FORM 27 Rev 6/99

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State of Colorado
Oil and Gas Conservation Commission

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

#7738

FOR OGCC USE ONLY

RECEIVED 4/22/2013

OGCC Employee:

[X] Spill [ ] Complaint [ ] Inspection [ ] NOAV

Tracking No: 2232846

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: 05-103-10732
County: Rio Blanco
Facility Name: Piceance Creek Unit
Facility Number: 283063
Well Name: Piceance Creek Unit
Well Number: 297-10A
Location: (QtrQtr, Sec, Twp, Rng, Meridian): SESE, Sec. 10, T2S, R97W, 6th P.M. Latitude: 39.884702 Longitude: -108.26242

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 >1 mile; closest surface water ~800 ft (Miller Hill Draw, intermittent drainage)

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

Impacted Media (check):	Extent of Impact:	How Determined:
[✓] Soils	TPH and Arsenic	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:

Synthetic liners from all pits have been removed and will be transported offsite to a permitted disposal facility. Reserve 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.

Submit Page 2 with Page 1

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(303)894-2100 Fax (303)894-2109

Page 2

REMEDIATION WORKPLAN (Cont.)

Tracking Number: _____
Name of Operator: XTO
OGCC Operator No: _____
Received Date: _____
Well Name & No: API # 103-10732
Facility Name & No: 297-10A / Location #335696

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 250 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, 3 and 4).

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 and Cuttings Pit (see Tables 1, 3 and 4).

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 will be transported to an approved offsite disposal/recycling facility. Reserve Pit 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: 6/19/12 Date Site Investigation Completed: in progress Date Remediation Plan Submitted: 4/22/2013
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: Piceance EH&S Supervisor Date: 4/22/2013

OGCC Approved: _____ Title: EPS II NW Region Date: 04/29/2013

ATTACHMENT I

PCU 297-10A Pit Closure Workplan, Form 27 Page 1

Describe initial action taken:

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

1. **Freshwater Pit**
    - Freshwater Pit contents (de minimis) and associated synthetic liners were removed and will be 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 TPH (6669 mg/kg), EC (4.16 mmhos/cm), SAR (35.0), pH (10.68) and Arsenic (5.5 mg/kg).
    - Freshwater Pit subliner impacted soils were removed and will be transported to an offsite permitted disposal/recycling facility. Subliner confirmation samples were collected and analyzed for TPH at -2' through -8' below the subliner and ranged from 309 mg/kg to 434 mg/kg (see Table 3).

2. **Reserve Pit**
    - Reserve Pit contents were solidified and sampled for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for TPH (2456 mg/kg), EC (14.0 mmhos/cm), SAR (13.5), pH (12.48) and Arsenic (10.5 mg/kg).
    - Reserve Pit subliner composite samples were collected and analyzed for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for TPH (5859 mg/kg), SAR (34.2), pH (10.24) and Arsenic (5.2 mg/kg).
    - Reserve Pit subliner impacted soils were removed, treated onsite and sampled to ensure Table 910-1 concentration levels. Subliner confirmation samples were collected and analyzed for TPH at -2' through -6' below the subliner and ranged from 27.1 mg/kg to 450 mg/kg (see Table 4).

3. **Cuttings Pit**

- Cuttings Pit contents were sampled for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for EC (4.850 mmhos/cm), SAR (35.2), pH (11.19) and Arsenic (10.5 mg/kg).
- Cuttings Pit subliner composite samples were collected and analyzed for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for EC (4.430 mmhos/cm), SAR (16.4), pH (10.12) and Arsenic (4.6 mg/kg).

4. Cuttings Spoil Piles

- Cuttings material on location was found in three spoil piles. These three spoil piles were sampled for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for pH and Arsenic. The data ranged from 9.68 to 9.81 for pH and 7.1 mg/kg to 17 mg/kg for Arsenic (See Table 1).

- Reserve Pit contents were removed from the pit 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 Pit material that meets Table 910-1 concentration levels will be used onsite for backfill.

- All associated Reserve Pit and Cuttings Pit synthetic liners were removed and will be transported to an offsite permitted disposal/recycling facility.

- Refer to Tables 1, 3, 4 and 5 for a summary of the laboratory results and Figures 1 through 3A (5 total) 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: PCU 297-10A
Lab Summary

