FORM 27 Rev 6/99

#7103

State of Colorado
Oil and Gas Conservation Commission

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

FOR OGCC USE ONLY

RECEIVED 6/19/2012

OGCC Employee:

☐ Spill ☐ Complaint ☐ Inspection ☐ NOAV

Tracking No:

SITE INVESTIGATION AND REMEDIATION WORKPLAN

This form shall be submitted to the Director for approval prior to the initiation of site investigation and remediation activities. Form 27 is intended to be used whenever possible. Additional documentation will be required when large volumes of soil and groundwater have been impacted or involve large facilities with multiple source areas. See Rule 910. Attach as many pages as needed to fully describe the proposed work.

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

☐ Spill or Release ☐ Plug & Abandon ☐ Central Facility Closure ☐ Site/Facility Closure ☑ Other (describe): Pit Closure

OGCC Operator Number: 100264
Name of Operator: XTO Energy Inc.
Address: PO Box 6501
City: Englewood State: CO Zip: 80155

Contact Name and Telephone:
Jessica Dooling
No: 970-675-4122
Fax: 970-675-4150

API Number: 05-103-10654-00
County: Rio Blanco
Facility Name: Piceance Creek Unit
Facility Number: Drilling Pit, Facility ID# 281138
Well Name: Piceance Creek Unit
Well Number: PCU T35X-2G
Location: (QtrQtr, Sec, Twp, Rng, Meridian): NESW, Sec. 2, T2S, R97W, 6th PM
Latitude: 39.905344 Longitude: -108.250965

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc): Drill Cuttings and Fluids

Site Conditions: Is location within a sensitive area (according to Rule 901e)? ☐ Y ☑ N If yes, attach evaluation.

Adjacent land use (cultivated, irrigated, dry land farming, industrial, residential, etc.): non-cropland rangeland

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: Redcreek-Rentsac complex; 5 - 30% slopes

Potential receptors (water wells within 1/4 mi, surface waters, etc.): no water wells within 1 mile, nearest surface water is approximately 580 feet away (surface intermittent stream, possible seep).

Description of Impact (if previously provided, refer to that form or document):

Impacted Media (check):	Extent of Impact:	How Determined:
☑ Soils	pit contents: elevated TPH and Benzene; subliner impacts: elevated TPH	laboratory analysis
☐ Vegetation		
☐ Groundwater		
☐ Surface Water		

REMEDIATION WORKPLAN

Describe initial action taken (if previously provided, refer to that form or document):

See Attachment I for details regarding initial action taken.

Describe how source is to be removed:

Impacted Reserve Pit and Cuttings Pit materials will be transported offsite to a permitted disposal facility, treated onsite with a temporary Thermal Desorption Unit, and/or mix/blended to reduce hydrocarbons below Table 910 standards.

Describe how remediation of existing impacts is to be accomplished, including removal and disposal at an injection well or licensed facility, land treatment on site, removal of impacted groundwater, insitu bioremediation, burning of oily vegetation, etc.:

Any remaining impacted soils will either be treated onsite or removed to a permitted disposal/recycling facility.

Submit Page 2 with Page 1

XTO

FORM 27 Rev 6/99

Page 2

State of Colorado
Oil and Gas Conservation Commission
1120 Lincoln Street, Suite 801, Denver, Colorado 80203
(303)894-2100 Fax:(303)894-2109

Tracking Number: _____
Name of Operator: _____
OGCC Operator No. _____
Received Date: _____
Well Name & No: FCU T35X-26
Facility Name & No: LOCATION ID: 335694

REMEDIATION WORKPLAN (Cont.)

OGCC Employee:

If groundwater has been impacted, describe proposed monitoring plan (# of wells or sample points, sampling schedule, analytical methods, etc.):

Available information indicates that the uppermost groundwater bearing zone is greater than 100 feet below the ground surface. Soil samples were/will be collected for laboratory analysis of subliner material to confirm no groundwater impact potential exists (see Table 1).

Describe reclamation plan. Discuss existing and new grade recontouring; method and testing of compaction alleviation; and reseeding program, including location of new seed, seed mix and noxious weed prevention. Attach diagram or drawing. Use additional sheet for description if required.

