

State of Colorado Oil and Gas Conservation Commission

1120 Lincoln Street, Suite 801, Denver, Colorado 80203 Phone: (303)894-2100 Fax: (303)894-2109



Table with 4 columns: EC, ET, OE, EE

SUNDRY NOTICE

Submit original plus one copy. This form is to be used for general, technical and environmental sundry information. For proposed or completed operations, describe in full on Technical Information Page (Page 2 of this form) Identify well or other facility by API Number or by OGCC Facility ID. Operator shall send an informational copy of all sundry notices for wells located in High Density Areas to the Local Government Designee (Rule 603b)

Form with fields for OGCC Operator Number, Name of Operator, Address, Contact Name, API Number, Well/Facility Name, Location, County, Federal/Indian or State Lease Number, and a checklist for Survey Plat, Directional Survey, Surface Equipmt Diagram, Technical Info Page, and Other.

General Notice

CHANGE OF LOCATION: Attach New Survey Plat (a change of surface qtr/qtr is substantive and requires a new permit). Includes checkboxes for various changes and a table for surface footages.

GPS DATA: Date of Measurement, PDOP Reading, Instrument Operator's Name

CHANGE SPACING UNIT: Formation, Formation Code, Spacing order number, Unit Acreage, Unit configuration. Includes checkbox for Remove from surface bond.

CHANGE OF OPERATOR (prior to drilling): Effective Date, Plugging Bond. CHANGE WELL NAME: From, To, Effective Date, NUMBER.

ABANDONED LOCATION: Was location ever built?, Is site ready for inspection?, Date Ready for inspection. NOTICE OF CONTINUED SHUT IN STATUS: Date well shut in or temporarily abandoned, Has Production Equipment been removed from site?, MIT required if shut in longer than two years.

SPUD DATE: REQUEST FOR CONFIDENTIAL STATUS (6 mos from date casing set). SUBSEQUENT REPORT OF STAGE, SQUEEZE OR REMEDIAL CEMENT WORK: Method used, Cementing tool setting/perf depth, Cement volume, Cement top, Cement bottom, Date.

RECLAMATION: Attach technical page describing final reclamation procedures per Rule 1004. Final reclamation will commence on approximately, Final reclamation is completed and site is ready for inspection.

Technical Engineering/Environmental Notice

Notice of Intent: Approximate Start Date, Report of Work Done: Date Work Completed.

Details of work must be described in full on Technical Information Page (Page 2 must be submitted.)

Checklist for technical/engineering/environmental notices: Intent to Recomplete, Change Drilling Plans, Gross Interval Changed, Casing/Cementing Program Change, Request to Vent or Flare, Repair Well, Rule 502 variance requested, Other, E&P Waste Disposal, Beneficial Reuse of E&P Waste, Status Update/Change of Remediation Plans for Spills and Releases.

I hereby certify that the statements made in this form are, to the best of my knowledge, true, correct and complete.

Signed: Jessica Dooling, Date: 12/20/2012, Email: jds\_co\_dooling@xtoenergy.com, Title: Environmental Coordinator

OGCC Approved: Chris Caulfield, Title: For, Date: 12/20/2012

CONDITIONS OF APPROVAL, IF ANY: Chris Caulfield, EPS NW Region

TECHNICAL INFORMATION PAGE



FOR OGCC USE ONLY

1. OGCC Operator Number:	100264	API Number:	05-103-11546-00
2. Name of Operator:	XTO Energy Inc.	OGCC Facility ID #	
3. Well/Facility Name:	Piceance Creek Unit	Well/Facility Number:	296-6B
4. Location (QtrQtr, Sec, Twp, Rng, Meridian):	NWSE, Sec 6, T2S, R96W, 6th PM		

This form is to be completed whenever a Sundry Notice is submitted requiring detailed report of work to be performed or completed. This form shall be transmitted within 30 days of work completed as a "subsequent" report and must accompany Form 4, page 1.

**DESCRIBE PROPOSED OR COMPLETED OPERATIONS**

XTO Energy herin requests consideration of site-specific background Arsenic levels as an alternative to the Table 910-1 value for the PCU 296-6B location. COGCC Table 910-1 Concentration Levels list the allowable concentration level for Arsenic in soil at 0.39 mg/kg. Footnote 1 of Table 910-1 states "Consideration shall be given to background levels in native soils and ground water." At other locations COGCC has allowed the determination of allowable levels based upon a 10 % variability factor applied to background soil concentration values where the maximum allowable level is computed by multiplying the highest detected background concentration by 1.1.