Last update 3/28/2013

Analytical Parameter	Fresh Water Pit		Reserve Pit		Cuttings Pit		Cuttings Spoil Piles			Background								COGCC	Maximum based on Background
(with units)	*FW Pit Contents*	*FW Pit Subliner*[5] *9/18/12*	*RP Post Solid. 9/24/12*	*RP Subliner*[6] *9/24/12*	*Cut Contents 9/11/12*	*Cut Subliner 10/1/12*	*Spoil Pile #1 9/12/12*	*Spoil Pile #2 9/12/12*	*Spoil Pile #3 (small) 9/11/12*	*#1*	*#2*	*#3*	*#4*	*#5*	*#6*	*#7*	*#8*	*Table 910-1 Concentration Levels*	
Accutest Job #		D38941	D39260	D39145	D38707	D39441	D38770		D38706	D35712 (6/19/12)								-	-
Sample type (**C**omposite/**D**iscrete)		C	C	C	C	C	C	C	C	D	D	D	D	D	D	D	D	-	-
TPH (GRO) (mg/Kg)		8.8	95.9	49.2	11.3	ND	ND	ND	ND	-	-	-	-	-	-	-	-	-	-
TPH (DRO) (mg/Kg)		6660	2360	5810	213	28.8	65.8	38	78.4	-	-	-	-	-	-	-	-	-	-
TPH (GRO + DRO) (mg/Kg)		6669	2456	5859	224	28.8	65.8	38	78.4	-	-	-	-	-	-	-	-	500	-
Benzene (mg/Kg)		ND	ND	ND	0.121	ND	ND	ND	ND	-	-	-	-	-	-	-	-	0.170	-
Toluene (mg/Kg)		ND	0.128	ND	0.474	0.105	ND	ND	ND	-	-	-	-	-	-	-	-	85	-
Ethylbenzene (mg/Kg)		ND	0.0841	0.0442	0.0810	ND	ND	ND	ND	-	-	-	-	-	-	-	-	100	-
Xylenes (total) (mg/Kg)		ND	1.64	1.08	0.620	ND	ND	ND	ND	-	-	-	-	-	-	-	-	175	-
Acenaphthene (mg/Kg)		ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	1000	-
Anthracene (mg/Kg)		ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	1000	-
Benzo(A)anthracene (mg/Kg)		ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	0.22	-
Benzo(B)fluoranthene (mg/Kg)		ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	0.22	-
Benzo(K)fluoranthene (mg/Kg)		ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	2.2	-
Benzo(A)pyrene (mg/Kg)		ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	0.022	-
Chrysene (mg/Kg)		0.0694	0.0206	0.0287	0.0616	ND	0.0072	ND	ND	-	-	-	-	-	-	-	-	22	-
Dibenzo(A,H)anthracene (mg/Kg)		ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	0.022	-
Fluoranthene (mg/Kg)		ND	0.0221	0.0331	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	1000	-
Fluorene (mg/Kg)		ND	0.281	1.11	0.0767	0.0062	0.0056	ND	ND	-	-	-	-	-	-	-	-	1000	-
Indeno(1,2,3,C,D)pyrene (mg/Kg)		ND	ND	ND	ND	ND	ND	ND	ND	-	-	-	-	-	-	-	-	0.22	-
Naphthalene (mg/Kg)		ND	0.571	1.03	0.424	0.0350	0.0457	ND	ND	-	-	-	-	-	-	-	-	23	-
Pyrene (mg/Kg)		ND	0.0283	0.0341	0.0325	ND	ND	ND	ND	-	-	-	-	-	-	-	-	1000	-
Electrical Conductivity (mmhos/cm)		4.16	14.0	2.38	4.850	4.430	0.841	0.233	2.73	-	-	-	-	-	-	-	-	4	-
Sodium Adsorption Ratio (SAR)		35.0	13.5	34.2	35.2	16.4	5.54	3.35	9.14	-	-	-	-	-	-	-	-	12	-
pH		10.68	12.48	10.24	11.19	10.12	9.7	9.81	9.68	-	-	-	-	-	-	-	-	6-9	-
Arsenic (mg/kg)		5.5	10.5	5.2	10.5	4.6	8.6	17	7.1	2.8	5.6	4.3	4.4	4.2	3.8	4.0	5.1	0.39	6.2
Barium (mg/kg)		437	6640	2320	3540	1930	4640	3080	1930	-	-	-	-	-	-	-	-	15000	-
Cadmium (mg/kg)		<1.1	<1.6	<1.1	<1.3	<1.1	<1.2	<1.2	<1.1	-	-	-	-	-	-	-	-	70	-
Chromium (III) (mg/Kg)		40.7	<12	41.8	14.7	37.4	40.5	41.9	39.7	-	-	-	-	-	-	-	-	120000	-
Chromium (VI) (mg/Kg)		<1.0	<10	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	-	-	-	-	-	-	-	-	23	-
Copper (mg/kg)		10.7	13.9	9.8	28.6	11.4	13.5	12.5	13.0	-	-	-	-	-	-	-	-	3100	-
Lead (inorganic) (mg/kg)		12.6	13.1	11.9	26.3	13.2	16.8	15.4	12.6	-	-	-	-	-	-	-	-	400	-
Mercury (mg/kg)		<0.11	<0.15	<0.12	<0.13	<0.10	<0.13	<0.11	<0.11	-	-	-	-	-	-	-	-	23	-
Nickel (mg/kg)		16.0	100	16.1	14.0	15.5	17.7	17.5	18.0	-	-	-	-	-	-	-	-	1600	-
Selenium (mg/kg)		<5.5	<7.9	<5.6	<6.4	<5.3	<6.2	<6.0	<5.3	-	-	-	-	-	-	-	-	390	-
Silver (mg/kg)		<3.3	<4.7	<3.4	<3.8	<3.2	<3.7	<3.6	<3.2	-	-	-	-	-	-	-	-	390	-
Zinc (mg/kg)		43.7	27.7	39.8	53.3	45.6	47.1	47.5	42.8	-	-	-	-	-	-	-	-	23000	-
% Solids		89.3	63.6	86.4	76.4	92.9	82.8	84.6	94.6	96.7	96.6	97.3	97.8	98.3	98.5	98.6	98.0	-	-

De Minimis Contents

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) See Table 3 for FW subliner assessment.
6) See Table 4 for RP subliner assessment.

Table 2
Location: PCU 297-10A
Lab Summary - Arsenic Summary

Last update 4/19/2013

Analytical Parameter	Cuttings Pit Contents					Spoil Pile					Reserve Pit Contents					COGCC	*Maximum based on Background*
(with units)	*#1*	*#2*	*#3*	*#4*	*#5*	*#1*	*#2*	*#3*	*#4*	*#5*	*#1*	*#2*	*#3*	*#4*	*#5*	*Table 910-1 Concentration Levels*	
Accutest Job #	D39805 (10/10/12)					D39804 (10/10/12)					D45357 (4/16/13)					-	-
Sample type (**C**omposite/**D**iscrete)	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-
TPH (GRO) (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH (DRO) (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TPH (GRO + DRO) (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	500	-
Benzene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.170	-
Toluene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85	-
Ethylbenzene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	-
Xylenes (total) (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	175	-
Acenaphthene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000	-
Anthracene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000	-
Benzo(A)anthracene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22	-
Benzo(B)fluoranthene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22	-
Benzo(K)fluoranthene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2	-
Benzo(A)pyrene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.022	-
Chrysene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22	-
Dibenzo(A,H)anthracene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.022	-
Fluoranthene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000	-
Fluorene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000	-
Indeno(1,2,3,C,D)pyrene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22	-
Naphthalene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	-
Pyrene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000	-
Electrical Conductivity (mmhos/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-
Sodium Adsorption Ratio (SAR)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-
pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6-9	-
Arsenic (mg/kg)	6.5	9.4	13.2	12.6	24.2	7.4	7.3	8.0	7.3	6.8	7.1	6.7	7.5	7.6	6.1	0.39	6.2
Barium (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15000	-
Cadmium (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70	-
Chromium (III) (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120000	-
Chromium (VI) (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	-
Copper (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3100	-
Lead (inorganic) (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	400	-
Mercury (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	-
Nickel (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1600	-
Selenium (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	390	-
Silver (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	390	-
Zinc (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23000	-
% Solids	81.3	83.3	80.6	78.8	84.7	90.7	93.3	90.1	91.7	96.1	90.8	84.4	84.3	82.8	85.4	-	-