Please see Attachment II

Attach samples and analytical results taken to verify remediation of impacts. Show locations of samples on an onsite schematic or drawing.

Is further site investigation required? ☑ Y ☐ N If yes, describe:

Based on subliner sample results no additional assessment will be necessary beneath the Freshwater and Cuttings Pits. Based upon subliner testing beneath the Reserve Pit, additional assessment and remediation may be necessary (see Table 1).

Final disposition of E&P waste (landtreated and disposed onsite, name of licensed disposal facility, recycling, reuse, etc.):

Cuttings Pit and Freshwater Pit synthetic liners and de minimis Freshwater Pit contents were removed and transported to an approved offsite disposal/recycling facility. Freshwater Pit subliner impacts were excavated and mix/blend processed to below Table 910-1 concentration levels. Reserve Pit material will be treated onsite with a temporary Thermal Desorption Unit, mix/blended to reduce hydrocarbons, and/or removed and transported to a permitted offsite recycling/disposal facility. Upon removal of the Reserve Pit material, the liner will be removed and transported to a permitted disposal/recycling facility. If necessary, the Reserve Pit subliner material will be treated onsite with a temporary Thermal Desorption Unit, mix/blended to reduce hydrocarbons, and/or removed and transported to a permitted offsite recycling/disposal facility.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 11/7/11	Date Site Investigation Completed: in progress	Date Remediation Plan Submitted: 6/19/2012
Remediation Start Date: pending approval	Anticipated Completion Date: pending approval	Actual Completion Date: TBD

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

Print Name: Jessica Dooling Signed: _____

Title: Environmental Coordinator Date: 6/19/2012

OGCC Approved: _____ Title: FOR Chris Canfield Date: 06/20/2012

EPS NW Region

ATTACHMENT I

PCU T35X-2G Pit Closure Workplan, Form 27 Page 1

Describe initial action taken:

i. The site consists of Freshwater, Reserve and Cuttings Pits (see Figure 1).

ii. De minimis Freshwater Pit contents and associated synthetic liners were removed and transported to an offsite permitted disposal/recycling facility.

iii. Freshwater Pit subliner composite samples were collected and analyzed for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for TPH (608 mg/kg), EC (4.67 mmhos/cm), SAR (30.7), pH (10.13), and arsenic (4.5 mg/kg). The bottom 1' was mix/blend processed to meet Table 910-1 concentration levels for TPH. Samples collected below this depth meet Table 910-1 concentrations for TPH (see Table 1).

iv. Reserve Pit content composite samples were collected and analyzed for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for Benzene (0.748 mg/kg), SAR (17.3), pH (9.31) and Arsenic (7.0 mg/kg).

v. Cuttings Pit contents were collected and analyzed for full Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for Benzene (0.293 mg/kg), SAR (26.6), pH (11.11), and arsenic (6.7 mg/kg).

vi. Cuttings pit contents were transferred to, and mixed with the Reserve Pit contents.

vii. Cuttings Pit synthetic liner was removed and transported to an offsite permitted disposal/recycling facility.

viii. Cuttings Pit subliner composite samples were collected and analyzed for full Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for SAR (15.3), EC (5.48 mmhos/cm), pH (9.35), and arsenic (3.6 mg/kg).

ix. Refer to Table 1 for a summary of laboratory results.

x. Elevated arsenic levels above Table 910-1 concentration were detected beneath the Freshwater, Reserve and Cuttings Pit. Please refer to the associated sundry requesting consideration of background arsenic levels.

ATTACHMENT II

PCU T35X-2G Pit Closure Workplan, Form 27 Page 2

REMEDIATION WORKPLAN

Describe Reclamation Plan:

1. **Fresh Water Pit**
   - The pit will be backfilled with mix/blended, native onsite material or material transported to the site.

