

State of Colorado
Oil and Gas Conservation Commission



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FOR OGCC USE ONLY	
OGCC Employee:	
Spill Inspection	Complaint NOAV
Tracking No:	

SITE INVESTIGATION AND REMEDIATION WORKPLAN

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

CAUSE OF CONDITION BEING INVESTIGATED AND REMEDIATED

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

OGCC Operator Number: _____	Contact Name and Telephone: _____
Name of Operator: _____	_____
Address: _____	No: _____
City: _____ State: _____ Zip: _____	Fax: _____

API Number: _____	County: _____
Facility Name: _____	Facility Number: _____
Well Name: _____	Well Number: _____
Location: (QtrQtr, Sec, Twp, Rng, Meridian): _____	Latitude: _____ Longitude: _____

TECHNICAL CONDITIONS

Type of Waste Causing Impact (crude oil, condensate, produced water, etc.): _____

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.): _____

Soil type, if not previously identified on Form 2A or Federal Surface Use Plan: _____

Potential receptors (water wells within 1/4 mi, surface waters, etc.): _____

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

Impacted Media (check):	Extent of Impact:	How Determined:
Soils	_____	_____
Vegetation	_____	_____
Groundwater	_____	_____
Surface Water	_____	_____

REMEDIATION WORKPLAN

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

Describe how source is to be removed:

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.:



Tracking Number: _____
Name of Operator: _____
OGCC Operator No: _____
Received Date: _____
Well Name & No: _____
Facility Name & No: _____

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REMEDIATION WORKPLAN (Cont.)

OGCC Employee: _____

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

Available information indicates that the uppermost groundwater bearing zone is greater than 200 feet below the ground surface. Soil samples were collected from the excavation underlying the former tank containment area for laboratory analysis to confirm no groundwater impact potential exists (see Table 1 and Attachment II).

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

Please see Attachment II

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

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

Vertical and lateral soil assessment has been completed and impacts have been identified and removed. Based on sample results from the sidewalls and base of of the excavation, no additional assessment will be necessary (see Attachment II).

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

Impacted soils from the tank area have been removed and will either be transported offsite for disposal at Wray Gulch Landfill near Meeker, CO, or mix/blend processed to below Table 910-1 concentration levels and used onsite as backfill.

IMPLEMENTATION SCHEDULE

Date Site Investigation Began: May 4, 2010 Date Site Investigation Completed: TBD Date Remediation Plan Submitted: Dec. 16, 2011
Remediation Start Date: Started 8/10/2010 Anticipated Completion Date: 12/1/15 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: [Signature]
Title: Piceance EHS Supervisor Date: 10/23/2015

OGCC Approved: _____ Title: _____ Date: _____

ATTACHMENT I

PCU T18X-12G Former Tank Battery Containment Area Closure Workplan, Form 27 Page 1

Background Arsenic:

The site consists of a former Tank Battery Containment Area (See Figure 1)

The PCU T18X-12G location is located immediately west and contiguous with the PCU 297-11B location. See the COGCC approved Site Investigation and Remediation Workplan for Pit Closure for the PCU 297-11B location (Rem # 8439, Doc # 2148974) that established a background Arsenic level of 7.7 mg/kg. (See Table 1 and Figure 1)

1. Two of three samples collected from the bottom of the excavation area, Bottom #1 (7.9 mg/kg) and Bottom #2 (7.8 mg/kg), were above the allowable background Arsenic concentration of 7.7 mg/kg. The other Arsenic concentration (Bottom #3: 5.5 mg/kg) was within the allowable background concentration (See Table 3).
2. One of four samples collected from the North Sidewall, #2 (22.3 mg/kg) was above the allowable background Arsenic concentration of 7.7 mg/kg. The other three Arsenic concentrations from the North Sidewall ranged from 6.5 mg/kg to 7.7 mg/kg were within the allowable background Arsenic concentration (See Table 5).
3. Three of four samples from the South Sidewall, #1 (10.9 mg/kg), #2 (20.4 mg/kg) and #4 (15 mg/kg) were above the allowable background Arsenic concentration of 7.7 mg/kg. South Sidewall sample, #3 (5.7 mg/kg) was within the allowable background Arsenic concentration (See Table 5A).
4. Two samples from the West Sidewall, #1 (5.1 mg/kg) and #2 (4.6 mg/kg) were within the allowable background Arsenic concentration (See Table 5B).
5. One Arsenic sample was collected from the excavated stockpile material that will be buried in place (Stockpile #2: 7.5 mg/kg) and is within the allowable background (See Table 1).
6. It is our interpretation that the remaining elevated Arsenic levels are not due to anthropogenic affects from the former Tank Battery Containment Area, but reflect natural variability of Arsenic levels across the site.

ATTACHMENT II

PCU T18X-12G Former Tank Battery Containment Area Closure Workplan, Form 27

A produced water/condensate release from within and adjacent to the former Tank Battery Containment Area was reported to the Colorado Oil and Gas Conservation Commission (COGCC) on August 10, 2010 (Spill/Release Doc# 2608631). Initial impacts beneath the former containment area were identified and reported in the Site Investigation and Remediation Workplan (REM# 5166, Doc# 2608633 and Form 27A Doc# 400852161). Refer to Figure 1 for Site Location and Project Area Map.

Describe initial action taken:

As requested by XTO Energy, KRW Consulting, Inc. (KRW) conducted environmental site assessment to evaluate hydrocarbon impacts associated with the former Tank Battery Containment Area. This Attachment II presents a summary of laboratory analyses and site assessment findings associated with the following activities:

1. Initial soil assessment in the immediate vicinity of the release area
2. Test pit, sidewall and bottom of excavation sampling following initial soil removal efforts
3. A borehole investigation used to delineate extent of soil impacts
4. The further excavation and removal of impacted soils beneath the former tank battery containment area with appropriate confirmation sampling.

Background

Initial soil sampling activities were completed at the site on March 4, 2010. Soil samples were collected by hand from eight locations (1A thru 8A) at depths ranging from the surface to 2 feet below ground surface (bgs) and analyzed for TPH, BTEX, EC, SAR, and pH. Results exceeded Table 910-1 concentration levels for the following: TPH ranging from 2337 mg/kg to 22220 mg/kg (8A and 5A); Benzene ranging from 0.192 mg/kg to 3.8 mg/kg (5A and 2A); Toluene at 96.5 mg/kg (2A); and Xylenes ranging from 249.7 mg/kg to 531.2 mg/kg (2B and 2A) in unconsolidated sediments beneath and immediately adjacent to the containment area. (Refer to Figure 2 for locations and Table 1 for sample results).

Remediation activities were subsequently conducted at the site on September 2, 2010. Unconsolidated materials to a depth of approximately two feet bgs and an additional two feet of weathered bedrock material in the containment area were removed to a total excavation depth of approximately four feet bgs. The remedial excavation was advanced into the upper, weathered bedrock due to field indications of impact, as evidenced by olfactory, visual observations, and PID field screening measurements. Refer to Figure 2 for the configuration of this excavation area. Approximately 1,200 cubic yards of impacted soils/rock were transported to the Wray Gulch Landfill near Meeker, Colorado for disposal.

Following soil removal activities TPH sampling was conducted to evaluate remaining soil/rock conditions. Sampling included the collection of sidewall samples, base of the excavation (4 ft. bgs) and test pit at depths of 12 and 27 feet bgs. Results exceeded Table 910-1 concentration levels for TPH in the excavation bottom -4 feet (8086 mg/kg), -12 feet bgs (1850 mg/kg), and -27 feet bgs (898 mg/kg). Sidewall results exceeded Table 910-1 concentrations for TPH in the North Sidewall (2620 mg/kg), South Sidewall (2256 mg/kg), and West Sidewall (916 mg/kg) samples. Refer to Table 1 and Figure 2 for results and sample locations.

Additional Assessment Activities

A soils assessment was subsequently conducted in the base of the excavation and locations adjacent to the excavation using a Central Mine Equipment Co. (CME), truck mounted, model CME-75 rotary drilling rig platform, with hollow-stem auger continuous sampling capability. The borings were used to determine the vertical and lateral extent of hydrocarbon impacted soils/rock above Table 910-1 concentration levels in and around the former containment area. A total of fourteen boreholes were advanced at the site; five beneath the former containment area (in the previous remedial excavation) and nine at locations adjacent to the containment area. Borehole depths ranged from 7 to 29 feet bgs. No groundwater was encountered during the borehole drilling and sampling efforts. Refer to Figure 3 for the location of each assessment boring.

Soils were collected continuously from each boring using a CME 5-foot continuous sampler. The soil borings were extended past field indications of impact. The soils from each boring were logged and field screened using an FID and/or PID. Based on field observations soil samples were selected from each borehole for laboratory analyses to aid in assessing vertical and lateral extent of hydrocarbon impacts above Table 910-1 concentration levels. All borehole samples were analyzed for TPH and BTEX. No samples were submitted for laboratory analysis from borings BH-06 or BH-12; these boreholes were aborted at relatively shallow depths due to drill rig refusal.

Following completion of the soil borings, each boring was backfilled with bentonite chips to the surface and hydrated.

Assessment Findings

Weathered to medium-hard to very hard bedrock was encountered beneath the site which consisted primarily of sandstone and siltstone. Hydrocarbon impact within the bedrock was observed to be limited to the bedding planes and/or the fractured zones within the rock.

