

# State of Colorado Oil and Gas Conservation Commission



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#7531

FOR OGCC USE ONLY

**RECEIVED**  
 1/28/2013

## 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: 05-103-11081-00

County: Rio Blanco

Facility Name: North Piceance Unit

Facility Number: 292458 Drilling Pit

Well Name: North Piceance Unit

Well Number: 196-19B

Location: (QtrQtr, Sec, Twp, Rng, Meridian): SENE, Sec. 19, T1S, R96W, 6th P.M.

Latitude: 39.954937 Longitude: -108.201444

### 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-Crop Land, 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.): Closest water well is &gt;1 mile; closest surface water ~1500'

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

Impacted Media (check):



Soils



Vegetation



Groundwater



Surface Water

Extent of Impact:

TPH, Benzene and Arsenic

How Determined:

laboratory analysis

### 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:

Synthetic liners from all pits have been removed and transported offsite to a permitted disposal facility. Reserve Pit and Cuttings Pit contents will either be treated onsite with a temporary Thermal Desorption Unit; by mix/blend processing and/or transported offsite to a permitted disposal facility.

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.



REMEDIATION WORKPLAN (Cont.)

Tracking Number:

Name of Operator:

XTO

OGCC Operator No:

APF 103 11081

Received Date:

Well Name & No:

NPU 196-19B

Facility Name & No:

Location ID # 316658

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 collected for laboratory analysis of subliner material to confirm no groundwater impact potential exists (see Tables 1 and 3).

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 I

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, Reserve Pit or Cuttings Pits (see Tables 1 and 3).

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

Synthetic liners from each of the pits were removed and transported to an approved offsite disposal/recycling facility. Reserve and Cuttings Pits contents will either be treated onsite with a temporary Thermal Desorption Unit; mix/blend processed to below Table 910-1 concentration levels and/or transported to an approved offsite disposal/recycling facility. Material mix/blend and/or Thermal Desorption Unit processed will be used for onsite fill.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 10/26/12

Date Site Investigation Completed: In progress

Date Remediation Plan Submitted: 1/28/2013

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: 1/28/2013

OGCC Approved:

Title: FOR Chris Camfield

Date: 01/30/2013

EPS NW Region

## ATTACHMENT I

### NPU 196-19B Pit Closure Workplan, Form 27 Page 1

#### Describe initial action taken:

The site consists of Freshwater, Reserve Pit (NW and SE sections) and Cuttings Pit (see Figure 1).

#### **1. Freshwater Pit**

- Freshwater Pit contents (de minimis) and associated synthetic liners were removed and transported to an offsite permitted disposal/recycling facility.
- Freshwater Pit subliner composite samples were collected and analyzed for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for Arsenic (9.7 mg/kg).

#### **2. Reserve Pit NW Section**

- Reserve Pit NW contents were solidified and mixed with the Reserve Pit SE contents then sampled for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for TPH (2606 mg/kg), EC (12.300 mmhos/cm), pH (12.44) and Arsenic (4.8 mg/kg).
- Reserve Pit NW subliner composite samples were collected and analyzed for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for pH (9.61) and Arsenic (5.4 mg/kg).

#### **3. Reserve Pit SE Section**

- Reserve Pit SE contents were addressed in the manner described above.
- Reserve Pit SE subliner composite samples were collected and analyzed for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for TPH (1115 mg/kg), pH (9.25) and Arsenic (7.2 mg/kg).
- The Reserve Pit SE subliner impacted soils were removed and will be treated onsite or disposed of offsite at a permitted disposal/recycling facility. Subliner confirmation samples were collected for TPH and ranged from 30.4 mg/kg to 62.2 mg/kg.

#### **4. Cuttings Pit**

- Cuttings Pit contents were solidified and composite samples were collected and analyzed for Table 910-1 parameters. Results exceeded Table 910-1



concentration levels for Benzene (0.221 mg/kg), EC (7.910 mmhos/cm), SAR (18.5), pH (12.41) and Arsenic (7.7 mg/kg).

