

#6968

FORM
27
Rev 6/99State 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
4/20/2012

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.

OGCC Employee:

☐ Spill ☐ Complaint
☐ Inspection ☐ NOAV

Tracking No:

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: 80112

Contact Name and Telephone:

Jessica Dooling

No: 970-675-4122

Fax: 970-675-4150

API Number: 05-103-11138

County: Rio Blanco

Facility Name: Freedom Unit

Facility Number: Drilling Pit, Facility ID# 293831

Well Name: Freedom Unit

Well Number: FRU 297-32A

Location: (QtrQtr, Sec, Twp, Rng, Meridian): SE/NE, 32, 2S, 97W, 6th Latitude: 39.836116 Longitude: -108.298513

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: Rentsac Channery loam

Potential receptors (water wells within 1/4 mi, surface waters, etc.): Dry Gulch Creek ~761 feet to N/NW

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

Impacted Media (check):

- ☒
- Soils
-
- ☐
- Vegetation
-
- ☐
- Groundwater
-
- ☐
- Surface Water

Extent of Impact:

sub-liner impacts: TPH, arsenic

How Determined:

laboratory analysis

REMEDIALTION 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 materials currently stored in the Freshwater Pit will be transported offsite to a permitted disposal/recycling facility, treated onsite with a temporary Thermal Desorption Unit, and/or mix/blending to reduce hydrocarbons below Table 910-1 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 on-site or removed to a permitted disposal/recycling facility.

XTO FRU 297-32A

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1120 Lincoln Street, Suite 801, Denver, Colorado 80203
(303)894-2100 Fax: (303)894-2109Page 2
REMEDATION WORKPLAN (Cont.)Tracking Number: _____
Name of Operator: _____
OGCC Operator No: _____
Received Date: _____
Well Name & No: Location ID #335900
Facility Name & No: Pit Facility ID 293 831

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 200 feet below the ground surface. Soil samples were/will be collected for laboratory analysis of sub-liner material to confirm no groundwater impact potential exists (see Tables 1 and 2).

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 Attachemnt 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 Reserve Pit and Cuttings Pits #1 & #2. Based upon subliner testing beneath the Freshwater Pit additional assessment and remediation may be necessary (see Tables 1 and 2).

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

Cuttings Pits #1 and #2 synthetic liners were removed and transported to a permitted disposal/recycling facility. Cuttings Pits #1 and #2 material was mix/blended with onsite spoils to be below Table 910-1 and will be used onsite for fill. Reserve Pit material currently stored in the Freshwater Pit will be treated on-site with a temporary Thermal Desorption Unit, mix/blending to reduce hydrocarbons, and/or removed and transported to a permitted off-site recycling/disposal facility. Upon removal of the Reserve Pit material, the Freshwater Pit liner will be removed and transported to a permitted disposal/recycling facility.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: <u>11/4/11</u>	Date Site Investigation Completed: <u>in progress</u>	Date Remediation Plan Submitted: <u>4/20/2012</u>
Remediation Start Date: <u>pending approval</u>	Anticipated Completion Date: <u>pending approval</u>	Actual Completion Date: _____

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 CoordinatorDate: 4/20/2012

OGCC Approved: _____

Title: FOR Chris Canfield Date: 04/24/2012
EPS NW Region

ATTACHMENT I

FRU 297-32A Pit Closure Workplan, Form 27 Page 1

Describe initial action taken:

- i. The site consists of a Freshwater Pit, Reserve Pit, Cuttings Pit #1 and Cuttings Pit #2 (see Figure 1).
- ii. De-Minimus Pit contents were present in the Freshwater Pit.
- iii. Reserve Pit solidified contents and impacted Reserve Pit West Berm sub-liner materials were removed and stored in the relined Freshwater Pit.
- iv. Reserve Pit contents were sampled and analyzed for full Table 910-1, results indicated that the material was in exceedance of Table 910-1 concentrations for TPH (10551 mg/kg), Benzene (3.58 mg/kg), SAR (48.3), pH (10.02), Arsenic (5.1 mg/kg) and Barium (34400 mg/kg).
- v. Reserve Pit synthetic liners were removed and transported to an off-site permitted disposal/recycling facility.
- vi. Reserve Pit sub-liner composite samples were collected and analyzed for full Table 910-1 parameters, results indicated that the material was in exceedance of Table 910-1 concentrations for TPH (1147 mg/kg), SAR (19.3), pH (10.26) and Arsenic (3.6 mg/kg).
- vii. Noticeable staining of the Reserve Pit West Berm sub-liner was sampled for TPH and BTEX parameters and was in exceedance of Table 910-1 for TPH (3740 mg/kg). Six inches of material was removed from the Reserve Pit West Berm sub-liner and placed into the Freshwater Pit for storage. The Reserve Pit West Berm sub-liner was sampled for TPH after removal of impacted material, results are below Table 910-1 for TPH (232 mg/kg).
- viii. Cuttings Pit #1 contents were solidified and sampled for full Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for TPH (1445 mg/kg), Benzene (0.306 mg/kg), SAR (18.4), pH (9.13) and Arsenic (13.8 mg/kg). The contents were mix/blended with onsite spoils to below Table 910-1 parameters for TPH and Benzene (see Tables 1 & 2).

