



10/14/13

## Technical Report for

**XTO Energy**

**FRU 197-31A**

**1111-02A Cut 1 Discrete AS 1,2,3,4,5.**

**Accutest Job Number: D51422**

**Sampling Date: 10/08/13**

### 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.

A handwritten signature in black ink, appearing to read 'Scott Heideman'.

**Scott Heideman**  
**Laboratory Director**

**Client Service contact: Renea Jackson 303-425-6021**

Certifications: CO (CO00049), ID, NE (CO00049), ND (R-027), NJ (CO 0007), OK (D9942), UT (NELAP CO00049), TX (T104704511)

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Test results relate only to samples analyzed.

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Sample Summary

XTO Energy

Job No: D51422

FRU 197-31A  
Project No: 1111-02A Cut 1 Discrete AS 1,2,3,4,5.

Sample Number	Collected Date	Time By	Received	Matrix Code	Type	Client Sample ID
D51422-1	10/08/13	11:30 DLS	10/09/13	SO	Soil	CUT 1 DISCRETE AS 1
D51422-2	10/08/13	11:35 DLS	10/09/13	SO	Soil	CUT 1 DISCRETE AS 2
D51422-3	10/08/13	11:40 DLS	10/09/13	SO	Soil	CUT 1 DISCRETE AS 3
D51422-4	10/08/13	11:45 DLS	10/09/13	SO	Soil	CUT 1 DISCRETE AS 4
D51422-5	10/08/13	11:50 DLS	10/09/13	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** D51422

**Site:** FRU 197-31A

**Report Date** 10/14/2013 3:30:16 P

On 10/09/2013, 5 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 4.4 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D51422 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:** MP11350

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D51393-1MS, D51393-1MSD, D51393-1SDL were used as the QC samples for the metals analysis.

### Wet Chemistry By Method SM2540B-2011 M

**Matrix:** SO

**Batch ID:** GN22236

- The data for SM2540B-2011 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

Page 1 of 1

**Job Number:** D51422  
**Account:** XTO Energy  
**Project:** FRU 197-31A  
**Collected:** 10/08/13



Lab Sample ID Analyte	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
<b>D51422-1</b>	<b>CUT 1 DISCRETE AS 1</b>					
Arsenic		17.3	0.12		mg/kg	SW846 6020A
<b>D51422-2</b>	<b>CUT 1 DISCRETE AS 2</b>					
Arsenic		13.7	0.12		mg/kg	SW846 6020A
<b>D51422-3</b>	<b>CUT 1 DISCRETE AS 3</b>					
Arsenic		14.5	0.13		mg/kg	SW846 6020A
<b>D51422-4</b>	<b>CUT 1 DISCRETE AS 4</b>					
Arsenic		15.4	0.13		mg/kg	SW846 6020A
<b>D51422-5</b>	<b>CUT 1 DISCRETE AS 5</b>					
Arsenic		14.3	0.13		mg/kg	SW846 6020A

Sample Results

Report of Analysis

Report of Analysis

<b>Client Sample ID:</b>	CUT 1 DISCRETE AS 1	<b>Date Sampled:</b>	10/08/13
<b>Lab Sample ID:</b>	D51422-1	<b>Date Received:</b>	10/09/13
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	82.3
<b>Project:</b>	FRU 197-31A		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	17.3	0.12	mg/kg	5	10/10/13	10/11/13 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA4059  
(2) Prep QC Batch: MP11350

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	CUT 1 DISCRETE AS 2	<b>Date Sampled:</b>	10/08/13
<b>Lab Sample ID:</b>	D51422-2	<b>Date Received:</b>	10/09/13
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	81.6
<b>Project:</b>	FRU 197-31A		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	13.7	0.12	mg/kg	5	10/10/13	10/11/13 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA4059  
(2) Prep QC Batch: MP11350

RL = Reporting Limit



Report of Analysis

<b>Client Sample ID:</b>	CUT 1 DISCRETE AS 3	<b>Date Sampled:</b>	10/08/13
<b>Lab Sample ID:</b>	D51422-3	<b>Date Received:</b>	10/09/13
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	75.6
<b>Project:</b>	FRU 197-31A		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	14.5	0.13	mg/kg	5	10/10/13	10/11/13 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA4059  
(2) Prep QC Batch: MP11350

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	CUT 1 DISCRETE AS 4	<b>Date Sampled:</b>	10/08/13
<b>Lab Sample ID:</b>	D51422-4	<b>Date Received:</b>	10/09/13
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	77.5
<b>Project:</b>	FRU 197-31A		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	15.4	0.13	mg/kg	5	10/10/13	10/11/13 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA4059  
(2) Prep QC Batch: MP11350