- Cuttings Pit subliner composite samples were collected and analyzed for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for pH (9.83) and Arsenic (8.1 mg/kg).
- Reserve and Cuttings Pit contents were removed from the respective pits and will either be treated on-site with a temporary Thermal Desorption Unit; mix/blend processed and sampled to ensure Table 910 compliance and/or transported to an offsite permitted disposal/recycling facility.
- Mix/blend and/or Thermal Desorption Unit processed Reserve and Cuttings Pit material that meets Table 910-1 concentration levels will be used onsite for backfill.
- All associated Reserve and Cuttings Pit synthetic liners were removed and transported to an offsite permitted disposal/recycling facility.
- Refer to Tables 1 through 3 for a summary of the laboratory results and Figures 1 through 2A for layout of the pits and sample locations.
- Elevated Arsenic levels above Table 910-1 concentration were detected beneath the Freshwater, Reserve and Cuttings Pits. Please refer to the associated sundry requesting consideration of background Arsenic levels.
- Any remaining elevated levels of Electrical Conductivity, 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 performed in accordance with applicable COGCC 900, 1000 Series rules and as specified in the Surface Use Plan and BLM Conditions of Approval.

**Table 1**  
**Location: NPU 196-19B**  
**Lab Summary**

Analytical Parameter (with units)	Fresh Water Pit		Reserve Pit			Cuttings Pit		Background								Last update COGCC		Maximum based on Background
	FW Pit Contents	FW Pit Subliner 10/26/12	RP Post Solid. 11/12/12	RP N.W. Subliner 11/15/12	RP S.E. Subliner <sup>6</sup> 11/15/12	Cut Pit Post Solid. <sup>6</sup> 11/12/12	Cut Pit Subliner 11/14/12	#1	#2	#3	#4	#5	#6	#7	#8	Table 910-1 Concentration Levels		
Accutest Job #		D40379	D40911	D41043	D41042	D40911	D41013	D40380 (10/26/12)										
Sample type (Composite/Discrete)		C	C	C	C	C	C	D	D	D	D	D	D	D	D	-	-	-
TPH (GRO) (mg/Kg)		ND	306	ND	14.6	15.1	ND	-	-	-	-	-	-	-	-	-	-	-
TPH (DRO) (mg/Kg)		24.0	2300	380	1100	298	10.9	-	-	-	-	-	-	-	-	-	-	-
TPH (GRO + DRO) (mg/Kg)		24.0	2606	380	1115	313	10.9	-	-	-	-	-	-	-	-	-	-	-
Benzene (mg/Kg)		ND	0.0779	ND	ND	0.221	ND	-	-	-	-	-	-	-	-	500	-	-
Toluene (mg/Kg)		ND	1.84	ND	ND	0.928	ND	-	-	-	-	-	-	-	-	0.170	-	-
Ethylbenzene (mg/Kg)		ND	0.838	ND	ND	0.218	ND	-	-	-	-	-	-	-	-	85	-	-
Xylenes (total) (mg/Kg)		ND	18.2	ND	ND	1.11	ND	-	-	-	-	-	-	-	-	100	-	-