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.

Table 3
Location: PCU 297-10A
Lab Summary - FW Subliner Assessment

Last update 3/28/2013

Analytical Parameter	FW Subliner	Subliner Discrete					Post -1' to -2' Excavation						Post 4' Ex.		Post 6' Ex		Post 8'	Post Ex	COGCC
(with units)	*FW Pit Subliner 9/18/12*	*FW-1*	*FW-2*	*FW-3*	*FW-4*	*FW-5*	*Subliner (-1' to -2') 10/11/12*	*FW-1 (-2')*	*FW-2 (-2')*	*FW-3 (-1')*	*FW-4 (-2')*	*FW-5 (-2')*	*FW-1 (- 4')*	*FW-5 (- 4')*	*FW-1 (- 6')*	*FW-5 (- 6')*	*FW-5 (- 8') 1/15/13*	*FW Ex MTRL [5] 1/29/13*	*Table 910-1 Concentration Levels*
Accutest Job #	D38941	D38943 (9/18/13)					D39807	D39810 (10/11/12)					D41018 (11/14/12)		D41660 (12/6/12)		D42678	D42992	-
Sample type (**C**omposite/**D**iscrete)	C	D	D	D	D	D	C	D	D	D	D	D	D	D	D	D	D	C	-
TPH (GRO) (mg/Kg)	8.8	29.4	ND	ND	ND	9.97	ND	14.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
TPH (DRO) (mg/Kg)	6660	7480	2030	894	5250	4490	3650	19200	367	356	345	1150	1660	1120	434	915	309	1100	-
TPH (GRO + DRO) (mg/Kg)	6669	7509	2030	894	5250	4500	3650	19214	367	356	345	1150	1660	1120	434	915	309	1100	500
Benzene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.170
Toluene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85
Ethylbenzene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100
Xylenes (total) (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	175
Acenaphthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000
Anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000
Benzo(A)anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22
Benzo(B)fluoranthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22
Benzo(K)fluoranthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2
Benzo(A)pyrene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.022
Chrysene (mg/Kg)	0.0694	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22
Dibenzo(A,H)anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.022
Fluoranthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000
Fluorene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000
Indeno(1,2,3,C,D)pyrene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22
Naphthalene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23
Pyrene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000
Electrical Conductivity (mmhos/cm)	4.16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Sodium Adsorption Ratio (SAR)	35.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
pH	10.68	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6-9
Arsenic (mg/kg)	5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.39
Barium (mg/kg)	437	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15000
Cadmium (mg/kg)	<1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70
Chromium (III) (mg/Kg)	40.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120000
Chromium (VI) (mg/Kg)	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23
Copper (mg/kg)	10.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3100
Lead (inorganic) (mg/kg)	12.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	400
Mercury (mg/kg)	<0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23
Nickel (mg/kg)	16.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1600
Selenium (mg/kg)	<5.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	390
Silver (mg/kg)	<3.3	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	390
Zinc (mg/kg)	43.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23000
% Solids	89.3	85.9	89.9	86.8	94.1	88.9	88.3	86.8	86.9	90.8	88.6	87.3	86.5	85.1	86.8	87.0	82.2	84.6	-

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) FW excavated material will be transported offsite to a permitted disposal facility.

Table 4
Location: PCU 297-10A
Lab Summary - Reserve Pit Subliner Assessment

Last update 3/28/2013

Analytical Parameter	Reserve Pit	Discrete Samples					Post 2' Excavation					Post 4' Excavation			Post 6' Ex.	Ex. MTRL	COGCC
(with units)	*RP Subliner 9/24/12*	*RP-1*	*RP-2*	*RP-3*	*RP-4*	*RP-5*	*RP Subliner - 2' 10/17/12*	*RP-1*	*RP-2*	*RP-3*	*RP-4*	*RP-1*	*RP-2*	*RP-4*	*RP-4 12/6/12*	*RP Ex. MTRL 12/18/12*	*Table 910-1 Concentration Levels*
Accutest Job #	D39145	D39146 (9/24/12)					D40087	D40082 (10/17/12)				D41017 (11/14/12)			D41665	D42111	-
Sample type (**C**omposite/**D**iscrete)	C	D	D	D	D	D	C	D	D	D	D	D	D	D	D	C	-
TPH (GRO) (mg/Kg)	49.2	150	38.1	87	25.6	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	-
TPH (DRO) (mg/Kg)	5810	11700	3570	13100	2550	336	675	1220	1320	450	896	187	27.1	574	75.6	407	-
TPH (GRO + DRO) (mg/Kg)	5859	11850	3608	13187	2576	336	675	1220	1320	450	896	187	27.1	574	75.6	407	500
Benzene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.170
Toluene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85
Ethylbenzene (mg/Kg)	0.0442	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100
Xylenes (total) (mg/Kg)	1.08	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	175
Acenaphthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000
Anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000
Benzo(A)anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22
Benzo(B)fluoranthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22
Benzo(K)fluoranthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2
Benzo(A)pyrene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.022
Chrysene (mg/Kg)	0.0287	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22
Dibenzo(A,H)anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.022
Fluoranthene (mg/Kg)	0.0331	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000
Fluorene (mg/Kg)	1.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000
Indeno(1,2,3,C,D)pyrene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22
Naphthalene (mg/Kg)	1.03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23
Pyrene (mg/Kg)	0.0341	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000
Electrical Conductivity (mmhos/cm)	2.38	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Sodium Adsorption Ratio (SAR)	34.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
pH	10.24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6-9
Arsenic (mg/kg)	5.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.39
Barium (mg/kg)	2320	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15000
Cadmium (mg/kg)	<1.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70
Chromium (III) (mg/Kg)	41.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120000
Chromium (VI) (mg/Kg)	<1.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23
Copper (mg/kg)	9.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3100
Lead (inorganic) (mg/kg)	11.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	400
Mercury (mg/kg)	<0.12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23
Nickel (mg/kg)	16.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1600
Selenium (mg/kg)	<5.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	390
Silver (mg/kg)	<3.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	390
Zinc (mg/kg)	39.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23000
% Solids	86.4	84.9	87.6	88.4	85.7	86.2	90.2	90.4	91.0	88.9	89.5	87.8	87.2	86.9	87.0	89.9	-