Eight representative background samples were collected from undisturbed areas adjacent to the subject location. Arsenic concentrations in those samples ranged from 5.2 mg/kg to 8.6 mg/kg. Applying the 10% variability factor to the highest concentration detected results in an allowable Arsenic concentration level of 9.5 mg/kg.

Subliner Arsenic samples were collected from the Freshwater (4.9 mg/kg), Reserve (6.3 mg/kg), Cuttings Pit #2 (4.9 mg/kg) and Cuttings Pit #3 (5.7 mg/kg). The subliner Arsenic concentrations are within the allowable background Arsenic concentration of 9.5 mg/kg.

The Cuttings Pit #1 subliner Arsenic concentration of 10.9 mg/kg is above the allowable background Arsenic concentration of 9.5 mg/kg. XTO Energy believes the subliner Arsenic value reflects the heterogeneous nature of the substrate and does not indicate subliner impacts due to operations.

The initial Cuttings Pit #2 and Cuttings Spoil Pile contents Arsenic concentrations of 12.1 mg/kg (Cuttings Pit #2) and 9.8 mg/kg (Cuttings Spoil Pile) are presumed to be the result of material from the Mancos formation. Ten additional discrete samples representing the Cuttings Pit #2 and Cuttings Spoil Pile contents, including, in part, material from the Mancos formation were analyzed for Arsenic. Cuttings Pit #2 analysis resulted in a range of 8.6 mg/kg to 10.0 mg/kg with a mean of 9.48 mg/kg that falls within allowable background levels. Cuttings Spoil Pile analysis resulted in a range of 5.3 mg/kg to 7.5 mg/kg, all of the discrete samples fall within the allowable background levels. It is our interpretation that the discrete Arsenic samples demonstrate that there were no anthropogenic affects to the Cuttings Pit #2 and the Cuttings Spoil Pile material and that the elevated Arsenic levels reflect contributions due to drilling through the Mancos formation (see Table 2).

Please find the Lab Data Summary Tables and the Site Map indicating Arsenic sampling locations attached.

