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MEMORANDUM

TO: Mohsen Kourehdar – Department of Ecology

FROM: Matt Dalton

DATE: Final: May 5, 2014

SUBJECT: Results of Push-Probe Sampling and
Remedial Excavation Area
Former Arkema Wypenn Property

REF. NO: POT-001-01

CC: Scott Hooton – Port of Tacoma

This memorandum presents the results of supplemental push-probe soil sampling completed at the former Arkema Wypenn property located at 2920 Taylor Way (Figure 1). The purpose of the sampling was to define the excavation area with a high degree of confidence to expedite remedial construction and eliminate the need for time-consuming confirmational soil sampling and analysis. The interim action is described in the *Interim Action Work Plan* (DOF 2012) and in a technical memorandum prepared by Dalton, Olmsted & Fuglevand Inc. (DOF) titled *Results of Supplemental Testing, Interim Action Work Plan (IAWP),* Arkema Property (DOF 2013a). The objective of the interim action is to remove arsenic from shallow soil (less than 15 feet deep) so that remnant arsenic concentrations do not exceed industrial soil contact cleanup levels. Compliance with the soil Method C industrial cleanup level for arsenic was assessed using the procedures outlined in WAC 173-340-740(7)(d). To meet the cleanup objective determined based on WAC 173-340-740(7)(d), soils with arsenic concentrations greater than 176 mg/kg will be excavated and disposed off-site in a Subtitle D landfill.

The project sampling approach was outlined in a technical memorandum submitted to Ecology in early December 2013 (DOF 2013b). Comments were received during a phone call on January 7, 2014 and revisions to the approach were outlined in an e-mail to Ecology (Dom Reale) on January 8. Approval of the sampling approach was confirmed in an e-mail from Ecology to DOF on January 9, 2014. A draft of this memorandum reporting the results of testing was submitted to Ecology on April 28, 2014. Based on Ecology comments received on May 5, 2014 by e-mail, the memorandum was revised and finalized. The memorandum and approach to completing the interim action was approved by Ecology in an e-mail to Matt Dalton (DOF) on May 5, 2014.

FIELD SAMPLING AND ANALYSIS

Twenty-two supplementary push-probes were drilled to complement the twelve borings previously drilled for a total to thirty-four borings. Drilling depths ranged from 5 to 15 feet below ground surface. The work included the laboratory analysis of seventy-nine (79) soil samples and the supplemental field screening of two hundred and eight (208) soil samples by X-ray fluorescence (XRF). The density of the sampling locations and the numbers of samples collected provide a high degree of confidence that the 2,000 yards of soil identified for removal under this effort will achieve the goals of the interim action, and that additional sampling is not necessary or warranted.

Field Preparation. Preparatory activities included the following:

- Obtaining drilling permits in accordance with Washington State Chapter 18.104 RCW;
- Scheduling and coordinating field activities with subcontractors and other parties;
- Surveying underground utilities at the proposed sampling locations and notifying the Utility Notification Center in accordance with RCW 19.122; and
- Updating the previously prepared health and safety plan.

A Trimble GeoXH differential correcting GPS (DGPS) was used to locate and document push-probe locations. Previous boring/push-probe locations where arsenic concentrations above 176 mg/kg were previously detected were also field located. The new push-probe locations were located in general relation to the previous boring/existing well locations in accordance with the work plan.

Soil Sampling and Field Screening. Soil sampling was accomplished with a tracked push-probe rig (Geoprobe 7720DT) operated by Cascade Drilling LP using a barrel-type Macro sampler equipped with acrylic liners. Borings were sampled continuously and representative soil samples were collected based upon field screening and stratigraphy. Sample intervals were chosen to avoid sampling across any major stratigraphic units.

Soil samples were described in the field by David Cooper a licensed geologist with DOF, using ASTM D2488 as a general guide. Samples were field screened for visual indications of contamination and the presence of arsenic using XRF.

Prior to sample collection from the core barrel, field screening for arsenic was conducted using an INNOVIX Model 4000 hand-held XRF analyzer spectrometer. Direct measurements of the exposed core sample were made at both regular sample intervals and intervals with anomalous colors or staining. The sampling window of the unit was placed directly on the exposed core sample while shielded with a thin piece of cellophane from moisture. XRF instrument screening QA/QC procedures such as the use of blank standards and duplicates every 60 measurements were followed, in general conformance with EPA Method 6200 guidelines. The XRF screening results are presented on the geologic logs and in Table 1.

Sample intervals were selected based on soil-type, field screening and visual indicators such as color or staining. Each representative soil sample was collected from the core-barrel as a "*grab sample*" using a stainless steel spoon and placed into a 4-ounce laboratory provided container. The samples represent an approximately 0.5-foot interval bracketing the depth indicated on the geologic logs. All samples were placed in chilled coolers and transported to the laboratory using standard chain-of-custody procedures.

Following sampling, each boring was backfilled with bentonite chip, in accordance with Chapter 173-160 WAC. The horizontal coordinates of the push-probe locations were established using a DGPS with +/- 1 foot accuracy. Based on the sample descriptions and field screening, geologic logs were prepared and are included in Attachment A.

Decontamination Protocol. All down-hole drilling equipment was steamed cleaned prior to use and between each boring to avoid cross contamination. Sampling equipment was decontaminated between each sample interval using soap (Liquinox) and water and double rinsed.

Investigation Derived Waste. Decontamination water and residual soils from sample cores were placed in sealed barrels and appropriately marked for later disposal.

Laboratory Analysis. Samples were delivered to Analytical Resources Inc. (ARI), Tukwila, WA for analysis or archival. Samples selected for analysis were based on field screening and relative location. The remaining soil samples were archived for possible later analysis as noted in Table 1. ARI analyzed forty-one supplementary soil samples for total arsenic using EPA method 3050B (preparation) and 6010C (analysis). The current results supplement the 38 earlier soil analyses. The analytical results are summarized in Table 1. Laboratory data sheets for the samples collected in March 2014 are included in Attachment B.

COMPARISON OF XRF AND LABORATORY ANALYSES

The XRF field measurements were compared to the laboratory results to assess the reliability of the XRF measurements for use in determining the final remedial excavation area. The XRF/laboratory measurements showed a very high correlation of R=0.95.

Regression analysis was used to "*convert*" the XRF field measurements to equivalent laboratory concentrations. The fitted regression trend is shown on Figure 2 with an R^2 of 0.90 (i.e. the fitted line accounts for 90% of the data variability). Also shown on Figure 2 are the Upper and Lower 95% regression trends (i.e. the actual regression trend likely falls within the indicated trends). Using the Upper 95% regression trend (y=1.656x+32) the XRF measurement equivalent to the CUL of 176 mg/kg was calculated to be 87 ppm. Comparison of the data indicated that the XRF measurements are biased low by approximately 50%.

The Upper 95% regression equation was used convert the XRF measurements to equivalent laboratory concentrations. Both the laboratory results and XRF converted concentrations are summarized in Table 1and were used to define the interim action remedial area as discussed below.

SHALLOW SOIL INTERIM ACTION AREA

Arsenic Concentration Plots. To define the interim action remedial area, arsenic soil concentrations were plotted on a site plan with depth. Data from available boring/push-probe locations and designations are shown on Figure 3 while soil arsenic concentrations are plotted on approximately two foot depth intervals on Figures 4 to 9. Converted XRF measurements are highlighted with a "*". Based on the soil arsenic concentration data, the proposed interim action remedial area was determined and highlighted on the figures. Exceedances most commonly occurred within the 8 to 10 foot depth interval (Figure 8).

Figure 9 shows arsenic concentrations in the 10 to 12+ foot depth interval, and provides uniform definition for the depth of arsenic exceeding the interim action goal of 176 mg/kg. This is also illustrated on Sections A-A' (Figure 10) and B-B' (Figure 11). Section trends are shown on Figure 3. Arsenic concentrations fall below 176 mg/kg at the top of the First Aquitard that is composed of silt to clayey silt.

Field Observations and Interpretations. Most of the higher arsenic concentrations were detected in samples that were observed to contain "*black silt*", "*white or orange precipitates*", or "*yellow flecks*". During the remedial excavation, the nature of the soils removed along the perimeter of the remedial area will be observed for evidence of high arsenic concentration (e.g. presence of precipitates and yellow flecks) to provide additional confidence that the goal of the interim action is being achieved.

Interim Remedial Area. The proposed interim action area and excavation depths are illustrated on Figure 12 and along the section trends on Figures 10 and 11. Most of the excavation would be completed to the top of the First Aquitard, a depth of 10 feet. Shallower excavations (3 to 4 feet) would be completed in two small peripheral areas and excavation would occur to a depth of 12 feet in one other small area.

Overall, the available data reliably defines the area where soil excavation with off-site disposal will meet the objective of the interim remedial action; that is to remove soil with arsenic concentrations greater than 176 mg/kg from the Wypenn property. Based on the number of borings/push-probes sampled (N=34), the number of field XRF measurements (N=208), the number of laboratory analyses (N=79) and the modest remedial volume targeted for removal (2,000 cubic yards), it is our opinion, that sufficient sampling and analysis has been conducted and no additional confirmation sampling is needed to meet the remedial objective.

CLOSING

The services described in this memorandum were performed consistent with generally accepted professional consulting principles and practices. No other warranty, expressed or implied, is made. These services were performed consistent with our agreement with our client. This report is solely for the use and information of our client unless otherwise noted. Any reliance on this report by a third party is at such party's sole risk. Opinions and recommendations contained in this report apply to conditions existing when services were performed and are intended only for the client, purposes, locations, time frames, and project parameters indicated. We are not responsible for the impacts of any changes in environmental standards, practices or regulations subsequent to performance of services. We do not warrant the accuracy of information supplied by others, or the use of segregated portions of this document.

REFERENCES

DOF (Dalton, Olmsted & Fuglevand, Inc.), 2012, *Interim Action Work Plan, Wypenn Property*, Former Arkema Manufacturing Plant, Tacoma, Washington, May 2012.

DOF, 2013a, *Results of Supplemental Testing, Interim Action Work Plan (IAWP)*, Arkema Wypenn Property, May 8, 2013.

DOF, 2013b, *Interim Remedial Action, Wypenn Site* (Technical Memorandum to Dom Reale), Draft: December 2, 2013.

ATTACHMENTS

Table 1 – Soil Analytical Data
Figure 1 – Site Vicinity Map
Figure 2 – Comparison of XRF and Laboratory Arsenic Concentrations
Figure 3 – Sample Locations – Greenhouse Area
Figure 4 – Arsenic in Soil – 0 to 2 feet, Greenhouse Area
Figure 5 – Arsenic in Soil – 2 to 4 feet, Greenhouse Area
Figure 6 – Arsenic in Soil – 4 to 6 feet, Greenhouse Area
Figure 7 – Arsenic in Soil – 6 to 8 feet, Greenhouse Area
Figure 8 – Arsenic in Soil – 8 to 10 feet, Greenhouse Area
Figure 9 – Arsenic in Soil – 10 to 12+ feet, Greenhouse Area
Figure 10 – Arsenic Soil Concentration Profile A-A'
Figure 11 – Arsenic Soil Concentration Profile B-B'
Figure 12 – Excavation Areas and Depths
Attachment A – Push-Probe/Boring Logs
Attachment B – Laboratory Data Sheets (March 2014 Sampling)

TABLE 1 - Soil Analytical Data

Arkema Wypenn Property
Tacoma, Washington

Probe	Date	Depth (feet)	XRF As (ppm)	Lab As (ppm)	Est. Lab (ppm)	Sample No.	Comments
WP-B3	10/8/10	1-2	-----	<5	-----		
		5-6	-----	<5	-----		
		7.5-8	-----	<6	-----		
WP-B4	10/8/10	1-2	-----	<6	-----		
		5-6	-----	<5	-----		
WP-B5	10/7/10	1-2	-----	33	-----		
		4-5	-----	32	-----		
		8-9	-----	100	-----		
		11-12	-----	46	-----		
		14-15	-----	20	-----		
		17-18	-----	<7	-----		
WP-B6	10/7/10	1-2	-----	90	-----		
		4-5	-----	33	-----		
		8-9	-----	645	-----		
		12-13	-----	<10	-----		
WP-B7	10/7/10	0.5-1.5	-----	39	-----		
		4-5	-----	64	-----		
		8-9	-----	<7	-----		
WP-B8	10/7/10	0.5-1.5	-----	44	-----		
		4-5	-----	12	-----		
		8.5-9.5	-----	<6	-----		
		10-11	-----	10	-----		
WP-B15	10/19/12	0.5-1.5	-----	12	-----		
		8-9	-----	32	-----		
		11-12	-----	<8	-----		
WP-B16	10/19/12	1-2	-----	<5	-----		
		8-9	-----	12	-----		
		11-12	-----	<7	-----		
WP-B17	10/19/12	1-2	-----	122	-----		
		7-8	-----	667	-----		
		11-12	-----	10	-----		

TABLE 1 - Soil Analytical Data

Arkema Wypenn Property
Tacoma, Washington

Probe	Date	Depth (feet)	XRF As (ppm)	Lab As (ppm)	Est. Lab (ppm)	Sample No.	Comments
WP-B18	10/19/12	1-2	-----	53	-----		
		7-8	-----	<6	-----		
		11-12	-----	<10			
WP-B19	10/19/12	0.5-1.5	-----	195	-----		
		7-8	-----	42	-----		
		11-12	-----	<9	-----		
WP-B20	10/19/12	2-3	-----	31	-----		
		7-8	-----	<6	-----		
		11-12	-----	<10	-----		
S-A	3/19/14	0.5	132	-----	251		
		1	237	-----	424		0-1.5 - Mottled black silt
		1.5	15	-----	57		
		2	<9	archive	<47	SA-2	
		3	<8	-----	<45		
		4	<10	archive	<49	SA-4	
		5	12	-----	52		
		6	61	archive	133	SA-6	
S-B	3/19/14	1	<13	-----	<54		
		2	40	-----	98		
		3	135	-----	256		
		4	34	-----	88		
		5	<9	-----	<47		
		6	418	634	-----	SB-6	6-9.5' - Black silt w/orange precipitate
		8	417	archive	723	SB-8	
		9	354	-----	618		
		10	38	50	-----	SB-10	
S-C	3/19/14	1	58	-----	128		
		2	11	archive	50	SC-2	
		3	<10	archive	<49	SC-4	
		5	16	-----	58		
		6	570	746	-----	SC-6	6-8' - Black silt w/green
		7	786	-----	1334		
		8	31	44	-----	SC-8	
		10	<10	archive	<49	SC-10	
		12	7	archive	44	SC-11	

TABLE 1 - Soil Analytical Data

Arkema Wypenn Property
Tacoma, Washington

Probe	Date	Depth (feet)	XRF As (ppm)	Lab As (ppm)	Est. Lab (ppm)	Sample No.	Comments
S-D	3/19/14	1	<18	-----	<62		
		2	16	22	-----	SD-2	
		5	16	-----	58		
		6	15	31	-----	SD-6	
		8	40	76	-----	SD-8	No black silt but poor recovery
		10	<5	17	-----	SD-10	
		12	<7	-----	<44		
S-E	3/19/14	0.5	201	-----	365		
		1	41	-----	100		
		2	230	-----	413		
		3	14	-----	55		
		6	<10	-----	<49		
		8	<9	-----	<47		
		9	490	824	-----	SE-9	9-9.5 - black silt atop peat
		10	9	60	-----	SE-10	
		11	<8	archive	<45	SE-11	
		12	8	-----	45		
L1	3/19/14	1	14	-----	55		
		2	<9	20	-----	L1-2	
		3	<11	-----	<50		
		4	17	17	-----	L1-4	
		6	<9	archive	<47	L1-6	
		8	<8	12	-----	L1-8	
		10	<6	-----	<42		9.5-10' -Peat/silt generally
		12	<8	-----	<45		
L-B15	3/19/14	2	35	-----	90		Next to WP-B15 (as check)
		4	100	-----	198		
		6	80	archive	164	LB15-6	
		8	90	69	-----	LB15-8	6-10' - No black silt layer
		10	10	-----	49		

TABLE 1 - Soil Analytical Data

Arkema Wypenn Property
Tacoma, Washington

Probe	Date	Depth (feet)	XRF As (ppm)	Lab As (ppm)	Est. Lab (ppm)	Sample No.	Comments
L2	3/19/14	1	18	-----	62		
		2	<21	archive	<67	L2-2	
		3	<30	21	-----	L2-4	
		6	<23	archive	<70	L2-6	
		8	37	56	-----	L2-8	Loose, slurry-like gravelly sand
		9	36	-----	92		
		10	<17	archive	<60	L2-10	
L3	3/19/14	1	70	-----	148		
		2	54	175	-----	L3-2	
		3	26	-----	75		
		4	<17	-----	60		
		6	<19	archive	63	L3-7	
		8	133	-----	252		
		9	216	495	-----	L3-9	8-9.5 - Black silt - sample 8.5-9.5
		11	<16	20	-----	L3-11	
L4	3/19/14	1	<19	-----	<63		
		2	327	441	-----	L4-2	Stepped out 10', sample L4A-2 (57 PPM) (Lab 134)+F112 - on 3-20-14
		3	<23	25	-----	L4-3	
		6	<15	archive	<57	L4-6	
		8	<15	-----	<57		
		9	<20	8	-----	L4-9	
		10	<16	-----	<58		
		12	<15	-----	<57		
L5	3/20/14	1	73	-----	153		
		1.5	42	-----	102		
		2	182	archive	333	L5-2	
		2.5	35	-----	90		
		3	<24	-----	<72		
		4	<5	-----	<40		
		6	<17	-----	<60		
		8	<14	-----	<55		
		9	128	-----	244		8-11' - Black w/trace yellow silt
		9.5	264	archive	469	L5-9	Sample 8.5-9.5
		11	<11	-----	<50		

TABLE 1 - Soil Analytical Data

Arkema Wypenn Property
Tacoma, Washington

Probe	Date	Depth (feet)	XRF As (ppm)	Lab As (ppm)	Est. Lab (ppm)	Sample No.	Comments
L6	3/20/14	1	282	archive	499	L6-1	
		2	23	-----	70		
		4	<19	-----	<63		
		6	<14	-----	<55		
		8	<19	-----	<63		
		9	171	-----	315		8-9.5' - Mottled black silt w/white precipitate
		9.5	310	archive	545	L6-9.5	Sample 8.5-9.5
		10	<13	-----	<54		
		11	<11	-----	<50		
L7	3/20/14	1	<21	-----	<67		
		2	<20	archive	<65	L7-2	
		4	<16	16	-----	L7-4	
		6	<17	archive	<60	L7-6	
		8	<16	archive	<58	L7-8	
		9	271	410	-----	L7-9	9.4-9.5' thin 0.1' layer of black silt - sample 8.5-9.5'
		9.5	69	-----	146		
		11	<10	19	-----	L7-11	
		12	<16	-----	<58		
L8	3/20/14	1	130	182	-----	L8-1	Black/orange layer 0-1.5' stepped out 8 more feet.
		2	43	-----	103		
		4	30	72	-----	L8-4	
		6	<17	archive	<60	L8-6	
		8	16	archive	58	L8-8	
		9	24	-----	72		
		9.5	163	473	-----	L8-9.5	9-9.5 - Black silt atop peat
		10	75	100	-----	L8-10	
		11	<14	-----	<55		
		12	<11	-----	<50		
L9	3/20/14	2	<22	33	-----	L9-2	
		4	<26	archive	<75	L9-4	
		6	<18	9	-----	L9-6	
		8	<18	-----	<62		
		9	80	238	-----	L9-9	
		10	<17	21	-----	L9-10	
		12	<12	-----	<52		
		14	<17	-----	<60		

TABLE 1 - Soil Analytical Data

Probe	Date	Depth (feet)	XRF As (ppm)	Lab As (ppm)	Est. Lab (ppm)	Sample No.	Comments
L10	3/20/14	2	<26	59	-----	L10-2	
		4	<23	archive	<70	L10-4	
		6	<18	5	-----	L10-6	
		8	<14	-----	<55		
		9	40	57	-----	L10-9	9-9.5' - Black silt atop peat
		10	<16	archive	<58	L10-10	
		12	<14	-----	<55		
L11	3/21/14	1	<20	-----	<65		
		2	<24	archive	<72	L11-2	
		4	<27	-----	<77		
		6	26	archive	75	L11-4	
		8	18	archive	62	L11-6	
		9	17	archive	60	L11-8	
		9.5	147	archive	275	L11-9	
		10	<14	archive	<55	L11-10	
		12	<15	-----	<57		
L12	3/21/14	1	36	-----	92		
		2	<22	-----	<68		
		3	39	archive	97	L12-3	
		6	<20	archive	<65	L12-6	
		8	<28	-----	<78		
		9	<26	archive	<75	L12-9	
		10	30	-----	82		
		10.5	60	-----	131		
		11	197	archive	358	L12-11	Sample 10'-11.5'
		12	<14	archive	<55	L12-12	
L13	3/21/14	1	37	-----	93		
		2	40	-----	98		
		3	35	47	-----	L13-3	
		6	63	archive	136	L13-6	
		8	44	-----	105		
		9	159	40	-----	L13-9	Sample 8-9'
		9.5	<14	-----	<55		
		10	<12	-----	<52		
		11	<13	archive	<54	L13-11	
		12	<14	archive	<55	L13-12	

TABLE 1 - Soil Analytical Data

Arkema Wypenn Property
Tacoma, Washington

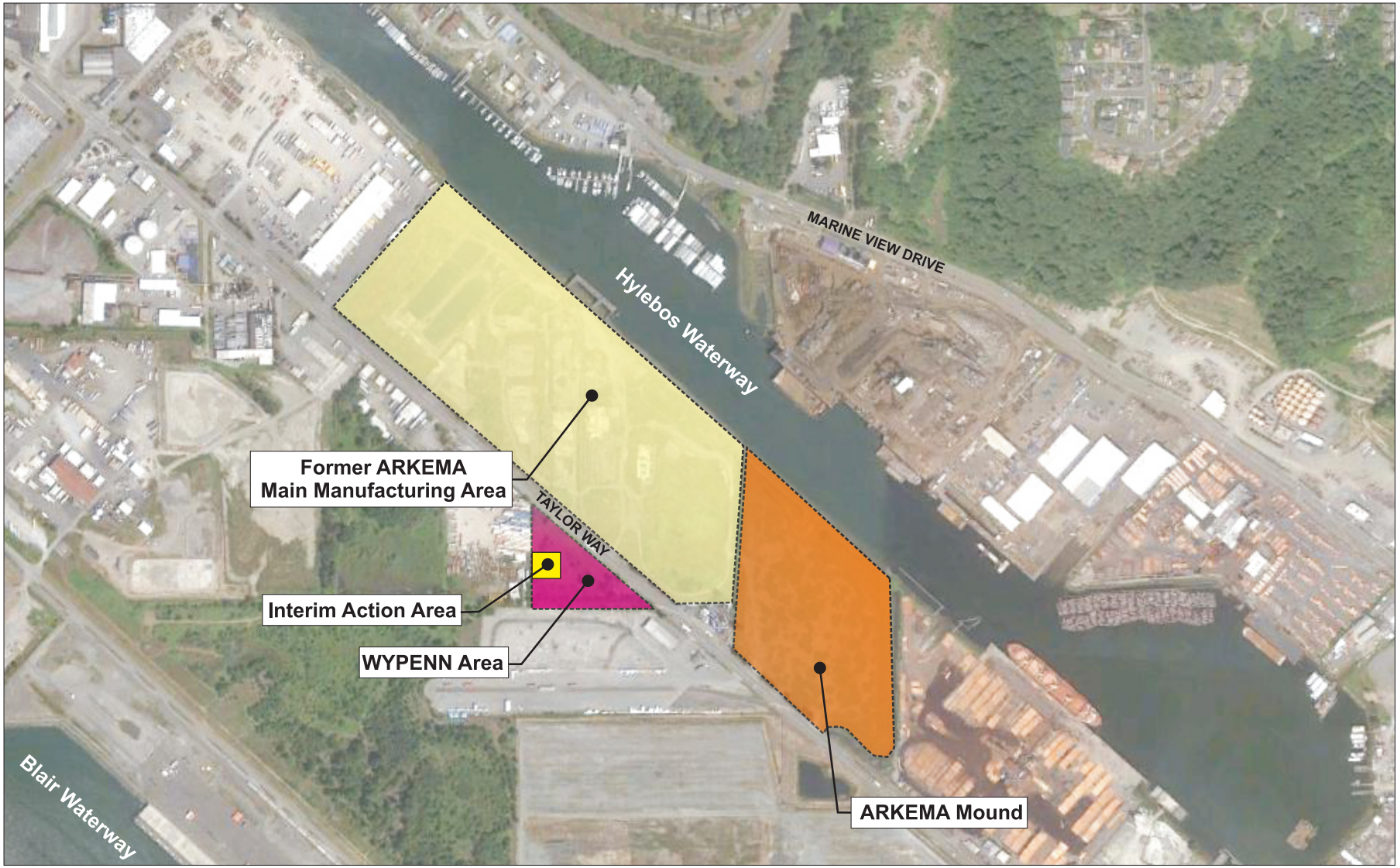
Probe	Date	Depth (feet)	XRF As (ppm)	Lab As (ppm)	Est. Lab (ppm)	Sample No.	Comments
L14	3/21/14	1	<20	-----	<65		
		2	<24	-----	<72		
		3	44	-----	105		
		4	72	-----	151		
		6	<27	-----	<77		
		8	306	-----	539		
		9	763	archive	1296	L14-9	
		10	336	-----	588		
		10.5	<14	archive	<55	L14-10.5	
		11	<12	-----	<52		
		12	<14	-----	<55		
L15	3/21/14	1	355	-----	620		
		2	28	-----	78		
		3	142	archive	267	L15-3	
		4	79	-----	163		
		5	<18	-----	<62		
		6	<15	-----	<57		
		7	<16	-----	<58		
		8	<18	-----	<62		
		8.5	571	-----	978		
		9	194	archive	353	L15-9	
		9.5	353	-----	617		
		10	31	archive	83	L15-10	
		11	<14	-----	<55		
		12	<16	-----	<58		
		14	<18	-----	<62		
D-B	3/20/14	1	33	-----	87		
		2	106	-----	208		
		3	166	-----	307		
		4	113	-----	219		
		6	<18	-----	<62		
		8	128	-----	244		
		9	161	-----	299		8-10' - Black/orange silt
		9.5	621	-----	1060		
		10	<15	21	-----	DB-10.5	Native silt at 10'
		11	<22	-----	<68		

TABLE 1 - Soil Analytical Data

Arkema Wypenn Property
Tacoma, Washington

Probe	Date	Depth (feet)	XRF As (ppm)	Lab As (ppm)	Est. Lab (ppm)	Sample No.	Comments
D-E	3/20/14	1	182	-----	333		
		1.5	382	-----	665		
		3	147	-----	275		
		4	63	-----	136		
		6	<19	-----	<63		
		8	292	-----	516		
		9	471	-----	812		7-10.5 - Black/orange silt
		10	401	-----	696		
		10.5	13	20	-----	DE-10.5	Native silt at 10.5'
		12	<12	-----	<52		

Notes: < - Not detected at indicated reporting limit.
----- - Not available



Map Source: Google Earth

True North

Site North

0 1000

Scale in Feet

Former Arkema Manufacturing Plant
Tacoma, Washington

Site Vicinity Map

POT-001-00 **FIGURE 1** Apr. 2014

Dalton, Olmsted & Fuglevand, Inc.