2. **Reserve Pit**
   - The Reserve Pit material will be removed and transported to a permitted disposal facility, treated to below Table 910-1 concentrations with a temporary Thermal Desporption Unit (TDU), and/or mix/blended to reduce hydrocarbons. If the Reserve Pit material is treated onsite with TDU and/or mix/blending, confirmation samples will be collected throughout the process to ensure compliance with Table 910-1.
   - Subliner samples will be collected and analyzed for Table 910-1 constituents following removal of stored Reserve Pit solidified material. Based on subliner sample results from beneath the Reserve Pit, the need for additional remedial activities will be evaluated for the site. Identified impacted soils/rock above Table 910-1 concentration levels will either be treated onsite (mix/blending, thermal desorption) or excavated and transported to an offsite recycling/disposal facility.
   - On completion of these remedial activities, appropriate confirmation samples will be collected to verify Table 910-1 compliance. Based on these results, the pit will either be closed or additional assessment and/or remediation plans will be determined.
   - The pit will be backfilled with mix/blended, native onsite material or material transported to the site.

3. **Cuttings Pit**
   - The pit will be backfilled with mix/blended, native onsite material or material transported to the site.

- Elevated arsenic levels above the Table 910-1 concentration level were detected beneath the Freshwater, Reserve and Cuttings Pit. Please refer to associated sundry requesting consideration of background arsenic levels.

- Please refer to Table 1 for a summary of laboratory results, analytical reports are attached.

- Any remaining elevated levels of SAR and pH detected beneath the pits or in material used for backfill will be covered with a minimum 3 feet of clean, native soils per COGCC guidance. No additional treatment of these soils will be required.

- Material used to fill the top 3 feet of each pit will be found onsite.

- Reclamation activities will be as specified in the Surface use Plan and BLM Conditions of Approval.

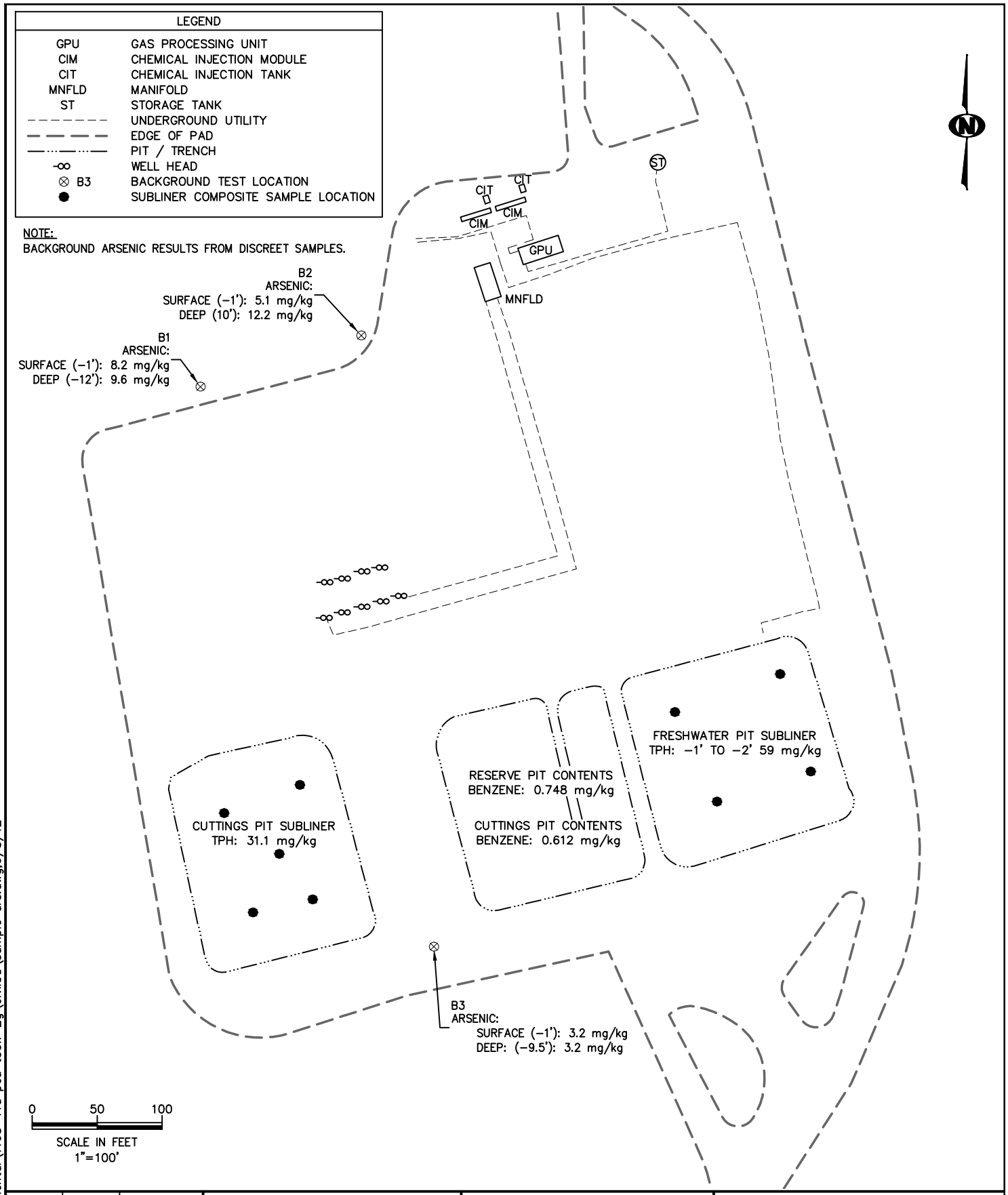
Table 1
Location: PCU T35X-2G
Lab Summary

