

FORM

27

Rev 6/99

Location ID # 413 472

Pit Facility ID # 4312006

PCU 197-34A

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

REM 9347

Document 2144645

Date 12/19/2012

## 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: 80155

Contact Name and Telephone:

Jessica Dooling

No. 970-675-4122

Fax: 970-675-4150

API Number: 05-103-11544-00

County: Rio Blanco

Facility Name: Piceance Creek Unit

Facility Number: No Facility #, COGCC Approved Form 15 Attached

Well Name: Piceance Creek Unit

Well Number: 197-34A

Location: (QtrQtr, Sec, Twp, Rng, Meridian): NWSW, Sec. 34, T1S, R97W, 6th P.M.

Latitude: 39.917957

Longitude: -108.276913

## 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: Rentsac Channery Loam Complex, 5 to 50 percent slopes

Potential receptors (water wells within 1/4 mi, surface waters, etc.): ~1107' to nearest surface water; ~6600' to nearest water well

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, Arsenic and Barium

How Determined:

laboratory analysis

## REMEDIALATION 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 were removed and transported offsite to a permitted disposal facility. Reserve pit and Cuttings pit #1, #2 and #3 contents as well as Freshwater subliner impacted material have been/will be treated onsite by mix/blending and sampled to ensure Table 910-1 compliance, 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.

Submit Page 2 with Page 1

PCU 197-34A

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)894-2109Page 2  
REMEDIAL WORKPLAN (Cont.)Tracking Number: \_\_\_\_\_  
Name of Operator: XTO  
OGCC Operator No: 100264  
Received Date: Location # 413 472  
Well Name & No: API 103 11549  
Facility Name & No: Pit # 4312006

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 collected for laboratory analysis of subliner material to confirm no groundwater impact potential exists (see Tables 1 and 5).

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, Cuttings #1, #2 and #3 Pits (see Tables 1 and 5).

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

Synthetic liners from each of the pits have been removed and transported to an approved offsite disposal/recycling facility. Reserve pit, Cuttings pit #1, #2 and #3 contents have been mix/blend processed to below Table 910-1 concentration levels or transported offsite to a permitted disposal/recycling facility. The Freshwater subliner material has been excavated and will be mix/blend processed to below Table 910-1 concentration levels or transported offsite to a permitted disposal/recycling facility. Mix/blend material below Table 910-1 concentration levels will be used for on-site fill.

## IMPLEMENTATION SCHEDULE

Date Site Investigation Began: 2/9/12 Date Site Investigation Completed: in progress Date Remediation Plan Submitted: 12/19/2012  
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 DoolingSigned: [Signature]Title: Environmental CoordinatorDate: 12/19/2012OGCC Approved: [Signature]Title: FOR Chris Camfield Date: 12/28/2012

EPS NW Region



## ATTACHMENT I

### PCU 197-34A Pit Closure Workplan, Form 27 Page 1

#### Describe initial action taken:

The site consists of Freshwater, Reserve and Cuttings Pits #1, #2 and #3 (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.
- The Freshwater Pit subliner composite sample was collected and analyzed for Table 910-1 parameters. Results exceeded Table 910 concentration levels for TPH (2919 mg/kg), EC (6.15 mmhos/cm), pH (10.55) and Arsenic (5.2 mg/kg).
- The Freshwater Pit 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 ND to 251 mg/kg.

#### **2. Reserve Pit**

- Reserve Pit contents were sampled for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for TPH (1338 mg/kg), Benzene (0.357 mg/kg), SAR (94.4), pH (10.53), Arsenic (5.3 mg/kg) and Barium (20400 mg/kg).
- The Reserve Pit contents were subsequently mixed with Cuttings #2 contents, solidified, mix/bend processed and sampled to ensure Table 910 compliance. Mix/blend processed materials from Days 1-7 has a TPH range of ND to 472 mg/kg. Mix/blend processed material from Days 8-12 TPH levels were elevated and this material was transported to an offsite permitted disposal/recycling facility.
- The Reserve Pit subliner composite samples were collected and analyzed for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for EC (5.6 mmhos/cm), SAR (44.7), pH (10.87) and Arsenic (4.6 mg/kg).

### 3. Cuttings Pit #1

- Cuttings Pit #1 content samples were collected and analyzed for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for TPH (995 mg/kg), Benzene (0.672 mg/kg), SAR (64.3) and Arsenic (17.6 mg/kg).
- Cuttings Pit #1 subliner composite samples were collected and analyzed for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for SAR (36.5), pH (10.80) and Arsenic (5.7 mg/kg).

### 4. Cuttings Pit #2

- Cuttings Pit #2 contents were collected and analyzed for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for Benzene (0.363 mg/kg), SAR (25.4), pH (11.07) and Arsenic (4.4 mg/kg).
- Cuttings Pit #2 contents were subsequently mixed with the Reserve Pit contents and have been addressed in the manner described above.
- Cuttings Pit #2 subliner composite samples were collected and analyzed for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for SAR (16.8), pH (9.97) and Arsenic (7.5 mg/kg).

### 5. Cuttings Pit #3

- Cuttings Pit #3 contents were collected and analyzed for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for TPH (1284 mg/kg), Benzene (1.37 mg/kg), SAR (45.7) and Arsenic (3.5 mg/kg).
  - Cuttings Pit #3 subliner composite samples were collected and analyzed for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for pH (9.9) and Arsenic (6.4 mg/kg).
- 
- Mix/blend processed Reserve/Cuttings Pit #2, Cuttings Pit #1 and #3 material will be used onsite for backfill.
  - All associated Freshwater, Reserve and Cuttings Pits #1, #2 and #3 synthetic liners have been removed and transported to an offsite permitted disposal/recycling facility.
  - Refer to Tables 1-5 for a summary of the laboratory results and Figure 1 for layout of the pits and sample locations.
  - Elevated Arsenic levels above Table 910-1 concentration levels were detected beneath the Freshwater, Reserve and Cuttings Pits #1, #2 and #3. 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: PCU 197-34A  
Lab Summary