Ref: Site Vicinity Map F1-2 3-2013a.cdr

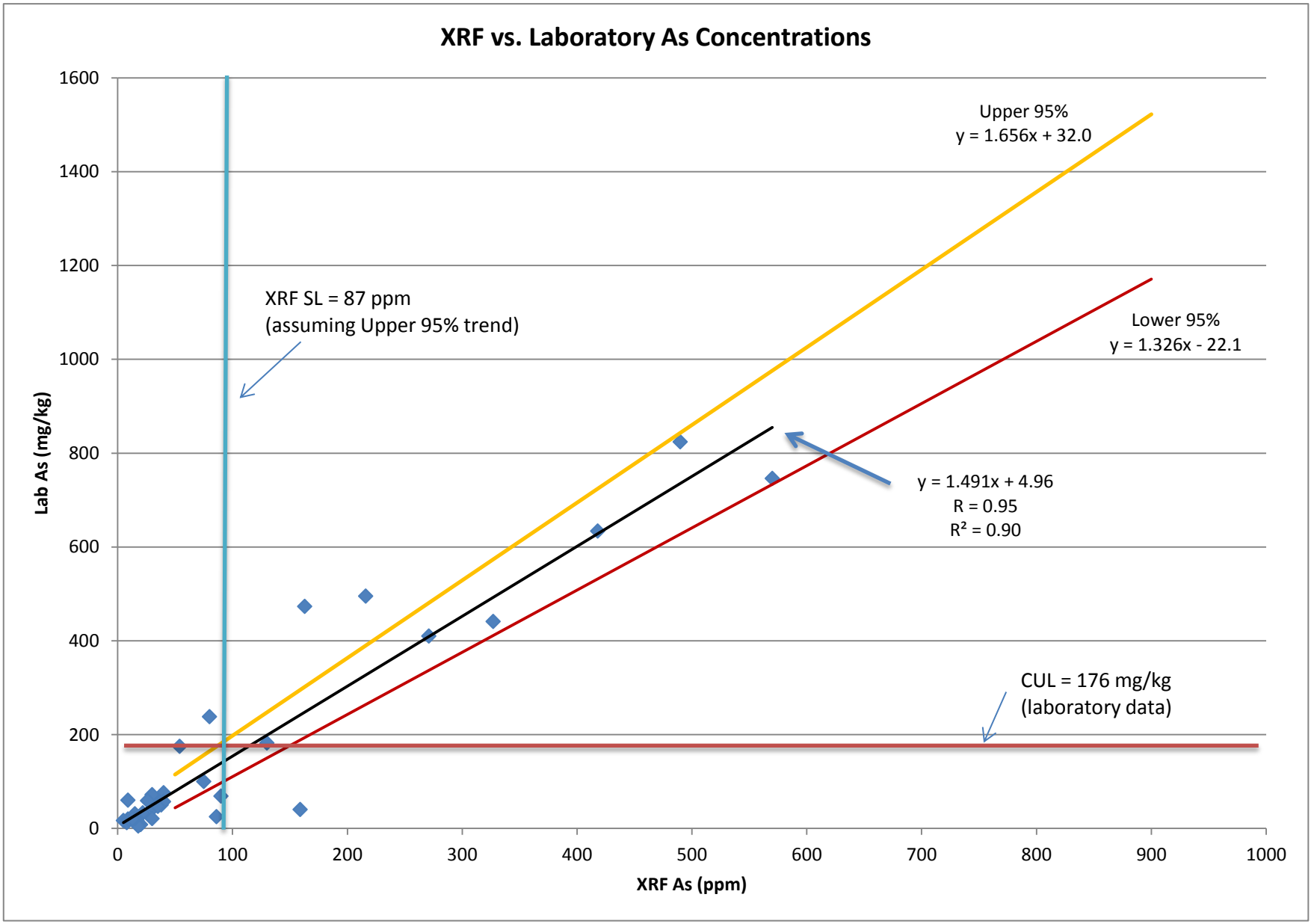
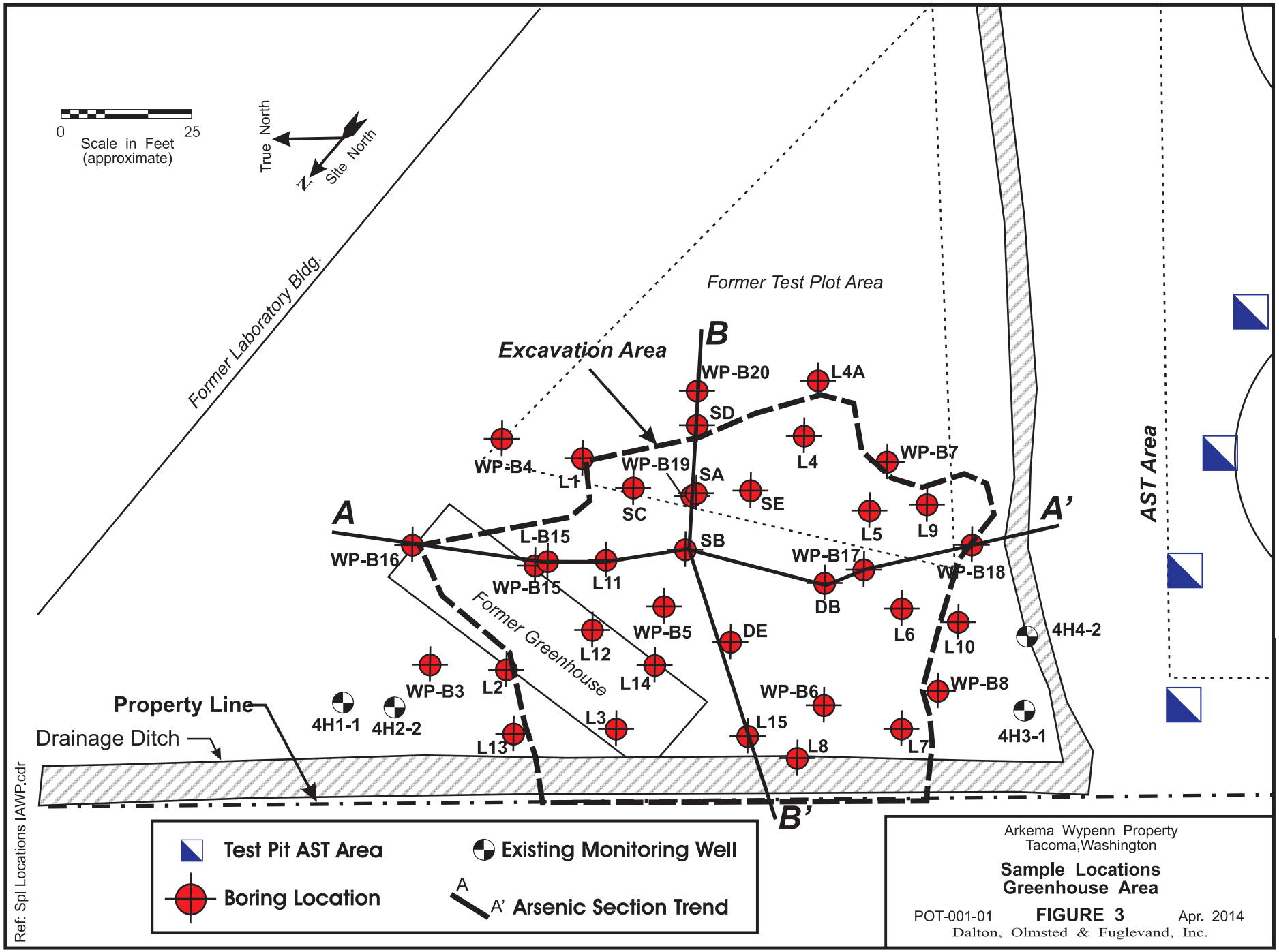
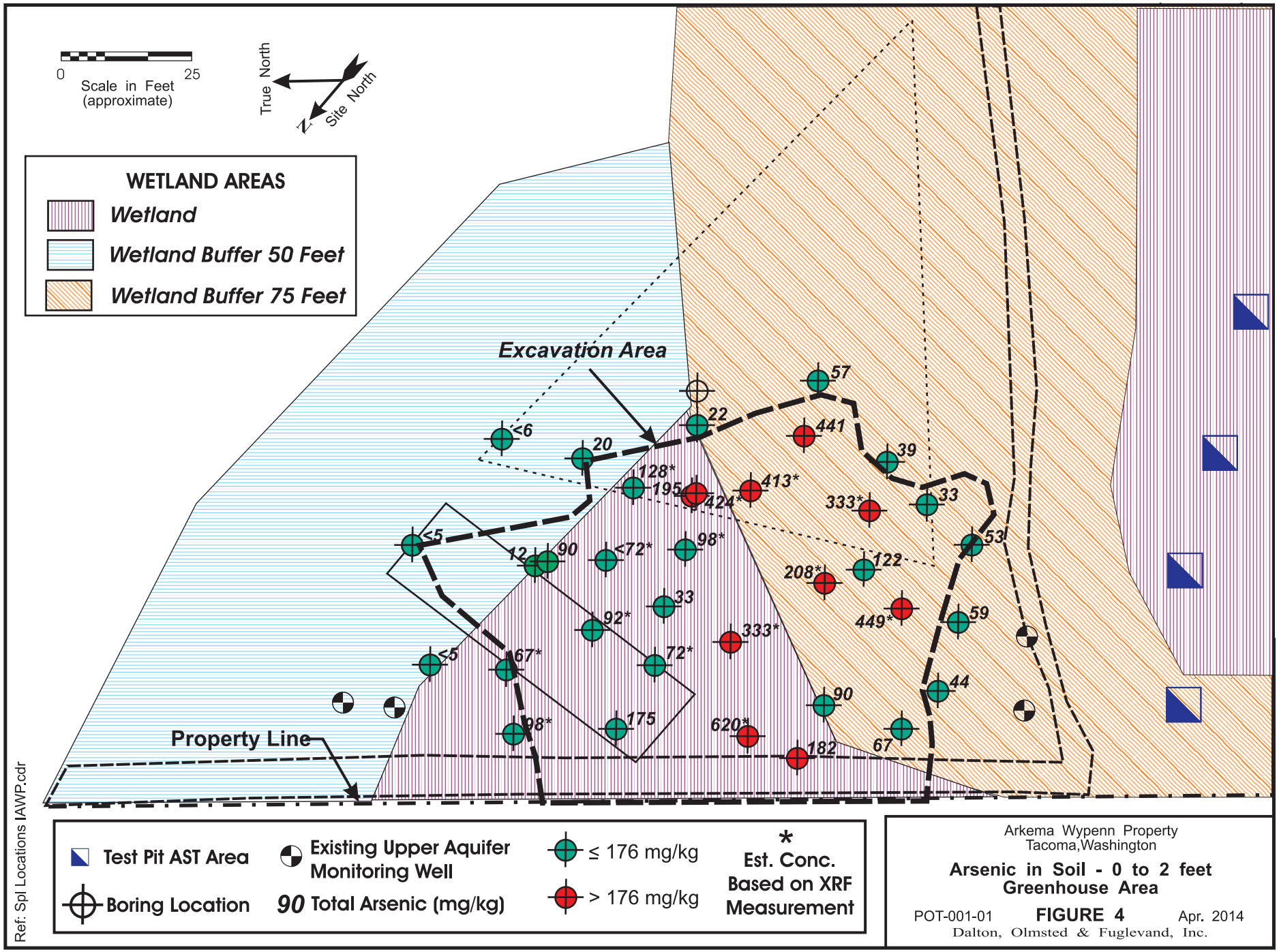
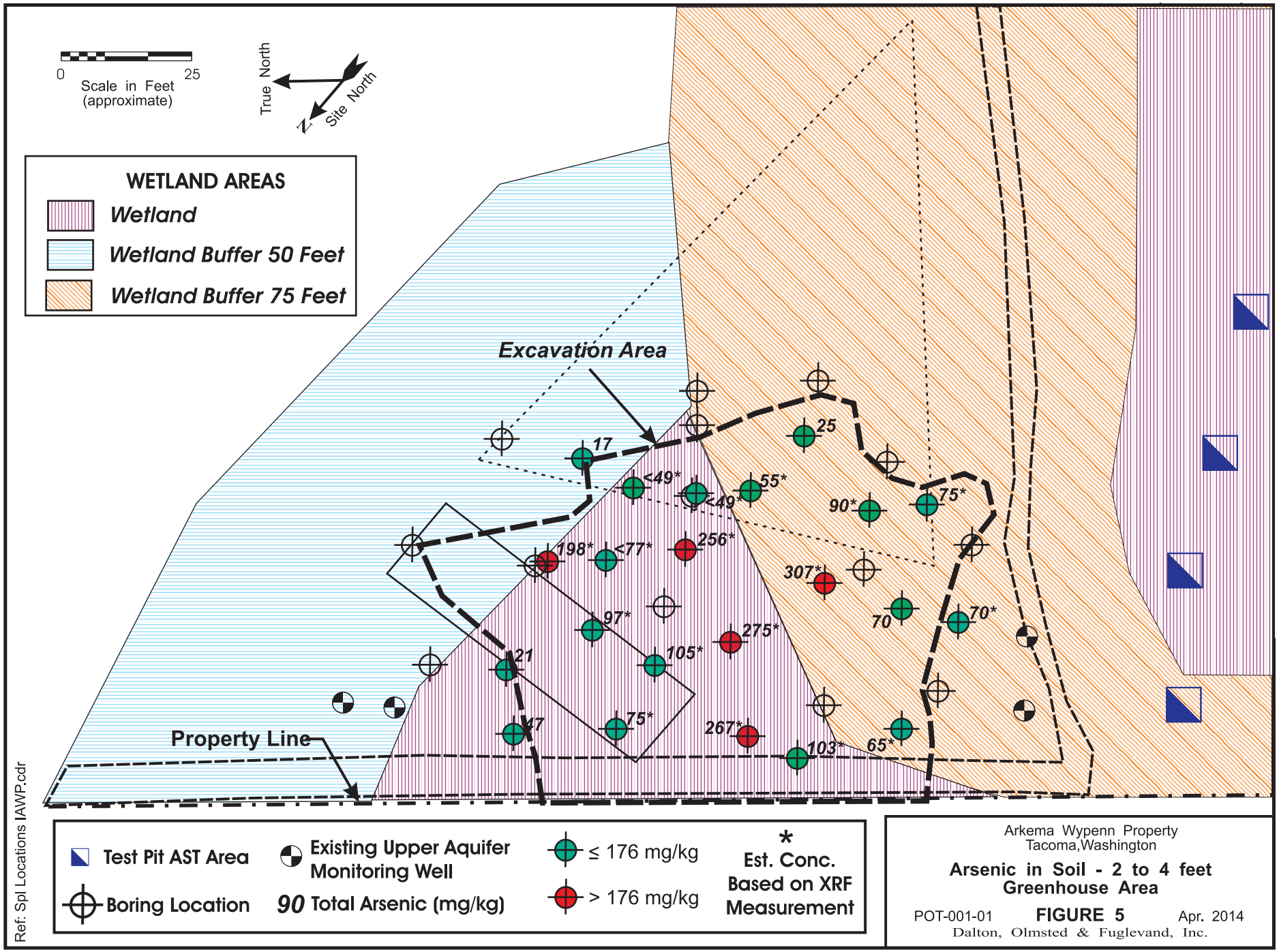


FIGURE 2 - Comparison of XRF and Laboratory Arsenic Concentrations


0
25
Scale in Feet
(approximate)
True North
Site North
Former Laboratory Bldg.
Former Test Plot Area
Excavation Area
B
B'
A
A'
AST Area
WP-B20
L4A
SD
WP-B4
L1
WP-B19
SA
L4
WP-B7
SC
SE
L5
L9
L-B15
SB
WP-B16
WP-B15
L11
WP-B17
WP-B18
DB
Former Greenhouse
WP-B5
DE
L6
L10
4H4-2
L12
L14
WP-B3
L2
WP-B6
WP-B8
Property Line
4H1-1
4H2-2
L3
L15
4H3-1
Drainage Ditch
L13
L8
L7
Test Pit AST Area
Existing Monitoring Well
Boring Location
A
A' Arsenic Section Trend
Ref: Spl Locations IAWP.cdr
Arkema Wypenn Property
Tacoma,Washington
Sample Locations
Greenhouse Area
POT-001-01
FIGURE 3
Apr. 2014
Dalton, Olmsted & Fuglevand, Inc.


0
25
Scale in Feet
(approximate)
True North
Site North
N
WETLAND AREAS
Wetland
Wetland Buffer 50 Feet
Wetland Buffer 75 Feet
Excavation Area
Property Line
<6
20
22
57
441
39
128*
195
424*
413*
333*
33
<5
12
90
<72*
98*
53
208*
122
33
92*
449*
59
333*
<5
67*
72*
44
90
98*
175
620*
182
67
Ref: Spl Locations IAWP.cdr
Test Pit AST Area
Boring Location
Existing Upper Aquifer Monitoring Well
90 Total Arsenic (mg/kg)
≤ 176 mg/kg
> 176 mg/kg
* Est. Conc. Based on XRF Measurement
Arkema Wypenn Property
Tacoma,Washington
Arsenic in Soil - 0 to 2 feet
Greenhouse Area
POT-001-01
FIGURE 4
Apr. 2014
Dalton, Olmsted & Fuglevand, Inc.

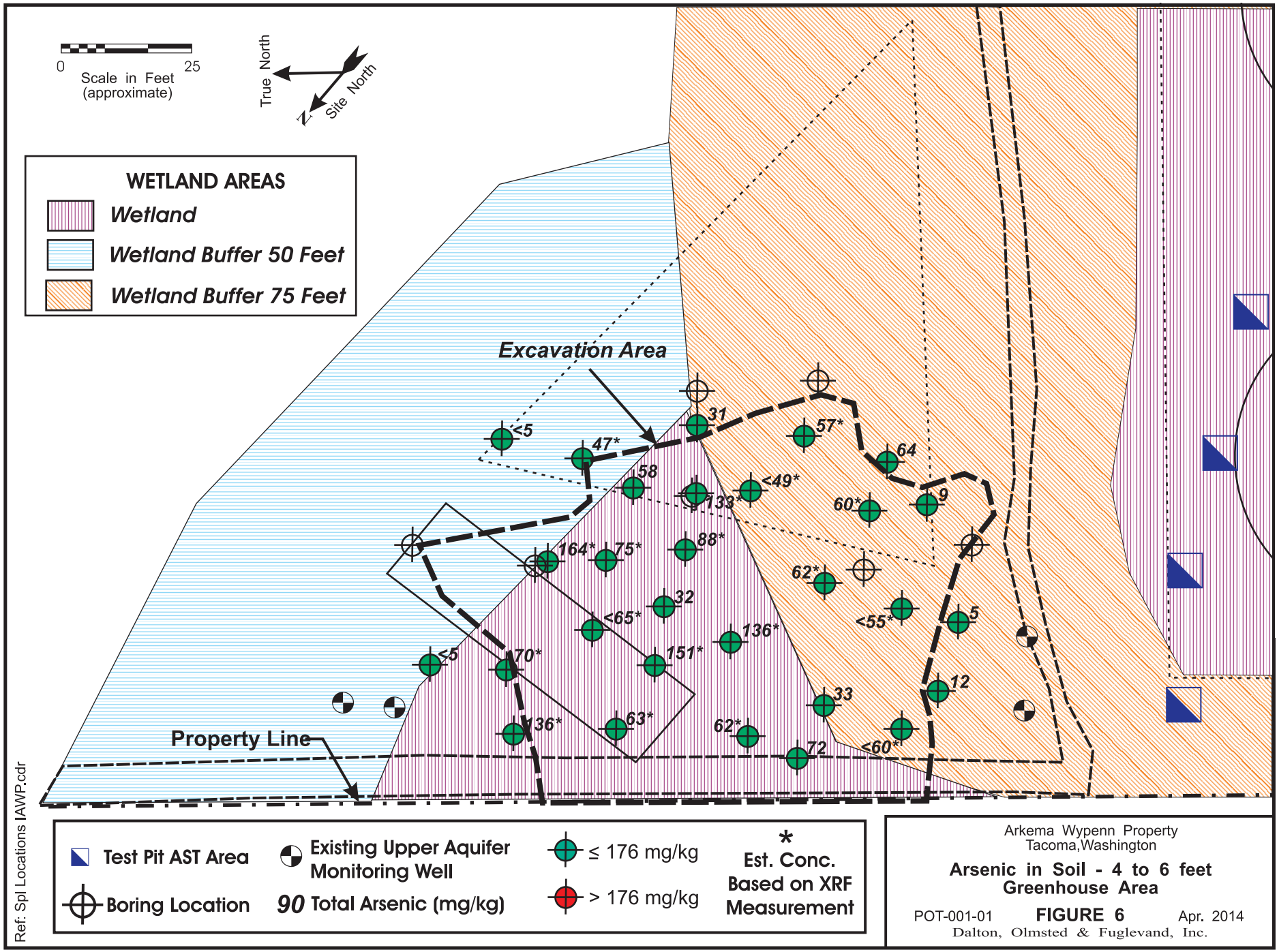


Arkema Wypenn Property
Tacoma,Washington

Arsenic in Soil - 2 to 4 feet
Greenhouse Area

POT-001-01 **FIGURE 5** Apr. 2014

Dalton, Olmsted & Fuglevand, Inc.