Acenaphthene (mg/Kg)		ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	175	-	-
Anthracene (mg/Kg)		ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	1000	-	-
Benzo(A)anthracene (mg/Kg)		ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	1000	-	-
Benzo(A)pyrene (mg/Kg)		ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	0.22	-	-
Benzo(B)fluoranthene (mg/Kg)		ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	0.022	-	-
Benzo(K)fluoranthene (mg/Kg)		ND	ND	ND	ND	ND	0.0073	-	-	-	-	-	-	-	-	0.22	-	-
Chrysene (mg/Kg)		ND	0.0365	0.0067	0.0204	0.0155	ND	-	-	-	-	-	-	-	-	2.2	-	-
Dibenzo(A,H)anthracene (mg/Kg)		ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	22	-	-
Fluoranthene (mg/Kg)		ND	0.0380	ND	ND	0.0095	ND	-	-	-	-	-	-	-	-	0.022	-	-
Fluorene (mg/Kg)		ND	0.432	ND	0.132	0.0431	0.0083	-	-	-	-	-	-	-	-	1000	-	-
Indeno(1,2,3,C,D)pyrene (mg/Kg)		ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	1000	-	-
Naphthalene (mg/Kg)		ND	2.330	0.0434	0.0771	0.240	0.0313	-	-	-	-	-	-	-	-	0.22	-	-
Pyrene (mg/Kg)		ND	0.0459	0.0061	0.0239	0.0220	ND	-	-	-	-	-	-	-	-	23	-	-
Electrical Conductivity (mmhos/cm)		1.280	12.300	2.250	3.850	7.910	0.538	-	-	-	-	-	-	-	-	1000	-	-
Sodium Adsorption Ratio (SAR)		3.32	11.8	4.34	9.59	18.5	4.69	-	-	-	-	-	-	-	-	4	-	-
pH		8.96	12.44	9.61	9.25	12.41	9.83	-	-	-	-	-	-	-	-	12	-	-
Arsenic (mg/kg)		9.7	4.8	5.4	7.2	7.7	8.1	4.6	3.5	3.7	3.1	4.2	4.6	4.8	4.2	6-9	-	-
Elevation in feet (MSL)		6868	-	6867	6869	-	6864.5	6898	6894	6867	6861	6868	6856	6858	6868	0.39	5.3	-
Barium (mg/kg)		341	9410	2090	2350	6210	1000	-	-	-	-	-	-	-	-	15000	-	-
Cadmium (mg/kg)		<1.3	<1.4	<1.1	<1.2	<1.2	<1.2	-	-	-	-	-	-	-	-	70	-	-
Chromium (III) (mg/Kg)		22.5	15.8	24.4	25.7	18.7	34.1	-	-	-	-	-	-	-	-	120000	-	-
Chromium (VI) (mg/Kg)		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	-	-	-	-	-	-	-	23	-	-
Copper (mg/kg)		17.3	14.6	14.8	16.4	24.4	12.6	-	-	-	-	-	-	-	-	3100	-	-
Lead (inorganic) (mg/kg)		13.2	<7.2	11.6	12.9	16.7	11.5	-	-	-	-	-	-	-	-	400	-	-
Mercury (mg/kg)		<0.11	<0.11	<0.093	<0.099	<0.095	<0.10	-	-	-	-	-	-	-	-	23	-	-
Nickel (mg/kg)		14.5	128	14.9	15.2	55.7	17.5	-	-	-	-	-	-	-	-	1600	-	-
Selenium (mg/kg)		<6.7	<7.2	<5.5	<6.1	<6.1	<6.1	-	-	-	-	-	-	-	-	390	-	-
Silver (mg/kg)		<4.0	<4.3	<3.3	<3.6	<3.7	<3.7	-	-	-	-	-	-	-	-	390	-	-
Zinc (mg/kg)		45.7	23.7	43.9	48.5	43.5	46.7	-	-	-	-	-	-	-	-	23000	-	-
% Solids		76.9	68.5	89.6	85.8	80.7	82.9	84.9	88.3	85.5	85.0	91.0	87.5	88.5	83.8	-	-	-