Assessment findings indicate that the lateral extent of hydrocarbon impacted soils above Table 910-1 concentration levels is generally confined to the former containment area with the exception of BH-02. Results exceeded Table 910-1 concentration levels in the following soil boring locations.

- BH-02 at 14' to 19' TPH: 2,980 mg/kg
- BH-07 at 19' to 24' TPH: 524 mg/kg
- BH-08 at 11' to 14' TPH: 1,049 mg/kg

See Table 2 for a complete summary of lab results and Figures 3 through 4A for the location of these borings

In general the vertical extent of elevated hydrocarbon impacted soils immediately below the former containment appeared to extend downward from the surface to a maximum depth of approximately 27 feet bgs. Refer to Figure 4 for a cross section illustrating the approximate vertical delineation of impacted soils above Table 910-1 concentration levels.

Additional Excavation and Removal of Impacted Soils

Excavation Bottom

The initial excavation of impacted soils extended to approximately 4 feet bgs beneath the former containment area footprint. Pending additional assessment and remediation decisions and because of potential safety concerns, the initial excavation was backfilled to the surface with clean fill material.

On reopening of the excavation, approximately 4.5 feet bgs of material was initially removed from the former containment area. Excavation bottom samples were collected in three locations (Bottom #1, #2, and #3) and analyzed for Table 910-1 parameters. Results exceeded Table 910-1 concentration levels for Bottom #1 and #2 for TPH (1763 mg/kg and 616 mg/kg), pH (9.56 and 9.38), and Arsenic (7.9 mg/kg and 7.8 mg/kg), respectively. Results were below Table 910-1 concentration levels for Bottom #3 (TPH: ND – not detected to the laboratory detection limit) with the exception of pH (9.47 mg/kg) (See Table 3 and Figure 3A).

Based on these results and the previous assessment data from boreholes and test pits, additional excavation beneath the former containment area occurred as summarized below:

Bottom #1 Area

Impacted soils/rock were excavated and removed from the Bottom #1 Area to a depth of approximately 15’ bgs. Bottom #1 confirmation samples were collected and analyzed for TPH with results below Table 910-1 concentration levels (TPH: 432 mg/kg).

Bottom #2 Area

Impacted soils/rock were excavated and removed from the Bottom #2 Area to a depth of approximately 11’ bgs. Bottom #2 confirmation samples were collected and analyzed for TPH with results below Table 910-1 concentration levels (TPH: 224 mg/kg).

Bottom #3 Area

Although the Bottom #3 sample was below Table 910-1 concentration levels (TPH: ND), a previous test pit (TP) and one borehole (BH-08) in the Bottom #3 Area indicated TPH results at varying depths that exceeded Table 910-1 concentration levels.

Test Pit Data

DEPTH (ft.)	TPH (mg/kg)
-4	8086
-12	1850
-27	898

Notes:

1. Test Pit Depths are relative to the pad surface.
2. Test Pit location on initial Form 27 submittal was incorrectly placed on figures; location has been corrected on this submittal.

Borehole BH-08 Data

DEPTH (ft.)	TPH (mg/kg)
-11 to -14	1049
-26 to -29	ND

Note: Borehole Depths are relative to the initial excavation depth of -4' bgs.

Impacted soils/rock were excavated and removed from across the Bottom #3 Area to a depth of approximately 12.5' bgs. Confirmation samples were collected and analyzed for Table 910-1 parameters from both the Test Pit and BH-08 locations with results below Table 910-1 concentration levels with the exception of pH (9.60 and 9.59, respectively) (See Table 4, Figure 3A).

Excavation and confirmation samples collected from each of the Bottom #1, #2, and #3 areas confirmed that previously identified impacts above Table 910-1 concentration levels had been removed with the following exceptions: BH-07 at -19' to -24' TPH: 524 mg/kg; BH-08 at -11' to -14' TPH 1049; and Test Pit at -27' TPH: 898 mg/kg (See Tables 1 thru 4, and Figure 3A). Each of these areas is discussed further below.

BH-07 at -19' to -24' TPH: 524 mg/kg. This sample was a composite of the hollow stem drilling borehole from -19' to -24' bgs. The sample collected immediately below this impacted area from -24' to -29' bgs was non-detect for TPH.

BH-08 at -11' to -14' TPH: 1049 mg/kg. This sample was a composite of the hollow stem drilling borehole from -11' to -14' bgs. A sample collected below this impacted area from -26' to -29' bgs was ND for TPH.

Test Pit at -27' bgs TPH: 898 mg/kg. This sample was collected using a trackhoe, the exact depth of the test pit and sample collection was difficult to discern. Based on experience with similar test pit samplings, it is possible that impacts from the upper depths could have been introduced to this sample.

- Based on assessment in and around these areas, it appears that these are limited and discrete impacted intervals within fractured bedrock (see Tables 2, 4 and 5, and Figures 3B, 4, and 4A).
- All significant source materials have been removed from the former containment area.
- Excavation bottom and sidewall (see following section) confirmation sample results for TPH are below Table 910-1 concentration levels.
- No additional excavation for these areas is recommended.

Excavation Sidewall

Initial sidewall excavation results exceeded Table 910-1 concentrations for TPH in the North Sidewall (2620 mg/kg), South Sidewall (2256 mg/kg), and West Sidewall (916 mg/kg) samples (See Table 1 and Figure 2). Following the bottom excavation and confirmation sampling activities, the existing North, South and West sidewalls were excavated back laterally approximately 2 feet with additional sidewall samples collected and analyzed for Table 910-1 parameters. Additional assessment and/or excavation in each of these sidewall areas are discussed below. Initial East Sidewall sample results (TPH: 463 mg/kg) were below Table 910-1 concentration levels and no further excavation was required.

North Sidewall Area

Four discrete samples (#1, #2, #3, and #4) were collected along the North Sidewall following the additional lateral excavation. Results were below Table 910-1 concentration levels with the exception of SAR (12.5 in #2), pH (ranging from 9.05 (#2) to 9.94 (#3)), and Arsenic (6.5 mg/kg (#1) to 22.3 mg/kg (#2)). No additional excavation was required in this area (See Table 5 and Figure 3B).

South Sidewall Area

Four discrete samples (#1, #2, #3, and #4) were collected along the South Sidewall following the additional lateral excavation. Results exceeded Table 910-1 concentration levels for TPH in samples #1 (4780 mg/kg), #3 (652 mg/kg), and #4 (2318 mg/kg); for pH (ranging from 9.14 (#3) to 9.61 (#1)); and Arsenic (5.7 mg/kg (#3) to 20.4 mg/kg (#2)).

An additional 2 feet (-4 feet total) of sidewall material was removed from sample areas #1, #3, and #4 with confirmation samples collected for TPH. Results were all below Table 910-1 concentration levels with TPH ranging from ND (#3 and #4) to 190 mg/kg (#1). No additional excavation was required in this area (See Table 5A and Figure 3B).

West Sidewall Area

Two discrete samples (#1 and #2) were collected along the West Sidewall following the additional lateral excavation. Results exceeded Table 910-1 concentration levels for TPH (#1: 4733 mg/kg); for pH (9.45 (#1) and 9.68 (#2)); and Arsenic (5.1 mg/kg (#1) and 4.6 mg/kg (#2)).

An additional 6 feet (-8 feet total) of sidewall material was removed from sample area #1 with confirmation samples collected and analyzed for TPH. Results were below Table 910-1 concentration levels (187 mg/kg). No additional excavation was required in this area (See Table 5B and Figure 3B).

Additional Excavation (Borehole BH-02 Area)

Borehole BH-02 identified TPH results exceeding Table 910-1 concentration levels south of the former Tank Battery Containment Area (-14' to -19' TPH: 2980 mg/kg). This sample was a composite of the hollow stem drilling borehole from -14' to -19'. The bottom and sidewall excavation was extended to approximately 20 feet bgs in this area with a confirmation sample collected and analyzed for Table 910-1 parameters. Results were below Table 910-1 concentration levels with the exception of pH (9.63) and Arsenic (5.2 mg/kg). No additional excavation was required in this area (See Table 4 and Figure 3B).