**Table 1**  
**Location: PCU 296-6B**  
**Lab Summary**

Last update 12/10/2012

Analytical Parameter  (with units)	Fresh Water Pit		Reserve Pit		Cutting #1		Cuttings #2		Cuttings #3		Cuttings Spoils	Background								COGCC	Maximum based on Background
	FW Pit Contents	FW Pit Subliner 11/8/12	RP Post Solid. 11/5/12	RP Subliner 11/8/12	Cut #1 Post Solid. 10/8/12	Cut #1 Subliner 10/18/12	Cut #2 Post Solid. 10/1/12	Cut #2 Subliner 10/10/12	Cut #3 Post Solid. 11/27/12	Cut #3 Subliner 10/10/12	Cuttings Spoil Pile 10/4/12	#1	#2	#3	#4	#5	#6	#7	#8	Table 910-1 Concentration Levels	
Accutest Job #		D40797	D40653	D40799	D39689	D40113	D39440	D39780	D41306	D39780	D39589	D39590 (10/5/12)								-	-
Sample type (Composite/Discrete)		C	C	C	C	C	C	C	C	C	C									-	-
TPH (GRO) (mg/Kg)		ND	ND	ND	14.5	ND	38.6	ND	9.92	ND	ND	-	-	-	-	-	-	-	-	-	
TPH (DRO) (mg/Kg)		ND	404	23.1	575	31.2	526	24.7	299	28.1	15.1	-	-	-	-	-	-	-	-	-	
TPH (GRO + DRO) (mg/Kg)		ND	404	23.1	590	31.2	565	24.7	309	28.1	15.1	-	-	-	-	-	-	-	-	-	
Benzene (mg/Kg)		ND	ND	ND	0.422	0.0530	0.286	ND	0.649	ND	ND	-	-	-	-	-	-	-	-	500	
Toluene (mg/Kg)		ND	ND	ND	1.35	0.108	2.24	ND	1.53	ND	ND	-	-	-	-	-	-	-	-	0.170	
Ethylbenzene (mg/Kg)		ND	ND	ND	0.278	ND	0.502	ND	0.197	ND	ND	-	-	-	-	-	-	-	-	85	
Xylenes (total) (mg/Kg)		ND	ND	ND	1.32	ND	2.50	ND	1.59	ND	ND	-	-	-	-	-	-	-	-	100	
Acenaphthene (mg/Kg)		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	175	
Anthracene (mg/Kg)		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	1000	
Benzo(A)anthracene (mg/Kg)		ND	ND	ND	ND	ND	ND	ND	0.0131	ND	ND	-	-	-	-	-	-	-	-	1000	
Benzo(B)fluoranthene (mg/Kg)		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	0.22	
Benzo(K)fluoranthene (mg/Kg)		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	0.22	
Benzo(A)pyrene (mg/Kg)		ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	2.2	
Chrysene (mg/Kg)		ND	ND	ND	0.0567	0.0056	0.0476	ND	0.0623	0.0048	ND	-	-	-	-	-	-	-	-	0.022	
Dibenzo(A,H)anthracene (mg/Kg)		ND	ND	ND	ND	ND	ND	ND	0.0058	ND	ND	-	-	-	-	-	-	-	-	22	
Fluoranthene (mg/Kg)		ND	ND	ND	ND	ND	ND	ND	0.0189	ND	ND	-	-	-	-	-	-	-	-	0.022	
Fluorene (mg/Kg)		ND	ND	ND	0.119	0.0085	ND	ND	0.103	0.0079	ND	-	-	-	-	-	-	-	-	1000	
Indeno(1,2,3,C,D)pyrene (mg/Kg)		ND	ND	ND	0.0092	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	1000	
Naphthalene (mg/Kg)		ND	0.0182	ND	0.754	0.0463	0.391	ND	0.445	0.0406	ND	-	-	-	-	-	-	-	-	0.22	
Pyrene (mg/Kg)		ND	ND	ND	0.0432	ND	0.0390	ND	0.0336	ND	ND	-	-	-	-	-	-	-	-	23	
Electrical Conductivity (mmhos/cm)		0.348	7.650	1.840	8.260	0.522	7.910	0.514	5.410	0.647	0.917	-	-	-	-	-	-	-	-	1000	
Sodium Adsorption Ratio (SAR)		3.08	7.52	6.92	17.2	7.50	186	3.66	23.2	5.55	5.13	-	-	-	-	-	-	-	-	4	
pH		9.68	12.42	9.85	12.49	9.95	12.41	9.94	12.02	9.87	8.76	-	-	-	-	-	-	-	-	12	
Arsenic (mg/kg)		4.9	9.0	6.3	7.5	10.9	12.1	4.9	6.9	5.7	9.8	7.9	8.6	5.5	5.2	7.8	5.8	6.0	5.9	6-9	
Barium (mg/kg)		293	6720	3540	4910	1440	3680	1380	8110	3710	816	-	-	-	-	-	-	-	-	0.39	
Cadmium (mg/kg)		<1.1	<1.6	<1.0	<1.2	<1.1	<1.3	<1.2	<1.3	<1.1	<1.1	-	-	-	-	-	-	-	-	15000	
Chromium (III) (mg/Kg)		31.4	17.1	28.3	11.6	31.6	14.8	36.2	13.0	29.9	37.3	-	-	-	-	-	-	-	-	70	
Chromium (VI) (mg/Kg)		<1.0	<5.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	-	-	-	-	-	-	-	120000	
Copper (mg/kg)		14.1	16.1	10.1	21.0	11.7	27.5	16.8	34.6	16.6	9.7	-	-	-	-	-	-	-	-	23	
Lead (inorganic) (mg/kg)		11.1	10.9	8.1	13.4	8.4	29.1	13.3	19.8	11.6	7.3	-	-	-	-	-	-	-	-	3100	
Mercury (mg/kg)		<0.10	<0.14	<0.086	<0.11	<0.10	<0.14	<0.11	<0.10	<0.11	<0.11	-	-	-	-	-	-	-	-	400	
Nickel (mg/kg)		17.1	114	14.1	10.9	16.0	13.8	23.7	12.1	16.3	15.0	-	-	-	-	-	-	-	-	23	
Selenium (mg/kg)		<5.5	<8.1	<5.2	<5.9	<5.6	<6.4	<5.8	<6.3	<5.3	<5.6	-	-	-	-	-	-	-	-	1600	
Silver (mg/kg)		<3.3	<4.8	<3.1	<3.5	<3.4	<3.8	<3.5	<3.8	<3.2	<3.4	-	-	-	-	-	-	-	-	390	
Zinc (mg/kg)		43.6	45.3	37.8	34.0	38.2	40.5	48.4	37.2	41.4	33.3	-	-	-	-	-	-	-	-	390	
% Solids		87.0	60.1	92.3	87.1	86.5	77.8	86.0	80.9	91.8	88.6	89.0	94.6	92.8	95.1	91.7	92.0	93.2	94.3	23000	