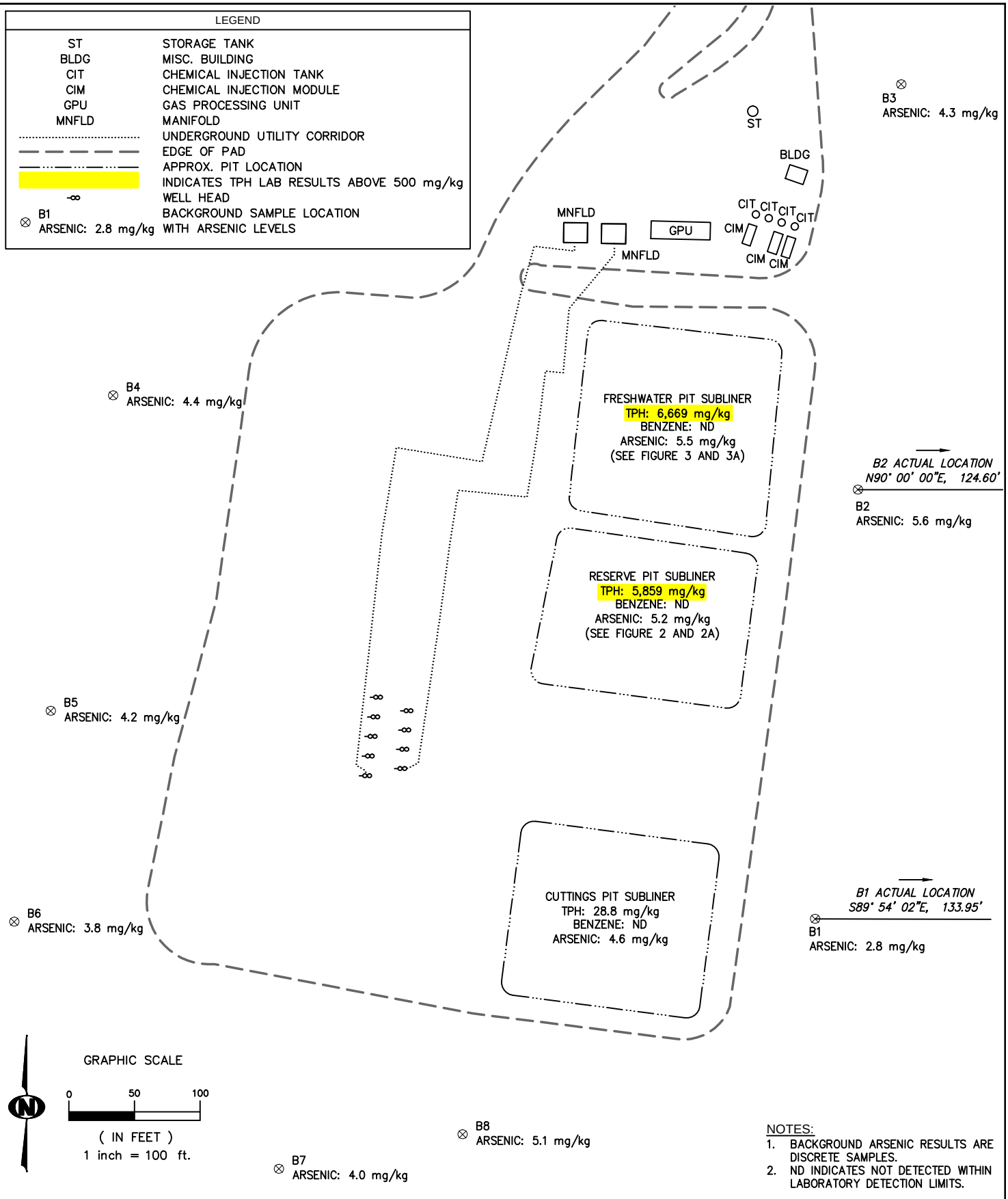
Notes:
1) ND = not detectible to the laboratory detection limit.
2) Results highlighted in yellow exceed Table 910-1 concentration levels. Results highlighted in Gray exceed Table 910-1, but are below background levels.
3) "-" indicates no analysis.
4) See site map for sample locations.

