

Technical Report for

XTO Energy

FRU 297-20A

1108-10A

Accutest Job Number: D31864

Sampling Date: 02/13/12

Report to:

KRW Consulting, Inc.
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dknudson@krwconsulting.com; jhess@krwconsulting.com;
ATTN: Dwayne Knudson

Total number of pages in report: 19



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)

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Test results relate only to samples analyzed.

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Sample Summary

XTO Energy

Job No: D31864

FRU 297-20A

Project No: 1108-10A

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
D31864-1	02/13/12	13:10 CB	02/14/12	SO	Soil	CUT #1 CONTENTS 6
D31864-2	02/13/12	13:15 CB	02/14/12	SO	Soil	CUT #1 CONTENTS 7
D31864-3	02/13/12	13:20 CB	02/14/12	SO	Soil	CUT #1 CONTENTS 8
D31864-4	02/13/12	13:25 CB	02/14/12	SO	Soil	CUT #1 CONTENTS 9
D31864-5	02/13/12	13:30 CB	02/14/12	SO	Soil	CUT #1 CONTENTS 10

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

CASE NARRATIVE / CONFORMANCE SUMMARY

Client: XTO Energy

Job No D31864

Site: FRU 297-20A

Report Dat 2/16/2012 9:24:19 AM

On 02/14/2012, 5 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 5 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D31864 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: MP6858
------------------	-------------------------

- All samples were digested and analyzed within the recommended method holding time.
- All method blanks for this batch meet method specific criteria.
- Sample(s) D31864-1MS, D31864-1MSD, D31864-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Arsenic are outside control limits for sample MP6858-SD1. Serial dilution indicates possible matrix interference.

Wet Chemistry By Method SM19 2540B M

Matrix SO	Batch ID: GN13693
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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.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: CUT #1 CONTENTS 6	Date Sampled: 02/13/12
Lab Sample ID: D31864-1	Date Received: 02/14/12
Matrix: SO - Soil	Percent Solids: 73.0
Project: FRU 297-20A	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	9.6	0.56	mg/kg	5	02/15/12	02/16/12 JB	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2190

(2) Prep QC Batch: MP6858

RL = Reporting Limit

Report of Analysis

Client Sample ID: CUT #1 CONTENTS 7	Date Sampled: 02/13/12
Lab Sample ID: D31864-2	Date Received: 02/14/12
Matrix: SO - Soil	Percent Solids: 78.5
Project: FRU 297-20A	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	8.0	0.51	mg/kg	5	02/15/12	02/16/12 JB	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2190

(2) Prep QC Batch: MP6858

RL = Reporting Limit

Report of Analysis

Client Sample ID: CUT #1 CONTENTS 8	Date Sampled: 02/13/12
Lab Sample ID: D31864-3	Date Received: 02/14/12
Matrix: SO - Soil	Percent Solids: 81.3
Project: FRU 297-20A	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	6.0	0.47	mg/kg	5	02/15/12	02/16/12 JB	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2190

(2) Prep QC Batch: MP6858

RL = Reporting Limit

Report of Analysis

Client Sample ID: CUT #1 CONTENTS 9	
Lab Sample ID: D31864-4	Date Sampled: 02/13/12
Matrix: SO - Soil	Date Received: 02/14/12
	Percent Solids: 89.2
Project: FRU 297-20A	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	9.9	0.43	mg/kg	5	02/15/12	02/16/12 JB	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2190

(2) Prep QC Batch: MP6858

RL = Reporting Limit

Report of Analysis

Client Sample ID: CUT #1 CONTENTS 10	Date Sampled: 02/13/12
Lab Sample ID: D31864-5	Date Received: 02/14/12
Matrix: SO - Soil	Percent Solids: 69.9
Project: FRU 297-20A	

Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	9.7	0.57	mg/kg	5	02/15/12	02/16/12 JB	SW846 6020A ¹	SW846 3050B ²