Analytical Parameter	Fresh Water Pit		Reserve Pit		Cuttings #1		Cuttings #2		Cuttings #3		Background								Last update	Maximum based on Background
	FW Pit Contents	FW Pit Subliner <sup>5</sup> 8/23/12	Res Pit Contents 2/9/12	Res/Cut 2 Post Solid <sup>6</sup> 6/5/12	Res Pit Subliner 7/27/12	CUT #1 Pit Contents 7/26/12	CUT #1 Pit Subliner 7/26/12	CUT #2 Pit Contents 2/9/12	CUT #2 Pit Subliner 6/4/12	CUT #3 Pit Contents 2/9/12	CUT #3 Pit Subliner 7/26/12	#1	#2	#3	#4	#5	#6	#7		
Acoustic Job #																				
Sample type (Composite/Discrete)																				
TPH (GRO) (mg/kg)	D38140	D31806	C	C	D36853	D31808	C	C	D31806	D35143	D36861	D	D	D	D	D	D	D	D	-
TPH (DRO) (mg/kg)	8.74	97.6	43.7	ND	ND	94.1	ND	32.1	ND	204	ND	-	-	-	-	-	-	-	-	-
TPH (GRO + DRO) (mg/kg)	2910	1240	467	133	133	901	82.3	302	55.2	1080	52.3	-	-	-	-	-	-	-	-	-
Benzene (mg/kg)	2919	1338	511	995	995	82.3	82.3	334	55.2	1284	52.3	-	-	-	-	-	-	-	-	-
Toluene (mg/kg)	0.0336	0.357	ND	ND	ND	0.672	ND	0.363	ND	1.37	0.0664	-	-	-	-	-	-	-	-	500
Ethylbenzene (mg/kg)	0.128	1.76	-	ND	ND	5.19	0.114	0.215	ND	4.21	0.172	-	-	-	-	-	-	-	-	0.170
Xylenes (total) (mg/kg)	ND	0.271	-	ND	ND	0.922	0.0353	0.0751	ND	0.421	ND	-	-	-	-	-	-	-	-	85
Acenaphthene (mg/kg)	0.222	4.68	-	ND	ND	5.02	ND	0.391	ND	7.46	0.208	-	-	-	-	-	-	-	-	100
Anthracene (mg/kg)	ND	ND	-	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	175
Benzo(A)anthracene (mg/kg)	ND	ND	-	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	1000
Benzo(A)pyrene (mg/kg)	ND	ND	-	ND	ND	ND	ND	ND	ND	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
Chrysene (mg/kg)	ND	ND	-	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	2.2
Dibenz(A,H)anthracene (mg/kg)	0.0351	ND	-	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	0.022
Fluoranthene (mg/kg)	ND	ND	-	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	22
Fluorene (mg/kg)	0.0372	ND	-	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	0.022
Indeno(1,2,3-CD)pyrene (mg/kg)	ND	ND	-	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	1000
Naphthalene (mg/kg)	ND	ND	-	ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	1000
Pyrene (mg/kg)	ND	0.370	-	0.025	0.588	0.0277	0.905	0.0869	1.60	0.0561	ND	-	-	-	-	-	-	-	-	0.22
Electrical Conductivity (mmhos/cm)	0.0555	ND	-	ND	ND	2.140	2.380	1.830	1.830	3.700	1.700	-	-	-	-	-	-	-	-	23
Sodium Adsorption Ratio (SAR)	6.150	1.240	-	5.600	3.960	36.5	25.4	16.8	16.8	45.7	9.11	-	-	-	-	-	-	-	-	1000
pH	6.87	94.4	-	10.87	8.78	10.80	11.07	9.97	9.97	8.87	9.90	-	-	-	-	-	-	-	-	4
Arsenic (mg/kg)	10.55	10.53	-	10.87	8.78	10.80	11.07	9.97	9.97	8.87	9.90	-	-	-	-	-	-	-	-	12
Barium (mg/kg)	5.2	5.3	-	4.6	17.6	5.7	4.4	7.5	7.5	3.5	6.4	5.4	9.9	6.7	5.5	6.8	5.5	5.8	5.6	6-9
Cadmium (mg/kg)	2030	20400	9250	2840	4750	1290	7890	4910	4910	12000	5020	-	-	-	-	-	-	-	-	6-9
Chromium (mg/kg)	<1.2	<3.2	-	<1.0	<1.5	<1.2	<1.5	<1.1	<1.4	<1.4	<1.0	-	-	-	-	-	-	-	-	0.39
Chromium (III) (mg/kg)	39.7	11.1	-	33.1	17.8	33.7	33.7	9.8	38.4	7.9	40.0	-	-	-	-	-	-	-	-	15000
Chromium (VI) (mg/kg)	<1.0	<1.3	-	<1.0	<1.0	0.71	<1.0	<0.56	<1.0	<0.55	<1.0	-	-	-	-	-	-	-	-	70
Copper (mg/kg)	16.4	38.4	-	21.7	30.1	18.4	18.4	21.0	18.6	21.0	17.3	-	-	-	-	-	-	-	-	120000
Lead (inorganic) (mg/kg)	15.1	<16	-	12.9	16.2	14.3	31.5	14.0	14.0	13.0	13.1	-	-	-	-	-	-	-	-	23
Mercury (mg/kg)	<0.11	<0.30	-	<0.11	<0.14	<0.12	<0.14	<0.11	<0.11	<0.14	<0.11	-	-	-	-	-	-	-	-	3100
Nickel (mg/kg)	25.4	14.7	-	18.4	17.1	19.3	15.3	22.0	11.2	11.2	20.7	-	-	-	-	-	-	-	-	400
Selenium (mg/kg)	<5.8	<16	-	<5.2	<7.3	<5.9	<7.3	<5.3	<5.3	<6.8	<5.2	-	-	-	-	-	-	-	-	23
Silver (mg/kg)	<3.5	<9.7	-	<3.1	<4.4	<3.5	<3.5	<4.4	<3.2	<4.1	<3.1	-	-	-	-	-	-	-	-	1600
Zinc (mg/kg)	56.5	68.1	-	47.8	54.1	52.3	52.2	51.7	51.7	40.5	49.3	-	-	-	-	-	-	-	-	390
% Solids	58.5	30.1	70.6	92.6	92.6	66.9	85.7	68.4	93.2	71.2	92.0	91.0	89.4	88.2	89.4	85.8	90.7	89.9	89.5	390
Notes:																				23000
																				-

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 5 for additional FW subliner information.