Table 5
Location: PCU 297-10A
Lab Summary - RP Content Mix/blend (MB) Summary

Last update 3/28/2013

Analytical Parameter	RP Contents	MB Trial	Pug Mill Mix/blend																										COGCC
(with units)	*RP Post Solid. 9/24/12*	*RP MB Trial 3:1 10/17/12*	*Day 1 1/3/13*	*Day 2*	*Day 3*	*Day 4*	*Day 5*	*Day 6*	*Day 7*	*Day 8*	*Day 8 Remix 1/22/13*	*Day 9 1/22/13*	*Day 9 Remix 1 1/30/13*	*Day 9 Remix 2 1/31/13*	*Day 10 1/23/13*	*Day 10 Remix 1 2/1/13*	*Day 10 Remix 2 2/4/13*	*Day 11 1/25/13*	*Day 11 Remix 1 2/5/13*	*Day 11 Remix 2 2/6/13*	*Day 11 Remix 3 2/6/13*	*Day 12 1/28/13*	*Day 13*	*Day 14*	*Day 15 2/12/13*	*Day 16 2/13/13*	*Day 17[4] 2/14/13*	*Day 18[4] 2/15/13*	*Table 910-1 Concentration Levels*
Accutest Job #	D39260	D40078	D42317	D42558 (1/10/13)					D42645 (1/11/13)		D42787	D42870	D43050	D43048	D42870	D43087	D43152	D42914	D43151	D43338	D43337	D42953	D43393 (2/8/13)		D43488		D43549	D43562	-
Sample type (**C**omposite/**D**iscrete)	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	C	-
TPH (GRO) (mg/Kg)	95.9	ND	ND	ND	6.87	ND	7.36	ND	7.53	8.78	ND	9.24	8.72	7.74	9.92	ND	ND	7.69	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.18	-
TPH (DRO) (mg/Kg)	2360	740	177	399	378	331	460	278	478	688	386	729	417	486	737	477	433	898	429	372	305	475	234	454	243	177	536	660	-
TPH (GRO + DRO) (mg/Kg)	2456	740	177	399	385	331	467	278	486	697	386	738	426	494	747	477	433	906	429	372	305	475	234	454	243	177	536	668	500
Benzene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.170
Toluene (mg/Kg)	0.128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	85
Ethylbenzene (mg/Kg)	0.0841	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100
Xylenes (total) (mg/Kg)	1.64	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	175
Acenaphthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000
Anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000
Benzo(A)anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22
Benzo(B)fluoranthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22
Benzo(K)fluoranthene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.2
Benzo(A)pyrene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.022
Chrysene (mg/Kg)	0.0206	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	22
Dibenzo(A,H)anthracene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.022
Fluoranthene (mg/Kg)	0.0221	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000
Fluorene (mg/Kg)	0.281	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000
Indeno(1,2,3,C,D)pyrene (mg/Kg)	ND	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22
Naphthalene (mg/Kg)	0.571	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23
Pyrene (mg/Kg)	0.0283	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000
Electrical Conductivity (mmhos/cm)	14.000	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4
Sodium Adsorption Ratio (SAR)	13.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12
pH	12.48	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6-9
Arsenic (mg/kg)	10.5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.39
Barium (mg/kg)	6640	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	15000
Cadmium (mg/kg)	<1.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	70
Chromium (III) (mg/Kg)	<12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	120000
Chromium (VI) (mg/Kg)	<10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23
Copper (mg/kg)	13.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3100
Lead (inorganic) (mg/kg)	13.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	400
Mercury (mg/kg)	<0.15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23
Nickel (mg/kg)	100	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1600
Selenium (mg/kg)	<7.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	390
Silver (mg/kg)	<4.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	390
Zinc (mg/kg)	27.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23000
% Solids	63.6	83.6	86.2	82.9	85.7	84.2	84.1	85.6	83.7	82.2	84.8	85.1	84.6	85.8	82.1	84.6	84.8	83.5	84.1	84.9	85.8	83.3	83.4	85.1	85.4	85.7	84.1	82.6	-

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) Material will be treated onsite or transported to a permitted disposal facility.



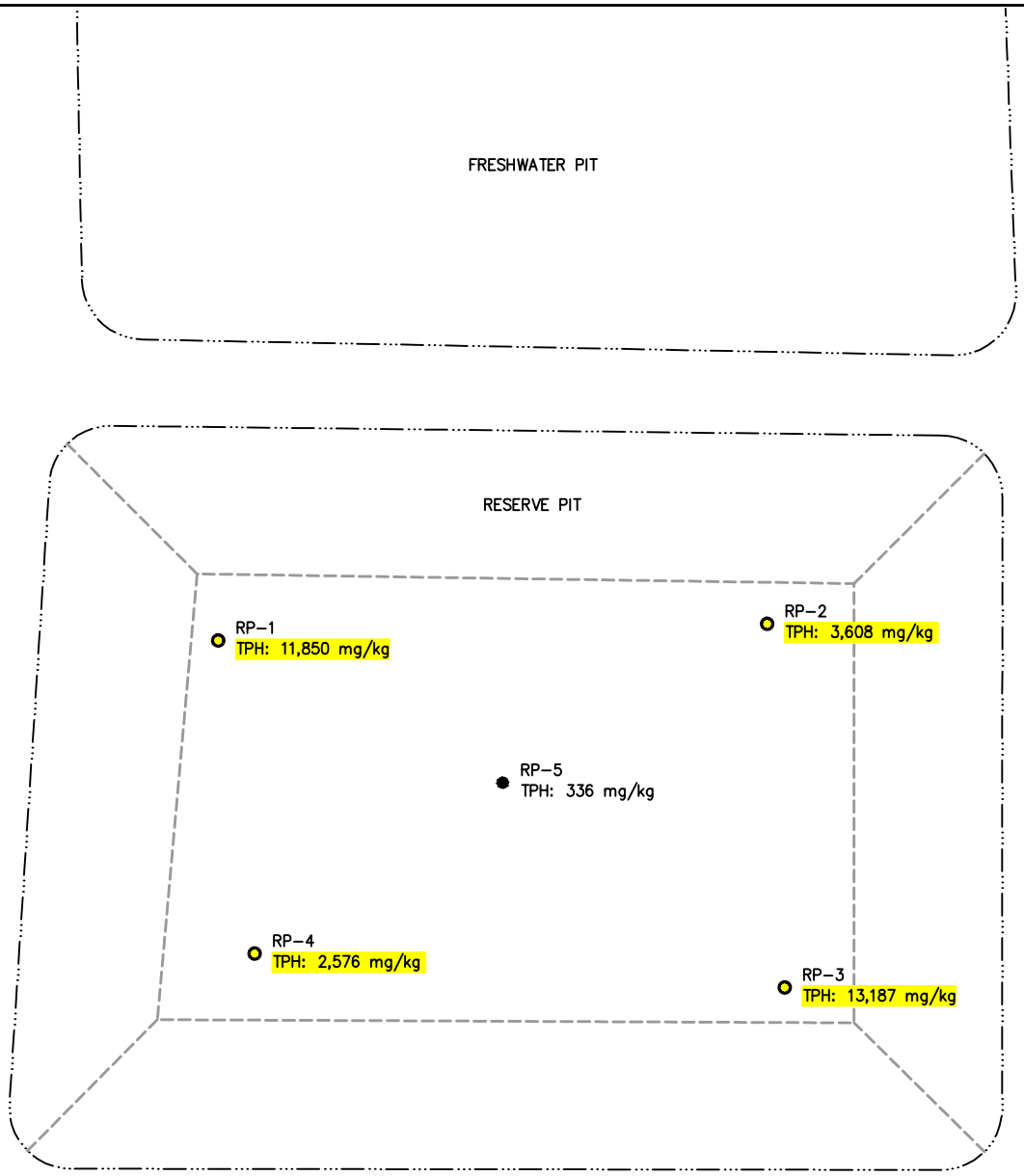
NOTES:
1. BACKGROUND ARSENIC RESULTS ARE DISCRETE SAMPLES.
2. ND INDICATES NOT DETECTED WITHIN LABORATORY DETECTION LIMITS.