(1) Instrument QC Batch: MA2190

(2) Prep QC Batch: MP6858

RL = Reporting Limit

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

Accutest Laboratories Mountain States
4036 Youngfield Street Wheat Ridge, Co 80033
TEL. 303-425-6021 877-737-4521
FAX 303-425-6021

FED-EX Tracking # _____ Bottle Order Control # _____
Accutest Quote # _____ Accutest Job # D31864

Client / Reporting Information		Project Information				Requested Analysis (see TEST CODE sheet)										Matrix Codes
Company Name <u>KRW Consulting Inc</u>		Project Name <u>XTO FRU 297-20A</u>														DW - Drinking Water GW - Ground Water WW - Water SW - Surface Water SO - Soil SL - Sludge SED - Sediment OI - 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 <u>8000 W. 14th Ave Ste 200</u>		Billing Information (If different from Report to)														
City State Zip <u>Lakewood CO 80214</u>		Company Name <u>XTO Energy</u>														
Project Contact <u>Dwayne Knudson</u>		Project# <u>1108-10A</u>														
Phone # <u>970 488 1098</u>		Client PO# <u>Joe Hill</u>														
Sample(s) Name(s) <u>Crazy Barge</u>		Project Manager <u>Joe Hill</u>														LAB USE ONLY 01 02 03 04 05
Field ID / Point of Collection		Collection		Matrix		Number of preserved Bottles HCl HNO3 H2SO4 NONE Diwater MICH ENCORE Biobrane										
MECH/ID Vial #		Date Time		Samp'd by		# of bottles X X X X X										
<u>Cut #1 Contents 6</u>		<u>2-13-12 13:10</u>		<u>CRB 50</u>												
<u>Cut #2 Contents 7</u>		<u>13:15</u>		<u>()</u>												
<u>Cut #1 Contents 8</u>		<u>13:20</u>		<u>()</u>												
<u>Cut #1 Contents 9</u>		<u>13:25</u>		<u>()</u>												
<u>Cut #1 Contents 10</u>		<u>13:30</u>		<u>()</u>												

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Acetic

2/11/12

Turnaround Time (Business days)		Approved By (Accutest PM): / Date:		Data Deliverable Information		Comments / Special Instructions	
<input type="checkbox"/> Std. 10 Business Days <input type="checkbox"/> Std. 5 Business Days (By Contract only) <input type="checkbox"/> 5 Day R/SH <input checked="" type="checkbox"/> 3 Day EMERGENCY <input type="checkbox"/> 2 Day EMERGENCY <input type="checkbox"/> 1 Day EMERGENCY				<input type="checkbox"/> Commercial "A" (Level 1) <input type="checkbox"/> Commercial "B" (Level 2) <input type="checkbox"/> Commercial "B" + Narrative <input type="checkbox"/> FULLT1 (Level 3-4)	<input type="checkbox"/> State Forms <input type="checkbox"/> EDD Format <input checked="" type="checkbox"/> PDF	<u>Please email results to</u> <u>KRW Picence & Team</u>	
Emergency & Rush TJA data available VIA Lablink				Commercial "A" = Results Only Commercial "B" = Results + QC Summary			

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

Relinquished by Sampler:	Date Time:	Received By:	Date Time:	Relinquished By:	Date Time:	Received By:	Date Time:
<u>1</u> <u>LAH</u>	<u>2/13/12 1600</u>	<u>1</u> <u>W B</u>	<u>2/13/12</u>	<u>2</u> <u>W B</u>	<u>2/13/12</u>	<u>2</u> <u>American Carrier</u>	
<u>3</u>		<u>3</u>		<u>4</u>		<u>4</u> <u>706</u>	<u>2-14-12 12:52</u>
<u>5</u>		<u>5</u>		Custody Seal # <u>6</u>	<input checked="" type="checkbox"/> Intact <input type="checkbox"/> Not Intact	Preserved where applicable <input type="checkbox"/> On Ice <input checked="" type="checkbox"/> Cooler Temp.	<u>5.0</u>