6) See Table 4 for mix/blend processing summary.

7) See Table 2 for mix/blend processing summary.

8) See Table 3 for mix/blend processing summary.



Table 2  
Location: PCU 197-34A  
Lab Summary - Cuttings #1 Mix/Blend (MB)

Lab Summary - Cuttings #1 Mix/Blend (MB)																			
Analytical Parameter		Cuttings #1																Last update	
CUT #1 Pit Contents	CUT #1 MB Trial 2-1 6/26/12	CUT #1 MB Day 1 (7/6) 7/9/12	CUT #1 Remix Day 1 8/1/12	CUT #1 MB Day 2 (7/9) 7/10/12	CUT #1 Remix Day 2 7/31/12	CUT #1 MB Day 3 (7/10) 7/16/12	CUT #1 MB Day 4 (7/17) 7/18/12	CUT #1 MB Day 5 (7/18) 7/19/12	CUT #1 Remix Day 5 9/6/12	CUT #1 MB Day 6 (7/19) 7/23/12	CUT #1 Remix Day 6 8/14/12	CUT #1 MB Day 7 (7/23) 7/24/12	CUT #1 Remix Day 7 8/14/12	CUT #1 MB Day 8 (7/25) 7/26/12	CUT #1 MB Day 9 (7/25) 7/26/12	CUT #1 MB Day 10 (7/26) 7/30/12	COGCC		
Accutest Job #	D31806	D36311	D37093	D36311	D36981	D36588	D36849	D36663	D37317	D36712	D37614	D36874	D37614	D36836	D37614	D36810	Table 910-1 Concentration Levels		
Sample type (Composite/Discrete)	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C			
TPH (GRO) (mg/kg)	94.1	27.2	54.9	33.1	19.8	16.9	45.5	15.4	7.09	50.2	29.9	12.5	28.0	10	28.0	9.16			
TPH (GRO + DRO) (mg/kg)	901	554	347	526	235	411	374	528	302	519	411	318	269	269	213	171			
Benzene (mg/kg)	965	581	402	558	255	428	420	543	309	569	441	329	279	241	171	163			
Toluene (mg/kg)	0.672	ND	-	0.0421	-	0.0702	0.0857	0.157	-	0.0570	-	ND	0.172	0.172	0.058	0.0496			
Ethylbenzene (mg/kg)	5.19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Xylenes (total) (mg/kg)	0.922	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Acenaphthene (mg/kg)	5.02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Anthracene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Benzo(A)anthracene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Benzo(A)pyrene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Benzo(B)fluoranthene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Benzo(K)fluoranthene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Chrysene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Dibenzo(A,H)anthracene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Fluoranthene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Fluorene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Indeno(1,2,3-C)Dipylene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Naphthalene (mg/kg)	0.588	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Pyrene (mg/kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Electrical Conductivity (mmhos/cm)	3.95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Sodium Adsorption Ratio (SAR)	64.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
pH	8.78	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Arsenic (mg/kg)	17.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Barium (mg/kg)	4750	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Cadmium (mg/kg)	<1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Chromium (III) (mg/kg)	17.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Chromium (VI) (mg/kg)	0.71	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Copper (mg/kg)	30.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Lead (inorganic) (mg/kg)	16.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Mercury (mg/kg)	<0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Nickel (mg/kg)	17.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Selenium (mg/kg)	<7.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Silver (mg/kg)	<4.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
Zinc (mg/kg)	54.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-			
% Solids	86.9	86.8	85.2	87.2	85.1	80.2	86.7	87.0	85.4	87.5	86.9	85.2	85.8	87.3	87.2	90.1	88.3		
Notes:																		85	
1) ND = not detectable to the laboratory detection limit																			
2) Results highlighted in yellow exceed Table 910-1																			



Table 3  
Location: PCU 197-34A  
Lab Summary - Cuttings #3 Mix/Blend (MB)

Lab Summary - Cuttings #3 Mix/Blend (MB)																				
Analytical Parameter		Cuttings #3																Last update		COGCC
(with units)		CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	12/12/2012
Pit		CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	CUT #3	Table 910-1
Contents		29/12	6/13/12	6/28/12	7/12/12	7/3/12	7/3/12	7/3/12	7/5/12	7/5/12	7/9/12	7/9/12	7/12/12	7/31/12	7/16/12	7/16/12	8/1/12	7/17/12	8/2/12	Concentration Levels
Acctest Job #	D31806	D35545	D36018	D36439	D36165	D36172	D36172	D36311	D36439	D36531	D36531	D36531	D36531	D36531	D36531	D36531	D36531	D36531	D36531	
Sample Type (Composite/Discrete)	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	
TPH (GRO) (mg/Kg)	204	49.5	36.3	-	13.9	14.3	14.3	11.4	21.9	-	-	-	-	-	-	-	-	-	-	-
TPH (DRO) (mg/Kg)	1080	230	316	-	203	186	391	437	112	-	-	-	-	-	-	-	-	-	-	-
TPH (GRO + DRO) (mg/Kg)	1284	280	352	-	217	200	405	448	134	-	-	-	-	-	-	-	-	-	-	-
Benzene (mg/Kg)	1.37	0.109	0.712	0.108	0.0898	0.0965	0.104	0.0388	0.216	-	-	-	-	-	-	-	-	-	-	-
Toluene (mg/Kg)	4.21	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene (mg/Kg)	0.421	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylenes (total) (mg/Kg)	7.46	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(A)anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(A)pyrene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(B)fluoranthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(K)fluoranthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenzo(A,H)anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-C)Dipyrrene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene (mg/Kg)	1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical Conductivity (mmhos/cm)	3.70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (SAR)	45.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	8.87	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (mg/kg)	3.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (mg/kg)	12000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (mg/kg)	< 1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (III) (mg/Kg)	7.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (VI) (mg/Kg)	< 0.55	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper (mg/kg)	21.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead (inorganic) (mg/kg)	13.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (mg/kg)	< 0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (mg/kg)	11.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (mg/kg)	< 6.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (mg/kg)	< 4.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (mg/kg)	40.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Solids	71.2	88.7	88.0	89.2	87.9	87.8	86.8	86.7	85.7	90.7	88.8	86.0	88.7	86.9	89.1	-	-	-	-	-
Notes:																				
1) ND = not detectible to the laboratory detection limit.																				
2) Results highlighted in yellow exceed Table 910-1 concentration levels.																				