- Notes:  
 1) ND = not detectible to the laboratory detection limit.  
 2) Results highlighted in yellow exceed Table 910-1 concentration levels. Results highlighted in Gray exceed Table 910-1, but are below background levels.  
 3) "-" indicates no analysis.  
 4) See site map for sample locations.

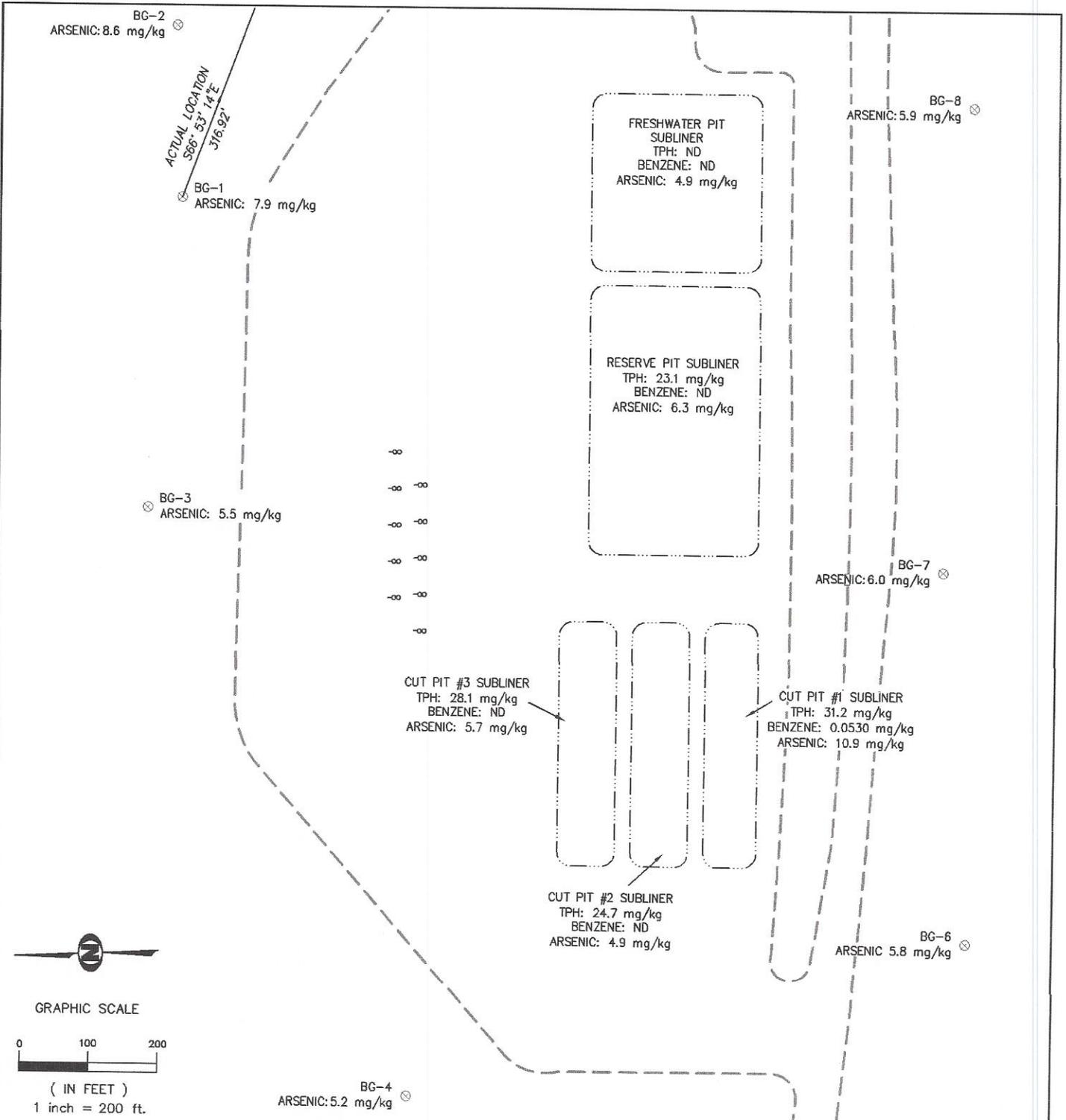
Table 2  
Location: PCU 296-6B  
Lab Summary - Arsenic Summary