- ix. Cuttings Pit #1 sub-liner composite samples were collected and analyzed for full Table 910-1 parameters, results are below Table 910-1 concentrations with the exception of SAR (12.1), pH (9.47) and Arsenic (2.6 mg/kg).
- x. Cuttings Pit #2 contents were solidified and sampled for full Table 910-1 parameters. Results are in exceedence of Table 910-1 concentration levels for TPH (544 mg/kg), Benzene (0.944 mg/kg), Dibenzo (A,H) anthracene (0.0293 mg/kg), SAR (59.9) and Arsenic (6.6 mg/kg). The contents were mix/blended with onsite spoils to below Table 910-1 parameters for TPH, Benzene and Dibenzo (A,H) anthracene (see Tables 1 & 2).
- xi. Cuttings Pit #2 sub-liner composite samples were collected and analyzed for full Table 910-1 parameters, results are below Table 910-1 concentrations with the exception of pH (9.89) and Arsenic (3.6 mg/kg).
- xii. Cuttings Pits #1 and #2 mix/blend material will be used onsite for backfill.
- xiii. Cuttings Pits #1 and #2 synthetic liners were removed and transported to an off-site permitted disposal/recycling facility.
- xiv. Freshwater pit sub-liner composite samples will be collected and analyzed for full table 910-1 parameters.
- xv. Refer to Table 1 and Table 2 for a summary of laboratory results.
- xvi. Elevated arsenic levels above Table 910-1 concentration were detected beneath the Reserve Pit and Cuttings Pits #1 and #2. Please refer to the associated sundry requesting consideration of background arsenic levels.

ATTACHMENT II

FRU 297-32A Pit Closure Workplan, Form 27 Page 2

REMEDIATION WORKPLAN

Describe Reclamation Plan:

1. Fresh Water Pit

- The Reserve Pit material stored in the Freshwater Pit will be removed and transported to a permitted disposal facility, or treated to below Table 910-1 concentrations with a Thermal Desorption Unit (TDU), and/or mix/blending 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.
- Sub-liner samples will be collected and analyzed for Table 910-1 constituents following removal of stored Reserve Pit solidified material. Based on sub-liner sample results from beneath the Fresh Water 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 on-site (in-situ bioremediation, mix/blending, thermal desorption) or excavated and transported to an off-site 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.
- Backfilling of the Freshwater Pit will not be completed until assessment indicates conditions compliant with Table 910-1 concentration levels.

2. Reserve Pit

- The pit will be closed and backfilled with solidified material, native on-site material or material transported to the site.

3. Cuttings Pit #1

- The pit will be backfilled with solidified material, native on-site material or material transported to the site.

4. Cuttings Pit #2

- The pit will be backfilled with solidified material, native on-site material or material transported to the site.
- Elevated arsenic levels above the Table 910-1 concentration level were detected beneath the Reserve and Cuttings Pits #1 and #2. Please refer to associated sundry requesting consideration of background arsenic levels.
- Please refer to Table 1 and Table 2 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.
- On completion of required assessment and remedial activities, the pits will be backfilled. Material used to fill the pits will be derived from native on-site material or material transported to the site. Material used to fill the top three feet of each pit will be found on-site.
- Reclamation activities will be as specified in the Surface use Plan and BLM Conditions of Approval.