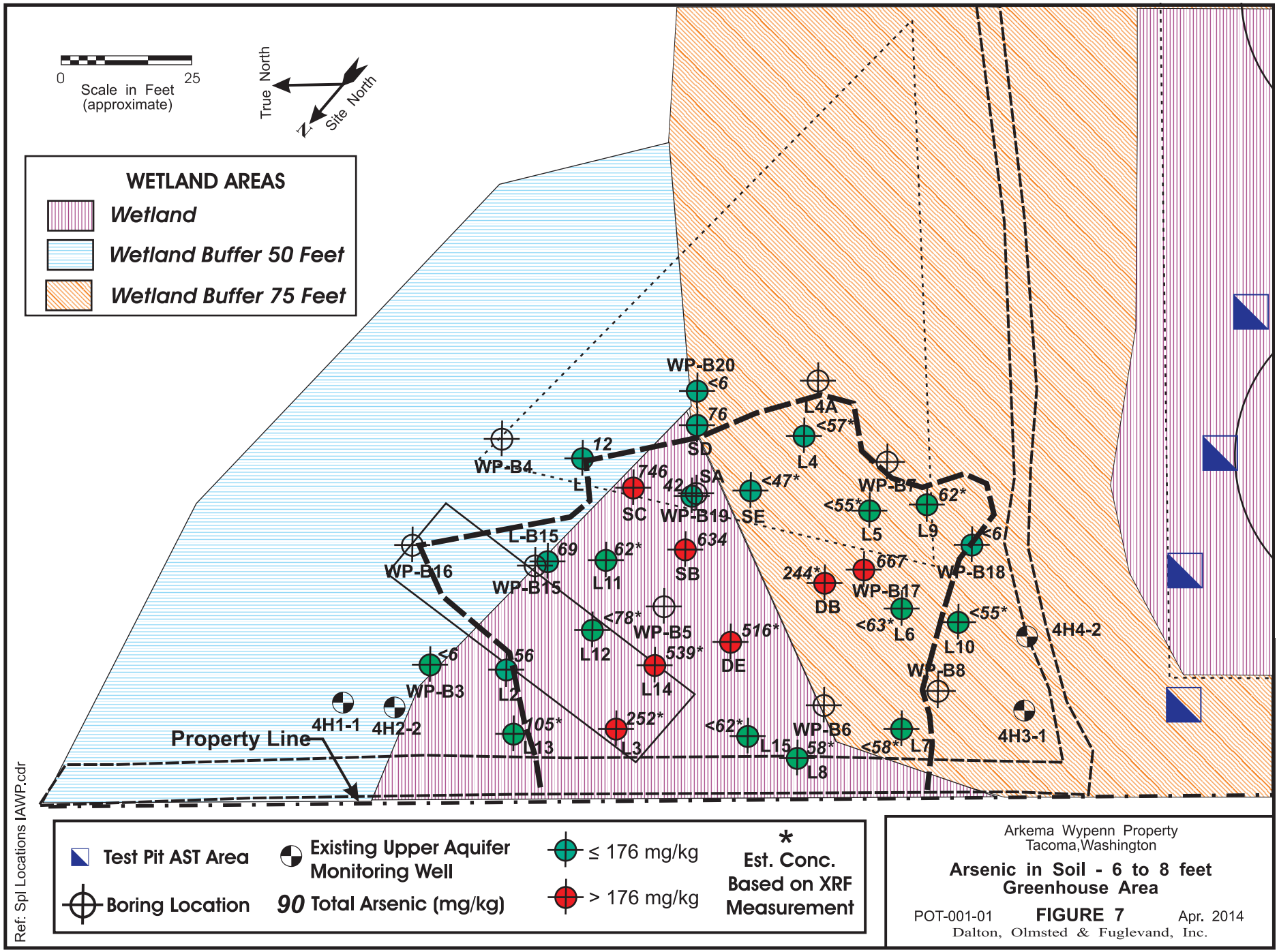


Arkema Wypenn Property
Tacoma,Washington

Arsenic in Soil - 4 to 6 feet
Greenhouse Area

POT-001-01 **FIGURE 6** Apr. 2014

Dalton, Olmsted & Fuglevand, Inc.

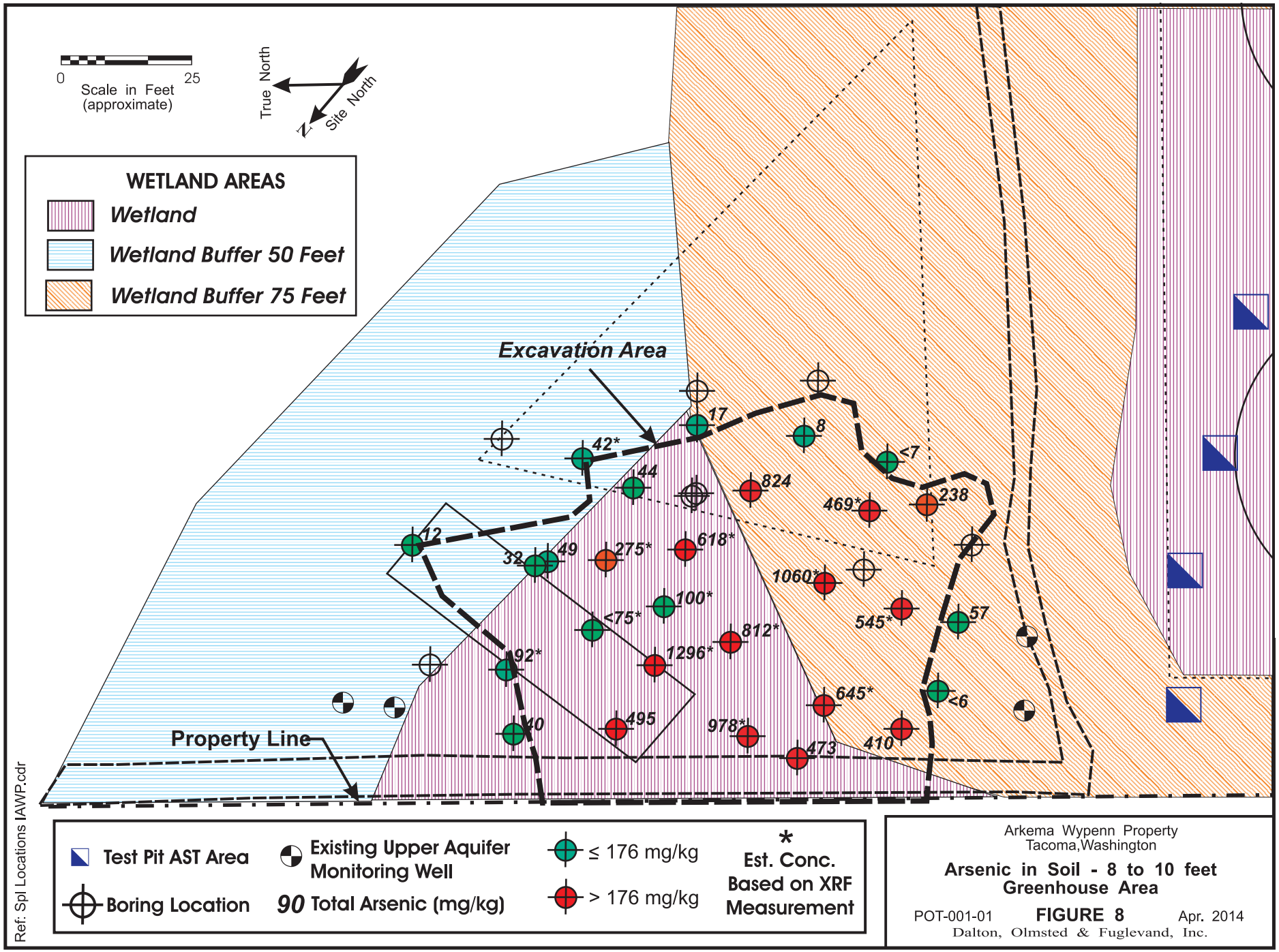


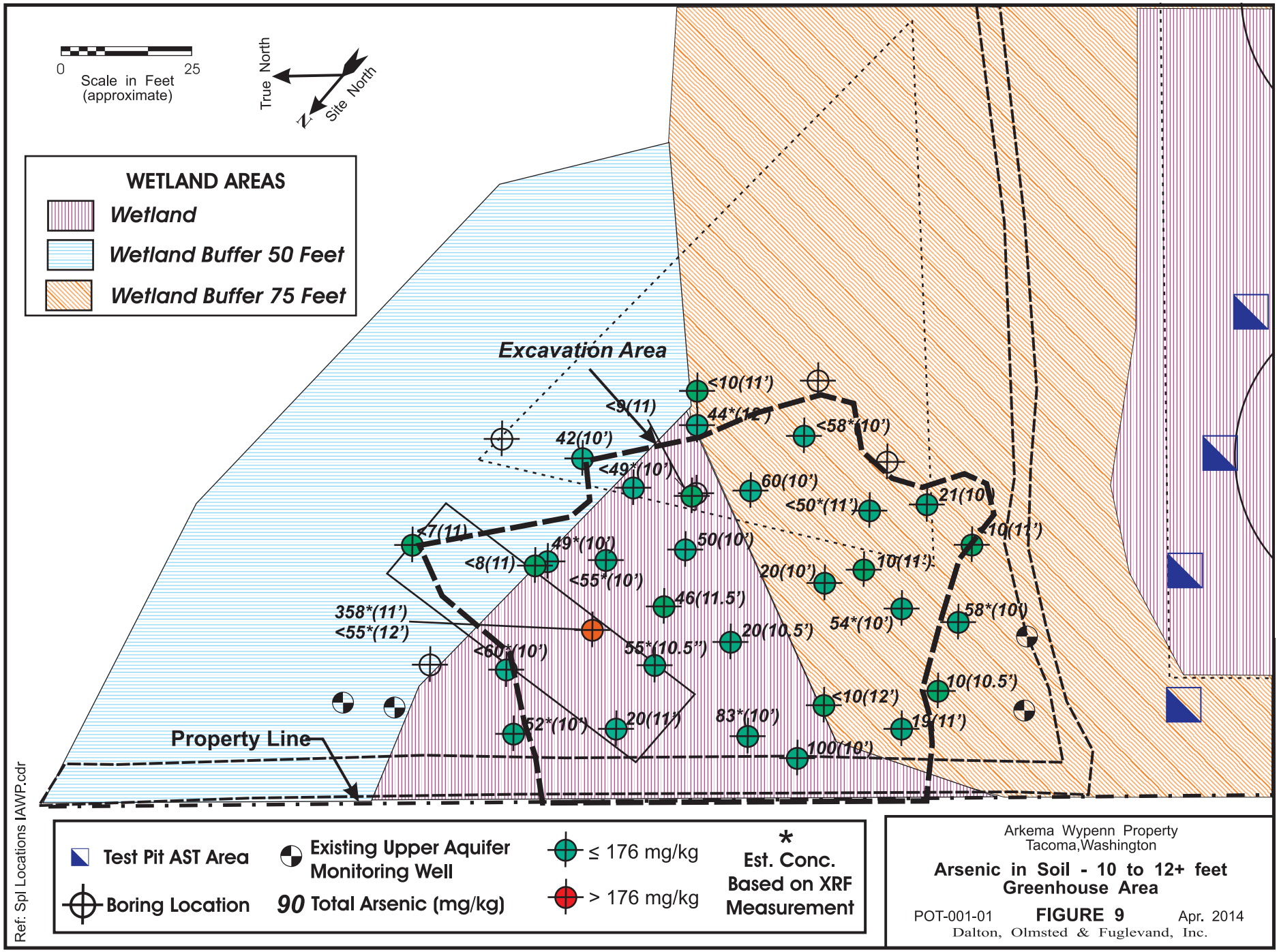
Arkema Wypenn Property
Tacoma,Washington

Arsenic in Soil - 6 to 8 feet
Greenhouse Area

POT-001-01 **FIGURE 7** Apr. 2014

Dalton, Olmsted & Fuglevand, Inc.


0
25
Scale in Feet
(approximate)
True North
Site North
N
WETLAND AREAS
Wetland
Wetland Buffer 50 Feet
Wetland Buffer 75 Feet
Excavation Area
Property Line
17
8
42*
<7
44
824
238
469*
12
32
49
275*
618*
1060*
100*
<75*
57
545*
812*
92*
1296*
645*
<6
40
495
978*
410
473
Test Pit AST Area
Boring Location
Existing Upper Aquifer Monitoring Well
90 Total Arsenic (mg/kg)
≤ 176 mg/kg
> 176 mg/kg
* Est. Conc. Based on XRF Measurement
Ref: Spl Locations IAWP.cdr
Arkema Wypenn Property
Tacoma,Washington
Arsenic in Soil - 8 to 10 feet
Greenhouse Area
POT-001-01
FIGURE 8
Apr. 2014
Dalton, Olmsted & Fuglevand, Inc.

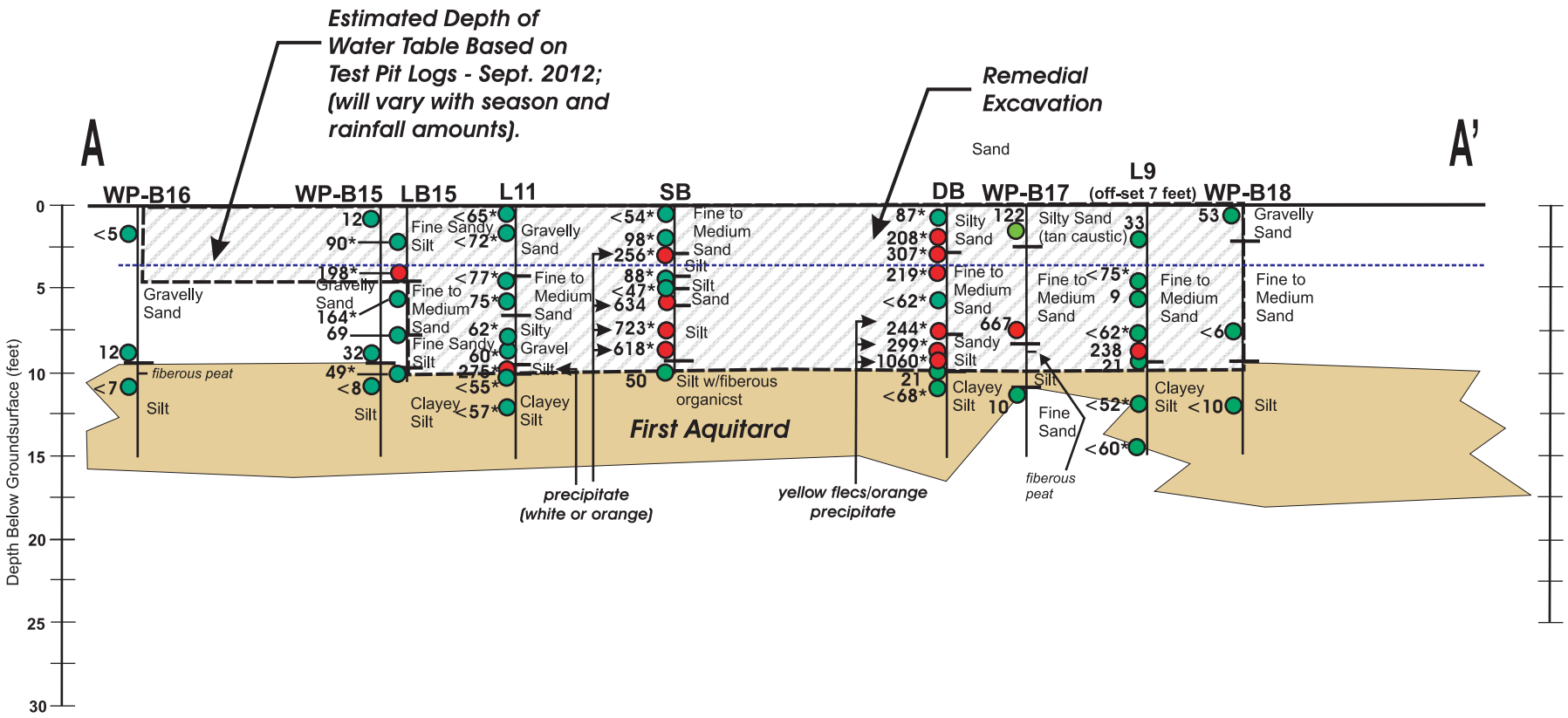


Arkema Wypenn Property
Tacoma,Washington

Arsenic in Soil - 10 to 12+ feet
Greenhouse Area

POT-001-01 **FIGURE 9** Apr. 2014

Dalton, Olmsted & Fuglevand, Inc.



Total Arsenic in Soil

- ≤176 mg/kg
- >176 mg/kg

Push-Probe

Geologic Contact

14 — Arsenic Conc. Based on Laboratory Analysis (mg/kg)

88* — Arsenic Conc. Based on XRF Field Measurement (mg/kg)

0 15

Scale in Feet (approximate)

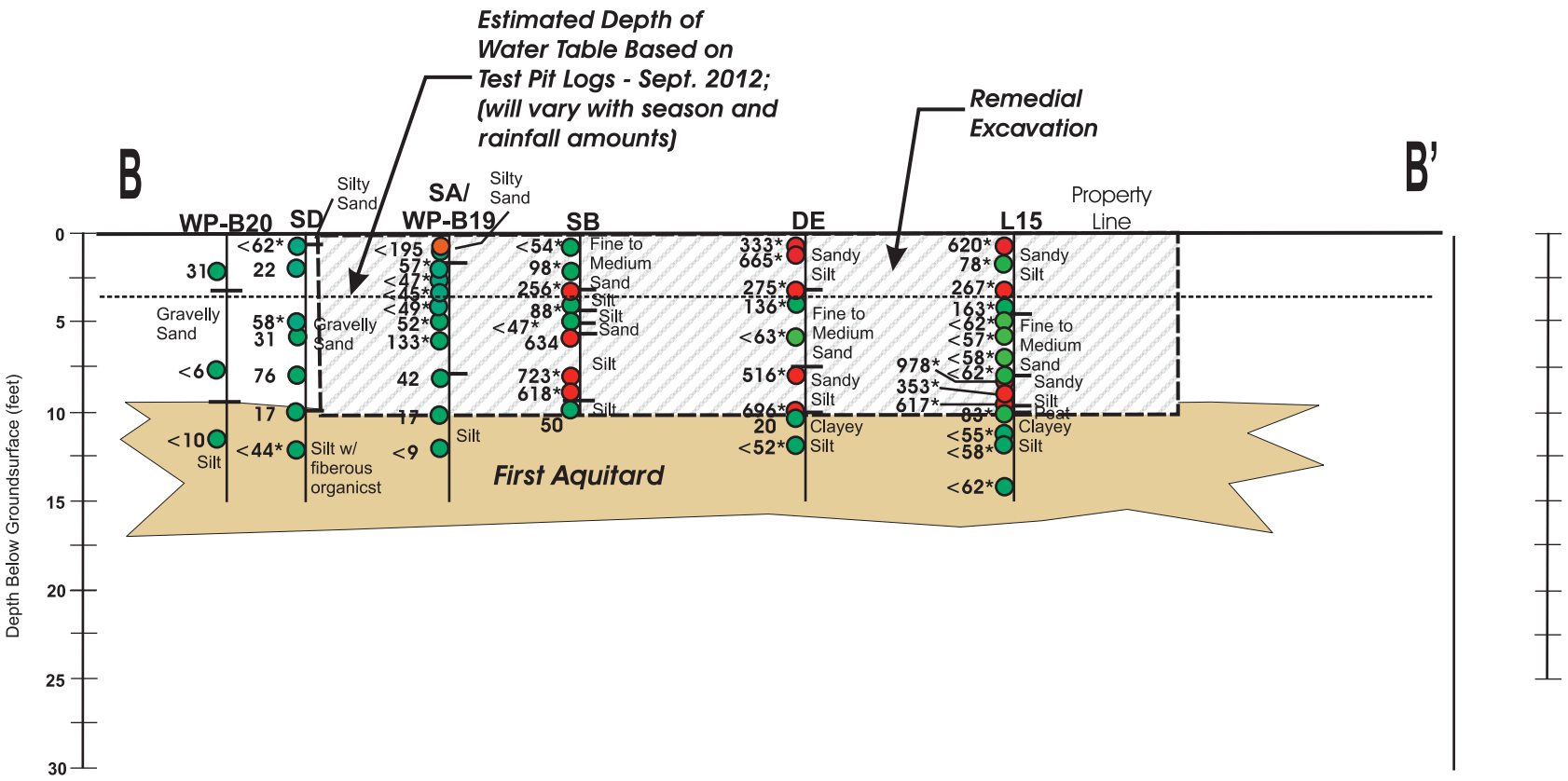
Arkema Wypenn Property
Tacoma, Washington

Arsenic Soil Concentration Profile A-A'

POT-001-00 **FIGURE 10** Apr. 2014

Dalton, Olmsted & Fuglevand, Inc.

Ref: As Section A-A'.cdr



Total Arsenic in Soil

- ≤176 mg/kg
- >176 mg/kg

Push-Probe

Geologic Contact

14 — Arsenic Conc. Based on Laboratory Analysis (mg/kg)

88* — Arsenic Conc. Based on XRF Field Measurement (mg/kg)

0 15
Scale in Feet (approximate)

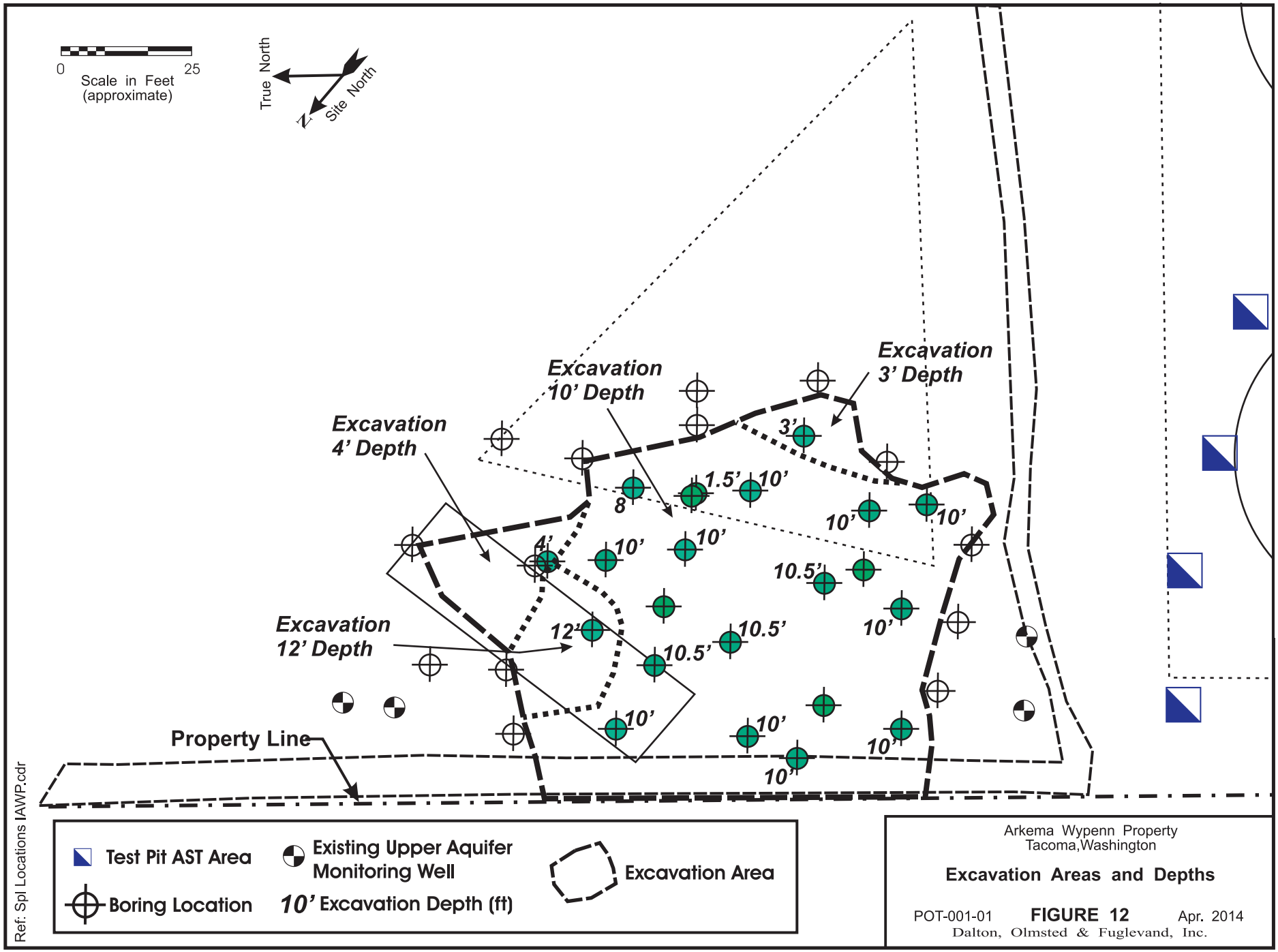
Arkema Wypenn Property
Tacoma, Washington

Arsenic Soil Concentration Profile B-B'

POT-001-00 **FIGURE 11** Apr. 2014

Dalton, Olmsted & Fuglevand, Inc.

Ref: As Section B-B'.cdr


0
25
Scale in Feet
(approximate)
True North
Site North
Excavation
10' Depth
Excavation
3' Depth
Excavation
4' Depth
Excavation
12' Depth
Property Line
3'
1.5'
10'
8
10'
10'
10'
4'
10'
10'
10.5'
10'
12'
10.5'
10.5'
10'
10'
10'
10'
10'
Test Pit AST Area
Existing Upper Aquifer
Monitoring Well
Excavation Area
Boring Location
10' Excavation Depth (ft)
Ref: Spl Locations IAWP.cdr
Arkema Wypenn Property
Tacoma,Washington
Excavation Areas and Depths
POT-001-01
FIGURE 12
Apr. 2014
Dalton, Olmsted & Fuglevand, Inc.