Analytical Parameter  (with units)	Cut #2 Discrete Arsenic										Cuttings Spoil Discrete Arsenic					Background								Last update	12/10/2012	
	Cut #2 Post Solid. 10/1/12	D - 1	D - 2	D - 3	D - 4	D - 5	Cuttings Spoil Pile 10/4/12	D - 1	D - 2	D - 3	D - 4	D - 5	#1	#2	#3	#4	#5	#6	#7	#8	COGCC	Maximum based on Background				
																					D40774 (11/7/12)					
Accutest Job #	D39440	D40774 (11/7/12)										D39589					D39590 (10/5/12)								-	-
Sample type (Composite/Discrete)	C	D	D	D	D	D	C	D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	-			
TPH (GRO) (mg/Kg)	38.6	-	-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
TPH (DRO) (mg/Kg)	526	-	-	-	-	-	15.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
TPH (GRO + DRO) (mg/Kg)	565	-	-	-	-	-	15.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-				
Benzene (mg/Kg)	0.286	-	-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	500				
Toluene (mg/Kg)	2.24	-	-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.170				
Ethylbenzene (mg/Kg)	0.502	-	-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85				
Xylenes (total) (mg/Kg)	2.50	-	-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100				
Acenaphthene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	175				
Anthracene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000				
Benzo(A)anthracene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000				
Benzo(B)fluoranthene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22				
Benzo(K)fluoranthene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22				
Benzo(A)pyrene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2				
Chrysene (mg/Kg)	0.0476	-	-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.022				
Dibenzo(A,H)anthracene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22				
Fluoranthene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.022				
Fluorene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000				
Indeno(1,2,3,C,D)pyrene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000				
Naphthalene (mg/Kg)	0.391	-	-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22				
Pyrene (mg/Kg)	0.0390	-	-	-	-	-	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23				
Electrical Conductivity (mmhos/cm)	7.910	-	-	-	-	-	0.917	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000				
Sodium Adsorption Ratio (SAR)	186	-	-	-	-	-	5.13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4				
pH	12.41	-	-	-	-	-	8.76	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12				
Arsenic (mg/kg)	12.1	10.0	9.5	10.0	9.3	8.6	9.8	5.3	7.5	6.8	6.3	6.6	7.9	8.6	5.5	5.2	7.8	5.8	6.0	5.9	-	6-9				
Barium (mg/kg)	3680	-	-	-	-	-	816	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.39				
Cadmium (mg/kg)	<1.3	-	-	-	-	-	<1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15000				
Chromium (III) (mg/Kg)	14.8	-	-	-	-	-	37.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70				
Chromium (VI) (mg/Kg)	<1.0	-	-	-	-	-	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120000				
Copper (mg/kg)	27.5	-	-	-	-	-	9.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23				
Lead (inorganic) (mg/kg)	29.1	-	-	-	-	-	7.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3100				
Mercury (mg/kg)	<0.14	-	-	-	-	-	<0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	400				
Nickel (mg/kg)	13.8	-	-	-	-	-	15.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23				
Selenium (mg/kg)	<6.4	-	-	-	-	-	<5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1600				
Silver (mg/kg)	<3.8	-	-	-	-	-	<3.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	390				
Zinc (mg/kg)	40.5	-	-	-	-	-	33.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	390				
% Solids	77.8	83.2	83.0	83.9	84.9	81.5	88.6	87.6	84.8	87.0	88.9	87.4	89.0	94.6	92.8	95.1	91.7	92.0	93.2	94.3	-	23000				

Notes:

- 1) ND = not detectable to the laboratory detection limit.
- 2) Results highlighted in yellow exceed Table 910-1 concentration levels. Results highlighted in Gray exceed Table 910-1, but are below background levels.
- 3) "-" indicates no analysis.