Table 1
Location: FRU 297-32A
Lab Summary

Last update 4/20/2012

Analytical Parameter	Fresh Water Pit		Reserve Pit							Cuttings #1		Cuttings #2		Background 01/21/10						COGCC	Maximum based on Background
(with units)	FW Pit Contents	FW Pit Subliner (xx/xx/xx)	RES Pit Contents 11/04/11	RES Pit Berm Subliner 12/08/11	RES Pit Berm Subliner West 5 (-6") 2/22/12	RES Pit Subliner 12/12/11	RES Pit Subliner (0' to -1') 02/02/12	RES Pit Subliner (0' to -1') Post M/B 3/20/12	RES Pit Subliner (-1' to -2') 02/02/12	CUT #1 Pit Contents 11/22/11	CUT #1 Pit Subliner 2/27/12	CUT #2 Pit Contents 12/02/11	CUT #2 Pit Subliner (3/7/12)	B1A @ 1.5'	B1B @ 10'	B2A @ 1.5'	B2B @ 3.5'	B3A @ 1.5'	B3B @ 8.5'	Table 910-1 Concentration Levels	
Accutest Job #			D29206	D30146	D32152	D30326	D31606	D32939	D31607	D29744	D32264	D29943	D32609	D10554						-	-
Sample type (Composite/Discrete)			C	C	C	C	C	C	C	C	C	C	C	D	D	D	D	D	D	-	-
TPH (GRO) (mg/Kg)			951	ND	ND	6.57	ND	ND	ND	135	ND	93.5	8.20	-	-	-	-	-	-	-	-
TPH (DRO) (mg/Kg)			9600	3740	232	1140	562	498	55.1	1310	54.2	450	115	-	-	-	-	-	-	-	-
TPH (GRO + DRO) (mg/Kg)			10551	3740	232	1147	562	498	55.1	1445	54.2	544	123	-	-	-	-	-	-	500	-
Benzene (mg/Kg)			3.58	ND	-	ND	-	-	-	0.306	0.0533	0.944	0.0469	-	-	-	-	-	-	0.170	-
Toluene (mg/Kg)			31.2	ND	-	ND	-	-	-	0.72	0.125	6.43	0.105	-	-	-	-	-	-	85	-
Ethylbenzene (mg/Kg)			6.04	ND	-	ND	-	-	-	0.924	0.0379	1.32	ND	-	-	-	-	-	-	100	-
Xylenes (total) (mg/Kg)			101	ND	-	ND	-	-	-	3.86	0.192	5.8	0.144	-	-	-	-	-	-	175	-
Acenaphthene (mg/Kg)			ND	-	-	ND	-	-	-	ND	ND	ND	ND	-	-	-	-	-	-	1000	-
Anthracene (mg/Kg)			ND	-	-	ND	-	-	-	ND	ND	ND	ND	-	-	-	-	-	-	1000	-
Benzo(A)anthracene (mg/Kg)			ND	-	-	ND	-	-	-	ND	ND	ND	ND	-	-	-	-	-	-	0.22	-
Benzo(A)pyrene (mg/Kg)			ND	-	-	ND	-	-	-	ND	ND	ND	ND	-	-	-	-	-	-	0.22	-
Benzo(B)fluoranthene (mg/Kg)			ND	-	-	ND	-	-	-	ND	ND	ND	ND	-	-	-	-	-	-	2.2	-
Benzo(K)fluoranthene (mg/Kg)			ND	-	-	ND	-	-	-	ND	ND	0.0204	ND	-	-	-	-	-	-	0.022	-