Table 4  
Location: PCU 197-34A  
Lab Summary - Reserve Pit and Cuttings #2 Mix/Blend (MB)

Analytical Parameter	Initial Pit Contents		Reserve Pit and Cuttings #2		Last Update												COGCC
	RES Pit Contents 02/09/12	CUT #2 Pit Contents 02/09/12	Res/Cut 2 Post Solid 6/5/12	RP/CUT #2 MB Trial 1 12/1/12	RP/CUT #2 MB Trial 2 7/11/12	RP/CUT #2 MB Trial 2 12/1/12	RP/CUT #2 MB Trial 2 7/11/12	RP/CUT #2 MB Trial 2 12/1/12	RP/CUT #2 MB Trial 2 7/11/12	RP/CUT #2 MB Trial 2 12/1/12	RP/CUT #2 MB Trial 2 7/11/12	RP/CUT #2 MB Trial 2 12/1/12	RP/CUT #2 MB Trial 2 7/11/12	RP/CUT #2 MB Trial 2 12/1/12	RP/CUT #2 MB Trial 2 7/11/12	RP/CUT #2 MB Trial 2 12/1/12	
Accutest Job #	D31806	D31806	D35205	D36010	D36435	D37317	D37317	D37317	D37317	D37317	D37317	D37317	D37317	D37317	D37317	D37317	12/17/2012
Sample Type (Composite/Discrete)	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	Table 910-1 Concentration Levels
TPH (mg/kg)	97.6	32.1	43.7	24.3	8.26	14.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
TPH (GRO) (mg/kg)	1240	302	467	472	258	366	407	407	407	407	407	407	407	407	407	407	-
TPH (GRO + DRO) (mg/kg)	1338	334	511	495	265	371	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Benzene (mg/kg)	0.357	0.363	ND	0.0831	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
Toluene (mg/kg)	1.76	0.215	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene (mg/kg)	0.271	0.0751	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Xylenes total (mg/kg)	4.68	0.391	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Acenaphthene (mg/kg)	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Anthracene (mg/kg)	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(A)anthracene (mg/kg)	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(B)fluoranthene (mg/kg)	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Benzo(K)fluoranthene (mg/kg)	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chrysene (mg/kg)	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Dibenz(A,H)anthracene (mg/kg)	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluoranthene (mg/kg)	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Fluorene (mg/kg)	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Indeno(1,2,3-C)pyrene (mg/kg)	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Naphthalene (mg/kg)	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Pyrene (mg/kg)	0.370	0.905	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Electrical Conductivity (µmhos/cm)	ND	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Sodium Adsorption Ratio (SAR)	1240	2.380	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
pH	94.4	25.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Arsenic (mg/kg)	10.63	11.07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Barium (mg/kg)	5.3	4.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cadmium (mg/kg)	20400	7890	3260	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (mg/kg)	< 3.2	< 1.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chromium (III) (mg/kg)	11.1	9.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Copper (mg/kg)	< 1.3	< 0.66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lead (mg/kg)	38.4	21.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mercury (mg/kg)	< 0.30	< 0.14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Nickel (mg/kg)	14.7	15.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Selenium (mg/kg)	< 16	< 7.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Silver (mg/kg)	< 9.7	< 4.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Zinc (mg/kg)	66.1	62.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
% Solids	30.1	68.4	70.8	80.2	83.0	66.5	80.2	81.5	76.9	79.5	79.3	80.7	83.7	80.5	77.8	78.1	-
Notes:	1) ND = not detectable to the laboratory detection limit. 2) Results highlighted in gray exceed Table 910-1 concentration levels. Results highlighted in yellow exceed Table 910-1 but are below background levels. 3) "-" indicates no analysis. 4) Mixblend material from Days 8 thru 12 was transported to an offsite permitted disposal/recycling facility.																



Table 5  
Location: PCU 197-34A  
Lab Summary - FW Subliner Assessment

Analytical Parameter (with units)	Fresh Water Pit		FW Subliner Discrete						Post-2 Ex.				Post-3 and -5 Ex. (Cumulative)		Post-4 and -6 Ex. (Cumulative)		Post-7 Ex. (Cumulative)		Last update 12/6/2012	COGCC Table 910-1 Concentration Levels
	FW Pit Contents	FW Pit Subliner 8/23/12	FW Subliner #1	FW Subliner #2	FW Subliner #3	FW Subliner #4	FW Subliner #5	FW Subliner - 2' 9/26/12	FW Subliner #1	FW Subliner #3	FW Subliner #4	FW Subliner #5	FW #1 (-FW #3 (-FW #4 (-FW #5	FW #1 (-FW #3 (-FW #4 (-FW #5	FW #1 (-FW #3 (-FW #4 (-FW #5	FW #1 (-FW #3 (-FW #4 (-FW #5	FW #1 (-FW #3 (-FW #4 (-FW #5	FW #1 (-FW #3 (-FW #4 (-FW #5		
Accutest Job #	D38140	G	D	D	D	D	D	D38268	D	D	D	D	D40211 (10/22/12)	D	D	D	D41359 (11/28/12)			
Sample type (Composite/Discrete)																				
TPH (GRO) (mg/Kg)	8.74	ND	ND	ND	ND	ND	27.4	21.9	12.7	48.0	10.2	ND	ND	ND	ND	ND	ND	ND		
TPH (DRO) (mg/Kg)	2910	2000	39.5	1640	2080	2080	6520	968	846	2140	1800	28	524	865	249	1020	1350	ND	ND	
TPH (GRO + DRO) (mg/Kg)	2919	2000	39.5	1640	2080	2080	6547	1070	859	2183	1810	28	524	865	249	1020	1350	ND	ND	
Benzene (mg/Kg)	0.0336																			
Toluene (mg/Kg)	0.128																			
Ethylbenzene (mg/Kg)	ND																			
Xylenes (total) (mg/Kg)	0.222																			
Acenaphthene (mg/Kg)	ND																			
Anthracene (mg/Kg)	ND																			
Benzo(A)anthracene (mg/Kg)	ND																			
Benzo(A)pyrene (mg/Kg)	ND																			
Benzo(B)fluoranthene (mg/Kg)	ND																			
Benzo(K)fluoranthene (mg/Kg)	ND																			
Chrysene (mg/Kg)	0.0351																			
Dibenzo(A, H)anthracene (mg/Kg)	ND																			
Fluoranthene (mg/Kg)	0.0372																			
Fluorene (mg/Kg)	ND																			
Indeno(1,2,3-C)Dipylene (mg/Kg)	ND																			
Naphthalene (mg/Kg)	0.0565																			
Pyrene (mg/Kg)	6.15																			
Electrical Conductivity (mmhos/cm)	6.87																			
Sodium Adsorption Ratio (SAR)	10.55																			
pH	5.2																			
Arsenic (mg/kg)	2030																			
Barium (mg/kg)	<1.2																			
Cadmium (mg/kg)	38.7																			
Chromium (III) (mg/kg)	<10																			
Chromium (VI) (mg/kg)	16.4																			
Copper (mg/kg)	15.1																			
Lead (inorganic) (mg/kg)	<0.11																			
Mercury (mg/kg)	25.4																			
Nickel (mg/kg)	<3.5																			
Selenium (mg/kg)	56.5																			
Silver (mg/kg)	88.5																			
Zinc (mg/kg)	94.6																			
% Solids	94.6																			
Notes																				

