU 197-36A

QC Batch ID: MP8375  
Matrix Type: SOLID

Methods: SW846 6020A  
Units: mg/kg

Prep Date: 09/12/12

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	112	100	112.0	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 MP8375: D38598-1, D38598-2, D38598-3, D38598-4, D38598-5, D38598-6, D38598-7, D38598-8

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

# SERIAL DILUTION RESULTS SUMMARY

Login Number: D38598  
 Account: XTOKRWR - XTO Energy  
 Project: PCU 197-36A

QC Batch ID: MP8375  
 Matrix Type: SOLID

Methods: SW846 6020A  
 Units: ug/l

Prep Date: 09/12/12

Metal	D38290-1 Original	SDL 5:25	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	27.6	27.6	0.0	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 MP8375: D38598-1, D38598-2, D38598-3, D38598-4, D38598-5, D38598-6, D38598-7, D38598-8

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