ATTACHMENT A
Boring/Push-Probe Logs
Wypenn Interim Action

Push-Probe Logs
March 2014
Wypenn Interim Action

BORING - DESCRIPTION OF SAMPLES & DATA

SA

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

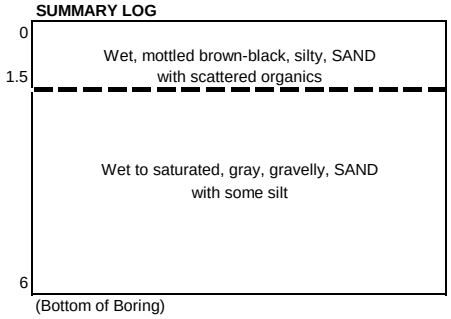
Location: N710091 E1174805 (NAD83)
Elevation (Ft.):
Date Completed: 3/19/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		0.5	132	0-5	48		0-1.5 Wet, Mot bwn-blk, silty, SAND, w/scattered organics
		1.0	237				
		1.5	15				1.5-5' Wet-sat, gry, gravelly, SAND, w/some silt
SA-2	grab - 2'	2.0	<9			1010	
		3.0	<8				
SA-4	grab - 4'	4.0	<10			1020	
		5.0	12				
SA-6	grab - 6'	6.0	61	5-7	24	1030	5-7' As above

Depth(ft.)

SUMMARY LOG



(Bottom of Boring)

NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

SB

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

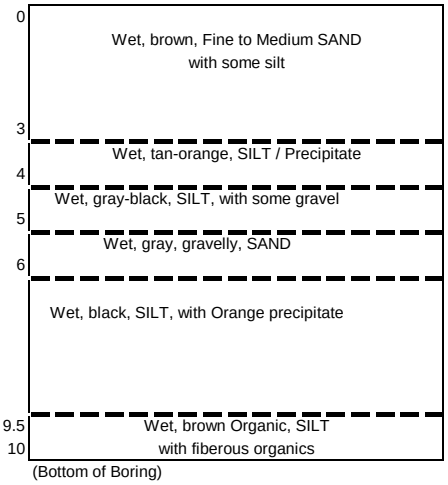
Location: N710092 E1174794 (NAD83)
Elevation (Ft.):
Date Completed: 3/19/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		1.0	<13	0-5	48		0-3' Wet, bwn, F-M SAND, w/some silt
		2.0	40				
		3.0	135				3-4' Wet, tan-orange, silt/precipitate
		4.0	34				4-5' Wet, gry-blk, Silt, w/some gravel
		5.0	<9				5-6' Wet, gry, gravelly, SAND
SB-6	grab - 6'	6.0	418	5-10	60	1040	6-9.5' Wet, blk, silt, w/orange precipitate
SB-8	grab - 8'	8.0	417			1050	
		9.0	354				
SB-10	grab - 10'	10.0	38			1100	9.5-10' Wet, bwn, organic, SILT, w/ fiberous organics
				10-15	0		Two attempts made - no competent recovery, only slurry

Depth(ft.)

SUMMARY LOG



NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

SC

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

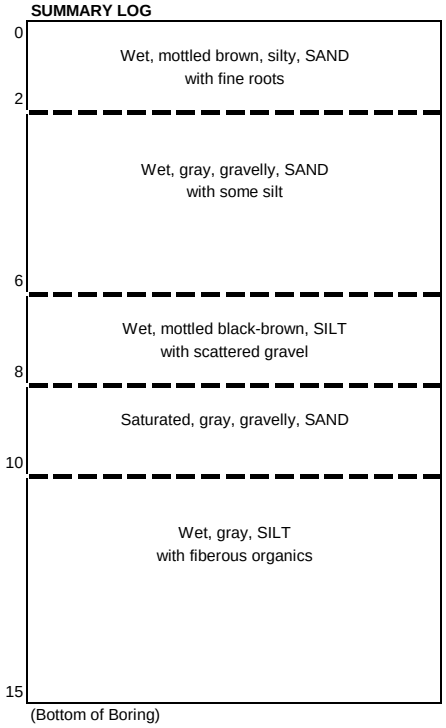
Location: N710102 E1174805 (NAD83)
Elevation (Ft.):
Date Completed: 3/19/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		1.0	58	0-5	48		0-2' Wet, mot, bwn, silty, SAND, w/fine roots
SC-2	grab - 2'	2.0	11			1120	2-5' Wet, gry, gravelly, SAND, w/some silt
SC-4	grab - 4'	3.0	<10			1125	
		5.0	16				
SC-6	grab - 6'			5-10	48	1130	5-6' As above
		6.0	570			1135	6-8' Wet, mot blk-bwn, SILT, w/scattered gravel
SC-8	grab - 8'	7.0	786				
		8.0	31				8-10' Sat, gry, gravelly, SAND
SC-10	grab - 10'	10.0	<8	10-15	60	1140	10-15' Wet, gry, SILT, w/fiberous organics
SC-12	grab - 12'	12.0	7			1145	

Depth(ft.)

SUMMARY LOG



(Bottom of Boring)

NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

SD

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

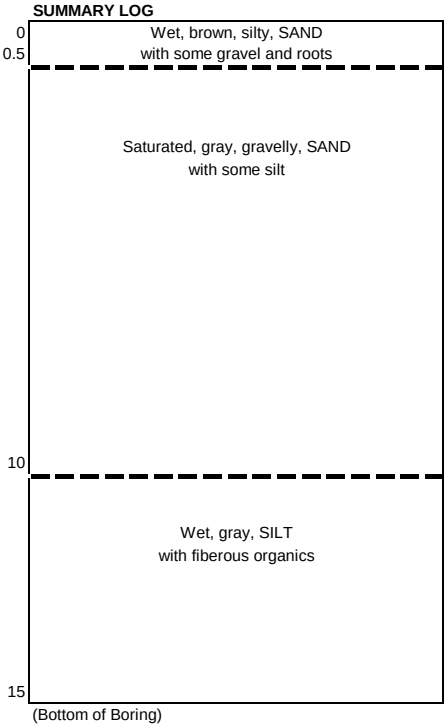
Location: N710090 E1174816 (NAD83)
Elevation (Ft.):
Date Completed: 3/19/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		1.0	<18	0-5	36		0-0.5' Wet, bwn, silty, SAND, w/some gravel, roots
SD-2	grab - 2'	2.0	16			1205	0.5-5' Sat, gry, gravelly, SAND, w/some silt
		5.0	16				
SD-6	grab - 6'	6.0	15	5-10	24	1210	5-10' As above
							wood cored @ 7'
SD-8	grab - 8'	8.0	40			1212	
SD-10	grab - 10'	10.0	<7	10-15	60	1215	10-15' Wet, gry, SILT, w/fiberous organics
		12.0	<7				

Depth(ft.)

SUMMARY LOG



NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

SE

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

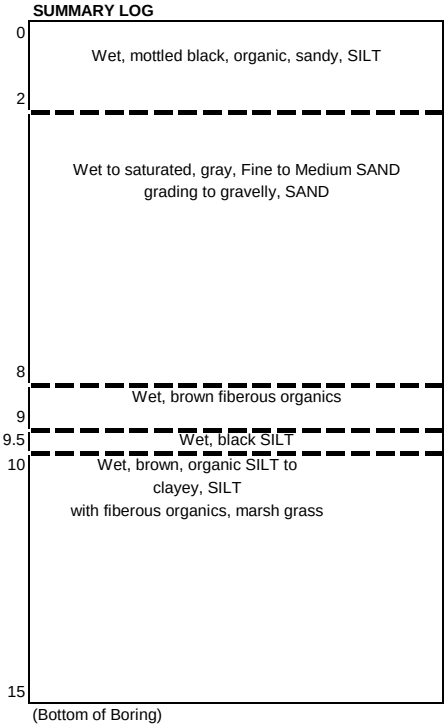
Location: N710081 E1174805 (NAD83)
Elevation (Ft.):
Date Completed: 3/19/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		0.5	201	0-5	40		0-2' Wet, mot blk, organic, sandy, SILT
		1.0	41				
		2.0	230				2-5' Wet-sat, gry, F-M SAND, grading to gravelly sand
		3.0	14				
		6.0	<10	5-10	60		5-8' As above
		8.0	<9				8-9' Wet, bwn fiberous organics
SE-9	grab - 9'	9.0	490			1245	9-9.5' Wet, blk, SILT
SE-10	grab - 10'	10.0	9			1250	9.5-10' Wet, bwn, organic, SILT, w/fiberous organics
SE-11	grab - 11'	11.0	<8	10-15	60	1255	10-15' Wet, gry, clayey, SILT, w/organics-marsh grass
		12.0	8				

Depth(ft.)

SUMMARY LOG



(Bottom of Boring)

NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

L-B15

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

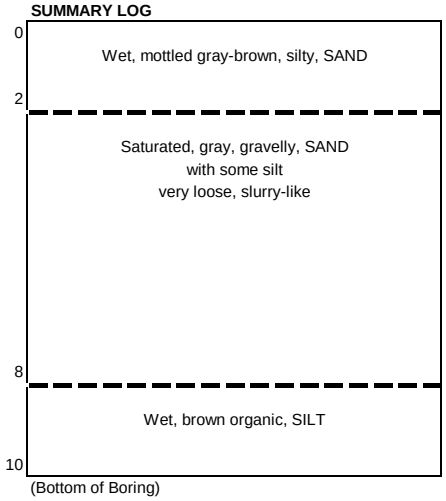
Location: N710118 E1174793 (NAD83)
Elevation (Ft.):
Date Completed: 3/19/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
				0-5	40		0-2' Wet, mot gry-bwn, silty, SAND
		2.0	35				2-5' Sat, gry, gravelly, SAND, w/some silt, slurry-like
		4.0	100				
L-B15-6		6.0	80	5-10	60	1440	5-8' As above
L-B15-8		8.0	90			1445	8-10' Wet, bwn,Organic, SILT
		10.0	10				

Depth(ft.)

SUMMARY LOG



(Bottom of Boring)

NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

L1

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

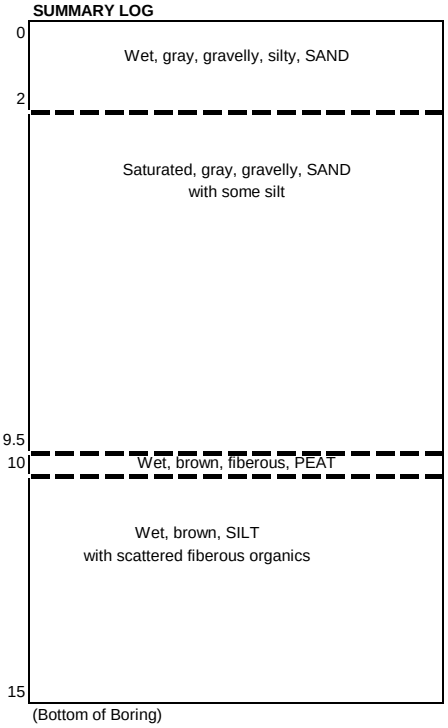
Location: N710110 E1174810 (NAD83)
Elevation (Ft.):
Date Completed: 3/19/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		1.0	14	0-5	48		0-2' Wet, gry, gravelly, silty, SAND
L1-2	grab - 2'	2.0	<9			1405	2-5' Sat, gry, gravelly, SAND, w/some silt
		3.0	<11				
L1-4	grab - 4'	4.0	17			1410	
L1-6	grab - 6'	6.0	<9	5-10	60	1415	5-9.5' As above
L1-8	grab - 8'	8.0	<8			1420	
		10.0	<6				9.5-10' Wet, bwn, Fiberous Peat
				10-15	60		10-15' Wet, bwn, SILT, w/scattered fiberous organics
		12.0	<8				

Depth(ft.)

SUMMARY LOG



(Bottom of Boring)

NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

L2

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

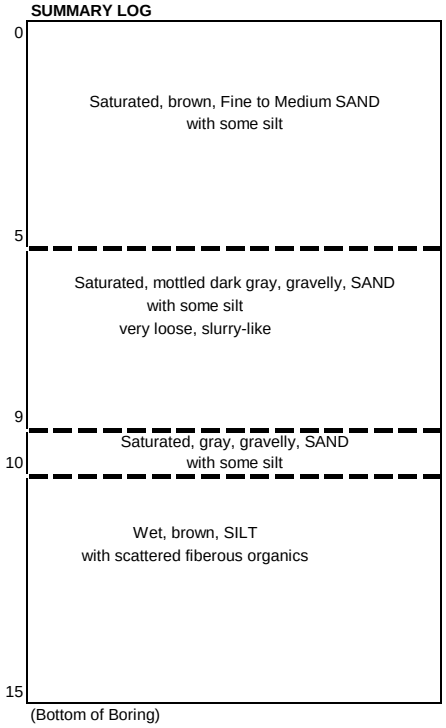
Location: N710124 E1174773 (NAD83)
Elevation (Ft.):
Date Completed: 3/19/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		1.0	18	0-5	40		0-5' Sat, bwn, F-M SAND, w/some silt
L2-2	grab - 2'	2.0	<21			1505	
		3.0	<30				
L2-4	grab - 4'					1510	
L2-6	grab - 6'	6.0	<23	5-10	60	1515	5-9' Sat, mot dk gry, gravelly, SAND, w/some silt
							loose, slurry-like
L2-8	grab - 8'	8.0	37			1520	
		9.0	36				9-10' Sat, gry, gravelly, SAND, w/some silt
L2-10	grab - 10'	10.0	<17			1525	
				10-15	60		10-15' Wet, bwn, SILT, w/scattered fiberous organics

Depth(ft.)

SUMMARY LOG



(Bottom of Boring)

NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

L3

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

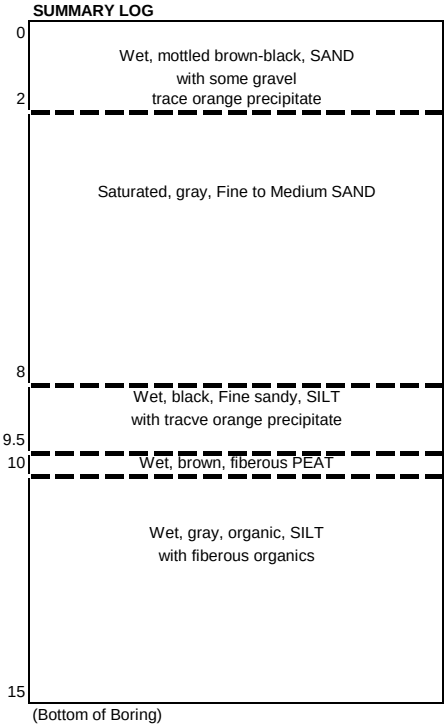
Location: N710104 E1174762 (NAD83)
Elevation (Ft.):
Date Completed: 3/19/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		1.0	70	0-5	48		0-2' Wet, mot bwn-blk, silty, SAND, w/some gravel, trace orange
L3-2	grab - 2'	2.0	54			1530	2-5' Sat gry, F-M SAND
		3.0	26				
		4.0	<17				
		6.0	<19	5-10	48		5-8' As above
L3-7	grab - 7'					1535	
		8.0	133				8-9.5' Wet, blk, F Sandy, SILT, w/trace orange precipitate
L3-9	grab - 9'	9.0	216			1540	
							9.5-10' Wet, bwn, Fiberous Peat
L3-11	grab - 11'	11.0	<16	10-15	60	1545	10-15' Wet, gry, organic, SILT, w/fiberous organics

Depth(ft.)

SUMMARY LOG



(Bottom of Boring)

NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

L4

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

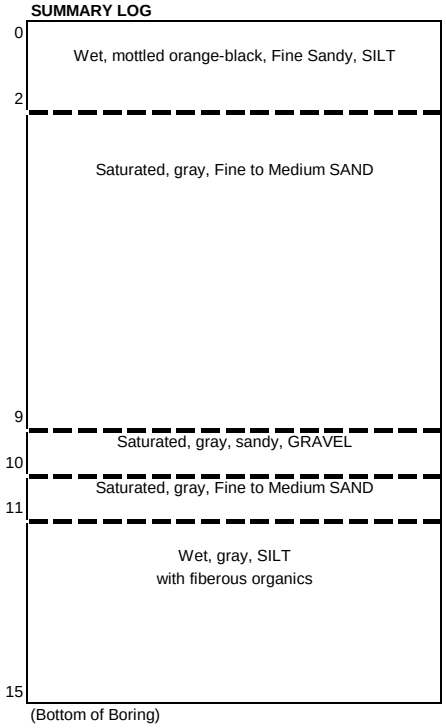
Location: N710071 E1174814 (NAD83)
Elevation (Ft.):
Date Completed: 3/19/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		1.0	<19	0-5	36		0-2' Wet, mot orange-blk, F Sandy, SILT
L4-2	grab - 2'	2.0	327			1605	2-5' Sat gry, F-M SAND
L4-3	grab - 3'	3.0	<23			1610	
L4-6	grab - 6'	6.0	<15	5-10	48	1615	5-9' As above
		8.0	<15				
L4-9	grab - 9'	9.0	<20			1620	9-10' Sat, gry, sandy, Gravel
		10.0	<16	10-15	60		10-11' Sat, gry, F-M SAND
		12.0	<15				11-15' Wet, gry, SILT, w/fiberous organics

Depth(ft.)

SUMMARY LOG



NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

L4-A

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

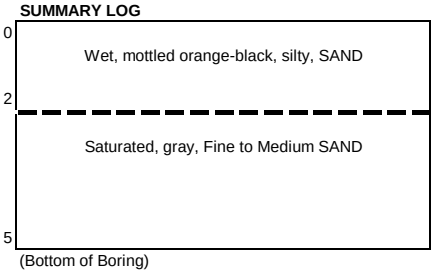
Location: N710069 E1174824 (NAD83)
Elevation (Ft.):
Date Completed: 3/20/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		1.0	37	0-5	36		0-2' Wet, mot orange-blk, silty, SAND
		1.5	53				2-5' Sat gry, F-M SAND
L4-A-2	grab - 2'	2.0	57			1310	

Depth(ft.)

SUMMARY LOG



(Bottom of Boring)

NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

L5

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

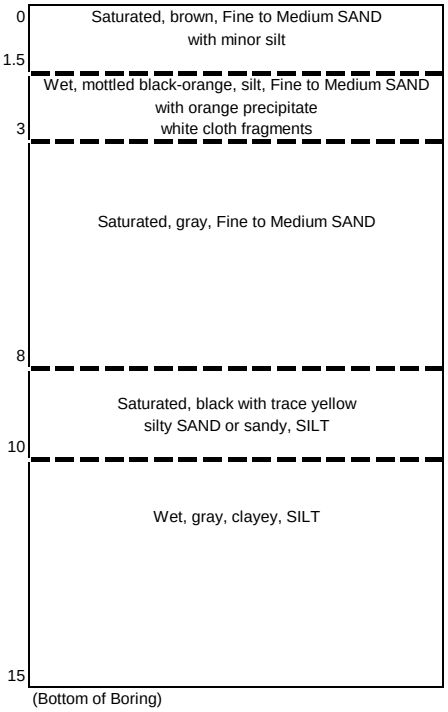
Location: N710059 E1174801 (NAD83)
Elevation (Ft.):
Date Completed: 3/20/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		1.0	73	0-5	48		0-1.5' Sat, bwn, F-M SAND, w/minor silt
		1.5	42				1.5-3' Wet, mot blk-orange, silty, F-M SAND,
L5-2	grab - 2'	2.0	182			0850	w/orange precipitate, white fiberous cloth fragment
		2.5	35				
		3.0	<24				3-5' Sat, gry, F-M SAND
		4.0	<5				
		6.0	<17	5-10	60		5-8' As above
		8.0	<14				8-10' Sat, blk w/trace yellow, Silty, SAND / sandy, SILT
L5-9	grab - 9'	9.0	128			0855	
		9.5	264				
		11.0	<11	10-15	60		10-15' Wet, gry, clayey, SILT, w/organics, marsh grass

Depth(ft.)

SUMMARY LOG



(Bottom of Boring)

NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

L6

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

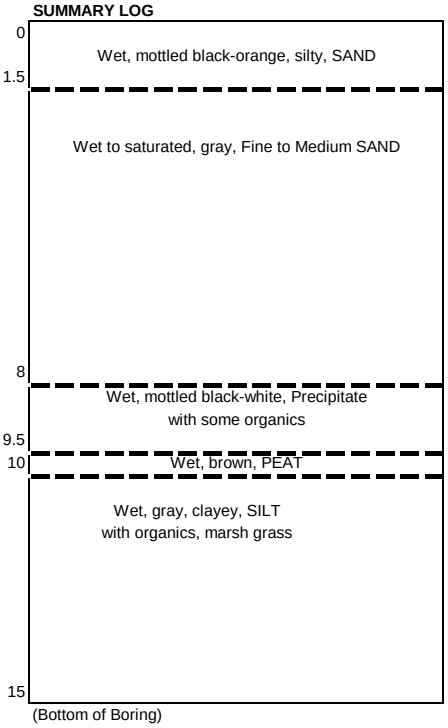
Location: N710054 E1174784 (NAD83)
Elevation (Ft.):
Date Completed: 3/20/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
L6-1		1.0	282	0-5	50	910	0-1.5' Wet, mot blk-orange, silty, SAND
		2.0	23				1.5-5' Sat, gry, F-M SAND
		4.0	<19				
		6.0	<14	5-10	60		5-8' As above
		8.0	<19				
		9.0	171				
L6-9.5		9.5	310			0915	8-9.5' Wet, mot blk-wht, Precipitate, some organics
		10.0	<13				9.5-10' Wet, bwn, PEAT
		11.0	<11	10-15	60		10-15' Wet, gry, clayey, SILT, w/organics, marsh grass

Depth(ft.)

SUMMARY LOG



(Bottom of Boring)

NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

L7

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

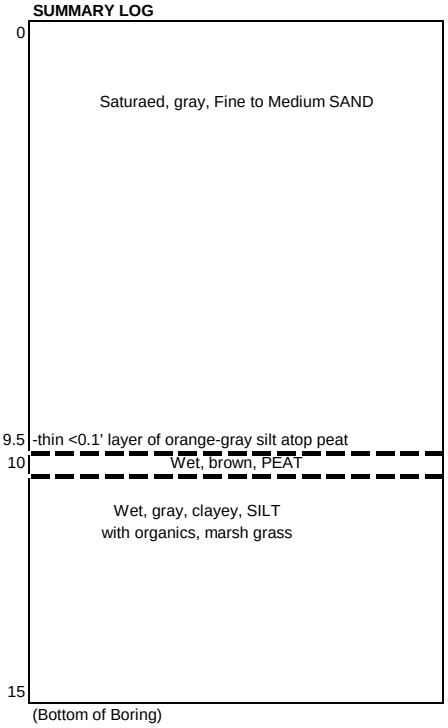
Location: N710054 E1174763 (NAD83)
Elevation (Ft.):
Date Completed: 3/20/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		1.0	<21	0-5	48		0-5' Sat, gry, F-M SAND
L7-2	grab - 2'	2.0	<20			0935	
L7-4	grab - 4'	4.0	<16			0940	
L7-6	grab - 6'	6.0	<17	5-10	60	0945	5-9.5' As above
L7-8	grab - 8'	8.0	<16			0950	
L7-9	grab - 9'	9.0	271			0955	Thin <0.1' layer of orange-gry silt atop peat
		9.5	69				9.5-10' Wet, bwn, Peat
L7-11	grab - 11'	11.0	<10	10-15	60	1000	10-15' Wet, gry, Clayey, SILT, w/organics, marsh grass
		12.0	<16				

Depth(ft.)

SUMMARY LOG



(Bottom of Boring)

NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

L8

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

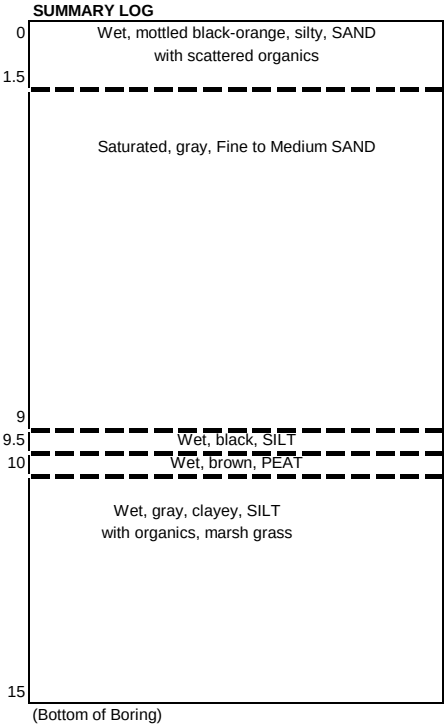
Location: N710073 E1174757 (NAD83)
Elevation (Ft.):
Date Completed: 3/20/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
L8-1	grab - 1'	1.0	130	0-5	40	1005	0-1.5' Wet, mot blk-orange, silty, SAND, w/scattered organics
		2.0	43				1.5-5' Sat, gry, F-M SAND
L8-4	grab - 4'	4.0	30			1010	
L8-6	grab - 6'	6.0	<17	5-10	60	1015	5-9' As above
L8-8	grab - 8'	8.0	16			1020	
		9.0	24				
L8-9.5	grab - 9.5'	9.5	163			1025	9-9.5' Wet, blk, SILT
L8-10	grab - 10'	10.0	75			1030	9.5-10' Wet, bwn PEAT
		11.0	<14	10-15	60		10-15' Wet, gry, Clayey, SILT, w/organics, marsh grass
		12.0	<11				

Depth(ft.)