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

2) Results highlighted in yellow exceed Table 910-1 concentration levels.

3) "-" indicates no analysis.

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

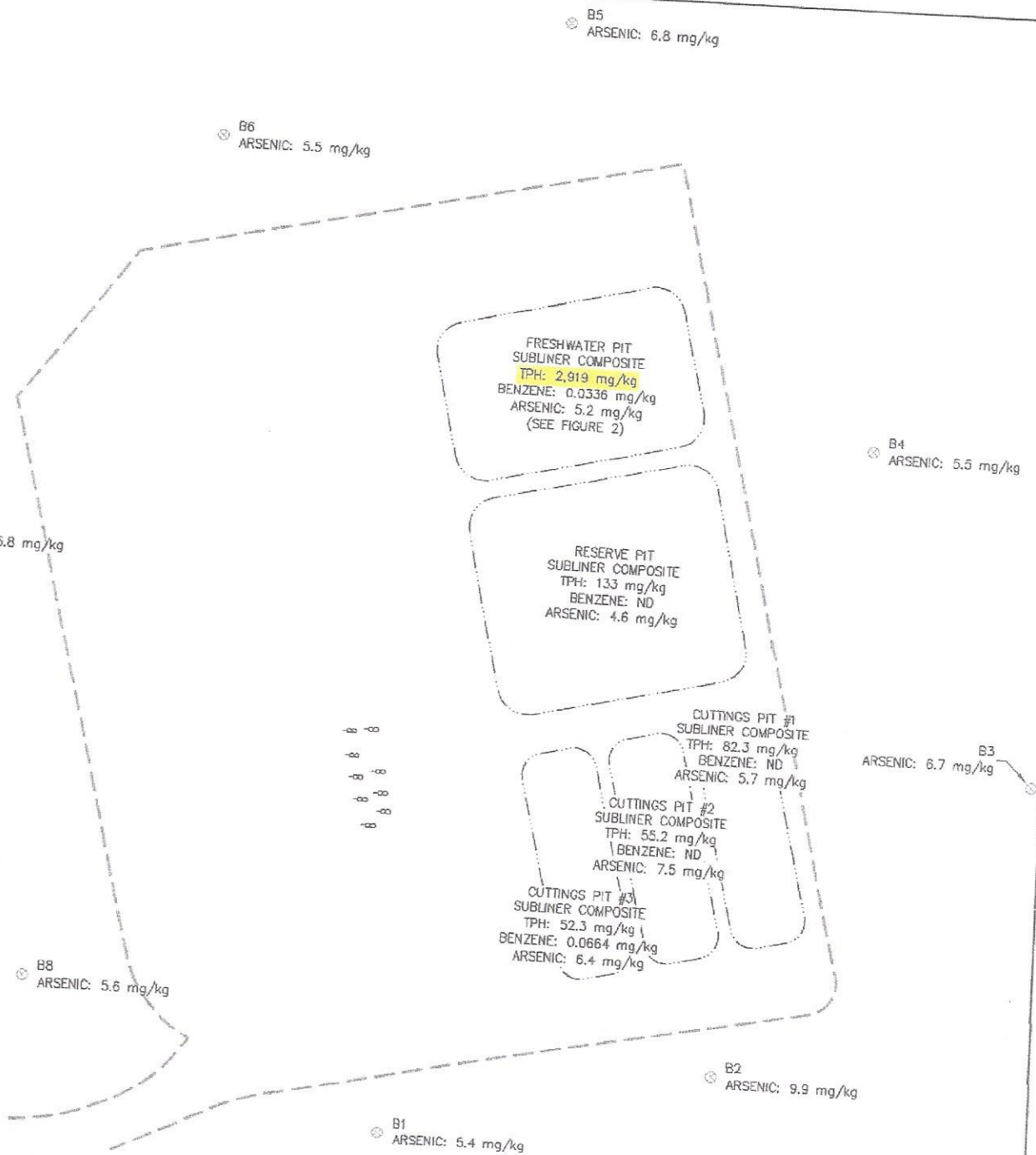


**Table 6**  
**Location: PCU 197-34A**  
**Lab Summary - Discrete Arsenics**

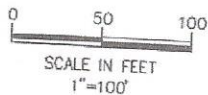
Analytical Parameter		Cut 1 Arsenic					Background								Last update		Maximum based on Background
(with units)		#1	#2	#3	#4	#5	#1	#2	#3	#4	#5	#6	#7	#8	COGCC Table 910-1 Concentration Levels		
Accutest Job #		D39556 (10/3/12)					D33519 (4/9/12)										
Sample type (Composite/Discrete)		D	D	D	D	D	-	-	-	-	-	-	-	-	-	-	
TPH (GRO) (mg/Kg)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TPH (DRO) (mg/Kg)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
TPH (GRO + DRO) (mg/Kg)		-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Benzene (mg/Kg)		-	-	-	-	-	-	-	-	-	-	-	-	-	500	-	
Toluene (mg/Kg)		-	-	-	-	-	-	-	-	-	-	-	-	-	0.170	-	
Ethylbenzene (mg/Kg)		-	-	-	-	-	-	-	-	-	-	-	-	-	85	-	
Xylenes (total) (mg/Kg)		-	-	-	-	-	-	-	-	-	-	-	-	-	100	-	
Acenaphthene (mg/Kg)		-	-	-	-	-	-	-	-	-	-	-	-	-	175	-	
Anthracene (mg/Kg)		-	-	-	-	-	-	-	-	-	-	-	-	-	1000	-	
Benzo(A)anthracene (mg/Kg)		-	-	-	-	-	-	-	-	-	-	-	-	-	1000	-	
Benzo(A)pyrene (mg/Kg)		-	-	-	-	-	-	-	-	-	-	-	-	-	0.22	-	
Benzo(B)fluoranthene (mg/Kg)		-	-	-	-	-	-	-	-	-	-	-	-	-	0.022	-	
Benzo(K)fluoranthene (mg/Kg)		-	-	-	-	-	-	-	-	-	-	-	-	-	0.22	-	
Chrysene (mg/Kg)		-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	-	
Dibenzo(A,H)anthracene (mg/Kg)		-	-	-	-	-	-	-	-	-	-	-	-	-	22	-	
Fluoranthene (mg/Kg)		-	-	-	-	-	-	-	-	-	-	-	-	-	0.022	-	
Fluorene (mg/Kg)		-	-	-	-	-	-	-	-	-	-	-	-	-	1000	-	
Indeno(1,2,3-C,D)pyrene (mg/Kg)		-	-	-	-	-	-	-	-	-	-	-	-	-	1000	-	
Naphthalene (mg/Kg)		-	-	-	-	-	-	-	-	-	-	-	-	-	0.22	-	
Pyrene (mg/Kg)		-	-	-	-	-	-	-	-	-	-	-	-	-	23	-	
Electrical Conductivity (mmhos/cm)		-	-	-	-	-	-	-	-	-	-	-	-	-	1000	-	
Sodium Adsorption Ratio (SAR)		-	-	-	-	-	-	-	-	-	-	-	-	-	4	-	
pH		-	-	-	-	-	-	-	-	-	-	-	-	-	12	-	
Arsenic (mg/kg)	10.3	14.6	15.5	12.3	13.6	5.4	9.9	6.7	5.5	6.8	5.5	5.8	5.6	-	6-9	-	