Last update 6/18/2012

Analytical Parameter	Fresh Water Pit					Reserve Pit		Cuttings Pit			Background 1/19/10						COGCC	Maximum based on Background
(with units)	*FW Pit Contents*	*FW Subliner 01/09/12*	*FW Subliner TP -1' to -2' 1/30/12*	*FW Subliner TP -2' to -3' 1/30/12*	*FW Subliner Post[5] Mix/Blend 2/14/12*	*RES Pit Contents 11/07/11*	*RES Pit Subliner xx/xx/xx*	*CUT Pit Contents 12/12/11*	*CUT Stockpile 2/9/12*	*CUT Pit Subliner 3/14/12*	*Surface B1A (-1')*	*Deep B1B (-12')*	*Surface B2A (-1')*	*Deep B2B (-10')*	*Surface B3A (-1')*	*Deep B3B (-9.5')*	*Table 910-1 Concentration Levels*	
Accutest Job #		D30937	D31469	D31465	D31902	D29262		D30325	D31783	D32747	D10498						-	-
Sample type (**C**omposite/**D**iscrete)		C	C	C	C	C		C	C	C	D	D	D	D	D	D	-	-
TPH (GRO) (mg/Kg)		11.2	ND	ND	ND	114		31.8	13.9	ND	-	-	-	-	-	-	-	-
TPH (DRO) (mg/Kg)		597	59.1	30.8	287	374		206	240	31.1	-	-	-	-	-	-	-	-
TPH (GRO + DRO) (mg/Kg)		608	59	31	287	488		238	254	31.1	-	-	-	-	-	-	500	-
Benzene (mg/Kg)		ND	-	-	-	0.748		0.293	0.0564	0.0761	-	-	-	-	-	-	0.170	-
Toluene (mg/Kg)		ND	-	-	-	0.841		0.611	0.135	0.226	-	-	-	-	-	-	85	-
Ethylbenzene (mg/Kg)		ND	-	-	-	0.572		0.137	ND	0.0409	-	-	-	-	-	-	100	-
Xylenes (total) (mg/Kg)		ND	-	-	-	8.35		1.41	0.254	0.296	-	-	-	-	-	-	175	-
Acenaphthene (mg/Kg)		ND	-	-	-	ND		ND	-	ND	-	-	-	-	-	-	1000	-
Anthracene (mg/Kg)		ND	-	-	-	ND		ND	-	ND	-	-	-	-	-	-	1000	-
Benzo(A)anthracene (mg/Kg)		0.0147	-	-	-	ND		0.115	-	0.0168	-	-	-	-	-	-	0.22	-
Benzo(A)pyrene (mg/Kg)		0.0166	-	-	-	ND		0.191	-	0.0084	-	-	-	-	-	-	0.22	-
Benzo(B)fluoranthene (mg/Kg)		ND	-	-	-	ND		0.062	-	0.0241	-	-	-	-	-	-	2.2	-
Benzo(K)fluoranthene (mg/Kg)		ND	-	-	-	ND		ND	-	ND	-	-	-	-	-	-	0.022	-
Chrysene (mg/Kg)		0.0392	-	-	-	ND		0.162	-	0.0244	-	-	-	-	-	-	22	-
Dibenzo(A,H)anthracene (mg/Kg)		ND	-	-	-	ND		ND	-	0.0058	-	-	-	-	-	-	0.022	-
Fluoranthene (mg/Kg)		0.0322	-	-	-	ND		0.178	-	0.0251	-	-	-	-	-	-	1000	-
Fluorene (mg/Kg)		0.342	-	-	-	ND		0.067	-	ND	-	-	-	-	-	-	1000	-