- All impacted material not meeting Table 910-1 concentration levels has been/will be transported to Wray Gulch Landfill in Meeker, CO. Disposal manifests are available on request.
- Mix/Blend processed material that meets Table 910-1 concentration levels will be used onsite for backfill.
- Soil samples were collected by KRW following proper sampling and shipping protocol and submitted to Accutest Laboratories in Wheat Ridge, Colorado. QAQC of the laboratory results indicated no outstanding anomalies. The laboratory test results are summarized in the attached tables. Complete laboratory reports are available on request.
- Refer to Tables 1 through 5B (7 total) and Figures 1 through 4A (7 total) for a summary of the laboratory results and for layout of the former Tank Battery Containment Area and sample locations.
- A background Arsenic level of 7.7 mg/kg is being used for the site, as approved by COGCC for the adjacent PCU 297-11B location (Rem # 8439, Doc # 2148974). Refer to Attachment I for further discussion.
- Any remaining elevated levels of Electrical Conductivity, SAR and pH detected beneath the former Tank Battery Containment Area as well as any backfill material will be covered with a minimum 3 feet of clean, native soils per COGCC guidance. No additional treatment of these soils will be required.
- 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 T18X-12G
Initial 2010 Assesment and Stockpile Summary

Last update 10/23/2015

Analytical Parameter (with units)	Initial Assessment										Test Pit Assessment			Sidewall Assessment				Stockpile	PCU 297-11B Background As					COGCC	Maximum based on Background
	1A (0-0.5')	1B (2')	2A (0-0.5')	2B (2')	3A Sidewall	4A Sidewall	5A (0-0.5')	6A Berm	7A Berm	8A Base	Ex. Bottom TP (-4')	Test Pit (-12')	Test Pit (-27')	North SW	South SW	East SW	West SW	#2	#1	#2	#3	#4	#5	Table 910-1 Concentration Levels	
Accutest Job #	D11538 (3/4/10)										D17035 (8/31/10)		D17039 (9/1/10)	D17129 (9/2/10)				D76146 (10/9/15)	D26543 (8/11/11)					-	-
Sample type (Composite/Discrete)	D	D	D	D	D	D	D	C	C	D	D	D	D	C	C	C	C	D	D	D	D	D	D	-	-
TPH (GRO) (mg/Kg)	-	-	-	-	-	-	-	-	-	-	476	120	251	260	15.8	ND	26.3	ND	-	-	-	-	-	-	-
TPH (DRO) (mg/Kg)	-	-	-	-	-	-	-	-	-	-	7,610	1,730	647	2,360	2,240	463	890	273	-	-	-	-	-	-	-
TPH (GRO + DRO) (mg/Kg)	15,190	9,580	15,141	7,750	2,972	438	22,220	16,150	5,514	2,337	8,086	1,850	898	2,620	2,256	463	916	273	-	-	-	-	-	500	-
Benzene (mg/Kg)	3.63	1.64	3.8	2.47	ND	ND	0.192	ND	ND	ND	-	-	-	-	-	-	-	ND	-	-	-	-	-	0.170	-
Toluene (mg/Kg)	65.3	31	96.5	56.5	ND	ND	21.1	3.88	0.43	ND	-	-	-	-	-	-	-	ND	-	-	-	-	-	85	-
Ethylbenzene (mg/Kg)	12.1	3.83	12	3.12	0.761	ND	16.5	3.29	0.707	ND	-	-	-	-	-	-	-	ND	-	-	-	-	-	100	-
Xylenes (total) (mg/Kg)	437.1	250.9	531.2	249.7	19.37	ND	327.9	99.1	33.27	1.201	-	-	-	-	-	-	-	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)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-	-	-	22	-
Dibenzo(A,H)anthracene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-	-	-	0.022	-
Fluoranthene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-	-	-	1000	-
Fluorene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-	-	-	1000	-
Indo(1,2,3,4,6,7,8)pyrene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-	-	-	0.22	-
Naphthalene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND	-	-	-	-	-	23	-
Pyrene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.0083	-	-	-	-	-	1000	-
Electrical Conductivity (mmhos/cm)	0.541	0.444	0.664	0.882	0.551	0.497	0.860	0.367	0.687	0.417	-	-	-	-	-	-	-	0.552	-	-	-	-	-	4	-
Sodium Adsorption Ratio (SAR)	5.56	6.08	5.54	22	9.61	17.4	9.55	7.24	7.35	12.2	-	-	-	-	-	-	-	7.48	-	-	-	-	-	12	-
pH	9.37	9.57	9.41	9.62	9.77	9.96	9.84	9.68	9.67	10.06	-	-	-	-	-	-	-	9.68	-	-	-	-	-	6.9	-
Arsenic (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.5	3.5	7.0	4.7	3.9	4.1	0.39	7.7
Barium (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	247	-	-	-	-	-	15000	-
Cadmium (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.1	-	-	-	-	-	70	-
Chromium (III) (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	34.7	-	-	-	-	-	120000	-
Chromium (VI) (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<1.0	-	-	-	-	-	23	-
Copper (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.1	-	-	-	-	-	3100	-
Lead (inorganic) (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.7	-	-	-	-	-	400	-
Mercury (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<0.092	-	-	-	-	-	23	-
Nickel (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17.8	-	-	-	-	-	1600	-
Selenium (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<5.4	-	-	-	-	-	390	-
Silver (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	<3.2	-	-	-	-	-	390	-
Zinc (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44.4	-	-	-	-	-	23000	-
% Solids	82.1	81.7	93.5	87.7	77.2	79	90.6	91.6	91.3	76.5	84.2	84.7	84.7	92.5	86.5	96.5	87.7	88.9	96.5	78.1	85.2	96.8	93.5	-	-

- 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 within area background levels.
 - 3) "-" indicates no analysis.
 - 4) See Figure(s) for sample locations.
 - 5) Samples 18-12-4, 18-12-12, and 18-12-27 were collected from a test pit, advanced after initial soil removal activities at the bottom of the remedial excavation, at depths of 4, 12, and 27 feet below ground surface, respectively.
 - 6) ESW, NSW, WSW, and SSW are composite samples from the east, north, west, and south sidewalls of the soil removal excavation, respectively.
 - 7) Background Arsenic sample results are from the PCU 297-11B location, located immediately west and contiguous with the PCU T18X-12G location.

Table 2
Location: PCU T18X-12G
Drill Assessment Lab Summary

Last update 10/23/2015

Analytical Parameter (with units)	Drilling Assessment																				COGCC	Maximum based on Background
	BH-01 (16-17')	BH-02 (14-19')	BH-03 (17-21')	BH-04 (9-14')	BH-05 (19-24')	BH-07 (19-24')	BH-07 (24-29')	BH-08 (11-14')	BH-08 (26-29')	BH-09 (7-9')	BH-10 (14-18')	BH-11 (3-8')	BH-11 (13-18')	BH-11 (23-26')	BH-13 (14-18')	BH-13 (18-23')	BH-13 (24-26')	BH-14 (16-18')	BH-14 (18-23')	BH-14 (23-26')	Table 910-1 Concentration Levels	
Accutest Job #	D24004 (5/31&6/1/2011)					D24027 (6/2&6/3/2011)					D27610 (9/13/11)				D27702 (9/14&9/15/2011)						-	-
Sample type (Composite/Discrete)	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	D	-	-
TPH (GRO) (mg/Kg)	ND	1,110	ND	32	ND	67.0	ND	249	ND	34.6	15.9	ND	ND	ND	ND	ND	ND	ND	ND	ND	-	-
TPH (DRO) (mg/Kg)	ND	1,870	ND	348	ND	457	ND	800	ND	86.7	220	115	ND	ND	ND	ND	ND	ND	ND	ND	-	-
TPH (GRO + DRO) (mg/Kg)	ND	2,980	ND	360	ND	524	ND	1,049	ND	121.3	236	115	ND	ND	ND	ND	ND	ND	ND	ND	500	-
Benzene (mg/Kg)	ND	0.049	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.170	-
Toluene (mg/Kg)	ND	6.35	0.087	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	85	-
Ethylbenzene (mg/Kg)	ND	2.90	0.040	ND	ND	0.033	ND	0.312	0.043	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	100	-
Xylenes (total) (mg/Kg)	ND	60.60	0.732	0.342	ND	0.604	ND	5.380	ND	ND	ND	0.134	ND	ND	ND	ND	ND	ND	ND	ND	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	-
Indo(1,2,3,C,D)pyrene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.22	-
Napthalene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23	-
Pyrene (mg/Kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1000	-
Electrical Conductivity (mmhos/cm)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	-
Sodium Adsorption Ratio (SAR)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	-
pH	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6-9	-
Arsenic (mg/kg)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.39	7.7
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	88.8	86.0	85.7	86.1	88.4	87.0	89.5	84.3	86.2	85.5	85.5	86.3	84.8	86.7	87.7	86.3	86.7	90.4	87.5	86.0	-	-

- 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 within area background levels.
 - 3) "-" indicates no analysis.
 - 4) See Figure(s) for sample locations.
 - 5) The numbered interval following the sample borehole number for the assessment samples (e.g. BH-01) indicates sample depth.
 - 6) BH-06 and BH-12 were not sampled for lab analysis due to drill rig refusal