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.
- 4) See site map for sample locations.
- 5) See Table 3 for Reserve Pit SE Subliner assessment.
- 6) See Table 4 for the Cuttings Pit Mix/blend summary.
- 7) Background #8 was reported in a separate lab report (D40380R).



**Table 2**  
**Location: NPU 196-19B**  
**Lab Summary - Discrete Arsenic Summary**

Analytical Parameter		Cuttings					Background								Last update		1/9/2013
(with units)	Cut Pit Post Solid. 11/12/12	Discrete AS #1	Discrete AS #2	Discrete AS #3	Discrete AS #4	Discrete AS #5									COGCC Table 910-1 Concentration Levels	Maximum based on Background	
Accutest Job #	D40911	D40909 (11/12/12)					D40380 (10/26/12)										
Sample type (Composite/Discrete)	C	D	D	D	D	D	D	D	D	D	D	D	D	R <sup>4</sup>	-	-	
TPH (GRO) (mg/Kg)	15.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TPH (DRO) (mg/Kg)	298	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TPH (GRO + DRO) (mg/Kg)	313	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzene (mg/Kg)	0.221	-	-	-	-	-	-	-	-	-	-	-	-	-	500	-	
Toluene (mg/Kg)	0.928	-	-	-	-	-	-	-	-	-	-	-	-	-	0.170	-	
Ethylbenzene (mg/Kg)	0.218	-	-	-	-	-	-	-	-	-	-	-	-	-	85	-	
Xylenes (total) (mg/Kg)	1.11	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	
Acenaphthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	175	-	
Anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	1000	-	
Benzo(A)anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	1000	-	
Benzo(A)pyrene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22	-	
Benzo(B)fluoranthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	0.022	-	
Benzo(K)fluoranthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22	-	
Chrysene (mg/Kg)	0.0155	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	-	
Dibenzo(A,H)anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	22	-	
Fluoranthene (mg/Kg)	0.0095	-	-	-	-	-	-	-	-	-	-	-	-	-	0.022	-	
Fluorene (mg/Kg)	0.0431	-	-	-	-	-	-	-	-	-	-	-	-	-	1000	-	
Indeno(1,2,3,C,D)pyrene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	1000	-	
Naphthalene (mg/Kg)	0.240	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22	-	
Pyrene (mg/Kg)	0.0220	-	-	-	-	-	-	-	-	-	-	-	-	-	23	-	
Electrical Conductivity (mmhos/cm)	7.910	-	-	-	-	-	-	-	-	-	-	-	-	-	1000	-	
Sodium Adsorption Ratio (SAR)	18.5	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	
pH	12.41	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	
Arsenic (mg/kg)	7.7	7.3	10.3	9.4	7.9	9.6	4.6	3.5	3.7	3.1	4.2	4.6	4.8	4.2	6-9	-	
Barium (mg/kg)	6210	-	-	-	-	-	-	-	-	-	-	-	-	-	0.39	5.3	
Cadmium (mg/kg)	<1.2	-	-	-	-	-	-	-	-	-	-	-	-	-	15000	-	
Chromium (III) (mg/Kg)	18.7	-	-	-	-	-	-	-	-	-	-	-	-	-	70	-	
Chromium (VI) (mg/Kg)	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	120000	-	
Copper (mg/kg)	24.4	-	-	-	-	-	-	-	-	-	-	-	-	-	23	-	
Lead (inorganic) (mg/kg)	16.7	-	-	-	-	-	-	-	-	-	-	-	-	-	3100	-	
Mercury (mg/kg)	<0.095	-	-	-	-	-	-	-	-	-	-	-	-	-	400	-	
Nickel (mg/kg)	55.7	-	-	-	-	-	-	-	-	-	-	-	-	-	23	-	
Selenium (mg/kg)	<6.1	-	-	-	-	-	-	-	-	-	-	-	-	-	1600	-	
Silver (mg/kg)	<3.7	-	-	-	-	-	-	-	-	-	-	-	-	-	390	-	
Zinc (mg/kg)	43.5	-	-	-	-	-	-	-	-	-	-	-	-	-	390	-	
% Solids	80.7	87.2	79.8	79.0	80.1	80.4	84.9	88.3	85.5	85.0	91.0	87.5	88.5	83.8	23000	-	
Notes:															-	-	
1) ND = not detected															-	-	

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.

4) Background #8 was reported in a separate lab report (D40380R).