D31864: Chain of Custody

Page 1 of 2

Accutest Laboratories Sample Receipt Summary

Accutest Job Number: D31864

Client: KRW

Immediate Client Services Action Required: No

Date / Time Received: 2/14/2012 12:52:00 PM

No. Coolers: 1

Client Service Action Required at Login: No

Project: FRU

Airbill #'s: CO

<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. Smpl 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

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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: D31864
Account: XTOKRWR - XTO Energy
Project: FRU 297-20A

QC Batch ID: MP6858
Matrix Type: SOLID

Methods: SW846 6020A
Units: mg/kg

Prep Date: 02/15/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.14	1.3		
Antimony	0.20	.001	.012		
Arsenic	0.40	.049	.1	0.10	<0.40
Barium	1.0	.0035	.025		
Beryllium	0.10	.0075	.055		
Boron	20	.97	.6		
Cadmium	0.050	.023	.034		
Calcium	200	1.8	9.5		
Chromium	1.0	.021	.041		
Cobalt	0.10	.0033	.0085		
Copper	1.0	.011	.055		
Iron	20	.81	18		
Lead	0.25	.0012	.023		
Magnesium	50	.067	.6		
Manganese	0.50	.007	.039		
Molybdenum	0.50	.0044	.025		
Nickel	1.0	.0029	.031		
Phosphorus	30	1.8	3.5		
Potassium	100	2	6		
Selenium	0.20	.075	.19		
Silver	0.050	.0008	.022		
Sodium	250	.8	3		
Strontium	10	.004	.024		
Thallium	0.10	.015	.013		
Tin	5.0	.006	.15		
Titanium	1.0	.035	.12		
Uranium	0.25	.00038	.008		
Vanadium	2.0	.052	.19		
Zinc	5.0	.039	.23		

Associated samples MP6858: D31864-1, D31864-2, D31864-3, D31864-4, D31864-5

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: D31864
 Account: XTOKRWR - XTO Energy
 Project: FRU 297-20A

QC Batch ID: MP6858
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: mg/kg

Prep Date: 02/15/12

Metal	D31864-1 Original MS		SpikeLot MPICPALL % Rec	QC Limits
Aluminum				
Antimony				
Arsenic	9.6	121	138	80.5 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 MP6858: D31864-1, D31864-2, D31864-3, D31864-4, D31864-5

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

5.1.2
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MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: D31864
 Account: XTOKRWR - XTO Energy
 Project: FRU 297-20A

QC Batch ID: MP6858
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: mg/kg

Prep Date: 02/15/12

Metal	D31864-1 Original	MSD	SpikeLot MPICPALL	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	9.6	110	132	76.2	9.5	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 MP6858: D31864-1, D31864-2, D31864-3, D31864-4, D31864-5

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

5.1.2
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SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: D31864
 Account: XTOKRWR - XTO Energy
 Project: FRU 297-20A

QC Batch ID: MP6858
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: mg/kg

Prep Date: 02/15/12

Metal	BSP Result	Spikelot MPICPALL	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	101	100	101.0	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 MP6858: D31864-1, D31864-2, D31864-3, D31864-4, D31864-5

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D31864
 Account: XTOKRWR - XTO Energy
 Project: FRU 297-20A

QC Batch ID: MP6858
 Matrix Type: SOLID

Methods: SW846 6020A
 Units: ug/l

Prep Date: 02/15/12

Metal	D31864-1		QC	
	Original	SDL 5:25	%DIF	Limits

Aluminum				
Antimony				
Arsenic	68.9	84.7	22.9*(a)	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 MP6858: D31864-1, D31864-2, D31864-3, D31864-4, D31864-5

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested
 (a) Serial dilution indicates possible matrix interference.

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