Table 3
Location: PCU T18X-12G
Tank Area Bottom Assessment Lab Summary

Last update 10/23/2015

Analytical Parameter (with units)	Bottom #1						Bottom #2				Bottom #3	COGCC	Maximum based on Background
	#1 (-4.5')	#1 (-6.5')	#1 (-9')	#1 (-11')	#1 (-13')	#1 (-15)	#2 (-4.5')	#2 (6.5')	#2 (-9')	#2 (-11')	#3 (-4.5')	Table 910-1 Concentration Levels	
Accutest Job #	D72155 (6/23/15)	D72738 (7/10/15)	D72967 (7/16/15)	D73224 (7/24/15)	D73543 (8/4/15)	D73922 (8/12/15)	D72155 (6/23/15)	D72738 (7/10/15)	D72967 (7/16/15)	D73224 (7/24/15)	D72155 (6/23/15)	-	-
Sample type (Composite/Discrete)	D	D	D	D	D	D	D	D	D	D	D	-	-
TPH (GRO) (mg/Kg)	183	488	92.8	129	132	29.1	7.32	134	58.7	17.7	ND	-	-
TPH (DRO) (mg/Kg)	1580	2430	930	1020	689	403	609	1140	656	206	ND	-	-
TPH (GRO + DRO) (mg/Kg)	1763	2918	1,023	1,149	821	432	616	1274	715	224	ND	500	-
Benzene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	ND	0.170	-
Toluene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	ND	85	-
Ethylbenzene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	ND	100	-
Xylenes (total) (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	ND	175	-
Acenaphthene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	ND	1000	-
Anthracene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	ND	1000	-
Benzo(A)anthracene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	ND	0.22	-
Benzo(B)fluoranthene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	ND	0.22	-
Benzo(K)fluoranthene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	ND	2.2	-
Benzo(A)pyrene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	ND	0.022	-
Chrysene (mg/Kg)	ND	-	-	-	-	-	0.0073	-	-	-	ND	22	-
Dibenzo(A,H)anthracene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	ND	0.022	-
Fluoranthene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	ND	1000	-
Fluorene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	ND	1000	-
Indo(1,2,3,C,D)pyrene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	ND	0.22	-
Napthalene (mg/Kg)	ND	-	-	-	-	-	ND	-	-	-	ND	23	-
Pyrene (mg/Kg)	0.0291	-	-	-	-	-	0.0077	-	-	-	ND	1000	-
Electrical Conductivity (mmhos/cm)	0.363	-	-	-	-	-	0.696	-	-	-	0.847	4	-
Sodium Adsorption Ratio (SAR)	4.20	-	-	-	-	-	6.49	-	-	-	7.26	12	-
pH	9.56	-	-	-	-	-	9.38	-	-	-	9.47	6-9	-
Arsenic (mg/kg)	7.9	-	-	-	-	-	7.8	-	-	-	5.5	0.39	7.7
Barium (mg/kg)	143	-	-	-	-	-	133	-	-	-	136	15000	-
Cadmium (mg/kg)	<1.1	-	-	-	-	-	<1.1	-	-	-	<1.1	70	-
Chromium (III) (mg/Kg)	47.8	-	-	-	-	-	44.6	-	-	-	38	120000	-
Chromium (VI) (mg/Kg)	<1.0	-	-	-	-	-	<1.0	-	-	-	<1.0	23	-
Copper (mg/kg)	14.7	-	-	-	-	-	9.4	-	-	-	10.5	3100	-
Lead (inorganic) (mg/kg)	6.7	-	-	-	-	-	6.7	-	-	-	9.8	400	-
Mercury (mg/kg)	<0.094	-	-	-	-	-	<0.093	-	-	-	<0.091	23	-
Nickel (mg/kg)	17.3	-	-	-	-	-	20.5	-	-	-	15	1600	-
Selenium (mg/kg)	<5.7	-	-	-	-	-	<5.5	-	-	-	<5.4	390	-
Silver (mg/kg)	<3.4	-	-	-	-	-	<3.3	-	-	-	<3.3	390	-
Zinc (mg/kg)	46.5	-	-	-	-	-	41	-	-	-	47.5	23000	-
% Solids	84.5	86.4	85.3	86.4	86.2	86.8	85.0	84.6	84.6	86.2	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 within area background levels.
 - 3) "-" indicates no analysis.
 - 4) See Figure(s) for sample locations.

Table 4
Location: PCU T18X-12G
Borehole and Test Pit Confirmation Samples

Last update 10/23/2015

Analytical Parameter	Test Pit	BH-08	BH-02	COGCC	Maximum based on Background
(with units)	(-12.5')	(-12.5')	(-20')	Table 910-1 Concentration Levels	
Accutest Job #	D74272 (8/20/15)	D74275 (8/20/15)	D74995 (9/9/15)	-	-
Sample type (Composite/Discrete)	D	D	D	-	-
TPH (GRO) (mg/Kg)	21.2	10.1	9.1	-	-
TPH (DRO) (mg/Kg)	279	103	131	-	-
TPH (GRO + DRO) (mg/Kg)	300	113	140	500	-
Benzene (mg/Kg)	ND	ND	ND	0.170	-
Toluene (mg/Kg)	ND	ND	0.0022	85	-
Ethylbenzene (mg/Kg)	ND	ND	0.0013	100	-
Xylenes (total) (mg/Kg)	0.0654	ND	0.0254	175	-
Acenaphthene (mg/Kg)	ND	ND	ND	1000	-
Anthracene (mg/Kg)	ND	ND	ND	1000	-
Benzo(A)anthracene (mg/Kg)	ND	ND	ND	0.22	-
Benzo(B)fluoranthene (mg/Kg)	ND	ND	ND	0.22	-
Benzo(K)fluoranthene (mg/Kg)	ND	ND	ND	2.2	-
Benzo(A)pyrene (mg/Kg)	ND	ND	ND	0.022	-
Chrysene (mg/Kg)	ND	ND	ND	22	-
Dibenzo(A,H)anthracene (mg/Kg)	ND	ND	ND	0.022	-
Fluoranthene (mg/Kg)	0.0043	0.0034	ND	1000	-
Fluorene (mg/Kg)	ND	ND	ND	1000	-
Indo(1,2,3,C,D)pyrene (mg/Kg)	ND	ND	ND	0.22	-
Napthalene (mg/Kg)	ND	ND	0.0061	23	-
Pyrene (mg/Kg)	0.0142	0.0080	0.0028	1000	-
Electrical Conductivity (mmhos/cm)	0.560	0.320	0.385	4	-
Sodium Adsorption Ratio (SAR)	5.88	2.42	6.45	12	-
pH	9.60	9.59	9.63	6-9	-
Arsenic (mg/kg)	5.0	5.8	5.2	0.39	7.7
Barium (mg/kg)	189	171	187	15000	-
Cadmium (mg/kg)	<1.2	<1.2	<1.2	70	-
Chromium (III) (mg/Kg)	45.3	50.6	46.1	120000	-
Chromium (VI) (mg/Kg)	<1.0	<1.0	<1.0	23	-
Copper (mg/kg)	13.1	14.8	15.9	3100	-
Lead (inorganic) (mg/kg)	8.5	9	10.8	400	-
Mercury (mg/kg)	<0.098	<0.095	<0.091	23	-
Nickel (mg/kg)	20.8	19.7	17.6	1600	-
Selenium (mg/kg)	5.8	<5.9	7.5	390	-
Silver (mg/kg)	<7.0	<3.5	<7.0	390	-
Zinc (mg/kg)	49.8	52.9	50	23000	-
% Solids	85.4	84.8	85.5	-	-

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 within area background levels.
- 3) "-" indicates no analysis.
- 4) See Figure(s) for sample locations.

Table 5
Location: PCU T18X-12G
North Sidewall Assessment Summary

Last update 10/23/2015

Analytical Parameter (with units)	North Sidewall Assessment					COGCC	Maximum based on Background
	North SW Initial	#1 (-2')	#2 (-2')	#3 (-2')	#4 (-2')	Table 910-1 Concentration Levels	
Accutest Job #	D17129 (9/2/10)	D74406 (8/25/15)					-
Sample type (Composite/Discrete)	C	D	D	D	D	-	-
TPH (GRO) (mg/Kg)	260	ND	ND	ND	8.94	-	-
TPH (DRO) (mg/Kg)	2,360	ND	47.7	ND	409	-	-
TPH (GRO + DRO) (mg/Kg)	2,620	ND	47.7	ND	418	500	-
Benzene (mg/Kg)	-	ND	ND	ND	ND	0.170	-
Toluene (mg/Kg)	-	ND	ND	ND	ND	85	-
Ethylbenzene (mg/Kg)	-	ND	ND	ND	ND	100	-
Xylenes (total) (mg/Kg)	-	ND	ND	ND	ND	175	-
Acenaphthene (mg/Kg)	-	ND	ND	ND	ND	1000	-
Anthracene (mg/Kg)	-	ND	ND	ND	ND	1000	-
Benzo(A)anthracene (mg/Kg)	-	ND	0.0028	ND	ND	0.22	-
Benzo(B)fluoranthene (mg/Kg)	-	ND	ND	ND	ND	0.22	-
Benzo(K)fluoranthene (mg/Kg)	-	ND	ND	ND	ND	2.2	-
Benzo(A)pyrene (mg/Kg)	-	ND	ND	ND	ND	0.022	-
Chrysene (mg/Kg)	-	ND	ND	ND	ND	22	-
Dibenzo(A,H)anthracene (mg/Kg)	-	ND	ND	ND	ND	0.022	-
Fluoranthene (mg/Kg)	-	0.0039	ND	ND	ND	1000	-
Fluorene (mg/Kg)	-	ND	ND	ND	ND	1000	-
Indo(1,2,3,C,D)pyrene (mg/Kg)	-	ND	ND	ND	ND	0.22	-
Napthalene (mg/Kg)	-	0.0453	ND	ND	ND	23	-
Pyrene (mg/Kg)	-	0.0125	ND	ND	0.0063	1000	-
Electrical Conductivity (mmhos/cm)	-	1.040	1.500	0.209	0.315	4	-
Sodium Adsorption Ratio (SAR)	-	7.65	12.5	6.46	8.25	12	-
pH	-	9.46	9.05	9.94	9.83	6-9	-
Arsenic (mg/kg)	-	6.5	22.3	6.8	7.7	0.39	7.7
Barium (mg/kg)	-	104	128	127	132	15000	-
Cadmium (mg/kg)	-	<1.1	<1.2	<1.1	<1.2	70	-
Chromium (III) (mg/Kg)	-	44.8	47.5	40.8	40.2	120000	-
Chromium (VI) (mg/Kg)	-	<1.0	<1.0	<1.0	<1.0	23	-
Copper (mg/kg)	-	9.8	8	9.1	10.6	3100	-
Lead (inorganic) (mg/kg)	-	7.6	6.7	7.7	8	400	-
Mercury (mg/kg)	-	<0.088	<0.094	<0.095	<0.097	23	-
Nickel (mg/kg)	-	18.2	19.2	16.5	15.2	1600	-
Selenium (mg/kg)	-	<5.5	<5.8	<5.7	<5.9	390	-
Silver (mg/kg)	-	<3.3	<6.9	<3.4	<3.5	390	-
Zinc (mg/kg)	-	44.7	41.6	44.6	43.6	23000	-
% Solids	92.5	90.5	86.4	86.5	84.5	-	-

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 within area ba
- 3) "-" indicates no analysis.
- 4) See Figure(s) for sample locations.