\\hyper-v03\kwd-co\sdsk\proj\cto\environmental\1004-14\_pcu\_296-6b\samp.dwg,12/12/12



GPS:		CHECKED:		FIGURE	DATE	REVISIONS
TRIMBLE		DK				
DATE:		DRF				
12/12/12						
FILE NAME:		SHEET NO.				
samp		1 of 1				
PROJECT NO.		SCALE:				
1004-14		1" = 100'				

**KRW CONSULTING, INC.**  
 8000 W. 14TH AVENUE, SUITE 200  
 LAKEWOOD, COLORADO  
 (303) 239-9011

**FIGURE 1**  
 PICEANCE CREEK  
 PCU 296-6B  
 SAMPLE LOCATIONS WITH  
 SELECT RESULTS  
 PREPARED FOR XTO ENERGY

**Technical Report for**

**XTO Energy**

**PCU 296-6B**

**1004-14**

**Accutest Job Number: D39590**

**Sampling Date: 10/05/12**

**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: 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)

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

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<b>6.1: Prep QC MP8610: As .....</b>	<b>19</b>

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## Sample Summary

XTO Energy

**Job No:** D39590

PCU 296-6B

Project No: 1004-14

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
D39590-1	10/05/12	10:45 DS	10/06/12	SO	Soil	BACKGROUND AS (1)
D39590-2	10/05/12	10:50 DS	10/06/12	SO	Soil	BACKGROUND AS (2)
D39590-3	10/05/12	10:55 DS	10/06/12	SO	Soil	BACKGROUND AS (3)
D39590-4	10/05/12	11:00 DS	10/06/12	SO	Soil	BACKGROUND AS (4)
D39590-5	10/05/12	11:05 DS	10/06/12	SO	Soil	BACKGROUND AS (5)
D39590-6	10/05/12	11:10 DS	10/06/12	SO	Soil	BACKGROUND AS (6)
D39590-7	10/05/12	11:15 DS	10/06/12	SO	Soil	BACKGROUND AS (7)
D39590-8	10/05/12	11:20 DS	10/06/12	SO	Soil	BACKGROUND AS (8)

---

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



## CASE NARRATIVE / CONFORMANCE SUMMARY

**Client:** XTO Energy

**Job No** D39590

**Site:** PCU 296-6B

**Report Date** 10/16/2012 3:50:18 PM

On 10/06/2012, 8 sample(s), 0 Trip Blank(s), and 0 Field Blank(s) were received at Accutest Mountain States (AMS) at a temperature of 1.3 °C. The samples were intact and properly preserved, unless noted below. An AMS Job Number of D39590 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

<b>Matrix</b> SO	<b>Batch ID:</b> MP8610
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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) D39541-1MS, D39541-1MSD, D39541-1SDL were used as the QC samples for the metals analysis.
- The serial dilution RPD(s) for Arsenic are outside control limits for sample MP8610-SD1. Probable cause due to sample homogeneity.
- MP8610-SD1 for Arsenic: Serial dilution indicates possible matrix interference.

### Wet Chemistry By Method SM19 2540B M

<b>Matrix</b> SO	<b>Batch ID:</b> GN17143
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- The data for SM19 2540B M meets quality control requirements.