**Table 3**  
**Location: NPU 196-19B**  
**Lab Summary - Reserve Pit SE Assessment**

Analytical Parameter (with units)	Reserve Pit		S.E. RP Subliner Discrete					Post 2' Excavation			Ex. MTRL	COGCC
	RP Post Solid. 11/12/12	RP S.E. Subliner 11/15/12	SE RP 1	SE RP 2	SE RP 3	SE RP 4	SE RP 5	SE RP 1 (-2')	SE RP 3 (-2')	SE RP 5 (-2')	RP Excavated Material MB 1/7/13	Table 910-1 Concentration Levels
			D41047 (12/6/12)					D41998 (12/17/12)			D42444	
Accutest Job #	D40911	D41042	D41047 (12/6/12)					D41998 (12/17/12)			D42444	-
Sample type (Composite/Discrete)	C	C	D	D	D	D	D	D	D	D	C	-
TPH (GRO) (mg/Kg)	306	14.6	76.5	ND	ND	ND	ND	ND	ND	ND	ND	-
TPH (DRO) (mg/Kg)	2300	1100	3150	30.4	1540	34.9	526	62.2	59.1	39.5	90.8	-
TPH (GRO + DRO) (mg/Kg)	2606	1115	3227	30.4	1540	34.9	526	62.2	59.1	39.5	90.8	-
Benzene (mg/Kg)	0.0779	ND	-	-	-	-	-	62.2	59.1	39.5	90.8	500
Toluene (mg/Kg)	1.84	ND	-	-	-	-	-	-	-	-	-	0.170
Ethylbenzene (mg/Kg)	0.838	ND	-	-	-	-	-	-	-	-	-	85
Xylenes (total) (mg/Kg)	18.2	ND	-	-	-	-	-	-	-	-	-	100
Acenaphthene (mg/Kg)	ND	ND	-	-	-	-	-	-	-	-	-	175
Anthracene (mg/Kg)	ND	ND	-	-	-	-	-	-	-	-	-	1000
Benzo(A)anthracene (mg/Kg)	ND	ND	-	-	-	-	-	-	-	-	-	1000
Benzo(A)pyrene (mg/Kg)	ND	ND	-	-	-	-	-	-	-	-	-	0.22
Benzo(B)fluoranthene (mg/Kg)	ND	ND	-	-	-	-	-	-	-	-	-	0.022
Benzo(K)fluoranthene (mg/Kg)	ND	ND	-	-	-	-	-	-	-	-	-	0.22
Chrysene (mg/Kg)	0.0365	0.0204	-	-	-	-	-	-	-	-	-	2.2
Dibenzo(A,H)anthracene (mg/Kg)	ND	ND	-	-	-	-	-	-	-	-	-	22
Fluoranthene (mg/Kg)	0.0380	ND	-	-	-	-	-	-	-	-	-	0.022
Fluorene (mg/Kg)	0.432	0.132	-	-	-	-	-	-	-	-	-	1000
Indeno(1,2,3,C,D)pyrene (mg/Kg)	ND	ND	-	-	-	-	-	-	-	-	-	1000
Naphthalene (mg/Kg)	2.330	0.0771	-	-	-	-	-	-	-	-	-	0.22
Pyrene (mg/Kg)	0.0459	0.0239	-	-	-	-	-	-	-	-	-	23
Electrical Conductivity (mmhos/cm)	12.300	3.850	-	-	-	-	-	-	-	-	-	1000
Sodium Adsorption Ratio (SAR)	11.8	9.59	-	-	-	-	-	-	-	-	-	4
pH	12.44	9.25	-	-	-	-	-	-	-	-	-	12
Arsenic (mg/kg)	4.8	7.2	-	-	-	-	-	-	-	-	-	6-9
Barium (mg/kg)	9410	2350	-	-	-	-	-	-	-	-	-	0.39
Cadmium (mg/kg)	<1.4	<1.2	-	-	-	-	-	-	-	-	-	15000
Chromium (III) (mg/Kg)	15.8	25.7	-	-	-	-	-	-	-	-	-	70
Chromium (VI) (mg/Kg)	<1.0	<1.0	-	-	-	-	-	-	-	-	-	120000
Copper (mg/kg)	14.6	16.4	-	-	-	-	-	-	-	-	-	23
Lead (inorganic) (mg/kg)	<7.2	12.9	-	-	-	-	-	-	-	-	-	3100
Mercury (mg/kg)	<0.11	<0.099	-	-	-	-	-	-	-	-	-	400
Nickel (mg/kg)	128	15.2	-	-	-	-	-	-	-	-	-	23
Selenium (mg/kg)	<7.2	<6.1	-	-	-	-	-	-	-	-	-	1600
Silver (mg/kg)	<4.3	<3.6	-	-	-	-	-	-	-	-	-	390
Zinc (mg/kg)	23.7	48.5	-	-	-	-	-	-	-	-	-	390
% Solids	68.5	85.8	82.1	87.1	86.4	87.3	86.3	89.0	89.0	87.1	83.5	23000
Notes:												-

1) ND = not detectable to the laboratory detection limit.