Indeno(1,2,3,C,D)pyrene (mg/Kg)		ND	-	-	-	ND		ND	-	ND	-	-	-	-	-	-	0.22	-
Naphthalene (mg/Kg)		0.140	-	-	-	ND		0.182	-	0.0320	-	-	-	-	-	-	23	-
Pyrene (mg/Kg)		0.0331	-	-	-	ND		0.0728	-	0.0145	-	-	-	-	-	-	1000	-
Electrical Conductivity (mmhos/cm)		4.67	-	-	-	1.22		2.65	-	5.480	0.745	0.276	0.345	0.386	0.631	0.838	4	-
Sodium Adsorption Ratio (SAR)		30.7	-	-	-	17.3		26.6	-	15.3	7.21	0.488	0.776	3.43	9.24	12.3	12	-
pH		10.13	-	-	-	9.31		11.11	-	9.35	9.46	9.27	9.04	9.44	9.82	9.83	6-9	-
Arsenic (mg/kg)		4.5	-	-	-	7.0		6.7	-	3.6	8.2	9.6	5.1	12.2	3.2	3.2	0.39	13.4
Barium (mg/kg)		949	-	-	-	13300		8650	-	1880	-	-	-	-	-	-	15000	-
Cadmium (mg/kg)		<1.1	-	-	-	<2.3		<1.5	-	<1.1	-	-	-	-	-	-	70	-
Chromium (III) (mg/Kg)		36.4	-	-	-	11.1		15.8	-	31.6	-	-	-	-	-	-	120000	-
Chromium (VI) (mg/Kg)		<0.47	-	-	-	<0.91		<0.59	-	<1.0	-	-	-	-	-	-	23	-
Copper (mg/kg)		16.7	-	-	-	21.4		23.6	-	15.5	-	-	-	-	-	-	3100	-
Lead (inorganic) (mg/kg)		11.2	-	-	-	17		15	-	14.8	-	-	-	-	-	-	400	-
Mercury (mg/kg)		<0.11	-	-	-	<0.21		<0.15	-	<0.10	-	-	-	-	-	-	23	-
Nickel (mg/kg)		21.2	-	-	-	12.1		13.2	-	16.4	-	-	-	-	-	-	1600	-
Selenium (mg/kg)		<5.6	-	-	-	<120		<75	-	<5.4	-	-	-	-	-	-	390	-
Silver (mg/kg)		<3.4	-	-	-	<7		<4.5	-	<3.2	-	-	-	-	-	-	390	-
Zinc (mg/kg)		42.7	-	-	-	37.7		41.6	-	48.2	-	-	-	-	-	-	23000	-
% Solids	-	84.4	86.1	86.8	84.1	41.7		67.7	84.3	93.8	84.2	86.0	88.5	84.2	85.3	85.0	-	-

De Minimis Contents - Disposed of with Pit Liner/Felt Material

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.
5) Bottom 1' was mix/blended with 1' of clean onsite material then resampled.



DESIGNED: --	CHECKED: DK	FIGURE 1	NOTES:
DATE: 6/8/12	DRAWN: DRF		
FILE NAME: sample ars		SHEET NO. 1 of 1	DATE / REVISIONS
PROJECT NO. 1108–11A		SCALE: 1"=100'	

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

FIGURE 1
PICEANCE CREEK
PCU T35X–2G
SAMPLE LOCATIONS WITH ARSENIC LEVELS

PREPARED FOR XTO ENERGY

s:\proj\xto environmental\1108–11a pcu t35x–2g\civil3d\sample ars.dwg,6/8/12