RL = Reporting Limit

Report of Analysis

<b>Client Sample ID:</b>	CUT 1 DISCRETE AS 5	<b>Date Sampled:</b>	10/08/13
<b>Lab Sample ID:</b>	D51422-5	<b>Date Received:</b>	10/09/13
<b>Matrix:</b>	SO - Soil	<b>Percent Solids:</b>	75.4
<b>Project:</b>	FRU 197-31A		

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	14.3	0.13	mg/kg	5	10/10/13	10/11/13 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA4059  
(2) Prep QC Batch: MP11350

RL = Reporting Limit

## Misc. Forms

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### Custody Documents and Other Forms

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Includes the following where applicable:

- Chain of Custody



## Accutest Laboratories Sample Receipt Summary

**Accutest Job Number:** D51422

**Client:** KRW

**Immediate Client Services Action Required:** No

**Date / Time Received:** 10/9/2013 12:45:00 PM

**No. Coolers:** 1

**Client Service Action Required at Login:** No

**Project:** XTO

**Airbill #'s:** CO

**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: D51422  
Account: XTOKRWR - XTO Energy  
Project: FRU 197-31A

QC Batch ID: MP11350  
Matrix Type: SOLID

Methods: SW846 6020A  
Units: mg/kg

Prep Date: 10/10/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.55	.75		
Antimony	0.20	.0011	.029		
Arsenic	0.10	.0085	.024	0.012	<0.10
Barium	1.0	.008	.16		
Beryllium	0.10	.008	.049		
Boron	20	.25	.07		
Cadmium	0.050	.018	.038		
Calcium	200	2.8	13		
Chromium	1.0	.027	.11		
Cobalt	0.10	.0025	.0085		
Copper	1.0	.03	.1		
Iron	5.0	1.8	1.8		
Lead	0.25	.004	.0075		
Magnesium	50	.65	.65		
Manganese	0.50	.06	.07		
Molybdenum	0.50	.025	.046		
Nickel	1.0	.0044	.17		
Phosphorus	30	1.3	4.9		
Potassium	100	1.5	2.5		
Selenium	0.20	.03	.13		
Silver	0.050	.00095	.01		
Sodium	250	2.5	5.5		
Strontium	10	.005	.027		
Thallium	0.10	.0012	.0075		
Tin	5.0	.032	2.3		
Titanium	1.0	.03	.085		
Uranium	0.25	.00085	.0015		
Vanadium	2.0	.019	.11		
Zinc	5.0	.11	1.4		

Associated samples MP11350: D51422-1, D51422-2, D51422-3, D51422-4, D51422-5

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: D51422  
Account: XTOKRWR - XTO Energy  
Project: FRU 197-31A

QC Batch ID: MP11350  
Matrix Type: SOLID

Methods: SW846 6020A  
Units: mg/kg

Prep Date: 10/10/13

Metal	D51393-1 Original MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	6.0	126	131	91.7
Barium				75-125
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 MP11350: D51422-1, D51422-2, D51422-3, D51422-4, D51422-5

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: D51422  
Account: XTOKRWR - XTO Energy  
Project: FRU 197-31A

QC Batch ID: MP11350  
Matrix Type: SOLID

Methods: SW846 6020A  
Units: mg/kg

Prep Date: 10/10/13

Metal	D51393-1 Original	MSD	Spikelot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	6.0	132	132	95.3	4.7	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 MP11350: D51422-1, D51422-2, D51422-3, D51422-4, D51422-5

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: D51422  
 Account: XTOKRWR - XTO Energy  
 Project: FRU 197-31A

QC Batch ID: MP11350  
 Matrix Type: SOLID

Methods: SW846 6020A  
 Units: mg/kg

Prep Date: 10/10/13

Metal	BSP Result	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	97.8	100	97.8	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 MP11350: D51422-1, D51422-2, D51422-3, D51422-4, D51422-5

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

# SERIAL DILUTION RESULTS SUMMARY

Login Number: D51422  
Account: XTOKRWR - XTO Energy  
Project: FRU 197-31A

QC Batch ID: MP11350  
Matrix Type: SOLID

Methods: SW846 6020A  
Units: ug/l

Prep Date: 10/10/13

Metal	D51393-1 Original SDL 5:25 %DIF			QC Limits
Aluminum				
Antimony				
Arsenic	47.1	48.5	3.0	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 MP11350: D51422-1, D51422-2, D51422-3, D51422-4, D51422-5

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