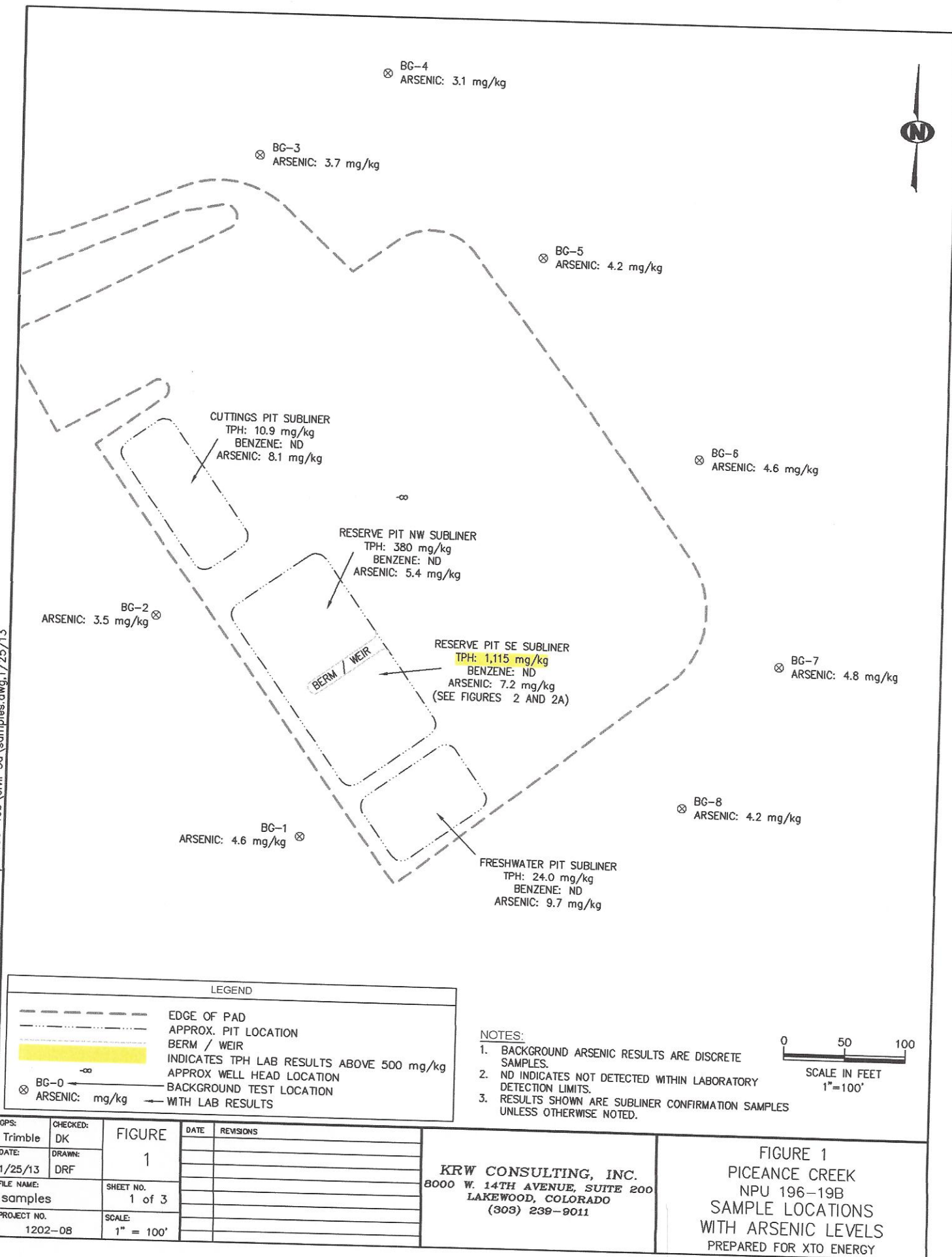
2) Results highlighted in yellow exceed Table 910-1 concentration levels. Results highlighted in Gray exceed Table 910-1, but are below background levels.

3) "-" indicates no analysis.