SUMMARY LOG



NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

L9

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

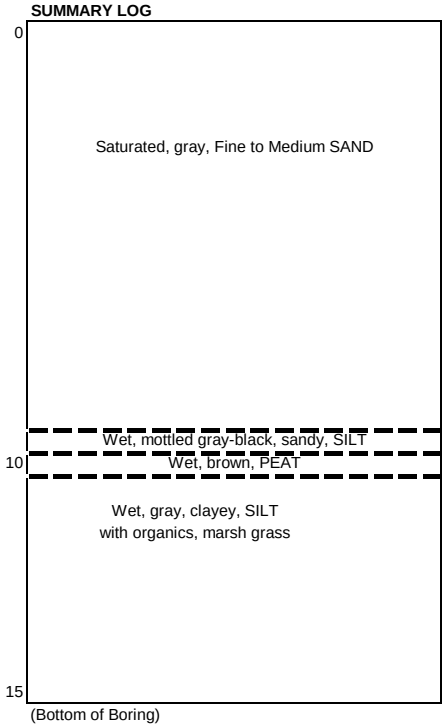
Location: N710049 E1174802 (NAD83)
Elevation (Ft.):
Date Completed: 3/20/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
				0-5	50		0-5' Wet-sat, gry, F-M SAND
L9-2	grab - 2'	2.0	<22			1325	
L9-4	grab - 4'	4.0	<26			1330	
L9-6	grab - 6'	6.0	<18	5-10	60	1335	5-9' As above
		8.0	<18				
L9-9	grab - 9'	9.0	80			1340	9-9.5' Wet, mot gry-blk, F Sandy, SILT
L9-10	grab - 10'	10.0	<17			1345	9.5-10' Wet, bwn, PEAT
				10-15	60		10-15' Wet, gry, Clayey, SILT, w/orgaincs, marsh grass
		12.0	<12				
		14.0	<12				

Depth(ft.)

SUMMARY LOG



(Bottom of Boring)

NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

L10

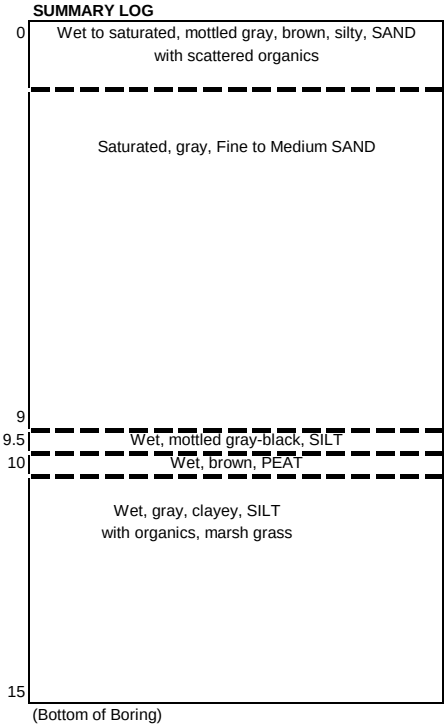
Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

Location: N710043 E1174781 (NAD83)
Elevation (Ft.):
Ground Surface: Grass
Date Completed: 3/20/14
Weather: Rain 45F
Hammer Type: Direct push
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
				0-5	50		0-2' Wet-sat, mot gry-bwn, silty, SAND
L10-2	grab - 2'	2.0	<26			1405	2-5' Sat, gry, F-M SAND
L10-4	grab - 4'	4.0	<23			1410	
L10-6	grab - 6'	6.0	<18	5-10	60	1415	5-9' As above
		8.0	<14				
L10-9	grab - 9'	9.0	40			1420	9-9.5' Wet, mot gry-blk, SILT
							9.5-10' Wet, bwn, PEAT
L10-10	grab - 10'	10.0	<16	10-15	60	1425	10-15' Wet, gry, Clayey, SILT, w/orgaincs, marsh grass
		12.0	<14				

Depth(ft.)

SUMMARY LOG



(Bottom of Boring)

NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

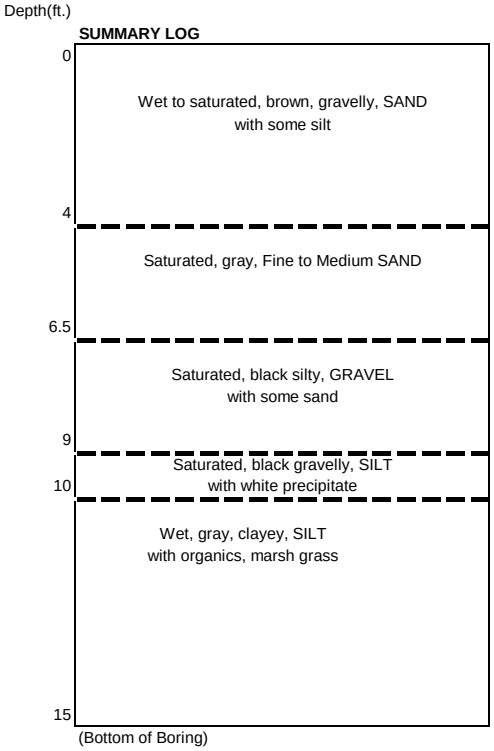
L11

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

Location: N710106 E1174792 (NAD83)
Elevation (Ft.):
Date Completed: 3/21/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		1.0	<20	0-5	40		0-4' Wet-sat, bwn, gravelly, SAND, w/some silt
L11-2	grab - 2'	2.0	<24			0935	
L11-4		4.0	<27			0940	4-5' Sat, gry, F-M SAND
L11-6	grab - 6'	6.0	26	5-10	60	0945	5-6.5' As above
							6.5-9' Sat, blk, silty, Gravel, w/some sand
L11-8	grab - 8'	8.0	18			0950	
L11-9	grab - 9'	9.0	17			0955	9-10' Sat, blk, gravelly, SILT, w/white precipitate
		9.5	147				trace orange
L11-10	grab - 10'	10.0	<14	10-15	60	1000	10-15' Wet, gry, Clayey, SILT, w/orgaincs, marsh grass
		12.0	<15				



NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

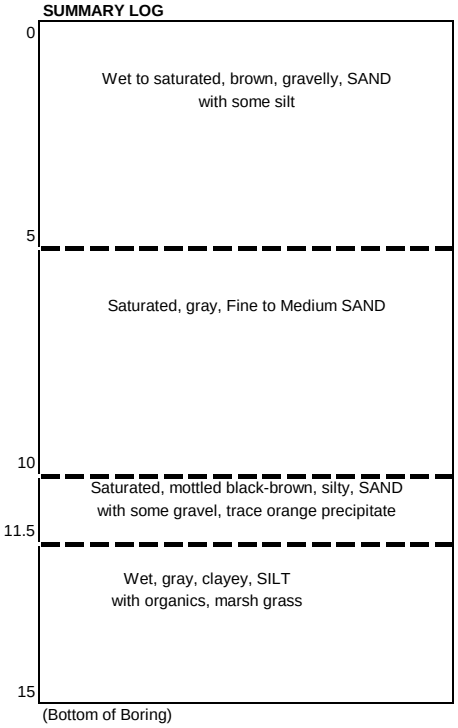
L12

Field Rep: DG Cooper	Location: N710109 E1174780	(NAD83)
Drilling Co.: Cascade	Elevation (Ft.):	Ground Surface: Grass
Driller: Eli	Date Completed: 3/21/14	
Drill Type: Geoprobe 7730DT	Weather: Rain 45F	
Size/Type Casing: 1.5" Rod	Hammer Type: Direct push	Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		1.0	36	0-5	36		0-5' Wet-sat, bwn, gravelly, SAND, w/some silt
		2.0	<22				
L12-3	grab - 3'	3.0	39			1005	
L12-6	grab - 6'	6.0	<20	5-10	60	1010	5-10' Sat, bwn to gry, F-M SAND
		8.0	<28				
L12-9	grab - 9'	9.0	<26			1015	
		10.0	30				
		10.5	60	10-15	40		10-11.5' Sat, mot blk-bwn, silty, SAND, w/some gravel, trace orange
L12-11	grab - 11'	11.0	197			1020	11.5-15' Wet, gry, Clayey, SILT, w/orgaincs, marsh grass
L12-12	grab - 12'	12.0	<14			1030	

Depth(ft.)

SUMMARY LOG



(Bottom of Boring)

NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

L13

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

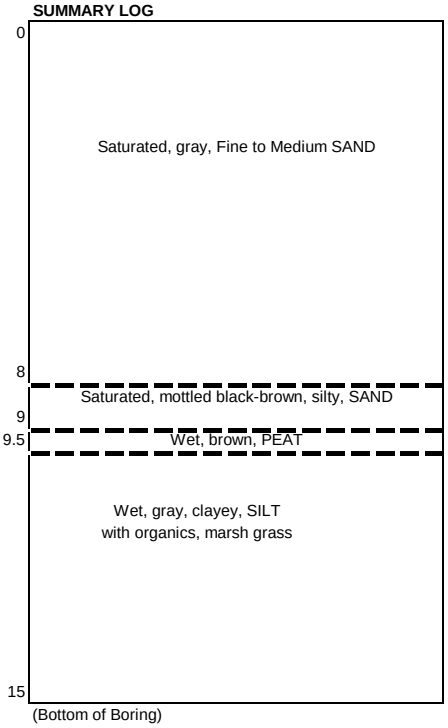
Location: N710123 E1174761 (NAD83)
Elevation (Ft.):
Date Completed: 3/21/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		1.0	37	0-5	36		0-5' Wet-sat, bwn, F-M SAND, w/some silt
		2.0	40				
L13-3	grab - 3'	3.0	35			1035	
L13-6	grab - 6'	6.0	63	5-10	60	1040	5-8' As above
		8.0	44				
L13-9	grab - 9'	9.0	159			1045	8-9' Sat, mot blk-bwn, silty SAND
		9.5	<14				9-9.5' Wet, bwn PEAT
L13-10	grab - 10'	10.0	<12			1050	9.5-10' Wet, gry, clayey, SILT, w/organics
		11.0	<13	10-15	40		10-15' Wet, gry, Clayey, SILT, w/organics, marsh grass
		12.0	<12				

Depth(ft.)

SUMMARY LOG



NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

L14

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

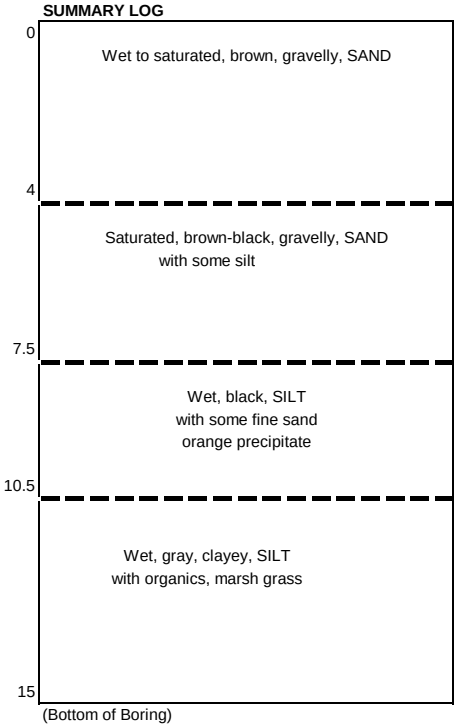
Location: N710098 E1174774 (NAD83)
Elevation (Ft.):
Date Completed: 3/21/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		1.0	<20	0-5	48		0-4' Wet-sat, bwn, gravelly, SAND
		2.0	<24				
		3.0	44				
		4.0	72				4-5' Sat, bwn-blk, gravelly, SAND, w/some silt
		6.0	<27	5-10	60		5-7.5' As above
		8.0	306				7.5-10' Wet, blk, SILT, w/some F Sand, orange precipitate
L14-9	grab - 9'	9.0	763			1110	
		10.0	336				
L14-10.5	grab - 10.5	10.5	<14	10-15	60	1115	10-10.5' As above
		11.0	<12				10.5-15' Wet, gry, Clayey, SILT, w/orgaincs, marsh grass
		12.0	<14				

Depth(ft.)

SUMMARY LOG



NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

L15

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

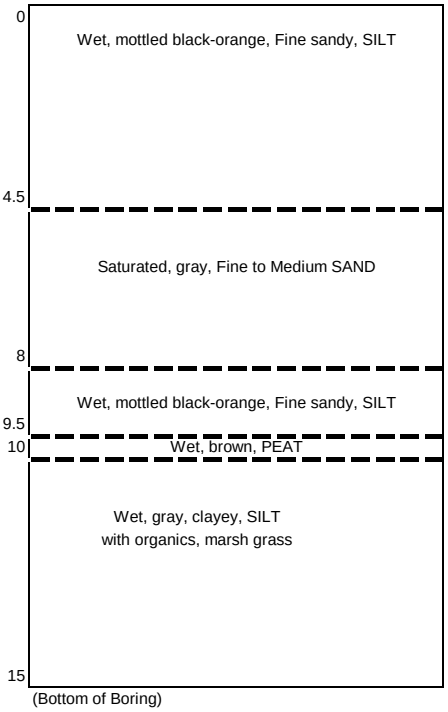
Location: N710081 E1174761 (NAD83)
Elevation (Ft.):
Date Completed: 3/21/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		1.0	355	0-5	55		0-4.5' Wet, mot blk-orange, F Sandy, SILT
		2.0	28				
L15-3	grab - 3'	3.0	142			1205	
		4.0	79				4-5' Sat, gry, F-M SAND
L15-5	grab - 5'	5.0	<18			1210	
		6.0	<15	5-10	60		5-8' As above
L15-7	grab - 7'	7.0	<16			1215	
		8.0	<18				
		8.5	571				8-9.5' Wet, mot blk-orange, F Sandy, SILT
L15-9	grab - 9'	9.0	194			1220	
		9.5	353				
L15-10	grab - 10'	10.0	31			1230	9.5-10' Wet, bwn, PEAT
		11.0	<14	10-15	60		10-15' Wet, gry, Clayey, SILT, w/orgaincs, marsh grass
		12.0	<16				
		14.0	<18				

Depth(ft.)

SUMMARY LOG



(Bottom of Boring)

NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

D-B

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

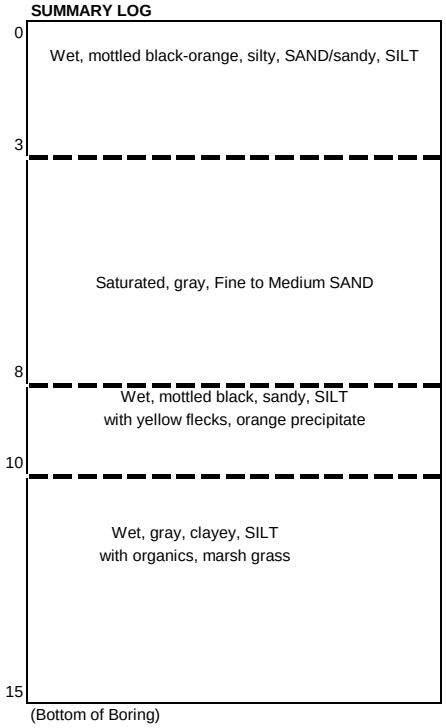
Location: N710067 E1174788 (NAD83)
Elevation (Ft.):
Date Completed: 3/20/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		1.0	33	0-5	40		0-3' Wet, mot blk-orange, silty, SAND / sandy,SILT
		2.0	106				
		3.0	166				3-5' Sat, gry, F-M SAND
		4.0	113				
		6.0	<18	5-10	60		5-8' As above
		8.0	128				8-10' Wet, blk, sandy, SILT, w/yellow flecks, orange precipitate
		9.0	161				
		9.5	621				
D-B-10.5	grab - 10.5'	10.0	<15	10-15	50	1115	10-15' Wet, gry, Clayey, SILT, w/orgaincs, marsh grass
		11.0	<22				

Depth(ft.)

SUMMARY LOG



(Bottom of Boring)

NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

BORING - DESCRIPTION OF SAMPLES & DATA

D-E

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

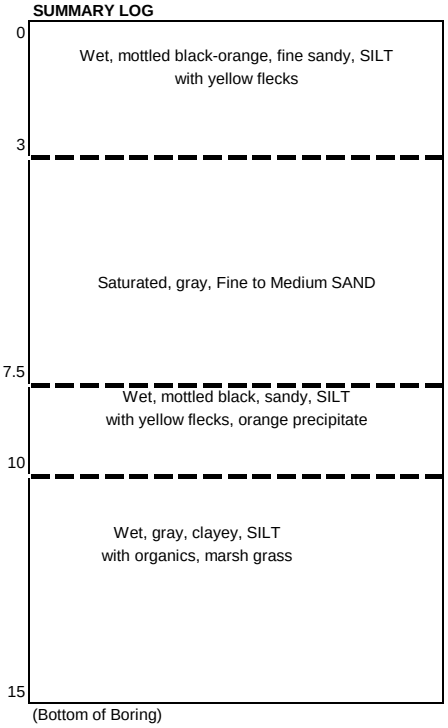
Location: N710084 E1174778 (NAD83)
Elevation (Ft.):
Date Completed: 3/20/14
Weather: Rain 45F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" x 5' Macro w/ acrylic liner

Spl.No.	Type sample saved	XRF Depth	XRF (ppm As)	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		1.0	182	0-5	40		0-3' Wet, mot blk-orange, F Sandy,SILT, w/yellow flecks
		1.5	382				
		3.0	147				3-5' Sat, gry, F-M SAND
		4.0	63				
		6.0	<19	5-10	60		5-7.5' As above
		8.0	292				7.5-10' Wet, blk, sandy, SILT, w/white flecs, orange precipitate
		9.0	471				
		10.0	401				
D-E-10.5	grab - 10.5'	10.5	13	10-15	50	1200	10-15' Wet, gry, Clayey, SILT, w/orgaincs, marsh grass
		12.0	<12				

Depth(ft.)

SUMMARY LOG



(Bottom of Boring)

NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite

Sat = Pores saturated with water
mot = mottled
gry = gray; bwn = brown; blk = black
F = fine; M = medium

Boring/Push-Probe Logs
Drilled/Sampled Before March 2014
In Wypenn Area

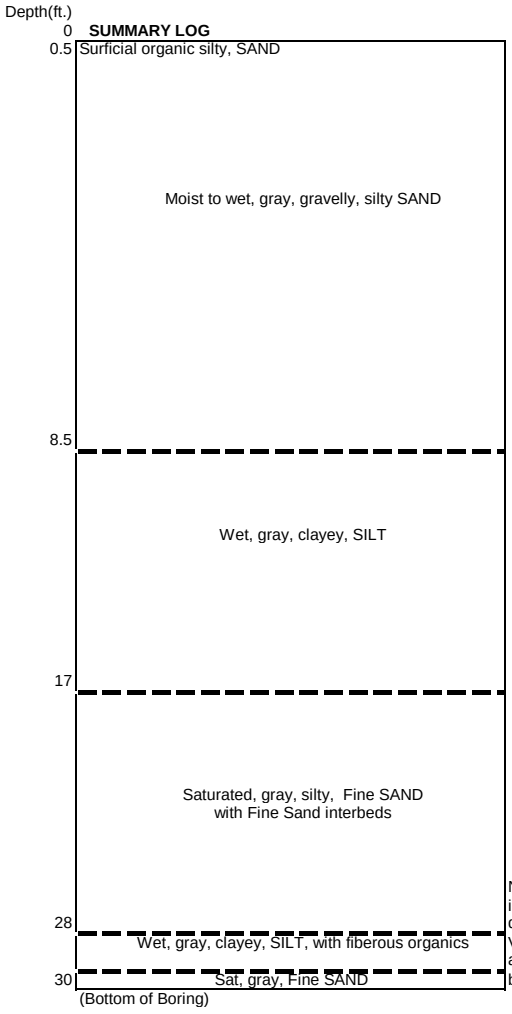
Wypenn Interim Action

BORING - DESCRIPTION OF SAMPLES & DATA

WP-B3

Field Rep: DG Cooper
Location: N710139 E1174776
Drilling Co.: Cascade
Elevation (Ft.):
Ground Surface: Grass
Driller: Eli
Date Completed: 10/08/10
Drill Type: Geoprobe 7730DT
Weather: Clear 50F
Size/Type Casing: 1.5" Rod
Hammer Type: Direct push
Sampler Type: 2" Macro w/ acrylic liner

Spl.No.	Type sample saved	Drill Action	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		Smooth	0-5	36		0-0.5 Moist, dk bwn, organic, silty, SAND, ns,no
A	Grab 1-2'				0815	0.5-5 Moist-sat, blu-gry, gravelly, silty, SAND, ns,no
			5-10	60		5-8.5 As above
B	Grab 5-6'				0820	8.5-10 Soft, wet, bwn, organic, SILT, w/fiberous grass
C	Grab 7-8'				0835	
			10-15	60		10-15 soft, wet, clayey, SILT, W/fiberous organics, ns,no
D	Grab 9-10'				0840	
E	Grab 12-13'				0845	
			15-20	36		15-17 As above
F	Grab 17-18'				0850	17-20 Sat, gry, silty, F SAND, w/F Sand interbeds, ns,no
			20-25	poor		Shattered liner - poor sample
						Clayey, SILT atop silty F SAND
G	Grab 25-26'		25-30	36	0855	25-28 Sat, gry, F SAND, ns,no
						28-29 Wet, gry, clayey, SILT, w/fiberous organics
						29-30 Sat, gry, F SAND



NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite
gry = gray; bwn = brown; blk = black
ns = no sheen
no = no odor
F = fine; M = medium
Sat = Pores saturated with water

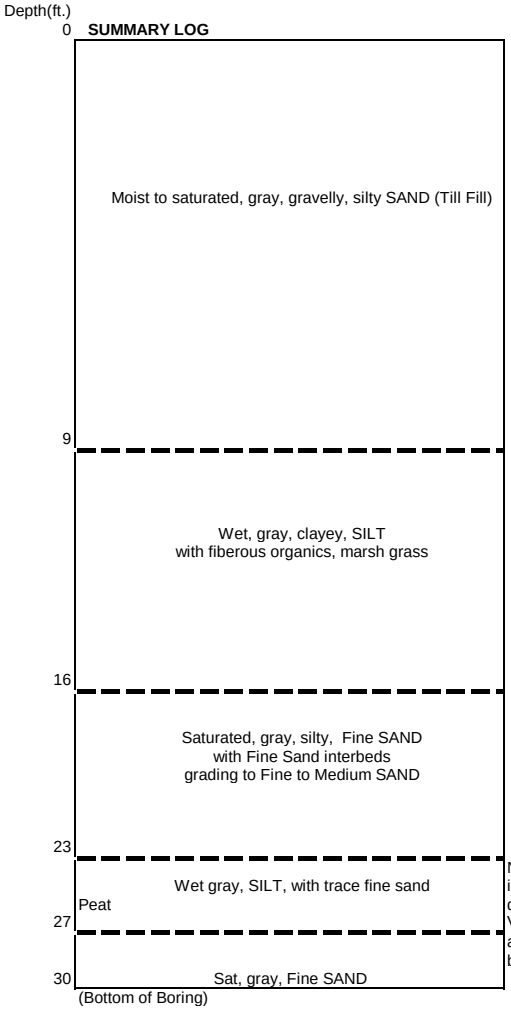
Soil Vapor Headspace:
WP-S-B3-A-100810 @ 0815 (2.0 ppm PID)
WP-S-B3-B-100810 @ 0820 (2.4 ppm PID)
WP-S-B3-C-100810 @ 0835 (1.3 ppm PID)
WP-S-B3-D-100810 @ 0840 (2.0 ppm PID)
WP-S-B3-E-100810 @ 0845 (1.3 ppm PID)
WP-S-B3-F-100810 @ 0850 (1.8 ppm PID)
WP-S-B3-G-100810 @ 0855 (0.7 ppm PID)

BORING - DESCRIPTION OF SAMPLES & DATA

WP-B4

Field Rep: DG Cooper
Location: N710127 E1174817
Drilling Co.: Cascade
Elevation (Ft.):
Ground Surface: Grass
Driller: Eli
Date Completed: 10/08/10
Drill Type: Geoprobe 7730DT
Weather: Clear 50F
Size/Type Casing: 1.5" Rod
Hammer Type: Direct push
Sampler Type: 2" Macro w/ acrylic liner