<b>Matrix</b> SO	<b>Batch ID:</b> GN17147
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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:** D39590  
**Account:** XTO Energy  
**Project:** PCU 296-6B  
**Collected:** 10/05/12



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
<b>D39590-1</b>	<b>BACKGROUND AS (1)</b>					
Arsenic		7.9	0.11		mg/kg	SW846 6020A
<b>D39590-2</b>	<b>BACKGROUND AS (2)</b>					
Arsenic		8.6	0.11		mg/kg	SW846 6020A
<b>D39590-3</b>	<b>BACKGROUND AS (3)</b>					
Arsenic		5.5	0.11		mg/kg	SW846 6020A
<b>D39590-4</b>	<b>BACKGROUND AS (4)</b>					
Arsenic		5.2	0.10		mg/kg	SW846 6020A
<b>D39590-5</b>	<b>BACKGROUND AS (5)</b>					
Arsenic		7.8	0.11		mg/kg	SW846 6020A
<b>D39590-6</b>	<b>BACKGROUND AS (6)</b>					
Arsenic		5.8	0.11		mg/kg	SW846 6020A
<b>D39590-7</b>	<b>BACKGROUND AS (7)</b>					
Arsenic		6.0	0.11		mg/kg	SW846 6020A
<b>D39590-8</b>	<b>BACKGROUND AS (8)</b>					
Arsenic		5.9	0.10		mg/kg	SW846 6020A

Sample Results

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Report of Analysis

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## Report of Analysis

<b>Client Sample ID:</b> BACKGROUND AS (1)	<b>Date Sampled:</b> 10/05/12
<b>Lab Sample ID:</b> D39590-1	<b>Date Received:</b> 10/06/12
<b>Matrix:</b> SO - Soil	<b>Percent Solids:</b> 89.0
<b>Project:</b> PCU 296-6B	

### Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	7.9	0.11	mg/kg	5	10/10/12	10/16/12 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA2897

(2) Prep QC Batch: MP8610

---

RL = Reporting Limit

4.1  
 4

## Report of Analysis

<b>Client Sample ID:</b> BACKGROUND AS (2)	<b>Date Sampled:</b> 10/05/12
<b>Lab Sample ID:</b> D39590-2	<b>Date Received:</b> 10/06/12
<b>Matrix:</b> SO - Soil	<b>Percent Solids:</b> 94.6
<b>Project:</b> PCU 296-6B	

### Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	8.6	0.11	mg/kg	5	10/10/12	10/16/12 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA2897

(2) Prep QC Batch: MP8610

---

RL = Reporting Limit

4.2  
4

## Report of Analysis

<b>Client Sample ID:</b> BACKGROUND AS (3)	<b>Date Sampled:</b> 10/05/12
<b>Lab Sample ID:</b> D39590-3	<b>Date Received:</b> 10/06/12
<b>Matrix:</b> SO - Soil	<b>Percent Solids:</b> 92.8
<b>Project:</b> PCU 296-6B	

### Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.5	0.11	mg/kg	5	10/10/12	10/16/12 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA2897

(2) Prep QC Batch: MP8610

---

RL = Reporting Limit

4.3  
4

## Report of Analysis

<b>Client Sample ID:</b> BACKGROUND AS (4)	<b>Date Sampled:</b> 10/05/12
<b>Lab Sample ID:</b> D39590-4	<b>Date Received:</b> 10/06/12
<b>Matrix:</b> SO - Soil	<b>Percent Solids:</b> 95.1
<b>Project:</b> PCU 296-6B	

4.4  
4

### Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.2	0.10	mg/kg	5	10/10/12	10/16/12 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA2897

(2) Prep QC Batch: MP8610

---

RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> BACKGROUND AS (5)	<b>Date Sampled:</b> 10/05/12
<b>Lab Sample ID:</b> D39590-5	<b>Date Received:</b> 10/06/12
<b>Matrix:</b> SO - Soil	<b>Percent Solids:</b> 91.7
<b>Project:</b> PCU 296-6B	

4.5  
4

### Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	7.8	0.11	mg/kg	5	10/10/12	10/16/12 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA2897

(2) Prep QC Batch: MP8610

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RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> BACKGROUND AS (6)	<b>Date Sampled:</b> 10/05/12
<b>Lab Sample ID:</b> D39590-6	<b>Date Received:</b> 10/06/12
<b>Matrix:</b> SO - Soil	<b>Percent Solids:</b> 92.0
<b>Project:</b> PCU 296-6B	

4.6  
4

### Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.8	0.11	mg/kg	5	10/10/12	10/16/12 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA2897