Barium (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.39	-	
Cadmium (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15000	-	
Chromium (III) (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70	-	
Chromium (VI) (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120000	-	
Copper (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	-	
Lead (inorganic) (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3100	-	
Mercury (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	400	-	
Nickel (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	-	
Selenium (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1600	-	
Silver (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	390	-	
Zinc (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	390	-	
% Solids	87.6	90.1	90.1	89.7	90.7	91.0	89.4	88.2	89.4	85.8	90.7	89.9	89.5	-	23000	-	
Notes:																	
1) ND = not detectible to the laboratory detection limit.																	

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-ca\sdsk\pro\cto environmental\1202-02 pec 197-34a\civil 3d\samp crs.dwg,12/14/12



- NOTES:
1. BACKGROUND ARSENIC RESULTS ARE DISCRETE SAMPLES.
  2. ND INDICATES NOT DETECTED WITHIN LABORATORY DETECTION LIMITS.



LEGEND	
	EDGE OF PAD
	APPROX. PIT LOCATION
	INDICATES TPH LAB RESULTS ABOVE 500 mg/kg
	WELL HEAD (APPROX.)
	BACKGROUND TEST LOCATION
	WITH LAB RESULTS

DESIGNED: --	CHECKED: DK	FIGURE 1	DATE	REVISIONS
DATE: 12/14/12	DRAWN: DRF			
FILE NAME: samp crs		SHEET NO. 1 of 4		
PROJECT NO. 1202-02		SCALE: 1" = 100'		

KRW CONSULTING, INC.  
8000 W. 14TH AVENUE, SUITE 200  
LAKEWOOD, COLORADO  
(303) 299-9011

FIGURE 1  
PICEANCE CREEK  
PCU 197-34A  
SAMPLE LOCATIONS MAP  
WITH SELECT RESULTS  
PREPARED FOR XTO ENERGY



\\hyper-v03\kwd-co\adsk\pro\cto environmental\1202-02 pcu 197-34a\civil 3d\fw dwg.12/13/12



0 15 30  
SCALE IN FEET  
1"=30'

NOTES:

1. ND INDICATES NOT DETECTED WITHIN LABORATORY DETECTION LIMITS.
2. RESULTS SHOWN ARE SUBLINER CONFIRMATION SAMPLES UNLESS OTHERWISE NOTED.
3. REFER TO FIGURES 2A AND 2B FOR ADDITIONAL EXCAVATION AND SAMPLE RESULTS.