Table 5A
Location: PCU T18X-12G
South Sidewall Assessment Summary

Last update 10/23/2015

Analytical Parameter (with units)	South Sidewall Assessment								COGCC	Maximum based on Background
	South SW Initial	#1 (-2')	#2 (-2')	#3 (-2')	#4 (-2')	#1 (-4')	#3 (-4')	#4 (-4')	Table 910-1 Concentration Levels	
Accutest Job #	D17129 (9/2/10)	D74407 (8/25/15)				D74998 (9/9/15)			-	-
Sample type (Composite/Discrete)	C	D	D	D	D	D	D	D	-	-
TPH (GRO) (mg/Kg)	15.8	9.86	ND	ND	248	ND	ND	ND	-	-
TPH (DRO) (mg/Kg)	2,240	4,770	ND	652	2,070	190	ND	ND	-	-
TPH (GRO + DRO) (mg/Kg)	2,256	4,780	ND	652	2,318	190	ND	ND	500	-
Benzene (mg/Kg)	-	ND	ND	ND	ND	-	-	-	0.170	-
Toluene (mg/Kg)	-	0.0014	ND	ND	ND	-	-	-	85	-
Ethylbenzene (mg/Kg)	-	ND	ND	ND	ND	-	-	-	100	-
Xylenes (total) (mg/Kg)	-	ND	ND	ND	1.10	-	-	-	175	-
Acenaphthene (mg/Kg)	-	ND	ND	ND	ND	-	-	-	1000	-
Anthracene (mg/Kg)	-	ND	ND	ND	ND	-	-	-	1000	-
Benzo(A)anthracene (mg/Kg)	-	ND	ND	ND	ND	-	-	-	0.22	-
Benzo(B)fluoranthene (mg/Kg)	-	ND	ND	ND	ND	-	-	-	0.22	-
Benzo(K)fluoranthene (mg/Kg)	-	ND	ND	ND	ND	-	-	-	2.2	-
Benzo(A)pyrene (mg/Kg)	-	ND	ND	ND	ND	-	-	-	0.022	-
Chrysene (mg/Kg)	-	ND	ND	ND	ND	-	-	-	22	-
Dibenzo(A,H)anthracene (mg/Kg)	-	ND	ND	ND	ND	-	-	-	0.022	-
Fluoranthene (mg/Kg)	-	ND	ND	ND	0.0114	-	-	-	1000	-
Fluorene (mg/Kg)	-	ND	ND	ND	ND	-	-	-	1000	-
Indo(1,2,3,C,D)pyrene (mg/Kg)	-	ND	ND	ND	ND	-	-	-	0.22	-
Napthalene (mg/Kg)	-	ND	ND	ND	ND	-	-	-	23	-
Pyrene (mg/Kg)	-	0.0552	ND	ND	0.0437	-	-	-	1000	-
Electrical Conductivity (mmhos/cm)	-	0.335	0.195	486	0.326	-	-	-	4	-
Sodium Adsorption Ratio (SAR)	-	6.11	6.05	3.6	5.8	-	-	-	12	-
pH	-	9.61	9.37	9.14	9.27	-	-	-	6-9	-
Arsenic (mg/kg)	-	10.9	20.4	5.7	15	-	-	-	0.39	7.7
Barium (mg/kg)	-	127	149	158	132	-	-	-	15000	-
Cadmium (mg/kg)	-	<1.2	<1.2	<1.2	<1.1	-	-	-	70	-
Chromium (III) (mg/Kg)	-	45.9	56.6	50.6	46.1	-	-	-	120000	-
Chromium (VI) (mg/Kg)	-	<1.0	<1.0	<1.0	<1.0	-	-	-	23	-
Copper (mg/kg)	-	8.2	9.2	14.1	8.4	-	-	-	3100	-
Lead (inorganic) (mg/kg)	-	7.3	7.0	8.6	<5.6	-	-	-	400	-
Mercury (mg/kg)	-	<0.093	<0.097	<0.090	<0.091	-	-	-	23	-
Nickel (mg/kg)	-	16.4	18.3	19.5	17.9	-	-	-	1600	-
Selenium (mg/kg)	-	<5.8	<5.8	<5.8	<5.6	-	-	-	390	-
Silver (mg/kg)	-	<6.9	<3.5	<3.5	<3.4	-	-	-	390	-
Zinc (mg/kg)	-	49	48.2	47.9	36.2	-	-	-	23000	-
% Solids	86.5	85.1	85.1	85.6	88.3	86.6	85.7	85.5	-	-

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 within area background levels.
- 3) "-" indicates no analysis.
- 4) See Figure(s) for sample locations.

Table 5B
Location: PCU T18X-12G
West Sidewall Assement Summary

Last update 10/23/2015

Analytical Parameter (with units)	West Sidewall						COGCC	Maximum based on Background
	West SW	#1 (-2')	#2 (-2')	#1 (-4')	#1 (-6')	#1 (-8')	Table 910-1 Concentration Levels	
Accutest Job #	D17129 (9/2/10)	D74405 (8/25/15)		D74997 (9/915)	D75661 (9/28/15)	D75868 (10/2/15)		-
Sample type (Composite/Discrete)	C	D	D	D	D	D	-	-
TPH (GRO) (mg/Kg)	26.3	563	19.3	61.8	2340	30.1	-	-
TPH (DRO) (mg/Kg)	890	4,170	439	779	4,990	157	-	-
TPH (GRO + DRO) (mg/Kg)	916	4,733	458	841	7,330	187	500	-
Benzene (mg/Kg)	-	ND	ND	-	-	-	0.170	-
Toluene (mg/Kg)	-	0.286	ND	-	-	-	85	-
Ethylbenzene (mg/Kg)	-	1.02	ND	-	-	-	100	-
Xylenes (total) (mg/Kg)	-	32.5	ND	-	-	-	175	-
Acenaphthene (mg/Kg)	-	ND	ND	-	-	-	1000	-
Anthracene (mg/Kg)	-	ND	ND	-	-	-	1000	-
Benzo(A)anthracene (mg/Kg)	-	ND	ND	-	-	-	0.22	-
Benzo(B)fluoranthene (mg/Kg)	-	ND	ND	-	-	-	0.22	-
Benzo(K)fluoranthene (mg/Kg)	-	ND	ND	-	-	-	2.2	-
Benzo(A)pyrene (mg/Kg)	-	ND	ND	-	-	-	0.022	-
Chrysene (mg/Kg)	-	ND	ND	-	-	-	22	-
Dibenzo(A,H)anthracene (mg/Kg)	-	ND	ND	-	-	-	0.022	-
Fluoranthene (mg/Kg)	-	0.0201	0.0042	-	-	-	1000	-
Fluorene (mg/Kg)	-	ND	ND	-	-	-	1000	-
Indo(1,2,3,C,D)pyrene (mg/Kg)	-	ND	ND	-	-	-	0.22	-
Napthalene (mg/Kg)	-	5.56	0.0481	-	-	-	23	-
Pyrene (mg/Kg)	-	0.0751	0.0130	-	-	-	1000	-
Electrical Conductivity (mmhos/cm)	-	0.620	0.201	-	-	-	4	-
Sodium Adsorption Ratio (SAR)	-	6.94	3.72	-	-	-	12	-
pH	-	9.45	9.68	-	-	-	6-9	-
Arsenic (mg/kg)	-	5.1	4.6	-	-	-	0.39	7.7
Barium (mg/kg)	-	160	144	-	-	-	15000	-
Cadmium (mg/kg)	-	<1.1	<1.1	-	-	-	70	-
Chromium (III) (mg/Kg)	-	43.3	39.9	-	-	-	120000	-
Chromium (VI) (mg/Kg)	-	<1.0	<1.0	-	-	-	23	-
Copper (mg/kg)	-	13.2	12.0	-	-	-	3100	-
Lead (inorganic) (mg/kg)	-	10.5	10.8	-	-	-	400	-
Mercury (mg/kg)	-	<0.093	<0.094	-	-	-	23	-
Nickel (mg/kg)	-	15.4	13.5	-	-	-	1600	-
Selenium (mg/kg)	-	6.3	<5.7	-	-	-	390	-
Silver (mg/kg)	-	<3.4	<3.4	-	-	-	390	-
Zinc (mg/kg)	-	50.4	47.5	-	-	-	23000	-
% Solids	87.7	87.0	71.0	88.7	87.9	88.2	-	-

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 within area background levels.
- 3) "-" indicates no analysis.
- 4) See Figure(s) for sample locations.