DESIGNED: –	CHECKED: DK	FIGURE 1	NOTES:
DATE: 4/5/13	DRAWN: DRF		
FILE NAME: samples ars		SHEET NO. 1 of 5	DATE / REVISIONS
PROJECT NO. 1202-04		SCALE: 1"=100'	

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

FIGURE 1
PICEANCE CREEK
PCU 297-10A
SAMPLE LOCATIONS MAP
WITH ARSENIC LEVELS
PREPARED FOR XTO ENERGY

\\hyper-v03\lkwd-co\sdsk\proj\xto environmental\1202-04 pcu 297-10a\samples ars.dwg,4/5/13



LEGEND	
	EDGE OF PAD
	PIT TOP / TOE
	UNDERGROUND UTILITY CORRIDOR
D-0 TPH: mg/kg	DISCRETE SAMPLE LOCATION WITH TPH LAB RESULTS LESS THAN OR EQUAL TO 500 mg/kg
D-0 TPH: mg/kg	DISCRETE SAMPLE LOCATION WITH TPH LAB RESULTS GREATER THAN 500 mg/kg

GRAPHIC SCALE

0 15 30

(IN FEET)

1 inch = 30 ft.

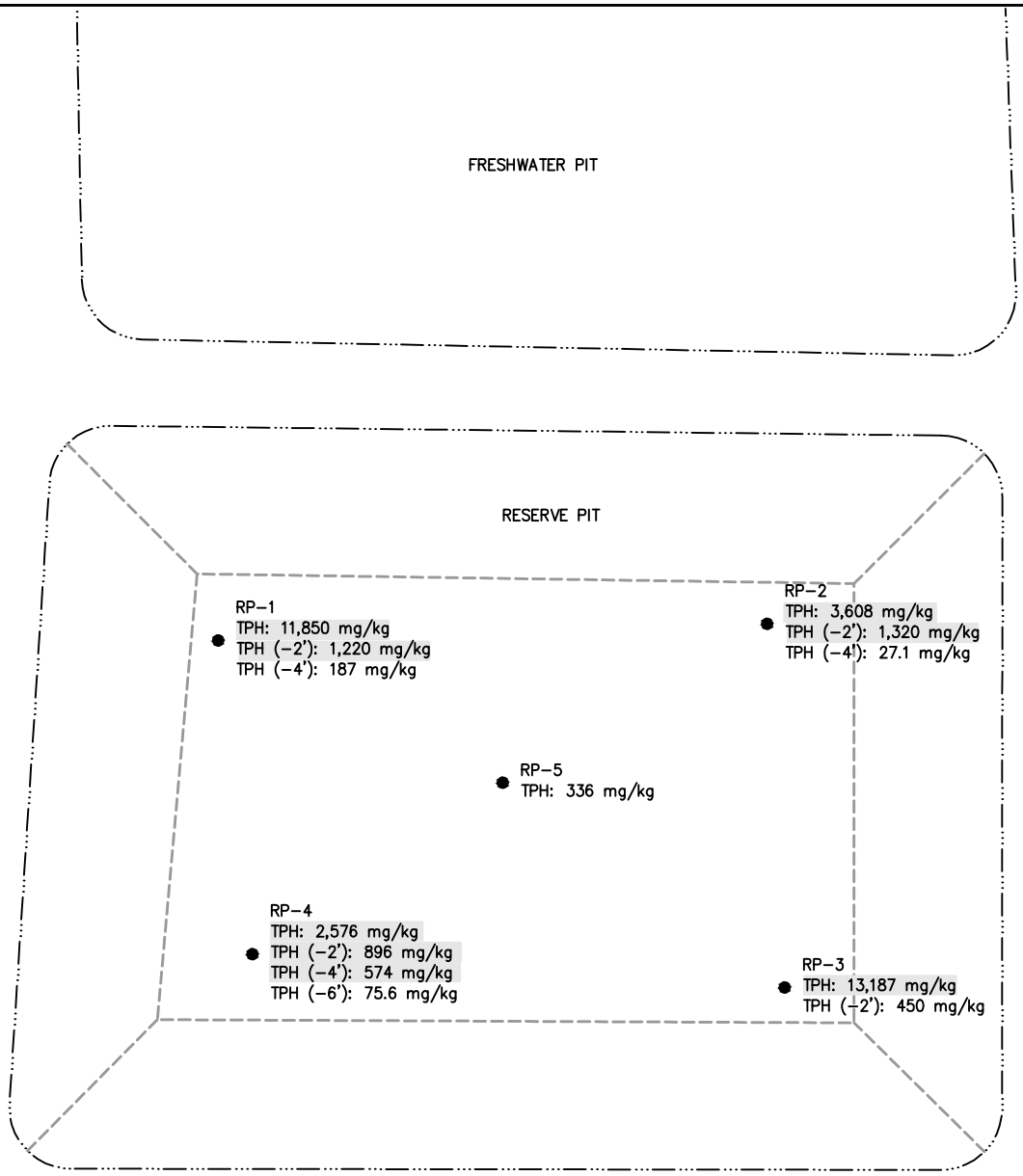
N

DESIGNED: –	CHECKED: DK	FIGURE 2	NOTES:
DATE: 4/5/13	DRAWN: DRF		
FILE NAME: reserve		SHEET NO. 2 of 5	DATE / REVISIONS
PROJECT NO. 1202-04		SCALE: 1"=30'	

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

FIGURE 2