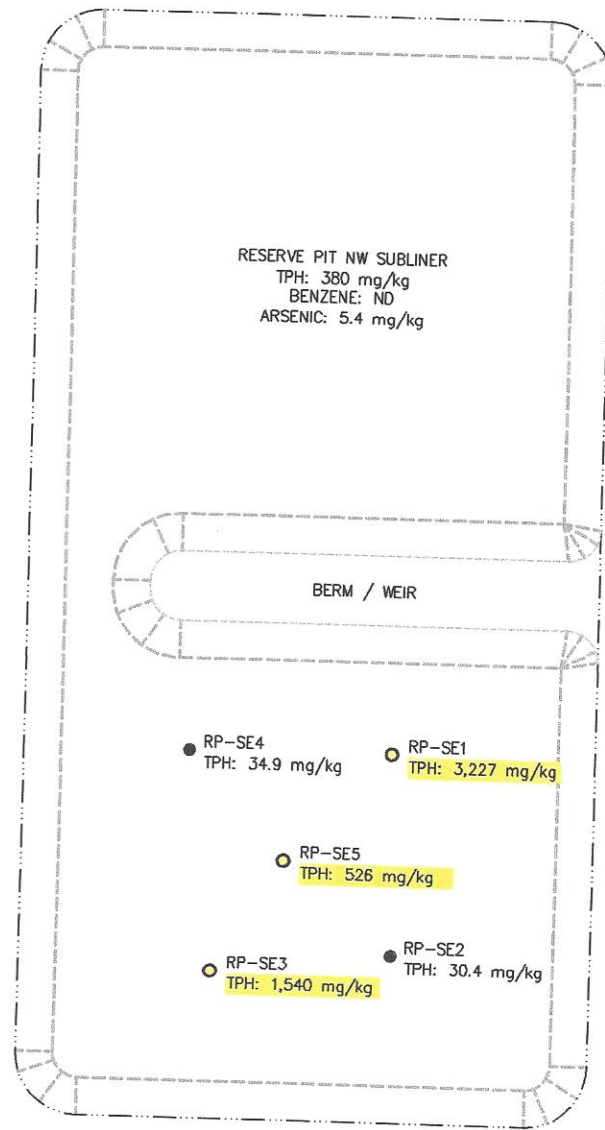
4) See site map for sample locations.



\\hyper-v03\lkw-dco\edsk\proj\cto environmental\1202-08 npu 196-19b\civil 3d\samples.dwg, 1/25/13







RESERVE PIT NW SUBLINER  
 TPH: 380 mg/kg  
 BENZENE: ND  
 ARSENIC: 5.4 mg/kg

BERM / WEIR

- RP-SE4  
TPH: 34.9 mg/kg
- RP-SE1  
TPH: 3,227 mg/kg
- RP-SE5  
TPH: 526 mg/kg
- RP-SE3  
TPH: 1,540 mg/kg
- RP-SE2  
TPH: 30.4 mg/kg

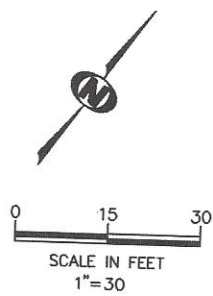
FRESHWATER PIT

LEGEND

- EDGE OF PAD
- - - - - APPROX. PIT LOCATION
- - - - - BERM / WEIR
- - - - - APPROX. TOE OF PIT (ORIGINAL)
- D-0  
TPH: ≤ 500 mg/kg  
DISCRETE SAMPLE LOCATION WITH TPH LAB RESULTS LESS THAN OR EQUAL TO 500 mg/kg
- D-0  
TPH: > 500 mg/kg  
DISCRETE SAMPLE LOCATION WITH TPH LAB RESULTS GREATER THAN 500 mg/kg

NOTES:

1. ND INDICATES NOT DETECTED WITHIN LABORATORY DETECTION LIMITS.
2. RESULTS SHOWN ARE SUBLINER CONFIRMATION SAMPLES UNLESS OTHERWISE NOTED.