Spl.No.	Type sample saved	Drill Action	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		Smooth	0-5	36		0-5 Wet, bwn, gravelly, silty, SAND, ns, no
A	Grab 1-2'				0915	
			5-10	36		5-9 Sat, blu-gry, gravelly, silty, SAND, ns, no
B	Grab 5-6'				0920	9-10 Wet, mot bwn, organic, SILT, w/fiberous organics, ns, no
			10-15	48		10-15 soft, wet, clayey, SILT, W/fiberous marsh grass, ns,no
C	Grab 10-11'				0925	
D	Grab 14-15'				0930	
			15-20	60		15-16 As above
E	Grab 17-18'				0935	16-19 Sat, gry, silty, F SAND, w/F Sand interbeds, ns,no
						19-20 Sat, gry, F SAND
			20-25	60		20-23 Sat, gry, F-M SAND, ns, no
F	Grab 22-23				0940	23-24.5 Wet, gry, SILT, w/trace F Sand
						24.5-25 Bwn, fiberous, PEAT
			25-30	60		25-27 Wet, gry, SILT, w/trace, fine sand, scattered organics
						27-30 Sat, gry, F SAND



NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite
gry = gray; bwn = brown; blk = black
ns = no sheen
no = no odor
F = fine; M = medium
Sat = Pores saturated with water

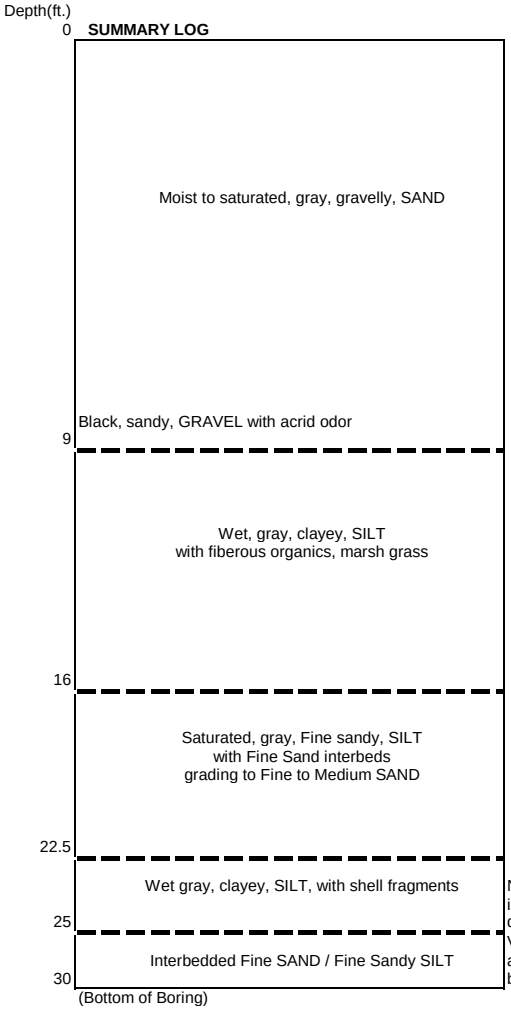
Soil Vapor Headspace:
WP-S-B4-A-100810 @ 0915 (2.6 ppm PID)
WP-S-B4-B-100810 @ 0920 (2.7 ppm PID)
WP-S-B4-C-100810 @ 0925 (2.3 ppm PID)
WP-S-B4-D-100810 @ 0930 (1.0 ppm PID)
WP-S-B4-E-100810 @ 0935 (2.2 ppm PID)
WP-S-B4-F-100810 @ 0940 (2.4 ppm PID)

BORING - DESCRIPTION OF SAMPLES & DATA

WP-B5

Field Rep: DG Cooper
Location: N710097 E1174788
Drilling Co.: Cascade
Elevation (Ft.):
Ground Surface: Grass
Driller: Eli
Date Completed: 10/07/10
Drill Type: Geoprobe 7730DT
Weather: Clear 50F
Size/Type Casing: 1.5" Rod
Hammer Type: Direct push
Sampler Type: 2" Macro w/ acrylic liner

Spl.No.	Type sample saved	Drill Action	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		Smooth	0-5	48		0-1 Moist, bwn, gravelly, SAND, ns, no
A	Grab 1-2'				1455	1-5 Moist to sat, bwn-gry, gravelly, SAND, ns, no
B	Grab 4-5'				1500	
			5-10	36		5-7.5 As above
						7.5-9 Sat, blk, sandy, GRAVEL. Carbon black, acrid odor, ns
C	Grab 8-9'				1505	9-10 Wet, blk, SILT, acrid odor, ns
			10-15	60		10-13 As above w/some organics
D	Grab 11-12'				1510	13-15 Wet, gry, clayey, SILT, w/fiberous organics, ns, no
E	Grab 14-15'				1515	
			15-20	60		15-16 As above
F	Grab 17-18'				1520	16-20 Sat, gry, F sandy, SILT, w/F Sand interbeds, ns,no
			20-25	60		20-22.5 Sat, gry, F-M SAND, ns, no
F	Grab 21-22'				1525	22.5-25 Wet, gry, clayey, SILT, w/shell fragments, ns, no
			25-30	60		25-30 sat, gry, interbedded F Sand / F sandy, SILT



NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite
gry = gray; bwn = brown; blk = black
ns = no sheen
no = no odor
F = fine; M = medium
Sat = Pores saturated with water

Soil Vapor Headspace:
WP-S-B5-A-100710 @ 1455 (2.2 ppm PID)
WP-S-B5-B-100710 @ 1500 (2.6 ppm PID)
WP-S-B5-C-100710 @ 1505 (6.0 ppm PID)
WP-S-B5-D-100710 @ 1510 (9.6 ppm PID)
WP-S-B5-E-100710 @ 1515 (4.3 ppm PID)
WP-S-B5-F-100710 @ 1520 (5.3 ppm PID)
WP-S-B5-G-100710 @ 1525 (3.9 ppm PID)

BORING - DESCRIPTION OF SAMPLES & DATA

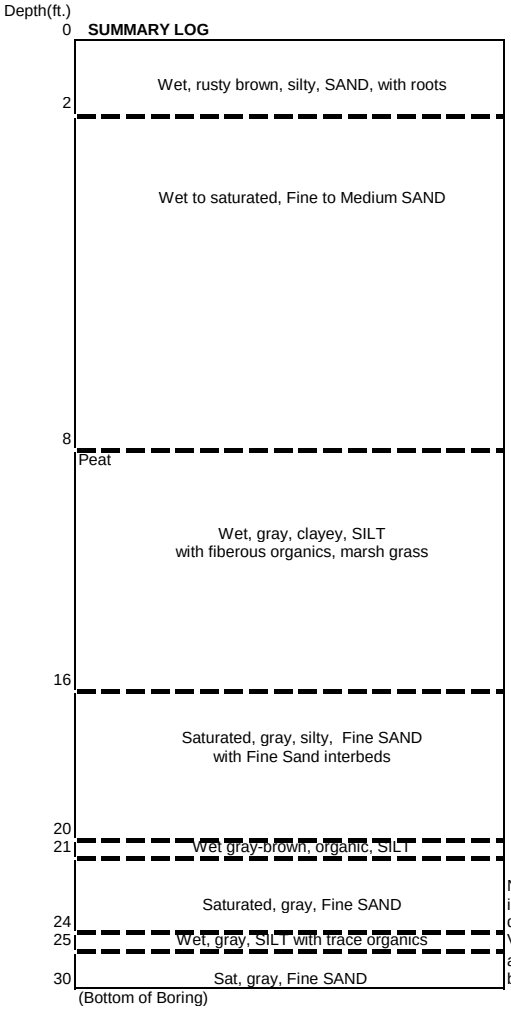
WP-B6

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

Location: N710076 E1174766
Elevation (Ft.):
Date Completed: 10/07/10
Weather: Clear 50F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" Macro w/ acrylic liner

Spl.No.	Type sample saved	Drill Action	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		Smooth	0-5	48		0-2 Wet, mot bwn/rust, silty, SAND, w/roots, ns, no
A	Grab 1-2'				1410	rusty silt interbed @ 1.5'
B	Grab 4-5'				1415	2-5 Wet-sat, gry, F-M SAND, ns, no
			5-10	60		5-8 As above
						8--9 Wet, blk, clayey, SILT, ns, no
C	Grab 8-9'				1420	9-10 Wet, bwn, fiberous PEAT
			10-15	60		10-15 soft, wet, clayey, SILT, W/fiberous marsh grass, ns,no
D	Grab 12-13'				1425	
			15-20	60		15-16 As above
E	Grab 16-17'				1430	16-19 Sat, gry, silty, F SAND, ns,no
						19-20 Sat, gry, F SAND, ns, no
			20-25	60		20-21 Wet, gry-bwn, organic, SILT, ns, no
F	Grab 21-22'				1435	21-24 Sat, gry, F SAND, ns, no
						24-25 Wet, gry, SILT, w/trace organics, ns, no
			25-30	60		25-30 Sat, gry, F SAND



NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite
gry = gray; bwn = brown; blk = black
ns = no sheen
no = no odor
F = fine; M = medium
Sat = Pores saturated with water

Soil Vapor Headspace:
WP-S-B6-A-100710 @ 1410 (1.4 ppm PID)
WP-S-B6-B-100710 @ 1415 (2.7 ppm PID)
WP-S-B6-C-100710 @ 1420 (1.7 ppm PID)
WP-S-B6-D-100710 @ 1425 (2.0 ppm PID)
WP-S-B6-E-100710 @ 1430 (2.8 ppm PID)
WP-S-B6-F-100710 @ 1435 (1.8 ppm PID)

BORING - DESCRIPTION OF SAMPLES & DATA

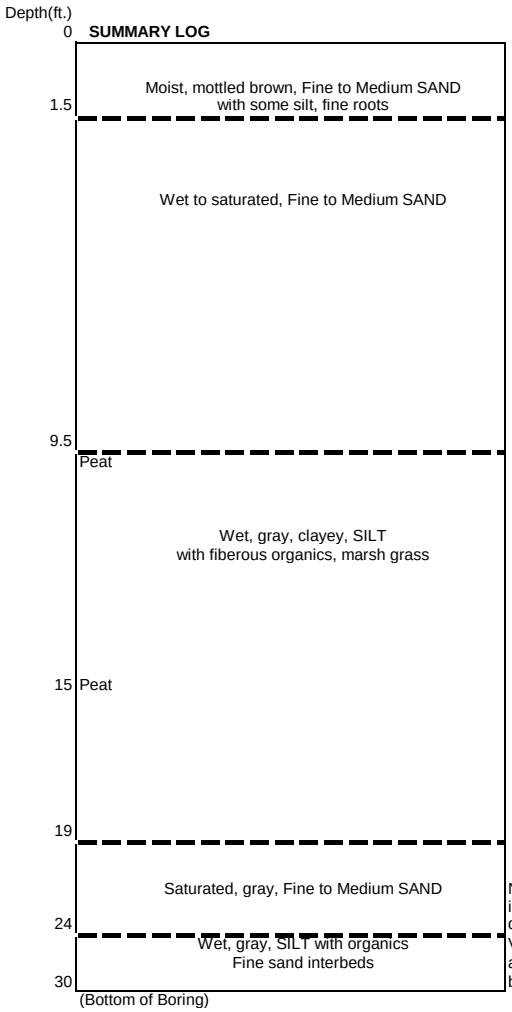
WP-B7

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

Location: N710056 E1174814
Elevation (Ft.):
Date Completed: 10/07/10
Weather: Clear 50F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" Macro w/ acrylic liner

Spl.No.	Type sample saved	Drill Action	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		Smooth	0-5	48		0-1.5 Moist, mot bwn, F-M SAND, w/some silt, roots, ns, no
A	Grab 0.5-1.5'				1150	1.5-5 Wet-sat, gry, F-M SAND, ns, no
B	Grab 4-5'				1155	
			5-10	60		5-9.5 As above
						9.5-10 Wet, bwn, fiberous PEAT
C	Grab 8-9'				1200	
			10-15	60		10-10.5 As above
D	Grab 10.5-11.5'				1205	10.5-15 Wet, gry, clayey, SILT, w/fiberous organics, ns, no
			15-20	60		15-15.3 Fiberous PEAT
E	Grab 16-17'				1210	15.3-20 Wet, gry, clayey, SILT, w/fiberous organics, ns, no
						grades F Sandy @ 19'
			20-25	60		20-22 Sat, gry, silty, F SAND, ns, no
F	Grab 22-23'				1215	22-24 Sat, gry, F-M SAND, ns, no
						24-25 Wet, gry, SILT, ns, no
			25-30	60		25-28 interbedded SILT w/silty F SAND
						28-29 fiberous organic SILT
						29-30 Wet, gry, clayey, SILT, w/F Sand interbeds



NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite
gry = gray; bwn = brown; blk = black
ns = no sheen
no = no odor
F = fine; M = medium
Sat = Pores saturated with water

Soil Vapor Headspace:
WP-S-B7-A-100710 @ 1150 (2.5 ppm PID)
WP-S-B7-B-100710 @ 1155 (3.2 ppm PID)
WP-S-B7-C-100710 @ 1200 (2.3 ppm PID)
WP-S-B7-D-100710 @ 1205 (0.9 ppm PID)
WP-S-B7-E-100710 @ 1210 (2.4 ppm PID)
WP-S-B7-F-100710 @ 1215 (2.8 ppm PID)

BORING - DESCRIPTION OF SAMPLES & DATA

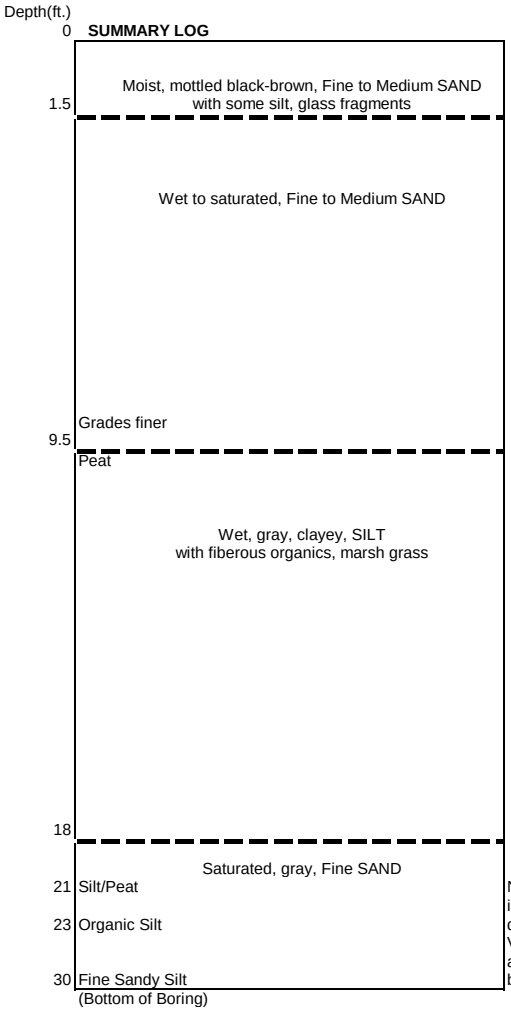
WP-B8

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Eli
Drill Type: Geoprobe 7730DT
Size/Type Casing: 1.5" Rod

Location: N710048 E1174774
Elevation (Ft.):
Date Completed: 10/07/10
Weather: Clear 65F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" Macro w/ acrylic liner

Spl.No.	Type sample saved	Drill Action	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		Smooth	0-5	48		0-1.5 Moist, mot blk-bwn, F-M SAND, w/some silt, glass frag, ns, no
A	Grab 0.5-1.5'				1315	1.5-5 Wet-sat, gry, F-M SAND, ns, no
B	Grab 4-5'				1320	
			5-10	60		5-7.5 As above
					1320	7.5-9.5 Sat, gry, F SAND, w/scattered organics, ns, nno
C	Grab 8.5-9.5'				1325	9.5-10 Wet, bwn, fiberous PEAT
			10-15	60		10-15 Wet, bwn to gry, clayey, SILT, w/fiberous organics, ns, no
D	Grab 10-11'				1330	Marsh grass
			15-20	60		15-16 As above
E	Grab 16-17'				1335	16-18 Sat, gry, F Sandy, SILT, ns, no
						18-20 Sat, gry, F SAND, ns, no
			20-25	60		20-21 As above
F	Grab 22-23'				1340	21-22 Wet, organic SILT/PEAT, ns, no
						22-23 Sat, gry, F SAND, ns, no
						23-25 Wet, gry-bwn, organic, SILT, ns, no
			25-30	60		25-29 Sat, gry, F SAND
						29-30 Wet, gry, F Sandy, SILT



NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite
gry = gray; bwn = brown; blk = black
ns = no sheen
no = no odor
F = fine; M = medium
Sat = Pores saturated with water

Soil Vapor Headspace:
WP-S-B8-A-100710 @ 1315 (2.7 ppm PID)
WP-S-B8-B-100710 @ 1320 (1.0 ppm PID)
WP-S-B8-C-100710 @ 1325 (4.3 ppm PID)
WP-S-B8-D-100710 @ 1330 (3.0 ppm PID)
WP-S-B8-E-100710 @ 1335 (2.1 ppm PID)
WP-S-B8-F-100710 @ 1340 (2.1 ppm PID)

BORING - DESCRIPTION OF SAMPLES & DATA

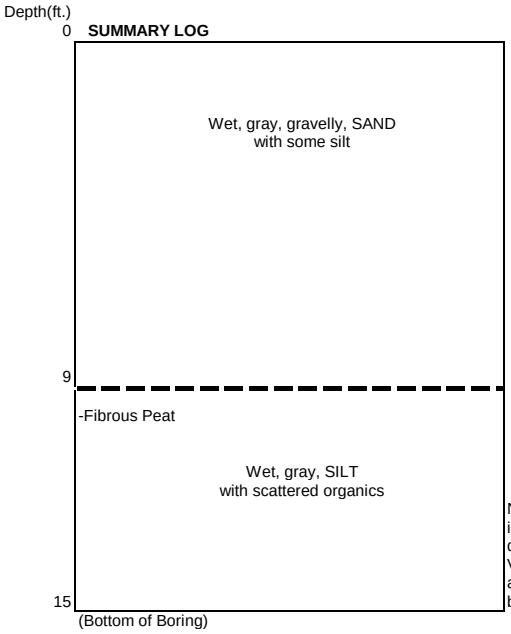
WP-B15

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Kasey
Drill Type: Geoprobe 6600
Size/Type Casing: 2" Rod

Location: N710120 E1174792 NAD83
Elevation (Ft.):
Date Completed: 10/19/12
Weather: Rain 55F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" Macro w/ acrylic liner

Spl.No.	Type sample saved	Drill Action	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		Smooth	0-5	24		0-0.5 Wet, dk bwn, silty, SAND, w/roots, organics
A	Grab 0.5-1.5'			2 attempts	0800	0.5-5 Wet, gry, gravelly, SAND, w/some silt, ns, no
B	Grab 8-9'		5-10	24		5-9 Sat, gry-blk, gravelly, SAND, w/some silt, acrid odor, ns
					0810	9-9.5 Wet, gry, SILT
						9.5-10 Wet, bwn, Fibrous PEAT, w/burned wood
			10-15	48		10-11 Wet, bwn, Organic SILT
C	Grab 11-12'				0820	11-15 Wet, gry, SILT, w/scattered organics, ns, no



NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite
gry = gray; bwn = brown; blk = black
ns = no sheen
no = no odor
F = fine; M = medium
Sat = Pores saturated with water

Samples
WP-S-B15-A-101912 @ 0800
WP-S-B15-B-101912 @ 0810
WP-S-B15-C-101912 @ 0820

BORING - DESCRIPTION OF SAMPLES & DATA

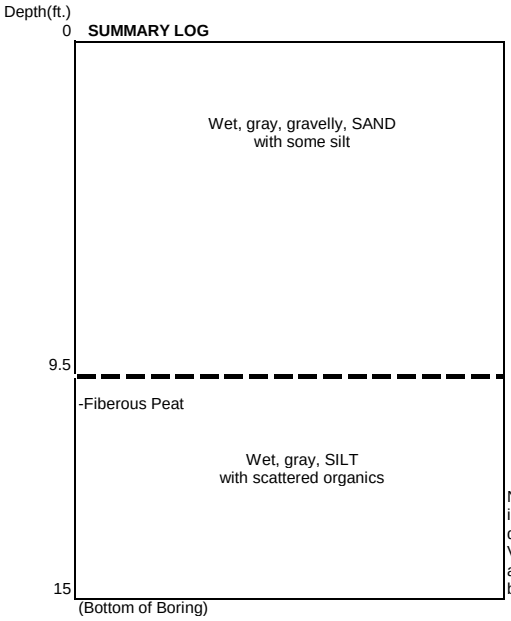
WP-B16

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Kasey
Drill Type: Geoprobe 6600
Size/Type Casing: 2" Rod

Location: N710140 E1174795 NAD83
Elevation (Ft.):
Date Completed: 10/19/12
Weather: Rain 55F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" Macro w/ acrylic liner

Spl.No.	Type sample saved	Drill Action	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		Smooth	0-5	36		0-2 Moist, gry-bwn, gravelly, SAND, w/some silt, ns, no
A	Grab 1-2'				0850	2-5 Wet-sat, gry, gravelly, SAND, ns, no
B	Grab 8-9'		5-10	24		5-9.5 Sat, gry, gravelly, SAND, w/some silt, no, ns
					0855	9.5-10 Wet, bwn Fibrous, PEAT
			10-15	48		10-11 Wet, bwn, Organic SILT
C	Grab 11-12'				0900	11-15 Wet, gry, SILT, w/scattered organics, ns, no



NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite
gry = gray; bwn = brown; blk = black
ns = no sheen
no = no odor
F = fine; M = medium
Sat = Pores saturated with water

Samples
WP-S-B16-A-101912 @ 0850
WP-S-B16-B-101912 @ 0855
WP-S-B16-C-101912 @ 0900

BORING - DESCRIPTION OF SAMPLES & DATA

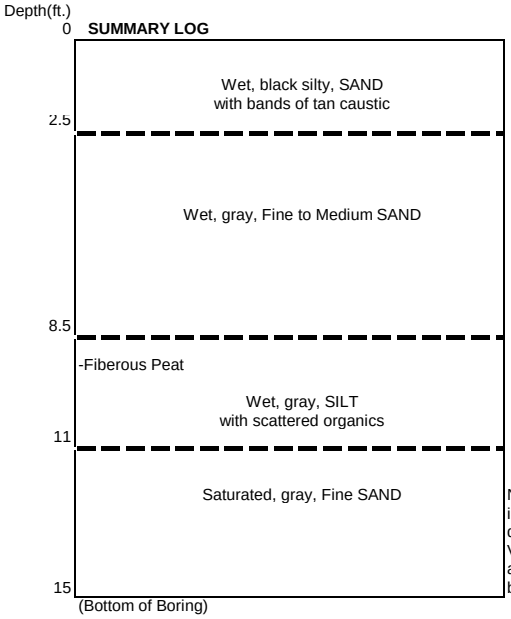
WP-B17

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Kasey
Drill Type: Geoprobe 6600
Size/Type Casing: 2" Rod

Location: N710063 E1174789 NAD83
Elevation (Ft.):
Date Completed: 10/19/12
Weather: Rain 55F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" Macro w/ acrylic liner

Spl.No.	Type sample saved	Drill Action	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		Smooth	0-5	55		0-0.5 Wet, bwn, silty, SAND, w/roots
A	Grab 1-2'				0935	0.5-2.5 Wet, blk, silty, SAND, w/bands of tan caustic mat., acrid odor, ns
						2.5-5 Wet, gry, F-M SAND, ns, no
			5-10	60		5-6.5 As above
B	Grab 7-8'				0940	6.5-8.5 Wet, mot blk-gry-tan, silty, SAND, ns, no
						8.5-10 Wet, bwn, Fibrous PEAT
			10-15	48		10-11 Wet, gry, SILT, w/scatered organics
C	Grab 11-12'				0945	11-15 Sat, gry, F SAND, ns, no



NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite
gry = gray; bwn = brown; blk = black
ns = no sheen
no = no odor
F = fine; M = medium
Sat = Pores saturated with water

Samples
WP-S-B17-A-101912 @ 0935
WP-S-B17-B-101912 @ 0940
WP-S-B17-C-101912 @ 0945

BORING - DESCRIPTION OF SAMPLES & DATA

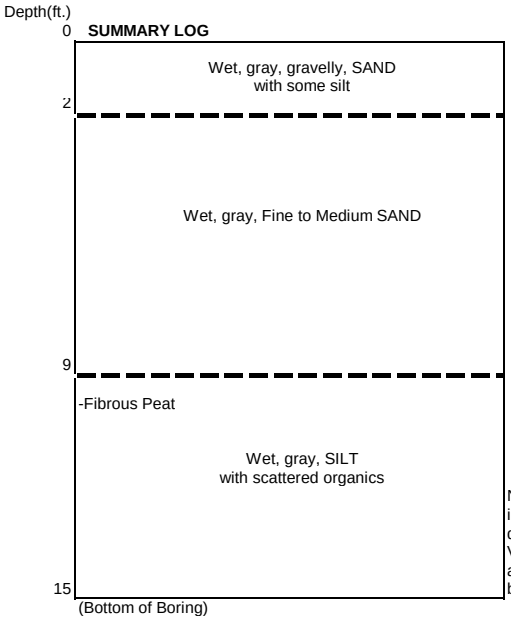
WP-B18

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Kasey
Drill Type: Geoprobe 6600
Size/Type Casing: 2" Rod