PICEANCE CREEK
PCU 297-10A
RESERVE PIT SUBLINER
CONFIRMATION DATA
PREPARED FOR XTO ENERGY

\\hyper-v03\lkwd-co\sdsk\proj\xto environmental\1202-04 pcu 297-10a\reserve.dwg,4/5/13



LEGEND	
	EDGE OF PAD
	PIT TOP / TOE
	UNDERGROUND UTILITY CORRIDOR
	APPROX. TOE OF PIT
R-0 TPH: ≤ 500 mg/kg	DISCRETE SAMPLE LOCATION WITH TPH LAB RESULTS LESS THAN OR EQUAL TO 500 mg/kg
R-0 TPH: > 500 mg/kg TPH: ≤ 500 mg/kg	DISCRETE SAMPLE LOCATION WITH PREVIOUS TPH LAB RESULTS GREATER THAN 500 mg/kg AND CURRENT RESULTS BELOW 500 mg/kg

GRAPHIC SCALE

0 15 30

(IN FEET)

1 inch = 30 ft.

N

DESIGNED: –	CHECKED: DK	FIGURE 2A	NOTES:
DATE: 4/5/13	DRAWN: DRF		
FILE NAME: reserve cl		SHEET NO. 3 of 5	DATE / REVISIONS
PROJECT NO. 1202-04		SCALE: 1"=30'	

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FIGURE 2A
PICEANCE CREEK
PCU 297-10A
RESERVE PIT SELECT
SAMPLE RESULTS
PREPARED FOR XTO ENERGY

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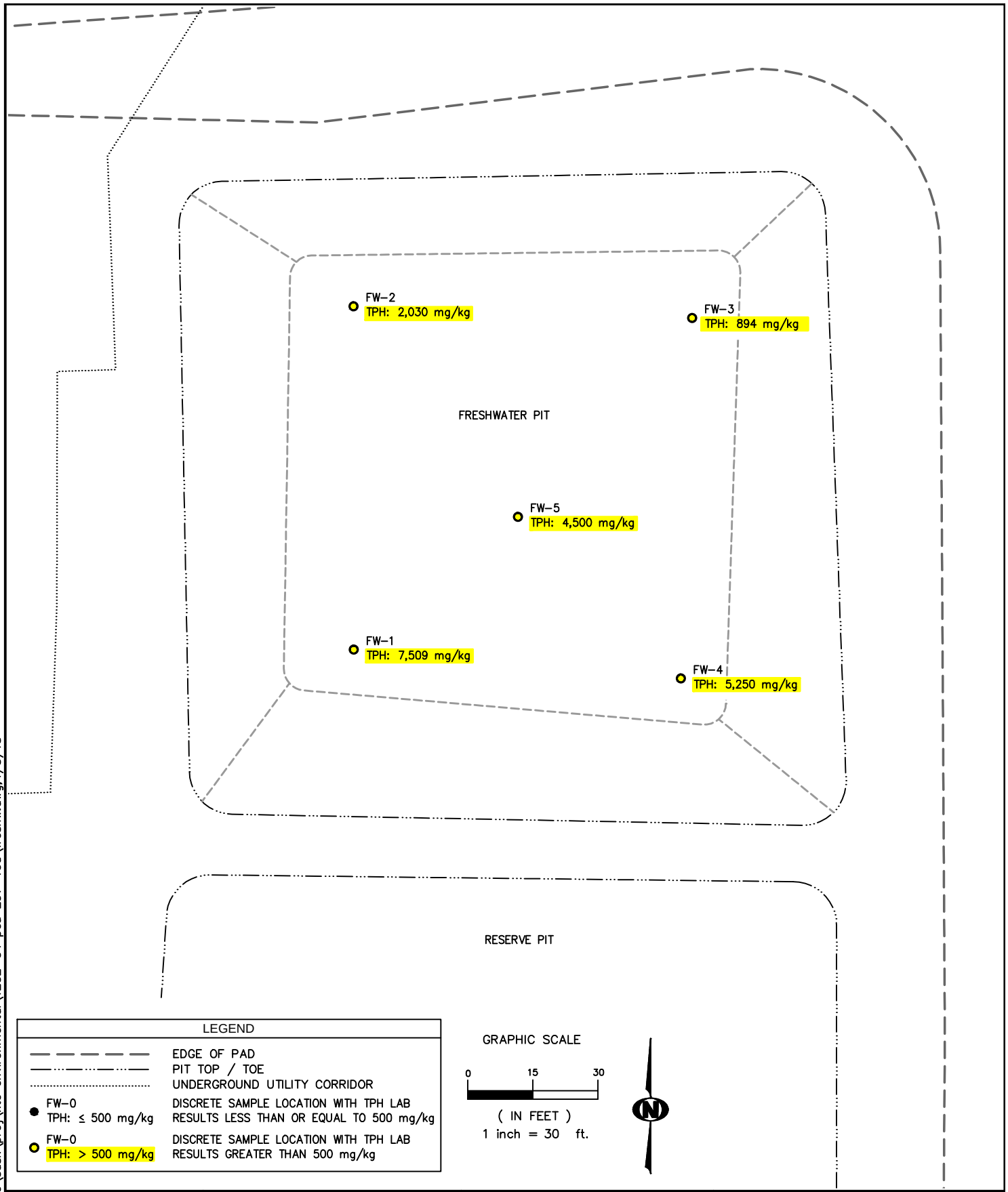