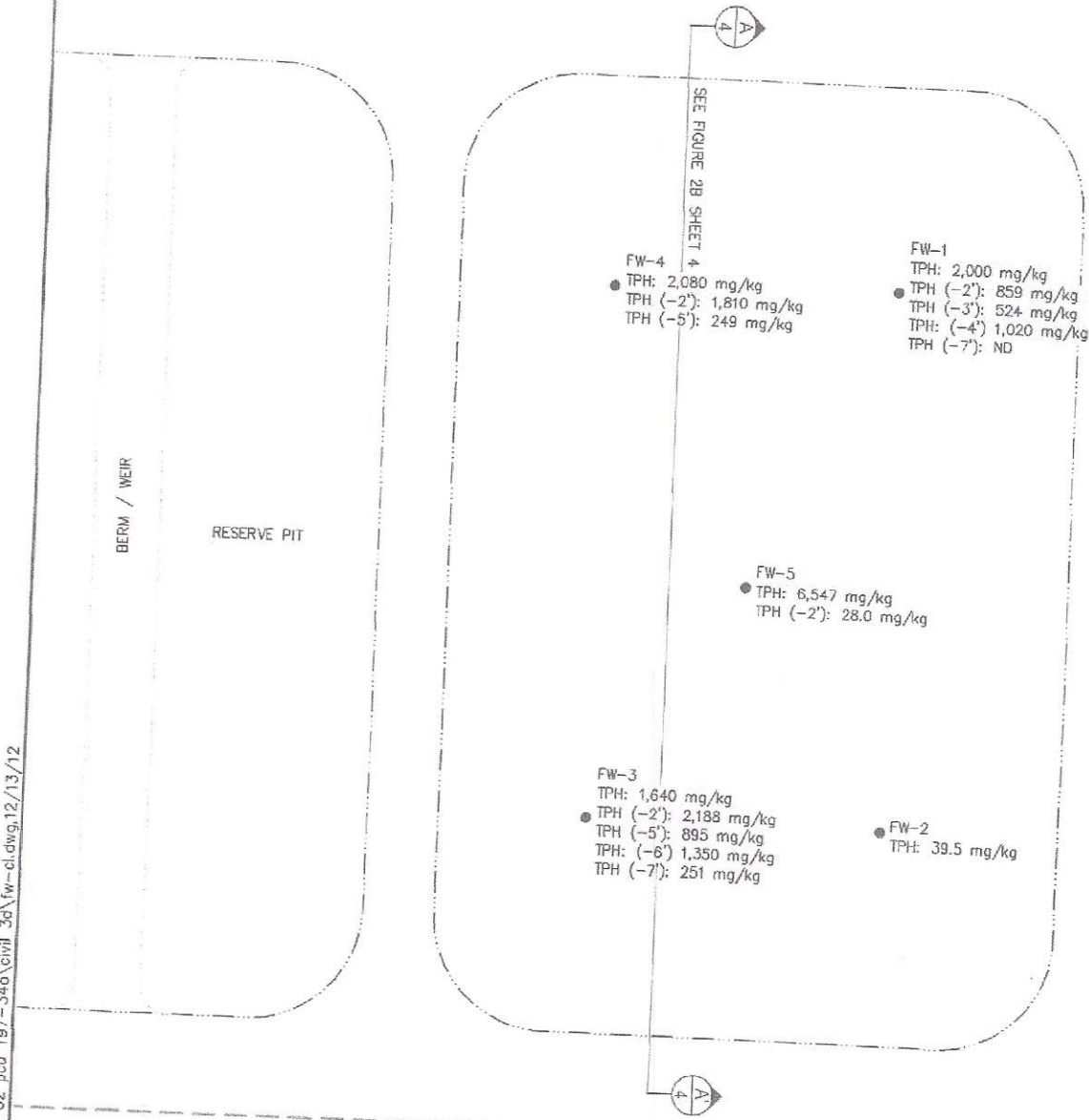
LEGEND	
	EDGE OF PAD
	APPROX. PIT / TRENCH LOCATION
	BERM / WEIR
	D-0
	TPH: ≤ 500 mg/kg
	D-0
	TPH: > 500 mg/kg
	DISCRETE SAMPLE LOCATION WITH TPH LAB RESULTS LESS THAN OR EQUAL TO 500 mg/kg
	DISCRETE SAMPLE LOCATION WITH TPH LAB RESULTS GREATER THAN 500 mg/kg

DESIGNED: ---	CHECKED: DK	FIGURE 2	DATE	REVISIONS
DATE: 12/13/12	DRAWN: DRF			
FILE NAME: fw	SHEET NO. 2 of 4			
PROJECT NO. 1202-02	SCALE: 1" = 30'			

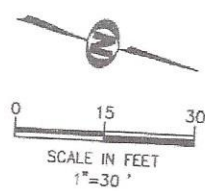
KRW CONSULTING, INC.  
8000 W. 14TH AVENUE, SUITE 200  
LAKEWOOD, COLORADO  
(303) 239-9011

FIGURE 2  
PICEANCE CREEK  
PCU 197-34A  
FRESHWATER PIT SUBLINER  
CONFIRMATION DATA  
PREPARED FOR XTO ENERGY

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- NOTES:
1. ND INDICATES NOT DETECTED WITHIN LABORATORY DETECTION LIMITS.
  2. RESULTS SHOWN ARE SUBLINER CONFIRMATION SAMPLES UNLESS OTHERWISE NOTED.
  3. DEPTH INTERVALS SHOWN ARE CUMULATIVE EXCAVATION DEPTHS.



LEGEND	
—	EDGE OF PAD
- - -	APPROX. PIT / TRENCH LOCATION
—	BERM / WEIR
●	INDICATES PREVIOUS TPH LAB RESULTS ABOVE 500 mg/kg
●	DISCRETE SAMPLE LOCATION WITH TPH LAB RESULTS LESS THAN OR EQUAL TO 500 mg/kg
⊙	CROSS SECTION DESIGNATION
4	SHEET CROSS SECTION LOCATED ON

DESIGNED: —	CHECKED: DK	FIGURE 2A	DATE	REVISIONS
DATE: 12/13/12	DRAWN: DRF			
FILE NAME: fw-cl	SHEET NO. 3 of 4			
PROJECT NO. 1202-02	SCALE: 1" = 30'			

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8000 W. 14TH AVENUE, SUITE 200  
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FIGURE 2A  
PICEANCE CREEK  
PCU 197-34A  
FRESHWATER PIT  
SELECT SAMPLE RESULTS  
PREPARED FOR XTO ENERGY



FIGURE 2B  
PICEANCE CREEK  
PCU 197-34A  
FRESHWATER PIT  
SECTION A-A'  
PREPARED FOR XTO ENERGY

PCU 197-34A  
PIT FACILITY ID # 4312006



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

EARTHEN PIT REPORT/PERMIT

This form is to be used for both reporting and permitting pits. Rule 903 describes when a Permit with prior approval, or a Report within 30 days, is required for pits. Submit required attachments and forms.

FORM SUBMITTED FOR:

☐ Pit Report

☒ Pit Permit

OGCC Operator Number: 28700

Name of Operator: ExxonMobil Oil Corporation

Address: P.O. Box 4358; CORP-MI-205

City Houston State Tx. Zip 77210-4358

Contact Name and Telephone

Lynn Neely

No (281) 654-1949

Fax (262) 313-9747

API Number (of associated well)

Pit Location (Qtr, Sec, Twp, Rng, Meridian) NWSW, Sec. 34, T1S, R97W, 6th P.M.