Location: N710041 E1174795 NAD83
Elevation (Ft.):
Date Completed: 10/19/12
Weather: Rain 55F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" Macro w/ acrylic liner

Spl.No.	Type sample saved	Drill Action	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		Smooth	0-5	40		0-2 Wet, mot bwn-blk, gravelly, SAND, w/some silt, ns, no
A	Grab 1-2'				0950	2-5 Wet, gry, F-M SAND
B	Grab7-8'		5-10	60		5-8 As above, sat
					0955	8-9 Sat, gry, F SAND
						9-9.5 Wet, gry-blk, SILT
						9.5-10 Wet, bwn, Fibrous PEAT
			10-15	55		10-15 Wet, gry, SILT, w/organics, marsh grass
C	Grab 11-12'				1000	



NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite
gry = gray; bwn = brown; blk = black
ns = no sheen
no = no odor
F = fine; M = medium
Sat = Pores saturated with water

Samples
WP-S-B18-A-101912 @ 0950
WP-S-B18-B-101912 @ 0955
WP-S-B18-C-101912 @ 1000

BORING - DESCRIPTION OF SAMPLES & DATA

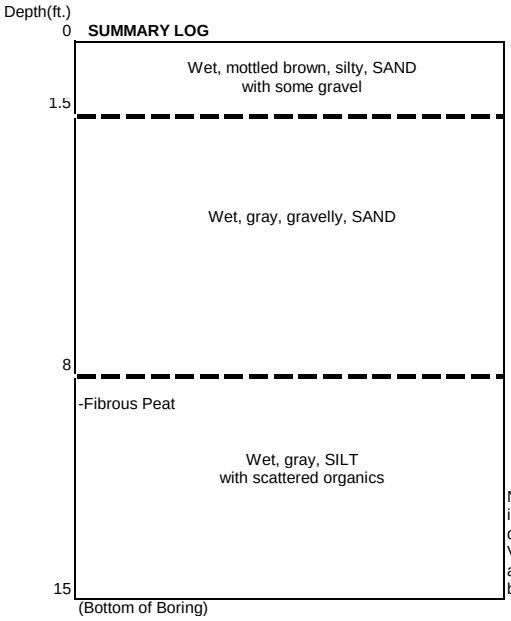
WP-B19

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Kasey
Drill Type: Geoprobe 6600
Size/Type Casing: 2" Rod

Location: N710092 E1174804 NAD83
Elevation (Ft.):
Date Completed: 10/19/12
Weather: Rain 55F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" Macro w/ acrylic liner

Spl.No.	Type sample saved	Drill Action	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		Smooth	0-5	36		0-0.5 grass/duff
A	Grab 0.5-1.5'				1020	0.5-1.5 Wet, mot bwn, silty, SAND, w/some gravel, ns, no
						1.5-5 Wet, gry, gravelly, SAND, w/some silt, ns, no
B	Grab7-8'		5-10	36		5-8 As above, sat, acrid odor, ns
					1025	8-9 Wet, blk-bwn, organic, SILT
						9-10 Wet, bwn, Fibrous PEAT
			10-15	48		10-15 Wet, gry, SILT, w/organics, marsh grass
C	Grab 11-12'				1030	



NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite
gry = gray; bwn = brown; blk = black
ns = no sheen
no = no odor
F = fine; M = medium
Sat = Pores saturated with water

Samples
WP-S-B19-A-101912 @ 1020
WP-S-B19-B-101912 @ 1025
WP-S-B19-C-101912 @ 1030

BORING - DESCRIPTION OF SAMPLES & DATA

WP-B20

Field Rep: DG Cooper
Drilling Co.: Cascade
Driller: Kasey
Drill Type: Geoprobe 6600
Size/Type Casing: 2" Rod

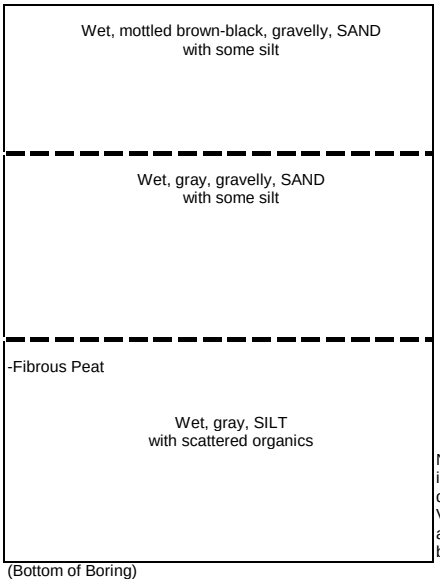
Location: N710091 E1174824 NAD83
Elevation (Ft.):
Date Completed: 10/19/12
Weather: Rain 55F
Hammer Type: Direct push

Ground Surface: Grass
Sampler Type: 2" Macro w/ acrylic liner

Spl.No.	Type sample saved	Drill Action	Spl Depth (Ft.) From - To	Spl length inches	Time	Sample Description
		Smooth	0-5	36		0-3 Wet, mot bwn-gry, gravelly, SAND, w/some silt, brick, acrid odor from 2-3', ns
A	Grab 2-3'				1045	3-5 Wet, gry, gravelly, SAND, w/some silt, trace odor, ns
B	Grab7-8'		5-10	40		5-9 As above, sat, no, ns
					1050	9-10 Wet, bwn, Fibrous PEAT
			10-15	55		10-15 Wet, gry, SILT, w/organics, marsh grass
C	Grab 11-12'				1055	

Depth(ft.)

SUMMARY LOG



NOTE: The summary log is an interpretation based on samples, drill action, and interpolation. Variations between what is shown and actual conditions should be anticipated.

NOTES: Completed boring backfilled with granular bentonite
gry = gray; bwn = brown; blk = black
ns = no sheen
no = no odor
F = fine; M = medium
Sat = Pores saturated with water

Samples
WP-S-B20-A-101912 @ 1045
WP-S-B20-B-101912 @ 1050
WP-S-B20-C-101912 @ 1055

ATTACHMENT B
Laboratory Data Sheets
March 2014 Push-Probe Sampling
Wypenn Interim Action

Analytical Resources, Incorporated
Analytical Chemists and Consultants

April 4, 2014

Matt Dalton
Dalton, Olmsted, & Fuglevand
6034 N Star Road
Ferndale, WA 98248

RE: WYPENN, POT-001-01
ARI Job No.: YE41

Dear Matt:

Please find enclosed the Chain-of-Custody records (COCs), sample receipt documentation, and the final analytical results for samples from the project referenced above. Analytical Resources, Inc. (ARI) received thirty soil samples on March 26, 2014. Select samples were archived upon receipt. For details regarding sample receipt, please refer to the enclosed Cooler Receipt Form.

The samples were analyzed for arsenic, as requested on the COC.

There were no anomalies associated with the analysis of these samples.

An electronic copy of this report will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
Project Manager
(206) 695-6214
cheronneo@arilabs.com
www.arilabs.com

cc: eFile YE41

Enclosures

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: YE41	Turn-around Requested: NORMAL	Page: 1 of 9	
ARI Client Company: DALTON OLMSTED & FUGLEVAND	Phone:	Date: 3/25/14	Ice Present? Y
Client Contact: MATT DALTON - FRONTIER		No. of Coolers: 2	Cooler Temps: 2.4, 5.4
Client Project Name: WYAENN			
Client Project #: PST-001-01	Samplers: D COOPER		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested	Notes/Comments
WP-S-SA-2-031914	3/19/14	1010	SOIL	1		
-SA-4-		1020				
-SA-6-		1030				
-SB-6-		1040			X	
-SB-8-		1050				
-SB-10-		1100			X	
-SC-2-		1120				
-SC-4-		1125				
-SC-6-		1130			X	
-SC-8-		1135			X	

Comments/Special Instructions

Relinquished by: (Signature)	D Cooper	Received by: (Signature)	
Printed Name	D. Cooper	Printed Name:	Jennifer Millsap
Company	DOE	Company	ARI
Date & Time	3/26/14 1250	Date & Time	3/26/14 1720

Relinquished by: (Signature)		Received by: (Signature)	
Printed Name		Printed Name	
Company		Company.	
Date & Time.		Date & Time:	

YE41 : 00002

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: YE41	Turn-around Requested: normal	Page: 2 of 9	
ARI Client Company: DOF	Phone:	Date: 3/25/14	Ice Present? Y
Client Contact: M Dalton		No. of Coolers: 2	Cooler Temps: 2.4, 5.4
Client Project Name: WYPUW			
Client Project #: PO5-001-01	Samplers: D Cooper		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested: 42	Notes/Comments
WP-S-SC-10-031914	3/19/14	1140	soil	1		
-SC-12-		1145				
-SD-2-		1205			X	
-SD-6-		1210			X	
-SD-8-		1212			X	
-SD-10-		1215			X	
-SE-9-		1245			X	
-SE-10-		1250			X	
-SE-11-		1255				
-LI-2-		1405			X	

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by: (Signature)	Received by (Signature)
	Printed Name: D Cooper	Printed Name: Jennifer Mittsap	Printed Name.	Printed Name:
	Company: DOF	Company AR1	Company	Company
	Date & Time 3/26/14 1230	Date & Time 3/26/14 1250	Date & Time:	Date & Time:

YE41:00003

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

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Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: YE41	Turn-around Requested: NORMAL	Page: 3 of 9	
ARI Client Company: DOF	Phone:	Date: 3/25/14	Ice Present? Y
Client Contact: M DALTON		No. of Coolers: 2	Cooler Temps: 2.4, 5.4
Client Project Name: WYPENN			
Client Project #: POT-001-01	Samplers: D Cooper		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested: AP	Notes/Comments
WP-S-L1-4-031914	3/19/14	1410	SOIL	1	X	
-L1-6-		1415				
-L1-8-		1420			X	
-LB15-6		1440				
-LB15-8-		1445			X	
-L2-2-		1505				
-L2-4-		1510			X	
-L2-6-		1515				
-L2-8-		1520			X	
-L2-10		1525				

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by: (Signature)	Received by (Signature)
	Printed Name: D. Cooper	Printed Name: Jennifer Milbrath	Printed Name:	Printed Name:
	Company: DOF	Company: ARI	Company:	Company
	Date & Time: 3/26/14 1250	Date & Time: 3/26/14 1250	Date & Time:	Date & Time:

YE41:0001

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: DOF

COC No(s). ____ (NA) — circled

Assigned ARI Job No: YE41

Project Name: WYPENN

Delivered by. Fed-Ex UPS Courier Hand Delivered (circled) Other: ____

Tracking No: ____ (NA) — circled

Preliminary Examination Phase:

Question		
Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO) — circled
Were custody papers included with the cooler?	(YES) — circled	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES) — circled	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry): 2.4 5.4
Time: ____

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 12341 2224

Cooler Accepted by: JM Date 3/26/14 Time: 1250

Complete custody forms and attach all shipping documents

Log-In Phase:

Question	NA	YES	NO
Was a temperature blank included in the cooler?		YES	(NO) — circled
What kind of packing material was used? Bubble Wrap (Wet Ice) — circled, Gel Packs, Baggies, Foam Block, Paper, (Other) — circled: Cardboard			
Was sufficient ice used (if appropriate)?	NA	(YES) — circled	NO
Were all bottles sealed in individual plastic bags?		YES	(NO) — circled
Did all bottles arrive in good condition (unbroken)?		(YES) — circled	NO
Were all bottle labels complete and legible?		(YES) — circled	NO
Did the number of containers listed on COC match with the number of containers received?		(YES) — circled	NO
Did all bottle labels and tags agree with custody papers?		(YES) — circled	NO
Were all bottles used correct for the requested analyses?		(YES) — circled	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	(NA) — circled	YES	NO
Were all VOC vials free of air bubbles?	(NA) — circled	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES) — circled	NO
Date VOC Trip Blank was made at ARI	(NA) — circled		

Was Sample Split by ARI: (NA) — circled YES Date/Time: ____ Equipment: ____ Split by: ____

Samples Logged by: JM Date: 3/26/14 Time: 1410

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date.

Small Air Bubbles ~2mm	Peabubbles 2-4 mm	LARGE Air Bubbles > 4 mm

Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: YE41
Client: Dalton, Olmsted & Fuglevand, Inc
Project Event: POT-001-01
Project Name: WYPENN

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	WP-S-SB-6-031914	YE41A	14-5559	Soil	03/19/14 10:40	03/26/14 12:50
2.	WP-S-SB-10-031914	YE41B	14-5560	Soil	03/19/14 11:00	03/26/14 12:50
3.	WP-S-SC-6-031914	YE41C	14-5561	Soil	03/19/14 11:30	03/26/14 12:50
4.	WP-S-SC-8-031914	YE41D	14-5562	Soil	03/19/14 11:35	03/26/14 12:50
5.	WP-S-SD-2-031914	YE41E	14-5563	Soil	03/19/14 12:05	03/26/14 12:50
6.	WP-S-SD-6-031914	YE41F	14-5564	Soil	03/19/14 12:10	03/26/14 12:50
7.	WP-S-SD-8-031914	YE41G	14-5565	Soil	03/19/14 12:12	03/26/14 12:50
8.	WP-S-SD-10-031914	YE41H	14-5566	Soil	03/19/14 12:15	03/26/14 12:50
9.	WP-S-SE-9-031914	YE41I	14-5567	Soil	03/19/14 12:45	03/26/14 12:50
10.	WP-S-SE-10-031914	YE41J	14-5568	Soil	03/19/14 12:50	03/26/14 12:50
11.	WP-S-L1-2-031914	YE41K	14-5569	Soil	03/19/14 14:05	03/26/14 12:50
12.	WP-S-L1-4-031914	YE41L	14-5570	Soil	03/19/14 14:10	03/26/14 12:50
13.	WP-S-L1-8-031914	YE41M	14-5571	Soil	03/19/14 14:20	03/26/14 12:50
14.	WP-S-LB15-8-031914	YE41N	14-5572	Soil	03/19/14 14:45	03/26/14 12:50
15.	WP-S-L2-4-031914	YE41O	14-5573	Soil	03/19/14 15:10	03/26/14 12:50
16.	WP-S-L2-8-031914	YE41P	14-5574	Soil	03/19/14 15:20	03/26/14 12:50
17.	WP-S-SA-2-031914	YE41Q	14-5575	Soil	03/19/14 10:10	03/26/14 12:50
18.	WP-S-SA-4-031914	YE41R	14-5576	Soil	03/19/14 10:20	03/26/14 12:50
19.	WP-S-SA-6-031914	YE41S	14-5577	Soil	03/19/14 10:30	03/26/14 12:50
20.	WP-S-SB-8-031914	YE41T	14-5578	Soil	03/19/14 10:50	03/26/14 12:50
21.	WP-S-SC-2-031914	YE41U	14-5579	Soil	03/19/14 11:20	03/26/14 12:50
22.	WP-S-SC-4-031914	YE41V	14-5580	Soil	03/19/14 11:25	03/26/14 12:50
23.	WP-S-SC-10-031914	YE41W	14-5581	Soil	03/19/14 11:40	03/26/14 12:50
24.	WP-S-SC-12-031914	YE41X	14-5582	Soil	03/19/14 11:45	03/26/14 12:50
25.	WP-S-SE-11-031914	YE41Y	14-5583	Soil	03/19/14 12:55	03/26/14 12:50
26.	WP-S-L1-6-031914	YE41Z	14-5584	Soil	03/19/14 14:15	03/26/14 12:50
27.	WP-S-LB15-6-031914	YE41AA	14-5585	Soil	03/19/14 14:40	03/26/14 12:50
28.	WP-S-L2-2-031914	YE41AB	14-5586	Soil	03/19/14 15:05	03/26/14 12:50
29.	WP-S-L2-6-031914	YE41AC	14-5587	Soil	03/19/14 15:15	03/26/14 12:50
30.	WP-S-L2-10-031914	YE41AD	14-5588	Soil	03/19/14 15:25	03/26/14 12:50

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: WP-S-SB-6-031914**
Page 1 of 1 **SAMPLE**

Lab Sample ID: YE41A
LIMS ID: 14-5559
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE41-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 73.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	7	**634**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-SB-10-031914
SAMPLE

Lab Sample ID: YE41B
LIMS ID: 14-5560
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE41-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 31.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	10	**50**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-SC-6-031914
SAMPLE

Lab Sample ID: YE41C
LIMS ID: 14-5561
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE41-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 81.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	6	**746**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-SC-8-031914
SAMPLE

Lab Sample ID: YE41D
LIMS ID: 14-5562
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE41-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 79.7%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	6	**44**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-SD-2-031914
SAMPLE

Lab Sample ID: YE41E
LIMS ID: 14-5563
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE41-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 85.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	5	**22**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-SD-6-031914
SAMPLE

Lab Sample ID: YE41F
LIMS ID: 14-5564
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE41-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 83.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	6	**31**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-SD-8-031914
SAMPLE

Lab Sample ID: YE41G
LIMS ID: 14-5565
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE41-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 77.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	6	**76**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-SD-10-031914
SAMPLE

Lab Sample ID: YE41H
LIMS ID: 14-5566
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE41-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 56.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	8	**17**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: WP-S-SE-9-031914
SAMPLE

Lab Sample ID: YE41I
LIMS ID: 14-5567
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE41-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 63.9%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	8	**824**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-SE-10-031914
SAMPLE

Lab Sample ID: YE41J
LIMS ID: 14-5568
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE41-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 26.9%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	20	**60**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: WP-S-L1-2-031914
SAMPLE

Lab Sample ID: YE41K
LIMS ID: 14-5569
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE41-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 86.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	6	**20**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: WP-S-L1-4-031914
SAMPLE

Lab Sample ID: YE41L
LIMS ID: 14-5570
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE41-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 88.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	5	**17**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-L1-8-031914
SAMPLE

Lab Sample ID: YE41M
LIMS ID: 14-5571
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE41-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 85.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	6	**12**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-LB15-8-031914
SAMPLE

Lab Sample ID: YE41N
LIMS ID: 14-5572
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE41-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 78.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	6	**69**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-L2-4-031914
SAMPLE

Lab Sample ID: YE41O
LIMS ID: 14-5573
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE41-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 83.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	6	**21**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-L2-8-031914
SAMPLE

Lab Sample ID: YE41P
LIMS ID: 14-5574
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE41-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 79.9%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	6	**56**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-SB-6-031914
MATRIX SPIKE

Lab Sample ID: YE41A
LIMS ID: 14-5559
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE41-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	6010C	634	914	270	104%	

Reported in mg/kg-dry

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-SB-6-031914
DUPLICATE

Lab Sample ID: YE41A
LIMS ID: 14-5559
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE41-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	6010C	634	636	0.3%	+/- 20%	

Reported in mg/kg-dry

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: YE41LCS
LIMS ID: 14-5560
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE41-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010C	216	200	108%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: YE41MB
LIMS ID: 14-5560
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE41-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/02/14	7440-38-2	Arsenic	5	5	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

Analytical Resources, Incorporated
Analytical Chemists and Consultants

April 4, 2014

Matt Dalton
Dalton, Olmsted, & Fuglevand
6034 N Star Road
Ferndale, WA 98248

RE: WYPENN, POT-001-01
ARI Job No.: YE42

Dear Matt:

Please find enclosed the Chain-of-Custody records (COCs), sample receipt documentation, and the final analytical results for samples from the project referenced above. Analytical Resources, Inc. (ARI) received thirty soil samples on March 26, 2014. Select samples were archived upon receipt. For details regarding sample receipt, please refer to the enclosed Cooler Receipt Form.

The samples were analyzed for arsenic, as requested on the COC.

The duplicate RPD of arsenic was outside the control limit for sample **WP-S-L3-2-031914**. All relevant data have been flagged with a "*" qualifier on the Form VI. No further corrective action was taken.

An electronic copy of this report will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
Project Manager
(206) 695-6214
cheronneo@arilabs.com
www.arilabs.com

cc: eFile YE42

Enclosures

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: YE42	Turn-around Requested: NORMAL	Page: 4 of 9	
ARI Client Company: DOF	Phone:	Date: 3/25/14	Ice Present? Y
Client Contact: M. DALTON		No. of Coolers: 2	Cooler Temps: 2.4, 5.4
Client Project Name: WYPUW			
Client Project #: POT-001-01	Samplers: D. COOPER		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: 4b	Notes/Comments
WP-S-L3-2-031914	3/19/14	1530	SOIL	1	X	
-L3-7-		1535				
-L3-9-		1540			X	
-L3-11-		1545			X	
-L4-2-		1605			X	
-L4-3-		1610			X	
-L4-6-		1615				
-L4-9-		1620			X	
WP-S-L4A-7-032014	3/20/14	1310			X	
-L5-2-		0840				

Comments/Special Instructions	Relinquished by: (Signature)	Received by: (Signature)	Relinquished by (Signature)	Received by: (Signature)
	Printed Name: D.A. Cooper	Printed Name: Jennifer Millsap	Printed Name	Printed Name:
	Company: DOF	Company: ARI	Company	Company:
	Date & Time: 3/26/14 1250	Date & Time: 3/26/14 1250	Date & Time	Date & Time

YE42:9902

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: YE42	Turn-around Requested: NORMAL	Page: 5 of 9	
ARI Client Company: DOE	Phone:	Date: 3/25/14	Ice Present? Y
Client Contact: M. DALTON		No. of Coolers: 2	Cooler Temps: 2.4, 5.4
Client Project Name: WYPEW			
Client Project #: POT-001-01	Samplers: D Cooper		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested	Notes/Comments
WP-S-L5-9-032014	3/20/14	0855	SOIL	1		
-L6-1-		0910				
-L6-9.5-		0915				
-L7-2-		0935				
-L7-4-		0940			X	
-L7-6-		0945				
-L7-8-		0950				
-L7-9-		0955			X	
-L7-11-		1000			X	
-L8-1-		1005			X	

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by: (Signature)	Received by. (Signature)
	Printed Name: M. Cooper	Printed Name: Jennifer Mittge	Printed Name:	Printed Name
	Company: DOE	Company: ARI	Company:	Company:
	Date & Time: 3/26/14 1250	Date & Time: 3/26/14 1250	Date & Time:	Date & Time:

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

YE42:0005

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: YE42	Turn-around Requested: normal	Page: 6 of 9	
ARI Client Company: DOF	Phone:	Date: 3/25/14	Ice Present? Y
Client Contact: M Ohlson		No. of Coolers: 2	Cooler Temps: 2.4, 5.4
Client Project Name: WYPEN			
Client Project #: POL-001-01	Samplers: D. Cooper		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No Containers	Analysis Requested: AS								Notes/Comments
WP-S-LB-4-032014	3/20/14	1010	soil	1	X								
-LB-6-		1015											
-LB-8-		1020											
-LB-9.5-		1025			X								
-LB-10-		1030			X								
-L9-2-		1325			X								
-L9-4-		1330											
-L9-6-		1335			X								
-L9-9-		1340			X								
-L9-10-		1345			X								

Comments/Special Instructions	Relinquished by: (Signature)	Received by (Signature)	Relinquished by: (Signature)	Received by: (Signature)
	Printed Name: D. Cooper	Printed Name: Jennifer Mitzel	Printed Name:	Printed Name:
	Company: DOF	Company: ARI	Company	Company
	Date & Time: 3/26/14 1250	Date & Time: 3/26/14 1250	Date & Time:	Date & Time

YE42:0901

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: DOF

Project Name: WYPENN

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: YE42

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2 0-6.0 °C for chemistry): 2.4 5.4

Time: _____

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 12941239 24

Cooler Accepted by: JM Date: 3/26/14 Time: 1252

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper Other: cardboard		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI.	(NA)		

Was Sample Split by ARI: (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

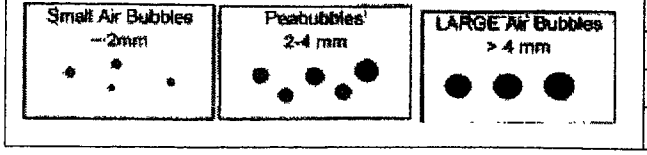
Samples Logged by: JM Date: 3/26/14 Time: 1410

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:



Small → "sm" (< 2 mm)
Peabubbles → "pb" (2 to < 4 mm)
Large → "lg" (4 to < 6 mm)
Headspace → "hs" (> 6 mm)

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: YE42
Client: Dalton, Olmsted & Fuglevand, Inc
Project Event: POT-001-01
Project Name: WYPENN