The underground utilities identified were field located and subsequently mapped (see as-built date) only to the accuracy of the underground locating equipment used. Other underground utilities may exist. The drawings provided should serve only as a reference. Prior to any excavation activity on or near this location, a "One-Call" and an area "Line Sweep" must be properly conducted.

LEGEND	
-----	EDGE OF PAD
⊗ B-0	BACKGROUND TEST LOCATION
⊗ ARSENIC: mg/kg	WITH LAB RESULTS


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FIGURE 1
PICEANCE CREEK: PCU T18X-12G
SITE LOCATION PROJECT AREA MAP

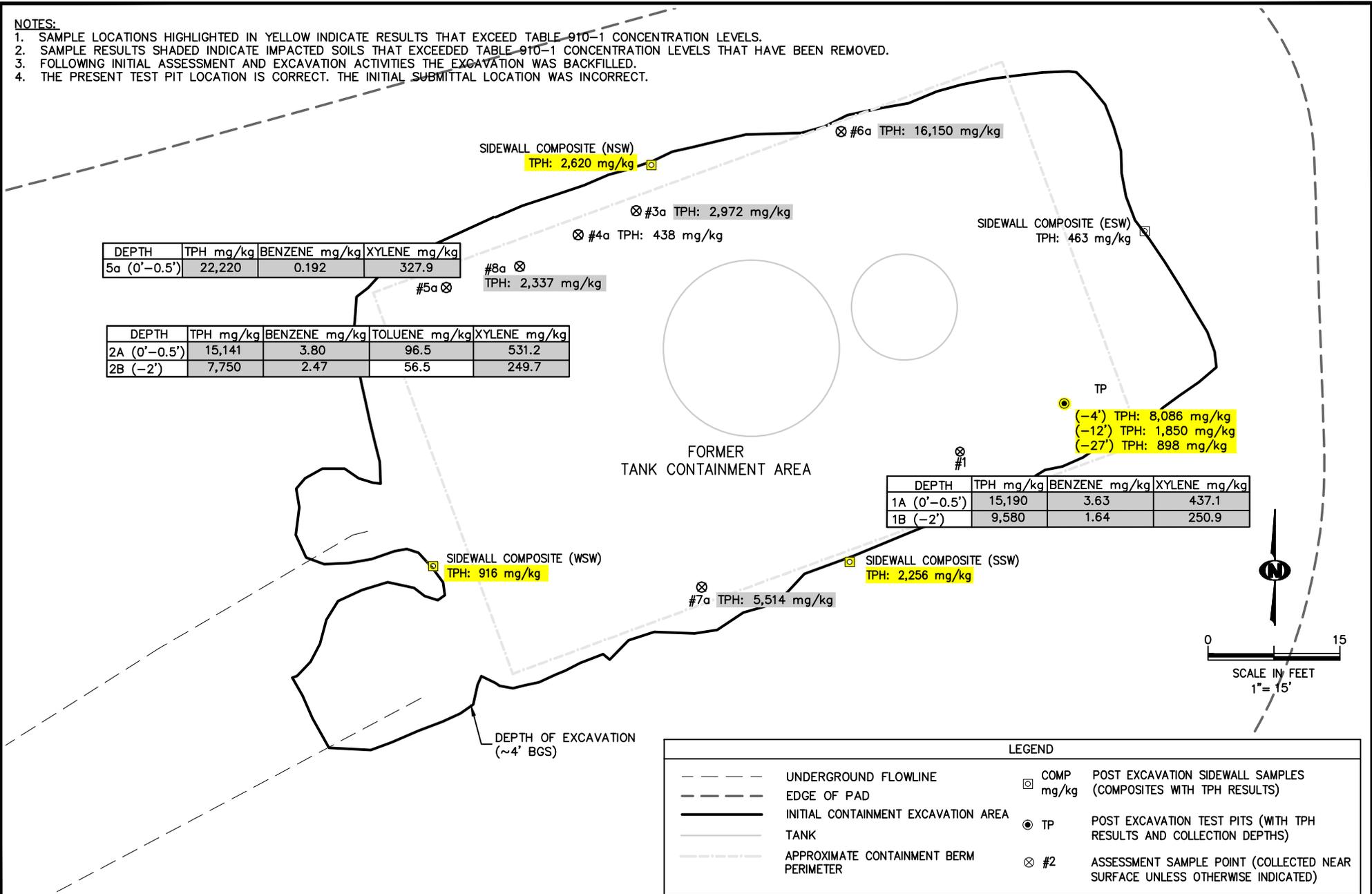
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MEJ	MEJ	TH
Date: 10/12/15		
Scale: Horiz: 1"=200'		
Vert: 1"=200'		
Project No: 5D24388		
Sheet No: 1 of 7		

- NOTES:**
1. SAMPLE LOCATIONS HIGHLIGHTED IN YELLOW INDICATE RESULTS THAT EXCEED TABLE 910-1 CONCENTRATION LEVELS.
 2. SAMPLE RESULTS SHADED INDICATE IMPACTED SOILS THAT EXCEEDED TABLE 910-1 CONCENTRATION LEVELS THAT HAVE BEEN REMOVED.
 3. FOLLOWING INITIAL ASSESSMENT AND EXCAVATION ACTIVITIES THE EXCAVATION WAS BACKFILLED.
 4. THE PRESENT TEST PIT LOCATION IS CORRECT. THE INITIAL SUBMITTAL LOCATION WAS INCORRECT.

DEPTH	TPH mg/kg	BENZENE mg/kg	XYLENE mg/kg
5a (0'-0.5')	22,220	0.192	327.9

DEPTH	TPH mg/kg	BENZENE mg/kg	TOLUENE mg/kg	XYLENE mg/kg
2A (0'-0.5')	15,141	3.80	96.5	531.2
2B (-2')	7,750	2.47	56.5	249.7

DEPTH	TPH mg/kg	BENZENE mg/kg	XYLENE mg/kg
1A (0'-0.5')	15,190	3.63	437.1
1B (-2')	9,580	1.64	250.9



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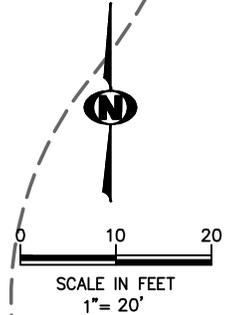
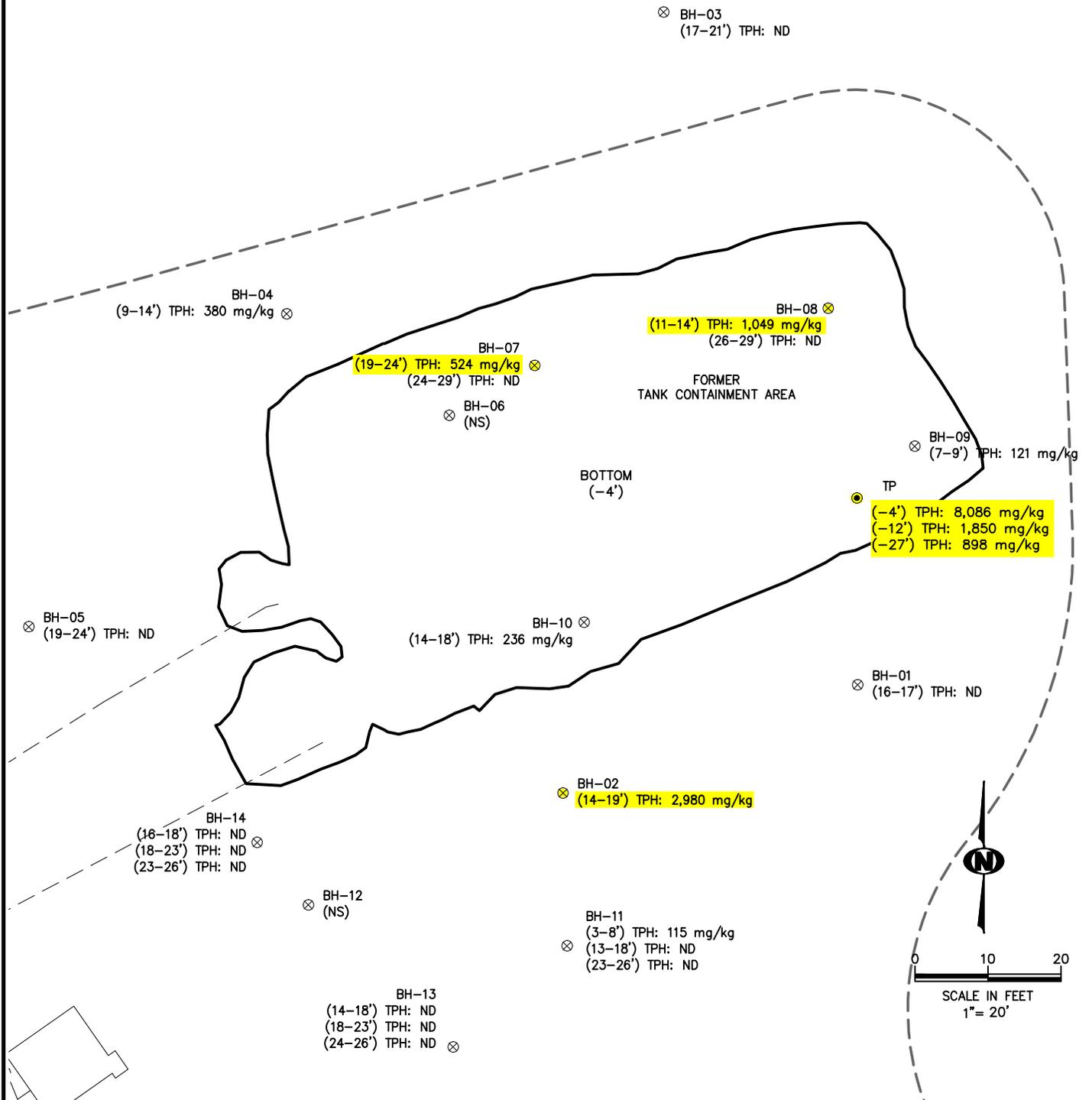
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FIGURE 2
PICEANCE CREEK: PCU T18X-12G
FORMER CONTAINMENT AREA 2010 LAB RESULTS