Latitude 39.917957

Longitude 108.276912

County: Rio Blanco

Pit Use ☐ Production ☒ Drilling (Attach mud program)

Pit Type ☒ Lined ☐ Unlined

Offsite disposal of pit contents ☒ Injection ☐ Commercial

Attach Form 26 to identify Source Wells and Form 25 to provide Produced Water Analysis results.

Special Purpose (Describe Use)

Surface Discharge Permit

☐ Yes ☒ No

Pit/Facility Name

Picconco Creek Unit 197-34A Pit/Facility No

Complete the  
Attachment Checklist

Oper. OGCC

Detailed Site Plan	<input checked="" type="checkbox"/>
Topo Map w/ Pit Location	<input checked="" type="checkbox"/>
Water Analysis (Form 25)	<input type="checkbox"/>
Source Wells (Form 26)	<input type="checkbox"/>
Pit Design Plan & Cross Section	<input checked="" type="checkbox"/>
Design Calculations	<input type="checkbox"/>
Sensitive Area Determination	<input type="checkbox"/>
Mud Program	<input type="checkbox"/>
Form 2A	<input type="checkbox"/>

Picconco Creek Unit 197-34A, A2, A3, A4, A5, A6, A7, A8, A9

Location  
ID # 41347

Existing Site Conditions

Is the location in a "Sensitive Area?" ☐ Yes ☒ No

Distance (in feet) to nearest surface water: +/- 200'

ground water unknown water wells: > 1 mile

Attach data used for determination. NA; Pit will be lined.

LAND USE (or attach copy of Form 2A if previously submitted for associated well) Select one which best describes land use:

Crop Land ☐ Irrigated ☐ Dry Land

Non-Crop Land ☒ Rangeland ☐ Timber

Subdivided: ☐ Industrial ☐ Commercial

☐ Residential

SOILS (or attach copy of Form 2A if previously submitted for associated well)

Soil map units from USNRCS survey Sheet No: 61

Soils Series Name Rentisac Channery Loam

Soils Series Name

Soil Complex/Series No: 73

Horizon thickness (in inches) A 5

Horizon thickness (in inches) A

B 4

B

C 7

C

Attach detailed site plan and topo map with pit location.

Pit Design and Construction

Size of pit (feet): Length: 170'

Width: 135'

Depth: 9'

Calculated pit volume (bbls): 20,810 bbls w/ 2' freeboard

Daily inflow rate (bbls/day): Various

Daily disposal rates (attach calculations): Evaporation: N/A

bbls/day Percolation: 0

bbls/day

Type of liner material: Impermeable synthetic

Thickness: 24 mil woven coated polyethylene liner with an 8 ounce geotextile felt padding under the liner.

Attach description of proposed design and construction (include sketches and calculations).

Method of treatment of produced water prior to discharge into pit (separator, heater treater, other): separator

Is pit fenced? ☒ Yes ☐ No

Is pit netted? ☒ Yes ☐ No

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

Print Name: Lynn Neely

Signed: Lynn Neely

Title: Regulatory Specialist

Date: 03/13/2009

OGCC Approved: Chris Camfield

Title: EPS-NW Area

Date: 6/1/09

CONDITIONS OF APPROVAL, IF ANY:

FACILITY NUMBER: 4312006

created by C. Zujan  
12/28/2012  
on behalf of Chris Camfield



FORM

19

Rev 6/99

# 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

## SPILL/RELEASE REPORT

This form is to be submitted by the party responsible for the oil and gas spill or release. Any spill or release which may impact waters of the State must be reported as soon as practicable, any spill over 20 bbls must be reported within 24 hours and all spills over five bbls must be reported within ten days. Submit a Site Investigation and Remediation Workplan (Form 27) when requested by the Director.

Spill report taken by:

FACILITY ID

### OPERATOR INFORMATION

Name of Operator: XTO Energy Inc.

OGCC Operator No: 100264

Address: PO Box 6501

City: Englewood

State: CO Zip: 80155

Contact Person: Jessica Dooling

Phone Numbers

No: 970-675-4122

Fax: 970-675-4150

E-Mail: jessica\_dooling@xtoenergy.com

### DESCRIPTION OF SPILL OR RELEASE

Location ID # 413472

Date of Incident: Unknown

Facility Name &amp; No.:

4312006 (Pit#)

County: Rio Blanco

Type of Facility (well, tank battery, flow line, pit): Freshwater Pit

QtrQtr: NWSW

Section: 34

Well Name and Number: PCU 197-34A

Township: 1A

Range: 97W

API Number: 05-103-11544-00

Meridian: 6th

Specify volume spilled and recovered (in bbls) for the following materials:

Oil spilled: \_\_\_\_\_ Oil recov'd: \_\_\_\_\_ Water spilled: Unknown Water recov'd: \_\_\_\_\_ Other spilled: \_\_\_\_\_ Other recov'd: Unknown

Ground Water impacted? ☐ Yes ☒ NoSurface Water impacted? ☐ Yes ☒ NoContained within berm? ☐ Yes ☒ No

Area and vertical extent of spill: 9,100 sq ft x 0-7 ft

Current land use: Non-Cropland Rangeland

Weather conditions: Unknown

Soil/geology description: Rentsac channery loam, 5-50% slopes

IF LESS THAN A MILE, report distance IN FEET to nearest: Surface water: ~1107' wellands: ~4894' buildings: NA

Livestock: NA water wells: NA Depth to shallowest ground water: &gt;200'

Cause of spill (e.g., equipment failure, human error, etc.): compromised pit liner

Subliner impacts were identified and subsequently remediated during the pit closure process, refer to associated Site Investigation and Remediation Workplan.

### CORRECTIVE ACTION

Describe immediate response (how stopped, contained and recovered):

Please refer to associated Site Investigation and Remediation Workplan

Describe any emergency pits constructed.

NA

How was the extent of contamination determined.

Please refer to associated Site Investigation and Remediation Workplan

Further remediation activities proposed (attach separate sheet if needed):

No

Describe measures taken to prevent problem from reoccurring:

The pits on this location will be closed in accordance with applicable COGCC 900 and 1000 Series Rules

### OTHER NOTIFICATIONS

List the parties and agencies notified (County, BLM, EPA, DOT, Local Emergency Planning Coordinator or other)

Date	Agency	Contact	Phone	Response

Spill/Release Tracking No: \_\_\_\_\_