(2) Prep QC Batch: MP8610

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RL = Reporting Limit

## Report of Analysis

<b>Client Sample ID:</b> BACKGROUND AS (7)	<b>Date Sampled:</b> 10/05/12
<b>Lab Sample ID:</b> D39590-7	<b>Date Received:</b> 10/06/12
<b>Matrix:</b> SO - Soil	<b>Percent Solids:</b> 93.2
<b>Project:</b> PCU 296-6B	

### Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	6.0	0.11	mg/kg	5	10/10/12	10/16/12 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA2897

(2) Prep QC Batch: MP8610

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RL = Reporting Limit

4.7  
4

## Report of Analysis

<b>Client Sample ID:</b> BACKGROUND AS (8)	<b>Date Sampled:</b> 10/05/12
<b>Lab Sample ID:</b> D39590-8	<b>Date Received:</b> 10/06/12
<b>Matrix:</b> SO - Soil	<b>Percent Solids:</b> 94.3
<b>Project:</b> PCU 296-6B	

4.8  
4

### Metals Analysis

Analyte	Result	RL	Units	DF	Prep	Analyzed By	Method	Prep Method
Arsenic	5.9	0.10	mg/kg	5	10/10/12	10/16/12 JB	SW846 6020A <sup>1</sup>	SW846 3050B <sup>2</sup>

(1) Instrument QC Batch: MA2897

(2) Prep QC Batch: MP8610

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RL = Reporting Limit

## Misc. Forms

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5

## 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: D39590

Client: KRW CONSULTING

Immediate Client Services Action Required: No

Date / Time Received: 10/6/2012 9:45:00 AM

No. Coolers: 1

Client Service Action Required at Login: No

Project: XTO PCU 296-6B

Airbill #'s: FedEx

<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

5.1  
5

## Metals Analysis

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### 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: D39590  
Account: XTOKRWR - XTO Energy  
Project: PCU 296-6B

QC Batch ID: MP8610  
Matrix Type: SOLID

Methods: SW846 6020A  
Units: mg/kg

Prep Date: 10/10/12

Metal	RL	IDL	MDL	MB raw	final
Aluminum	25	.22	.31		
Antimony	0.20	.0018	.0075		
Arsenic	0.10	.006	.06	0.011	<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 MP8610: D39590-1, D39590-2, D39590-3, D39590-4, D39590-5, D39590-6, D39590-7, D39590-8

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: D39590  
 Account: XTOKRWR - XTO Energy  
 Project: PCU 296-6B

QC Batch ID: MP8610  
 Matrix Type: SOLID

Methods: SW846 6020A  
 Units: mg/kg

Prep Date: 10/10/12

Metal	D39541-1 Original MS	Spikelot ICPALL2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	4.4	169	141	116.5 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 MP8610: D39590-1, D39590-2, D39590-3, D39590-4, D39590-5, D39590-6, D39590-7, D39590-8

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: D39590  
 Account: XTOKRWR - XTO Energy  
 Project: PCU 296-6B

QC Batch ID: MP8610  
 Matrix Type: SOLID

Methods: SW846 6020A  
 Units: mg/kg

Prep Date: 10/10/12

Metal	D39541-1 Original	MSD	SpikeLot ICPALL2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	4.4	172	140	119.8	1.8	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 MP8610: D39590-1, D39590-2, D39590-3, D39590-4, D39590-5, D39590-6, D39590-7, D39590-8

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: D39590  
 Account: XTOKRWR - XTO Energy  
 Project: PCU 296-6B

QC Batch ID: MP8610  
 Matrix Type: SOLID

Methods: SW846 6020A  
 Units: mg/kg

Prep Date: 10/10/12

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 MP8610: D39590-1, D39590-2, D39590-3, D39590-4, D39590-5, D39590-6, D39590-7, D39590-8

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

SERIAL DILUTION RESULTS SUMMARY

Login Number: D39590  
 Account: XTOKRWR - XTO Energy  
 Project: PCU 296-6B

QC Batch ID: MP8610  
 Matrix Type: SOLID

Methods: SW846 6020A  
 Units: ug/l

Prep Date: 10/10/12

Metal	D39541-1 Original	SDL 5:25	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	32.0	27.9	12.8*(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 MP8610: D39590-1, D39590-2, D39590-3, D39590-4, D39590-5, D39590-6, D39590-7, D39590-8

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