NOTES:

1. SAMPLE LOCATIONS HIGHLIGHTED IN YELLOW HAVE TPH RESULTS > 500 mg/kg.
2. SAMPLES SHADED INDICATE IMPACTED SOILS WITH TPH > 500 mg/kg THAT HAVE BEEN REMOVED.
3. NS = NOT SAMPLED.
4. ND = NOT DETECTED TO LABORATORY DETECTION LIMITS.
5. FOLLOWING INITIAL ASSESSMENT AND EXCAVATION ACTIVITIES THE EXCAVATION WAS BACKFILLED.
6. THE PRESENT TEST PIT LOCATION IS CORRECT. THE INITIAL SUBMITTAL LOCATION WAS INCORRECT.



LEGEND	
---	UNDERGROUND FLOWLINE
---	EDGE OF PAD
---	INITIAL CONTAINMENT EXCAVATION AREA
BH-09	BORE HOLE DESIGNATION (6/2/11)
⊗ 121.3 mg/kg (7-9')	TPH RESULTS
⊗	DEPTH BELOW EXISTING GROUND
● TP	POST EXCAVATION TEST PITS (WITH TPH RESULTS AND COLLECTION DEPTHS)

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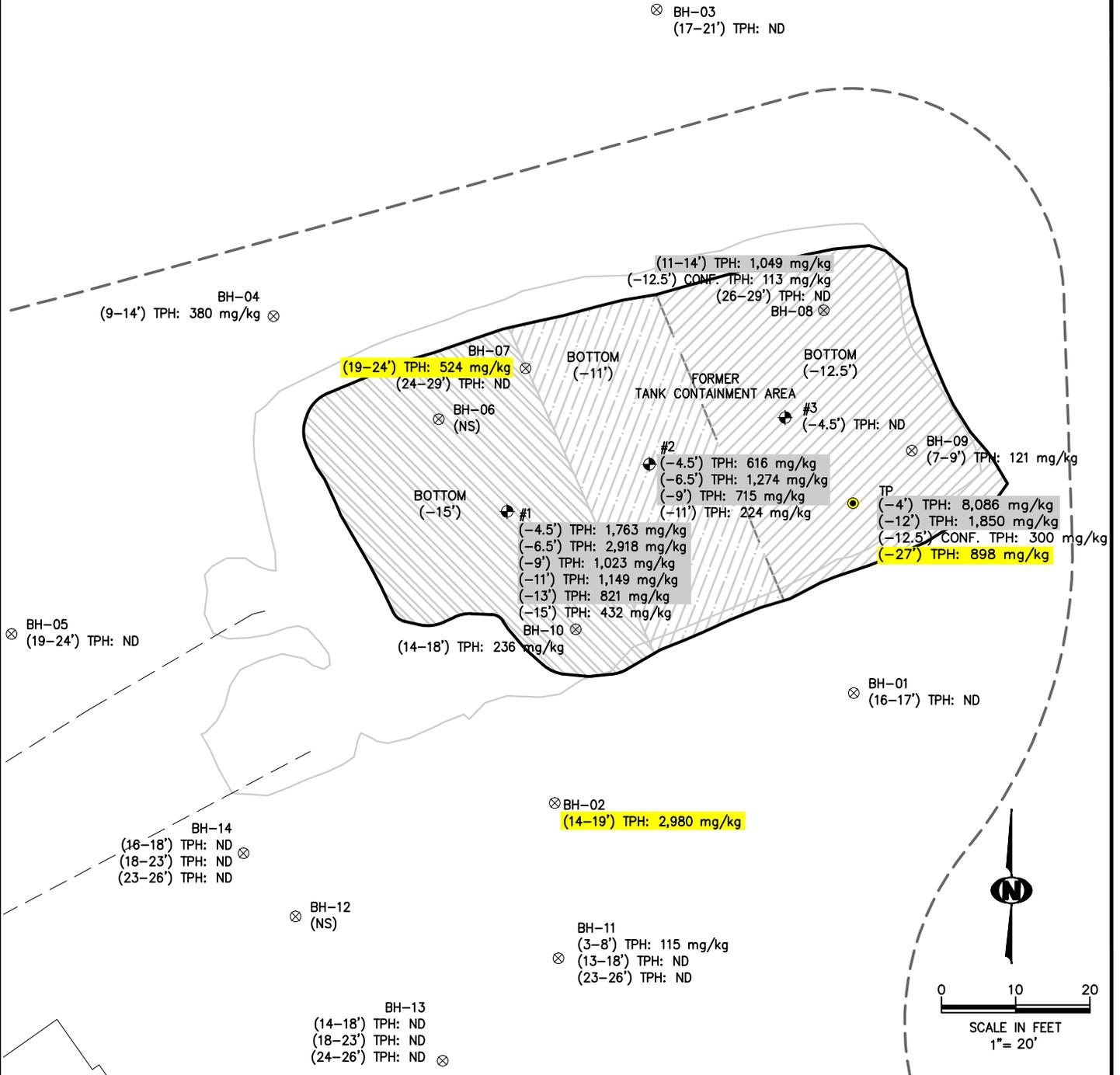
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FIGURE 3
PICEANCE CREEK: PCU T18X-12G
FORMER CONTAINMENT AREA DRILL
AND TEST PIT ASSESSMENT

Designed	Drawn	Checked
MEJ	MEJ	TH
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Vert: 1" = 20'		
Project No: 5D24388		
Sheet No: 3 of 7		

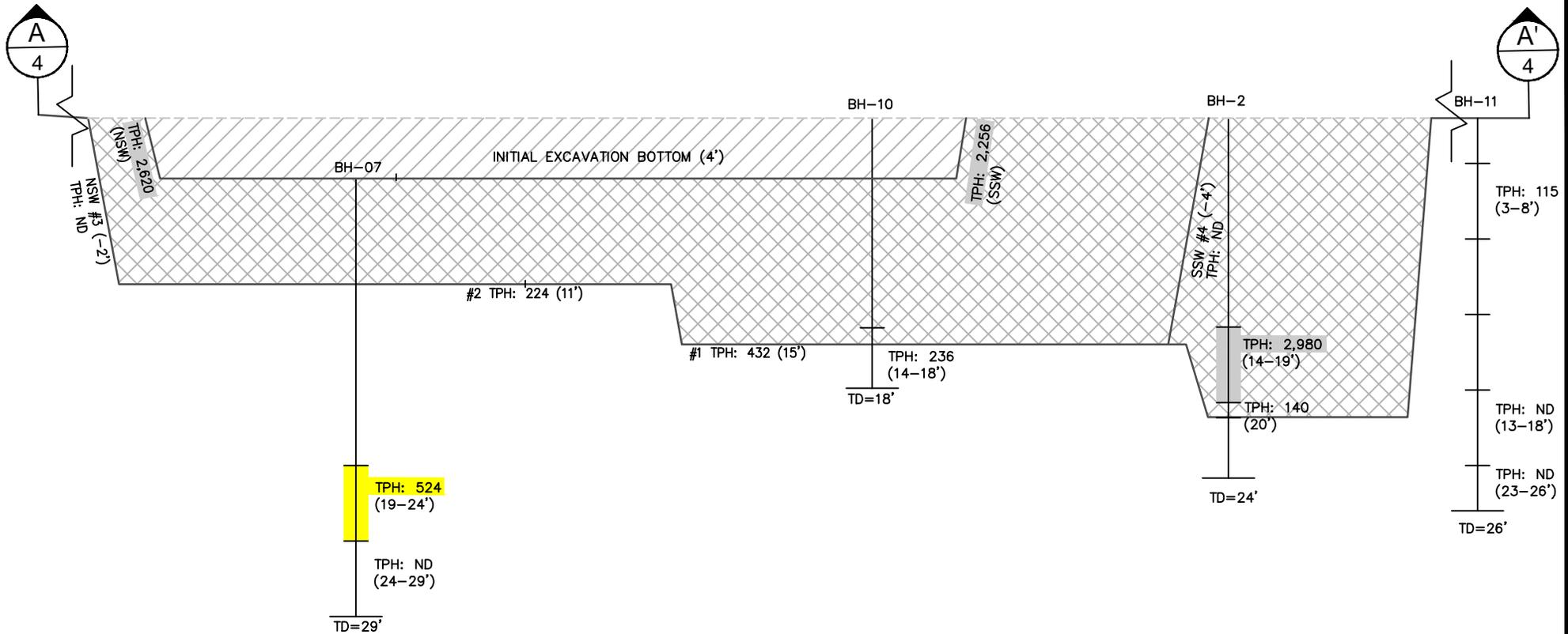
NOTES:

1. SAMPLE LOCATIONS HIGHLIGHTED IN YELLOW HAVE TPH RESULTS > 500 mg/kg
2. SAMPLES SHADED INDICATE IMPACTED SOILS WITH TPH > 500 mg/kg THAT HAVE BEEN REMOVED.
3. NS = NOT SAMPLED
4. ND = NOT DETECTED TO LABORATORY DETECTION LIMITS
5. THE PRESENT TEST PIT LOCATION IS CORRECT. THE INITIAL SUBMITTAL LOCATION WAS INCORRECT.