Chrysene (mg/Kg)			ND	-	-	0.0164	-	-	-	ND	ND	ND	ND	-	-	-	-	-	-	22	-
Dibenzo(A,H)anthracene (mg/Kg)			ND	-	-	ND	-	-	-	ND	ND	0.0293	ND	-	-	-	-	-	-	0.022	-
Fluoranthene (mg/Kg)			ND	-	-	ND	-	-	-	0.241	ND	ND	ND	-	-	-	-	-	-	1000	-
Fluorene (mg/Kg)			4.35	-	-	0.0663	-	-	-	0.0328	ND	0.296	ND	-	-	-	-	-	-	1000	-
Indeno(1,2,3,C,D)pyrene (mg/Kg)			ND	-	-	ND	-	-	-	ND	ND	0.0208	ND	-	-	-	-	-	-	0.22	-
Naphthalene (mg/Kg)			6.13	-	-	0.0096	-	-	-	0.196	0.0309	1	0.0327	-	-	-	-	-	-	23	-
Pyrene (mg/Kg)			ND	-	-	0.0079	-	-	-	ND	ND	0.0904	ND	-	-	-	-	-	-	1000	-
Electrical Conductivity (mmhos/cm)			2.77	-	-	1.58	-	-	-	1.49	1.480	3.86	1.340	7.7	2.55	0.356	6.63	0.545	1.94	4	-
Sodium Adsorption Ratio (SAR)			48.3	-	-	19.3	-	-	-	18.4	12.1	59.9	10.5	32.3	10.6	0.889	11.9	1.77	6.85	12	-
pH			10.02	-	-	10.26	-	-	-	9.13	9.47	8.69	9.89	9.77	9.63	9.10	9.26	9.20	9.37	6-9	-
Arsenic (mg/kg)			5.1	-	-	3.6	-	-	-	13.8	2.6	6.6	3.6	2.7	7.1	3.7	3.5	20.7	7.6	0.39	22.8
Barium (mg/kg)			34400	-	-	915	-	-	-	4780	1390	6190	2100	-	-	-	-	-	-	15000	-
Cadmium (mg/kg)			<5.0	-	-	<1.2	-	-	-	<1.3	<1.1	<1.3	<1.1	-	-	-	-	-	-	70	-
Chromium (III) (mg/Kg)			19.3	-	-	47.6	-	-	-	19.1	41.5	12.8	42.6	-	-	-	-	-	-	120000	-
Chromium (VI) (mg/Kg)			1.9	-	-	<0.46	-	-	-	<0.55	<1.0	<0.56	<1.0	-	-	-	-	-	-	23	-
Copper (mg/kg)			111	-	-	9.3	-	-	-	32.3	12.0	27.5	13.5	-	-	-	-	-	-	3100	-
Lead (inorganic) (mg/kg)			89.7	-	-	11.3	-	-	-	16.3	10	16.4	11.1	-	-	-	-	-	-	400	-
Mercury (mg/kg)			<0.48	-	-	<0.12	-	-	-	<0.15	<0.11	<0.14	<0.11	-	-	-	-	-	-	23	-
Nickel (mg/kg)			16.4	-	-	17.3	-	-	-	18.1	17.4	15.1	19.8	-	-	-	-	-	-	1600	-
Selenium (mg/kg)			<250	-	-	<5.9	-	-	-	<32	<5.5	<66	<5.4	-	-	-	-	-	-	390	-
Silver (mg/kg)			<15	-	-	<3.5	-	-	-	<3.8	<3.3	<3.9	<3.2	-	-	-	-	-	-	390	-
Zinc (mg/kg)			51.1	-	-	41.9	-	-	-	56.8	42.3	49.9	43.1	-	-	-	-	-	-	23000	-
% Solids			20.6	84.6	87.0	86.3	87.9	88.5	87.9	72.1	91.6	71.1	94.4	84.6	89.8	90.7	85.2	84.2	85.6	-	-