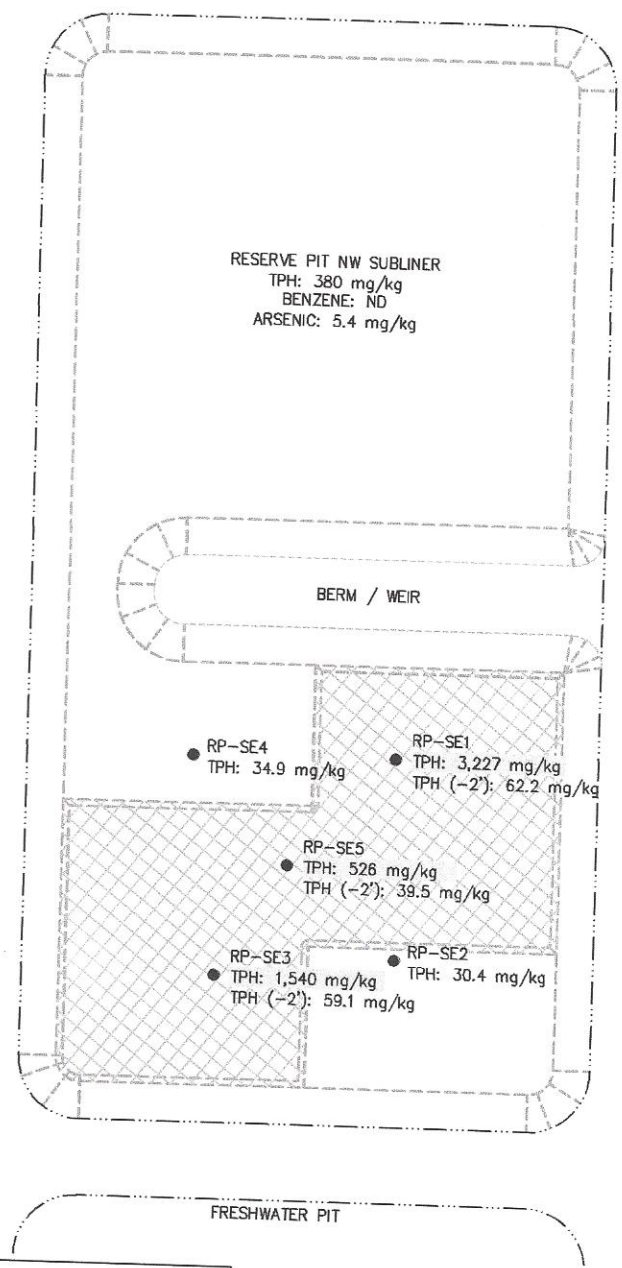


QPS:	CHECKED:	FIGURE	DATE	REVISIONS
Trimble	DK	2		
DATE:	DRAWN:			
1/25/13	DRF			
FILE NAME:	SHEET NO.			
reserve	2 of 3			
PROJECT NO.	SCALE:			
1202-08	1" = 30'			

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

FIGURE 2  
 PICEANCE CREEK  
 NPU 196-19B  
 RESERVE PIT SE  
 SUBLINER CONFIRMATION DATA  
 PREPARED FOR XTO ENERGY

\\hyper-v03\kwd-co\sdk\pro\cto environmental\1202-08 npu 196-19b\civil 3d\reserve cl.dwg, 1/25/13



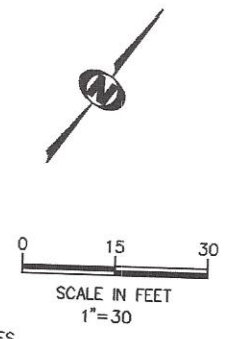
**LEGEND**

- EDGE OF PAD
- APPROX. PIT LOCATION
- BERM / WEIR
- APPROX. TOE OF PIT
- SOILS REMOVED
- APPROX WELL HEAD LOCATION
- DISCRETE SAMPLE LOCATION WITH TPH LAB RESULTS LESS THAN OR EQUAL TO 500 mg/kg
- DISCRETE SAMPLE LOCATION WITH TPH LAB RESULTS GREATER THAN 500 mg/kg

D-0  
TPH: ≤ 500 mg/kg

D-0  
TPH: > 500 mg/kg

- NOTES:**
1. ND INDICATES NOT DETECTED WITHIN LABORATORY DETECTION LIMITS.
  2. RESULTS SHOWN ARE SUBLINER CONFIRMATION SAMPLES UNLESS OTHERWISE NOTED.



GPS:	CHECKED:	FIGURE 2A	DATE	REVISIONS
Trimble	DK			
DATE:	DRAWN:			
1/25/13	DRF			
FILE NAME:	SHEET NO.			
reserve cl	3 of 3			
PROJECT NO.	SCALE:			
1202-08	1" = 30'			

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FIGURE 2A  
PICEANCE CREEK  
NPU 196-19B  
RESERVE PIT SE  
SELECT SAMPLE RESULTS  
PREPARED FOR XTO ENERGY