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DESIGNED: –	CHECKED: DK	FIGURE 3	NOTES:
DATE: 4/5/13	DRAWN: DRF		
FILE NAME: freshw		SHEET NO. 4 of 5	DATE / REVISIONS
PROJECT NO. 1202-04		SCALE: 1"=30'	

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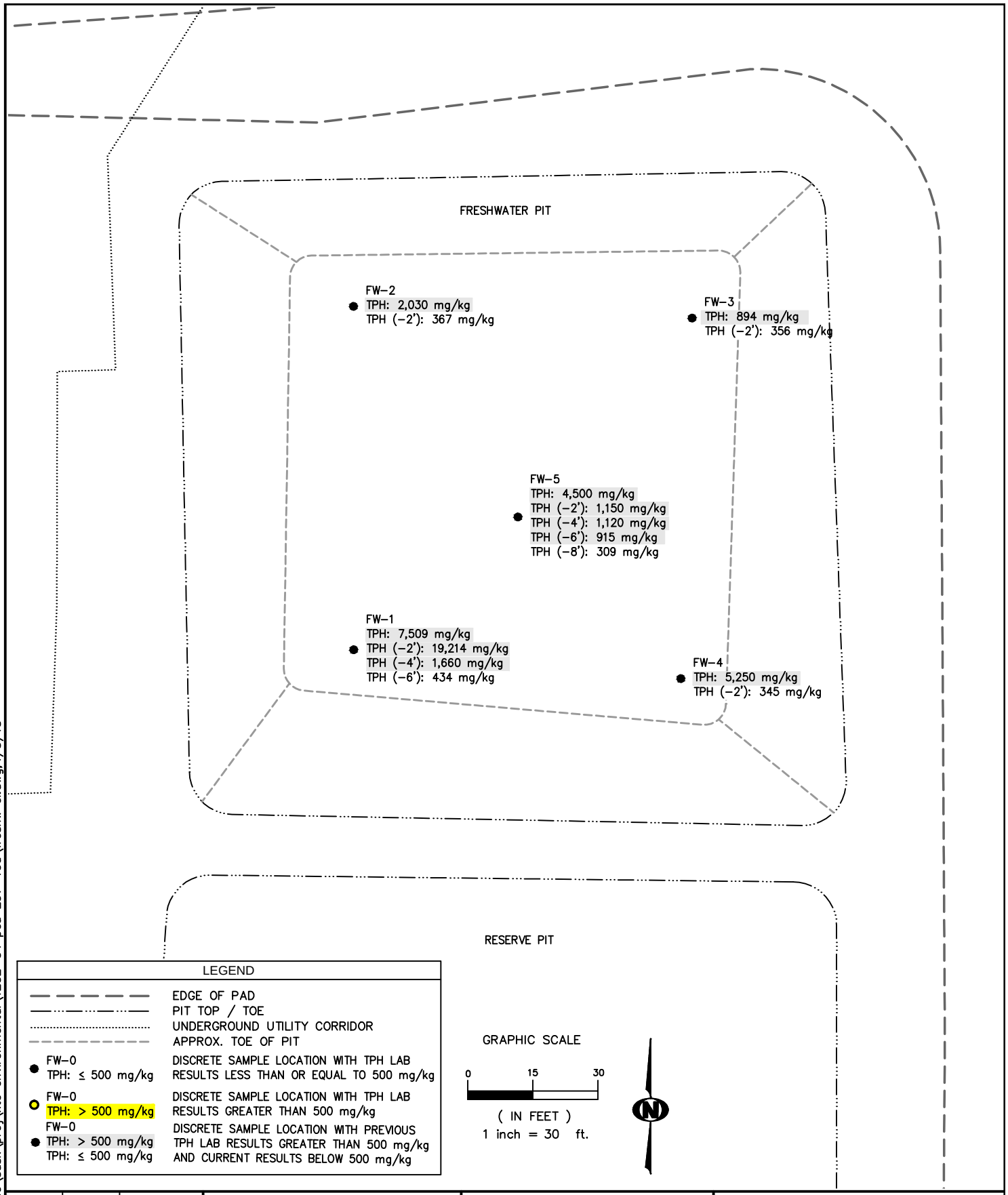
FIGURE 3
PICEANCE CREEK
PCU 297-10A
FRESHWATER PIT SUBLINER
CONFIRMATION DATA
PREPARED FOR XTO ENERGY



DESIGNED: –	CHECKED: DK	FIGURE 3A	NOTES:
DATE: 4/5/13	DRAWN: DRF		
FILE NAME: freshw cl		SHEET NO. 5 of 5	DATE / REVISIONS
PROJECT NO. 1202-04		SCALE: 1"=30'	

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FIGURE 3A
PICEANCE CREEK
PCU 297-10A
FRESHWATER PIT SELECT SAMPLE RESULTS
PREPARED FOR XTO ENERGY

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