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 at or below background levels.

3) "-" indicates no analysis.

4) See site map for sample locations.

5) Reserve pit west berm subliner was called Reserve pit south berm in Chain of Custody and laboratory reports.

Table 2
Location: FRU 297-32A
Lab Summary - Mix/Blend Results

Last update

4/17/2012

Analytical Parameter	Cuttings #1										Cuttings #2							COGCC	
(with units)	CUT #1 Pit Contents 11/22/11	Cut #1 MB Day 1 2/13 (2/16/12)	Cut #1 MB Day 2 2/14 (2/16/12)	Cut #1 MB Day 3 2/15 (2/16/12)	Cut #1 MB Day 4 2/16 (2/21/12)	Cut #1 MB Day 5 2/17 (2/21/12)	Cut #1 MB Day 6 2/20 (2/21/12)	Cut #1 MB Day 7 2/21 (2/21/12)	Cut #1 MB Day 8&10 2/22&24 (2/24/12)	Cut #1 MB Day 9 2/23 (2/24/12)	CUT #2 Pit Contents (12/02/11)	Cut #2 MB Day 1 2/27 (2/29/12)	Cut #2 MB Day 2 2/28 (2/29/12)	Cut #2 MB Day 3 2/29 (2/29/12)	Cut #2 MB Day 4 3/2 (3/5/12)	Cut #2 MB Day 5 3/5 (3/5/12)	Cut #2 MB Day 6 3/6 (3/7/12)	Table 910-1 Concentration Levels	
Accutest Job #	D29744	D32021				D32156				D32210		D29943	D32371			D32443		D32610	-
Sample type (Composite/Discrete)	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	-
TPH (GRO) (mg/Kg)	135	19.1	26.1	24.5	26.3	31.9	31.7	33.4	9.39	10.3	93.5	7.66	10.3	9.39	7.43	20.1	11.2	-	
TPH (DRO) (mg/Kg)	1310	208	202	366	194	318	186	237	178	169	450	111	145	160	85.0	154	121	-	
TPH (GRO + DRO) (mg/Kg)	1445	227	228	391	220	350	218	270	187	179	544	119	155	169	92.4	174	132	500	
Benzene (mg/Kg)	0.306	0.0540	0.0536	0.0416	0.0877	0.0998	0.0916	0.0827	ND	ND	0.944	0.141	0.130	0.0986	0.113	0.135	0.130	0.170	
Toluene (mg/Kg)	0.72	-	-	-	-	-	-	-	-	-	6.43	-	-	-	-	-	-	85	
Ethylbenzene (mg/Kg)	0.924	-	-	-	-	-	-	-	-	-	1.32	-	-	-	-	-	-	100	
Xylenes (total) (mg/Kg)	3.86	-	-	-	-	-	-	-	-	-	5.8	-	-	-	-	-	-	175	
Acenaphthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	ND	-	-	-	-	-	-	1000	
Anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	ND	-	-	-	-	-	-	1000	
Benzo(A)anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	ND	-	-	-	-	-	-	0.22	
Benzo(A)pyrene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	ND	-	-	-	-	-	-	0.22	
Benzo(B)fluoranthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	ND	-	-	-	-	-	-	2.2	
Benzo(K)fluoranthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	0.0204	-	-	-	-	-	-	0.022	
Chrysene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	ND	-	-	-	-	-	-	22	
Dibenzo(A,H)anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	0.0293	ND	ND	ND	ND	ND	ND	0.022	
Fluoranthene (mg/Kg)	0.241	-	-	-	-	-	-	-	-	-	ND	-	-	-	-	-	-	1000	
Fluorene (mg/Kg)	0.0328	-	-	-	-	-	-	-	-	-	0.296	-	-	-	-	-	-	1000	
Indeno(1,2,3,C,D)pyrene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	0.0208	-	-	-	-	-	-	0.22	
Naphthalene (mg/Kg)	0.196	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	23	
Pyrene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	0.0904	-	-	-	-	-	-	1000	
Electrical Conductivity (mmhos/cm)	1.49	-	-	-	-	-	-	-	-	-	3.86	-	-	-	-	-	-	4	
Sodium Adsorption Ratio (SAR)	18.4	-	-	-	-	-	-	-	-	-	59.9	-	-	-	-	-	-	12	
pH	9.13	-	-	-	-	-	-	-	-	-	8.69	-	-	-	-	-	-	6-9	
Arsenic (mg/kg)	13.8	-	-	-	-	-	-	-	-	-	6.6	-	-	-	-	-	-	0.39	
Barium (mg/kg)	4780	-	-	-	-	-	-	-	-	-	6190	-	-	-	-	-	-	15000	
Cadmium (mg/kg)	<1.3	-	-	-	-	-	-	-	-	-	<1.3	-	-	-	-	-	-	70	
Chromium (III) (mg/Kg)	19.1	-	-	-	-	-	-	-	-	-	12.8	-	-	-	-	-	-	120000	
Chromium (VI) (mg/Kg)	<0.55	-	-	-	-	-	-	-	-	-	<0.56	-	-	-	-	-	-	23	
Copper (mg/kg)	32.3	-	-	-	-	-	-	-	-	-	27.5	-	-	-	-	-	-	3100	
Lead (inorganic) (mg/kg)	16.3	-	-	-	-	-	-	-	-	-	16.4	-	-	-	-	-	-	400	
Mercury (mg/kg)	<0.15	-	-	-	-	-	-	-	-	-	<0.14	-	-	-	-	-	-	23	
Nickel (mg/kg)	18.1	-	-	-	-	-	-	-	-	-	15.1	-	-	-	-	-	-	1600	
Selenium (mg/kg)	<32	-	-	-	-	-	-	-	-	-	<66	-	-	-	-	-	-	390	
Silver (mg/kg)	<3.8	-	-	-	-	-	-	-	-	-	<3.9	-	-	-	-	-	-	390	
Zinc (mg/kg)	56.8	-	-	-	-	-	-	-	-	-	49.9	-	-	-	-	-	-	23000	
% Solids	72.1	83.8	86.2	85.2	82.4	82.7	85.2	85.2	86.9	91.5	71.1	86.8	86.9	86.0	90.4	86.1	87.3	-	

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 at or below background levels.
- 3) "-" indicates no analysis.
- 4) Maximum arsenic level based on background is 22.8
- 5) See site map for sample locations.