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	WP-S-L3-2-031914	YE42A	14-5589	Soil	03/19/14 15:30	03/26/14 12:50
2.	WP-S-L3-9-031914	YE42B	14-5590	Soil	03/19/14 15:40	03/26/14 12:50
3.	WP-S-L3-11-031914	YE42C	14-5591	Soil	03/19/14 15:45	03/26/14 12:50
4.	WP-S-L4-2-031914	YE42D	14-5592	Soil	03/19/14 16:05	03/26/14 12:50
5.	WP-S-L4-3-031914	YE42E	14-5593	Soil	03/19/14 16:10	03/26/14 12:50
6.	WP-S-L4-9-031914	YE42F	14-5594	Soil	03/19/14 16:20	03/26/14 12:50
7.	WP-S-L4A-2-032014	YE42G	14-5595	Soil	03/20/14 13:10	03/26/14 12:50
8.	WP-S-L7-4-032014	YE42H	14-5596	Soil	03/20/14 09:40	03/26/14 12:50
9.	WP-S-L7-9-032014	YE42I	14-5597	Soil	03/20/14 09:55	03/26/14 12:50
10.	WP-S-L7-11-032014	YE42J	14-5598	Soil	03/20/14 10:00	03/26/14 12:50
11.	WP-S-L8-1-032014	YE42K	14-5599	Soil	03/20/14 10:05	03/26/14 12:50
12.	WP-S-L8-4-032014	YE42L	14-5600	Soil	03/20/14 10:10	03/26/14 12:50
13.	WP-S-L8-9.5-032014	YE42M	14-5601	Soil	03/20/14 10:25	03/26/14 12:50
14.	WP-S-L8-10-032014	YE42N	14-5602	Soil	03/20/14 10:30	03/26/14 12:50
15.	WP-S-L9-2-032014	YE42O	14-5603	Soil	03/20/14 13:25	03/26/14 12:50
16.	WP-S-L9-6-032014	YE42P	14-5604	Soil	03/20/14 13:35	03/26/14 12:50
17.	WP-S-L9-9-032014	YE42Q	14-5605	Soil	03/20/14 13:40	03/26/14 12:50
18.	WP-S-L9-10-032014	YE42R	14-5606	Soil	03/20/14 13:45	03/26/14 12:50
19.	WP-S-L3-7-031914	YE42S	14-5607	Soil	03/19/14 15:35	03/26/14 12:50
20.	WP-S-L4-6-031914	YE42T	14-5608	Soil	03/19/14 16:15	03/26/14 12:50
21.	WP-S-L5-2-032014	YE42U	14-5609	Soil	03/20/14 08:40	03/26/14 12:50
22.	WP-5-L5-9-032014	YE42V	14-5610	Soil	03/20/14 08:55	03/26/14 12:50
23.	WP-S-L6-1-032014	YE42W	14-5611	Soil	03/20/14 09:10	03/26/14 12:50
24.	WP-S-L6-9.5-032014	YE42X	14-5612	Soil	03/20/14 09:15	03/26/14 12:50
25.	WP-S-L7-2-032014	YE42Y	14-5613	Soil	03/20/14 09:35	03/26/14 12:50
26.	WP-S-L7-6-032014	YE42Z	14-5614	Soil	03/20/14 09:45	03/26/14 12:50
27.	WP-S-L7-8-032014	YE42AA	14-5615	Soil	03/20/14 09:50	03/26/14 12:50
28.	WP-S-L8-6-032014	YE42AB	14-5616	Soil	03/20/14 10:15	03/26/14 12:50
29.	WP-S-L8-8-032014	YE42AC	14-5617	Soil	03/20/14 10:20	03/26/14 12:50
30.	WP-S-L9-4-032014	YE42AD	14-5618	Soil	03/20/14 13:30	03/26/14 12:50

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INORGANICS ANALYSIS DATA SHEET
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Sample ID: WP-S-L3-2-031914
SAMPLE

Lab Sample ID: YE42A
LIMS ID: 14-5589
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 59.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	04/01/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	8	**175**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

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INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: WP-S-L3-9-031914
SAMPLE

Lab Sample ID: YE42B
LIMS ID: 14-5590
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 58.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	04/01/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	8	**495**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

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INORGANICS ANALYSIS DATA SHEET
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Sample ID: WP-S-L3-11-031914
SAMPLE

Lab Sample ID: YE42C
LIMS ID: 14-5591
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 55.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	04/01/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	8	**20**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: WP-S-L4-2-031914
SAMPLE

Lab Sample ID: YE42D
LIMS ID: 14-5592
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 69.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	04/01/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	7	**441**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: WP-S-L4-3-031914
SAMPLE

Lab Sample ID: YE42E
LIMS ID: 14-5593
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 82.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	04/01/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	6	**25**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

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Sample ID: WP-S-L4-9-031914
SAMPLE

Lab Sample ID: YE42F
LIMS ID: 14-5594
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

Percent Total Solids: 80.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	04/01/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	6	**8**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: WP-S-L4A-2-032014
SAMPLE

Lab Sample ID: YE42G
LIMS ID: 14-5595
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/20/14
Date Received: 03/26/14

Percent Total Solids: 71.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	04/01/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	7	**134**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: WP-S-L7-4-032014
SAMPLE

Lab Sample ID: YE42H
LIMS ID: 14-5596
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/20/14
Date Received: 03/26/14

Percent Total Solids: 79.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	04/01/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	6	**16**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: WP-S-L7-9-032014
SAMPLE

Lab Sample ID: YE42I
LIMS ID: 14-5597
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/20/14
Date Received: 03/26/14

Percent Total Solids: 47.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	04/01/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	10	**410**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

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INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: WP-S-L7-11-032014
SAMPLE

Lab Sample ID: YE42J
LIMS ID: 14-5598
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/20/14
Date Received: 03/26/14

Percent Total Solids: 52.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	04/01/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	9	**19**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: WP-S-L8-1-032014
SAMPLE

Lab Sample ID: YE42K
LIMS ID: 14-5599
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/20/14
Date Received: 03/26/14

Percent Total Solids: 52.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	04/01/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	9	**182**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: WP-S-L8-4-032014
SAMPLE

Lab Sample ID: YE42L
LIMS ID: 14-5600
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/20/14
Date Received: 03/26/14

Percent Total Solids: 66.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	04/01/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	7	**72**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: WP-S-L8-9.5-032014
SAMPLE

Lab Sample ID: YE42M
LIMS ID: 14-5601
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/20/14
Date Received: 03/26/14

Percent Total Solids: 53.4%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	04/01/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	9	**473**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: WP-S-L8-10-032014
SAMPLE

Lab Sample ID: YE42N
LIMS ID: 14-5602
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/20/14
Date Received: 03/26/14

Percent Total Solids: 36.7%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	04/01/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	10	**100**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-L9-2-032014
SAMPLE

Lab Sample ID: YE42O
LIMS ID: 14-5603
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/20/14
Date Received: 03/26/14

Percent Total Solids: 83.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	04/01/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	6	**33**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: WP-S-L9-6-032014
SAMPLE

Lab Sample ID: YE42P
LIMS ID: 14-5604
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/20/14
Date Received: 03/26/14

Percent Total Solids: 79.1%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	04/01/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	6	**9**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: WP-S-L9-9-032014
SAMPLE

Lab Sample ID: YE42Q
LIMS ID: 14-5605
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/20/14
Date Received: 03/26/14

Percent Total Solids: 62.3%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	04/01/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	7	**238**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: WP-S-L9-10-032014
SAMPLE

Lab Sample ID: YE42R
LIMS ID: 14-5606
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/20/14
Date Received: 03/26/14

Percent Total Solids: 49.8%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	04/01/14	6010C	04/02/14	**7440-38-2**	**Arsenic**	9	**21**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS

Sample ID: WP-S-L3-2-031914
MATRIX SPIKE

Lab Sample ID: YE42A
LIMS ID: 14-5589
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

MATRIX SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Spike	Spike Added	% Recovery	Q
Arsenic	6010C	175	577	323	124%	

Reported in mg/kg-dry

N-Control Limit Not Met
H-% Recovery Not Applicable, Sample Concentration Too High
NA-Not Applicable, Analyte Not Spiked

Percent Recovery Limits: 75-125%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
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Sample ID: WP-S-L3-2-031914
DUPLICATE

Lab Sample ID: YE42A
LIMS ID: 14-5589
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/19/14
Date Received: 03/26/14

MATRIX DUPLICATE QUALITY CONTROL REPORT

Analyte	Analysis Method	Sample	Duplicate	RPD	Control Limit	Q
Arsenic	6010C	175	287	48.5%	+/- 20%	*

Reported in mg/kg-dry

*-Control Limit Not Met
L-RPD Invalid, Limit = Detection Limit

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: LAB CONTROL**

Lab Sample ID: YE42LCS
LIMS ID: 14-5590
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010C	209	200	104%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: YE42MB
LIMS ID: 14-5590
Matrix: Soil
Data Release Authorized:
Reported: 04/04/14

QC Report No: YE42-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	04/01/14	6010C	04/02/14	7440-38-2	Arsenic	5	5	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

Analytical Resources, Incorporated
Analytical Chemists and Consultants

April 4, 2014

Matt Dalton
Dalton, Olmsted, & Fuglevand
6034 N Star Road
Ferndale, WA 98248

RE: WYPENN, POT-001-01
ARI Job No.: YE43

Dear Matt:

Please find enclosed the Chain-of-Custody records (COCs), sample receipt documentation, and the final analytical results for samples from the project referenced above. Analytical Resources, Inc. (ARI) received twenty-nine soil samples on March 26, 2014. Select samples were archived upon receipt. For details regarding sample receipt, please refer to the enclosed Cooler Receipt Form.

The samples were analyzed for arsenic, as requested on the COC.

There were no anomalies associated with the analysis of these samples.

An electronic copy of this report will remain on file with ARI. Should you have any questions or problems, please feel free to contact me at your convenience.

Sincerely,

ANALYTICAL RESOURCES, INC.

Cheronne Oreiro
Project Manager
(206) 695-6214
cheronneo@arilabs.com
www.arilabs.com

cc: eFile YE43

Enclosures

4611 South 134th Place, Suite 100 • Tukwila WA 98168 • **206-695-6200** • **206-695-6201** fax

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: YE43	Turn-around Requested: normal	Page: 7 of 9	
ARI Client Company: DOE	Phone:	Date: 3/25/14	Ice Present? Y
Client Contact: M. BARTON		No. of Coolers: 2	Cooler Temps: 2.4, 5.4
Client Project Name: WYPEW			
Client Project #: PGF-001-01	Samplers: D Cooper		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested: 2	Notes/Comments
WP-S-L10-2-032014	3/20/14	1405	soil	1	X	
-L10-4-		1410				
-L10-6-		1415			X	
-L10-9-		1420			X	
-L10-10-		1425				
WP-S-L11-2-032114	3/21/14	0935				
-L11-4-		0940				
-L11-6-		0945				
-L11-8-		0950				
-L11-9-		0955				

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by (Signature)
	Printed Name: D Cooper	Printed Name: Jennifer Mitson	Printed Name.	Printed Name
	Company: DOE	Company: ARI	Company.	Company.
	Date & Time: 3/26/14 1250	Date & Time: 3/26/14 1252	Date & Time.	Date & Time

YE43: 00002

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

ARI Assigned Number: YE43	Turn-around Requested: NORMAL	Page: 8 of 9	
ARI Client Company: DOF	Phone:	Date: 3/25/14	Ice Present? Y
Client Contact: M Anton		No. of Coolers: 2	Cooler Temps: 2.4, 5.4
Client Project Name: WYPEN			
Client Project #: POT-001-01	Samplers: D Cooper		

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested	Notes/Comments
WP-S-L11-10-032114	3/21/14	1000	SOIL	1		
-L12-3-		1005				
-L12-6-		1010				
-L12-9-		1015				
-L12-11-		1020				
-L12-12-		1030				
-L13-3-		1035			X	
-L13-6-		1040				
-L13-9-		1045			X	
-L13-10-		1050				

Comments/Special Instructions	Relinquished by (Signature)	Received by (Signature)	Relinquished by (Signature)	Received by: (Signature)
	Printed Name: D. Cooper	Printed Name: Jennifer Mittsap	Printed Name:	Printed Name:
	Company: DOF	Company: ARI	Company	Company
	Date & Time: 3/26/14 1250	Date & Time: 3/26/14 1252	Date & Time:	Date & Time:

YE43:00003

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the Invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

Chain of Custody Record & Laboratory Analysis Request

Analytical Resources, Incorporated
Analytical Chemists and Consultants
4611 South 134th Place, Suite 100
Tukwila, WA 98168
206-695-6200 206-695-6201 (fax)

ARI Assigned Number: YE43	Turn-around Requested: NORMAL
ARI Client Company: DOF	Phone:
Client Contact: M DALTON	
Client Project Name: WHCNN	
Client Project #: AOT-001-01	Samplers: D COOPER

Page: 9		of 9	
Date: 3/25/14		Ice Present?	Y
No. of Coolers:	2	Cooler Temps:	2.4, 5.4

Sample ID	Date	Time	Matrix	No. Containers	Analysis Requested:								Notes/Comments
WP-S-L14-9-032114	3/21/14	1110	SOIL	1									
-L14-10.5-	↓	1115	↓	↓									
-L15-3-	↓	1205	↓	↓									
-L15-5-	↓	1210	↓	↓									
-L15-7-	↓	1215	↓	↓									
-L15-9-	↓	1220	↓	↓									
-L15-10-	↓	1225	↓	↓									
WP-S-DB-10.5-032014	3/20/14	1115	↓	↓	X								
-DE-10.5-	↓	1200	↓	↓	X								

Comments/Special Instructions	Relinquished by	Received by	Relinquished by	Received by
	(Signature) [signature]	(Signature) [signature]	(Signature)	(Signature)
	Printed Name: DL Cooper	Printed Name: Jennifer Millsap	Printed Name	Printed Name
	Company: DOF	Company: ARI	Company:	Company
	Date & Time: 3/26/14 1250	Date & Time: 3/26/14 1250	Date & Time	Date & Time

Limits of Liability: *ARI will perform all requested services in accordance with appropriate methodology following ARI Standard Operating Procedures and the ARI Quality Assurance Program. This program meets standards for the industry. The total liability of ARI, its officers, agents, employees, or successors, arising out of or in connection with the requested services, shall not exceed the invoiced amount for said services. The acceptance by the client of a proposal for services by ARI release ARI from any liability in excess thereof, not withstanding any provision to the contrary in any contract, purchase order or co-signed agreement between ARI and the Client.*

Sample Retention Policy: All samples submitted to ARI will be appropriately discarded no sooner than 90 days after receipt or 60 days after submission of hardcopy data, whichever is longer, unless alternate retention schedules have been established by work-order or contract.

YE43:00004

Analytical Resources, Incorporated
Analytical Chemists and Consultants

Cooler Receipt Form

ARI Client: DOF

Project Name: WYPENN

COC No(s): _____ (NA)

Delivered by: Fed-Ex UPS Courier Hand Delivered Other: _____

Assigned ARI Job No: YE43

Tracking No: _____ (NA)

Preliminary Examination Phase:

Were intact, properly signed and dated custody seals attached to the outside of to cooler?	YES	(NO)
Were custody papers included with the cooler?	(YES)	NO
Were custody papers properly filled out (ink, signed, etc.)	(YES)	NO

Temperature of Cooler(s) (°C) (recommended 2.0-6.0 °C for chemistry): 2.4 5.4 ___ ___

Time: _____

If cooler temperature is out of compliance fill out form 00070F

Temp Gun ID#: 12941994

Cooler Accepted by: JM Date: 3/26/14 Time: 1250

Complete custody forms and attach all shipping documents

Log-In Phase:

Was a temperature blank included in the cooler?		YES	(NO)
What kind of packing material was used?	Bubble Wrap (Wet Ice) Gel Packs Baggies Foam Block Paper (Other) Cardboard		
Was sufficient ice used (if appropriate)?	NA	(YES)	NO
Were all bottles sealed in individual plastic bags?		YES	(NO)
Did all bottles arrive in good condition (unbroken)?		(YES)	NO
Were all bottle labels complete and legible?		(YES)	NO
Did the number of containers listed on COC match with the number of containers received?		(YES)	NO
Did all bottle labels and tags agree with custody papers?		(YES)	NO
Were all bottles used correct for the requested analyses?		(YES)	NO
Do any of the analyses (bottles) require preservation? (attach preservation sheet, excluding VOCs)...	(NA)	YES	NO
Were all VOC vials free of air bubbles?	(NA)	YES	NO
Was sufficient amount of sample sent in each bottle?		(YES)	NO
Date VOC Trip Blank was made at ARI..	(NA)		

Was Sample Split by ARI : (NA) YES Date/Time: _____ Equipment: _____ Split by: _____

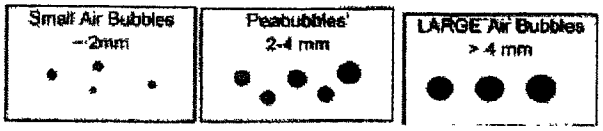
Samples Logged by: JM Date: 3/26/14 Time: 1415

***** Notify Project Manager of discrepancies or concerns *****

Sample ID on Bottle	Sample ID on COC	Sample ID on Bottle	Sample ID on COC

Additional Notes, Discrepancies, & Resolutions:

By: Date:



Small → "sm"	(< 2 mm)
Peabubbles → "pb"	(2 to < 4 mm)
Large → "lg"	(4 to < 6 mm)
Headspace → "hs"	(> 6 mm)

Sample ID Cross Reference Report

ANALYTICAL RESOURCES INCORPORATED

ARI Job No: YE43
Client: Dalton, Olmsted & Fuglevand, Inc
Project Event: POT-001-01
Project Name: WYPENN

	Sample ID	ARI Lab ID	ARI LIMS ID	Matrix	Sample Date/Time	VTSR
1.	WP-S-L10-2-032014	YE43A	14-5620	Soil	03/20/14 14:05	03/26/14 12:50
2.	WP-S-L10-6-032014	YE43B	14-5621	Soil	03/20/14 14:15	03/26/14 12:50
3.	WP-S-L10-9-032014	YE43C	14-5622	Soil	03/20/14 14:20	03/26/14 12:50
4.	WP-S-L13-3-032114	YE43D	14-5623	Soil	03/21/14 10:35	03/26/14 12:50
5.	WP-S-L13-9-032114	YE43E	14-5624	Soil	03/21/14 10:45	03/26/14 12:50
6.	WP-S-DB-10.5-032014	YE43F	14-5625	Soil	03/20/14 11:15	03/26/14 12:50
7.	WP-S-DE-10.5-032014	YE43G	14-5626	Soil	03/20/14 12:00	03/26/14 12:50
8.	WP-S-L10-4-032014	YE43H	14-5627	Soil	03/20/14 14:10	03/26/14 12:50
9.	WP-S-L10-10-032014	YE43I	14-5628	Soil	03/20/14 14:25	03/26/14 12:50
10.	WP-S-L11-2-032114	YE43J	14-5629	Soil	03/21/14 09:35	03/26/14 12:50
11.	WP-S-L11-4-032114	YE43K	14-5630	Soil	03/21/14 09:45	03/26/14 12:50
12.	WP-S-L11-6-032114	YE43L	14-5631	Soil	03/21/14 09:45	03/26/14 12:50
13.	WP-S-L11-8-032114	YE43M	14-5632	Soil	03/21/14 09:50	03/26/14 12:50
14.	WP-S-L11-9-032114	YE43N	14-5633	Soil	03/21/14 09:55	03/26/14 12:50
15.	WP-S-L11-10-032114	YE43O	14-5634	Soil	03/21/14 10:00	03/26/14 12:50
16.	WP-S-L12-3-032114	YE43P	14-5635	Soil	03/21/14 10:05	03/26/14 12:50
17.	WP-S-L12-6-032114	YE43Q	14-5636	Soil	03/21/14 10:10	03/26/14 12:50
18.	WP-S-L12-9-032114	YE43R	14-5637	Soil	03/21/14 10:15	03/26/14 12:50
19.	WP-S-L12-11-032114	YE43S	14-5638	Soil	03/21/14 10:20	03/26/14 12:50
20.	WP-S-L12-12-032114	YE43T	14-5639	Soil	03/21/14 10:30	03/26/14 12:50
21.	WP-S-L13-6-032114	YE43U	14-5640	Soil	03/21/14 10:40	03/26/14 12:50
22.	WP-S-L13-10-032114	YE43V	14-5641	Soil	03/21/14 10:50	03/26/14 12:50
23.	WP-S-L14-9-032114	YE43W	14-5642	Soil	03/21/14 11:10	03/26/14 12:50
24.	WP-S-L14-10.5-032114	YE43X	14-5643	Soil	03/21/14 11:15	03/26/14 12:50
25.	WP-S-L15-3-032114	YE43Y	14-5644	Soil	03/21/14 12:05	03/26/14 12:50
26.	WP-S-L15-5-032114	YE43Z	14-5645	Soil	03/21/14 12:10	03/26/14 12:50
27.	WP-S-L15-7-032114	YE43AA	14-5646	Soil	03/21/14 12:15	03/26/14 12:50
28.	WP-S-L15-9-032114	YE43AB	14-5647	Soil	03/21/14 12:20	03/26/14 12:50
29.	WP-S-L15-10-032114	YE43AC	14-5648	Soil	03/21/14 12:25	03/26/14 12:50

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-L10-2-032014
SAMPLE

Lab Sample ID: YE43A
LIMS ID: 14-5620
Matrix: Soil
Data Release Authorized:
Reported: 04/03/14

QC Report No: YE43-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/20/14
Date Received: 03/26/14

Percent Total Solids: 75.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/01/14	**7440-38-2**	**Arsenic**	7	**59**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-L10-6-032014
SAMPLE

Lab Sample ID: YE43B
LIMS ID: 14-5621
Matrix: Soil
Data Release Authorized:
Reported: 04/03/14

QC Report No: YE43-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/20/14
Date Received: 03/26/14

Percent Total Solids: 81.7%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/01/14	**7440-38-2**	**Arsenic**	3	**5**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-L10-9-032014
SAMPLE

Lab Sample ID: YE43C
LIMS ID: 14-5622
Matrix: Soil
Data Release Authorized:
Reported: 04/03/14

QC Report No: YE43-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/20/14
Date Received: 03/26/14

Percent Total Solids: 63.2%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/01/14	**7440-38-2**	**Arsenic**	7	**57**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-L13-3-032114
SAMPLE

Lab Sample ID: YE43D
LIMS ID: 14-5623
Matrix: Soil
Data Release Authorized:
Reported: 04/03/14

QC Report No: YE43-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/21/14
Date Received: 03/26/14

Percent Total Solids: 84.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/01/14	**7440-38-2**	**Arsenic**	6	**47**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-L13-9-032114
SAMPLE

Lab Sample ID: YE43E
LIMS ID: 14-5624
Matrix: Soil
Data Release Authorized:
Reported: 04/03/14

QC Report No: YE43-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/21/14
Date Received: 03/26/14

Percent Total Solids: 82.5%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/01/14	**7440-38-2**	**Arsenic**	6	**40**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-DB-10.5-032014
SAMPLE

Lab Sample ID: YE43F
LIMS ID: 14-5625
Matrix: Soil
Data Release Authorized:
Reported: 04/03/14

QC Report No: YE43-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/20/14
Date Received: 03/26/14

Percent Total Solids: 58.0%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/01/14	**7440-38-2**	**Arsenic**	8	**21**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Page 1 of 1

Sample ID: WP-S-DE-10.5-032014
SAMPLE

Lab Sample ID: YE43G
LIMS ID: 14-5626
Matrix: Soil
Data Release Authorized:
Reported: 04/03/14

QC Report No: YE43-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: 03/20/14
Date Received: 03/26/14

Percent Total Solids: 44.6%

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/01/14	**7440-38-2**	**Arsenic**	10	**20**	

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS
Sample ID: LAB CONTROL

Lab Sample ID: YE43LCS
LIMS ID: 14-5620
Matrix: Soil
Data Release Authorized:
Reported: 04/03/14

QC Report No: YE43-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: NA
Date Received: NA

BLANK SPIKE QUALITY CONTROL REPORT

Analyte	Analysis Method	Spike Found	Spike Added	% Recovery	Q
Arsenic	6010C	216	200	108%	

Reported in mg/kg-dry

N-Control limit not met
NA-Not Applicable, Analyte Not Spiked
Control Limits: 80-120%

ANALYTICAL RESOURCES INCORPORATED

INORGANICS ANALYSIS DATA SHEET
TOTAL METALS **Sample ID: METHOD BLANK**

Lab Sample ID: YE43MB
LIMS ID: 14-5620
Matrix: Soil
Data Release Authorized:
Reported: 04/03/14

QC Report No: YE43-Dalton, Olmsted & Fuglevand, Inc
Project: WYPENN
POT-001-01
Date Sampled: NA
Date Received: NA

Percent Total Solids: NA

Prep Meth	Prep Date	Analysis Method	Analysis Date	CAS Number	Analyte	LOQ	mg/kg-dry	Q
3050B	03/28/14	6010C	04/01/14	7440-38-2	Arsenic	5	5	U

U-Analyte undetected at given LOQ
LOQ-Limit of Quantitation