LEGEND	
---	UNDERGROUND FLOWLINE
---	EDGE OF PAD
---	ADDITIONAL ASSESSMENT AND EXCAVATION AREA
[Hatched Box]	-15' EXCAVATION BOTTOM
[Hatched Box]	-11' EXCAVATION BOTTOM
[Hatched Box]	-12.5' EXCAVATION BOTTOM
⊗	BH-09 121.3 mg/kg (7-9')
⊙	TP
⊕	#2
---	INITIAL CONTAINMENT EXCAVATION AREA
⊕	BORE HOLE DESIGNATION (6/2/11)
⊕	TPH RESULTS
⊕	DEPTH BELOW PRE-EXISTING GROUND DURING INITIAL ASSESSMENT
⊕	POST EXCAVATION TEST PITS (WITH TPH RESULTS AND COLLECTION DEPTHS)
⊕	POST EXCAVATION BOTTOM ASSESSMENT (WITH TPH RESULTS AND COLLECTION DEPTHS)

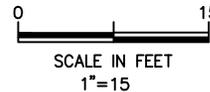
<p>Souder, Miller & Associates 8000 West Fourteenth Avenue Lakewood, CO 80214 Phone (303) 239-9011 Toll-Free (877) 299-0942 Fax (303) 239-0745</p>	<p>PREPARED FOR: XTO ENVIRONMENTAL</p> <p style="text-align: center;">FIGURE 3A PICEANCE CREEK: PCU T18X-12G ADDITIONAL ASSESSMENT AND EXCAVATION AREA</p>	<table border="1"> <tr> <td>Designed MEJ</td> <td>Drawn MEJ</td> <td>Checked TH</td> </tr> <tr> <td colspan="3">Date: 10/12/15</td> </tr> <tr> <td colspan="3">Scale: Horiz: 1" = 20' Vert: 1" = 20'</td> </tr> <tr> <td colspan="3">Project No: 5D24388</td> </tr> <tr> <td colspan="3">Sheet No: 4 of 7</td> </tr> </table>	Designed MEJ	Drawn MEJ	Checked TH	Date: 10/12/15			Scale: Horiz: 1" = 20' Vert: 1" = 20'			Project No: 5D24388			Sheet No: 4 of 7		
	Designed MEJ	Drawn MEJ	Checked TH														
	Date: 10/12/15																
	Scale: Horiz: 1" = 20' Vert: 1" = 20'																
	Project No: 5D24388																
Sheet No: 4 of 7																	



CROSS SECTION A-A'

NOTES:

1. BORE HOLE LOCATIONS ARE PROJECTED ONTO CROSS SECTION.
2. TPH RESULTS (mg/kg) FROM SELECT INTERVALS.
3. ND INDICATES NOT DETECTED WITHIN LABORATORY DETECTION LIMITS.
4. SOILS HIGHLIGHTED IN YELLOW INDICATE SOILS WITH TPH > 500 mg/kg.
5. SOILS SHADED INDICATE SOILS WITH TPH > 500 mg/kg THAT HAVE BEEN REMOVED.
6. #1 AND #2 ARE BOTTOM ASSESSMENT SAMPLE RESULTS.



LEGEND	
	BORE ASSESSMENT
	EXCAVATION
	SURROUNDING GRADE
	INITIAL EXCAVATED MATERIAL
	EXCAVATED MATERIAL

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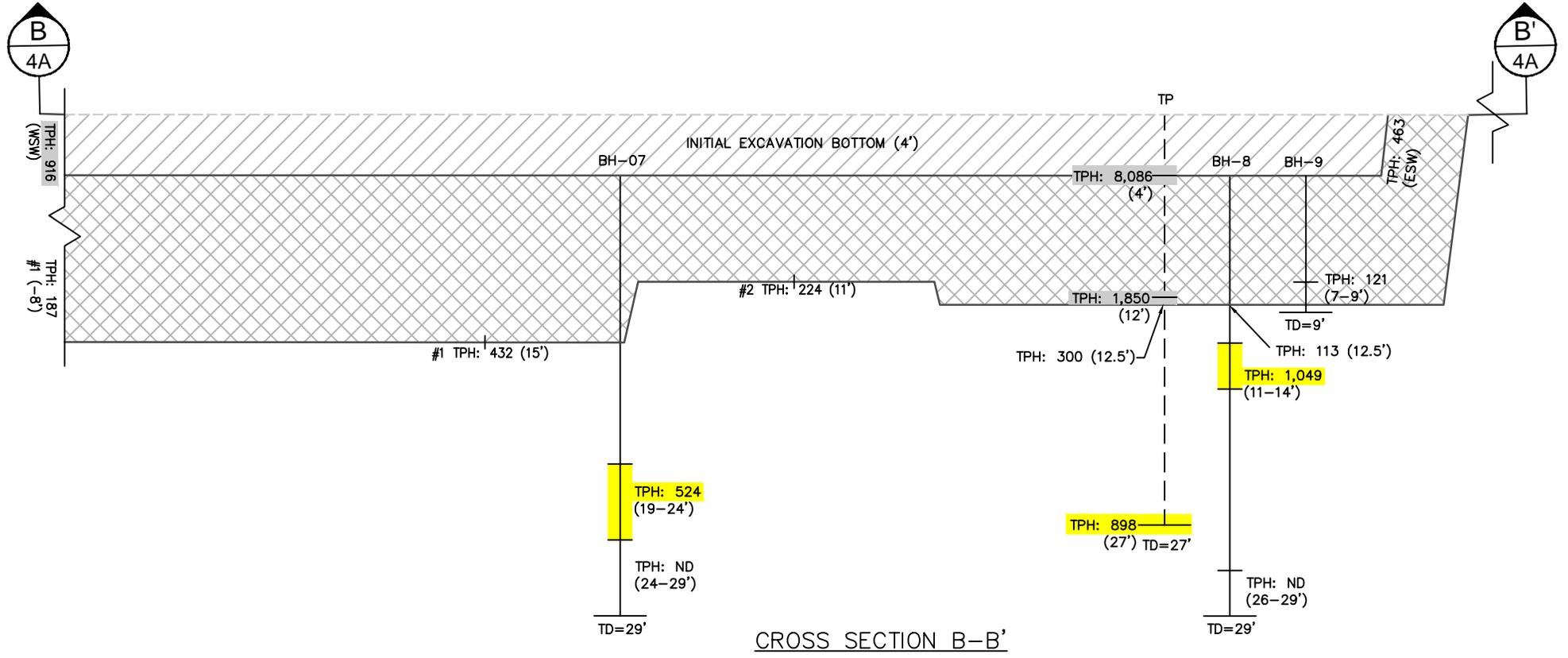
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MEJ
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MEJ
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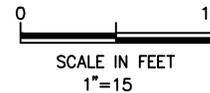
FIGURE 4
 PICEANCE CREEK: PCU T18X-12G
 CROSS SECTION A-A'



NOTES:

1. BORE HOLE AND TEST PIT LOCATIONS ARE PROJECTED ONTO CROSS SECTION.
2. TPH RESULTS (mg/kg) FROM SELECT INTERVALS.
3. ND INDICATES NOT DETECTED WITHIN LABORATORY DETECTION LIMITS.
4. SOILS HIGHLIGHTED IN YELLOW INDICATE SOILS WITH TPH > 500 mg/kg.
5. SOILS SHADED INDICATE SOILS WITH TPH > 500 mg/kg THAT HAVE BEEN REMOVED
6. TEST PIT SAMPLES WERE COLLECTED AS DISCRETES.
7. #1 AND #2 ARE BOTTOM ASSESSMENT SAMPLE RESULTS.

LEGEND	
	BORE ASSESSMENT
	EXCAVATION
	SURROUNDING GRADE
	INITIAL EXCAVATED MATERIAL
	EXCAVATED MATERIAL



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FIGURE 4A
PICEANCE CREEK: PCU T18X-12G
CROSS SECTION B-B'