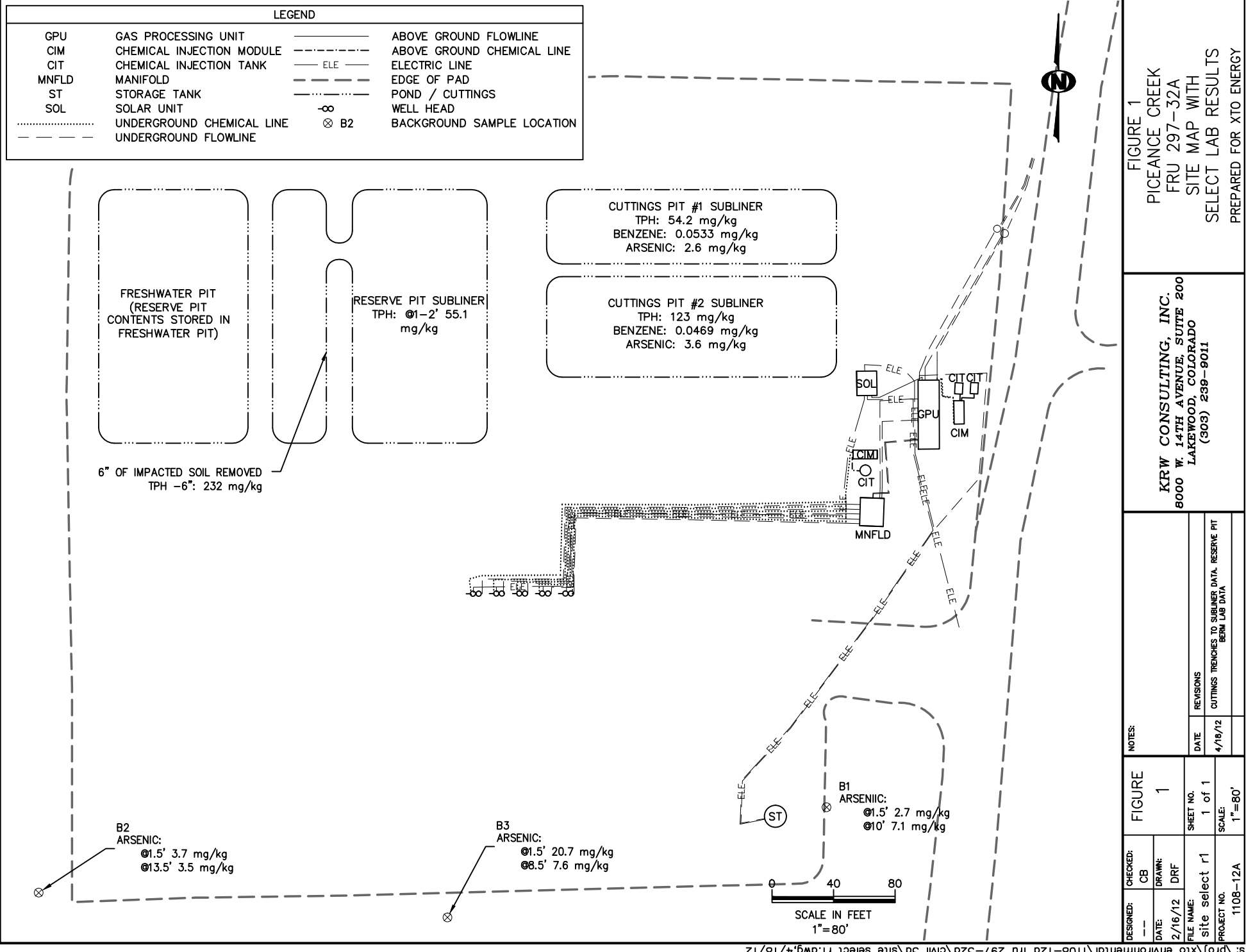


FIGURE 1
PICEANCE CREEK
FRU 297-32A
SITE MAP WITH
SELECT LAB RESULTS
PREPARED FOR XTO ENERGY

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

NOTES:		FIGURE 1	
		CHECKED: CB	DATE: 2/16/12
REVISIONS		DRAWN: DRF	FILE NAME: site select r1
DATE	4/18/12	SHEET NO. 1 of 1	PROJECT NO. 1108-12A
CUTTINGS TRENCHES TO SUBLINER DATA, RESERVE PIT BERM LAB DATA		SCALE: 1"=80'	