

**APPENDIX A**  
**Field Sampling Logs**

Soil Boring Samples

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## **SOIL BORING SAMPLES**

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# HTRW DRILLING LOG

DISTRICT  
USACE - Louisville

BOREHOLE NUMBER  
CBL5b-407

1. COMPANY NAME  
SAIC

2. DRILLING SUBCONTRACTOR  
Frontz Drilling

SHEET 1 OF 2

3. PROJECT  
RVAAP PBA48-RF

4. LOCATION  
RVAAP 8451 State Route 5 Ravenna, OH 44266

5. NAME OF DRILLER  
Ryan Laurich

6. MAKE/MODEL OF DRILL  
Geoprobe

7. SIZES AND TYPES OF SAMPLING EQUIPMENT  
3" Hand Auger  
SS Bowl

8. BOREHOLE LOCATION  
E2343725.34 N559645.74

9. SURFACE ELEVATION/DATUM  
NAD 83

10. DRILL DATE/TIME  
3/22/10

STARTED: 1550 COMPLETED: 1745

15. DEPTH GROUNDWATER ENCOUNTERED  
NA

16. DEPTH TO WATER/ELAPSED TIME AFTER BOREHOLE COMPLETION  
NA

12. OVERBURDEN THICKNESS  
7' L

17. OTHER WATER LEVEL MEASUREMENTS (INCLUDE DATE/TIME)  
NA

13. DEPTH DRILLED INTO BEDROCK  
NA

14. TOTAL DEPTH OF BOREHOLE  
7'

18. GEOTECHNICAL SAMPLES  
UNDISTURBED: NA DISTURBED: NA

19. TOTAL NUMBER OF CORE BOXES  
NA

20. CHEMICAL SAMPLES  
CHEM: EXP/ML/S RAD: NA OTHER: NA

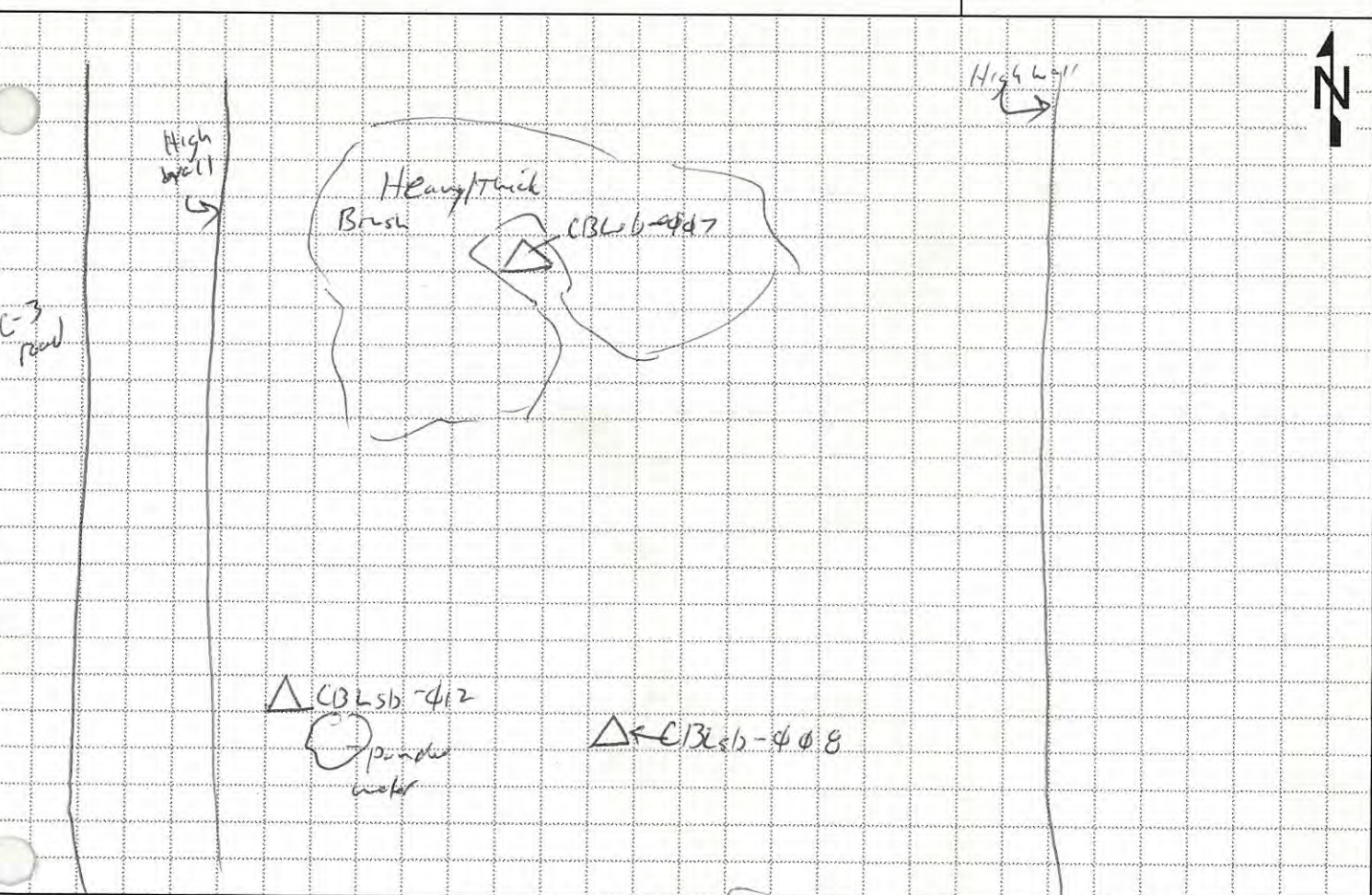
21. TOTAL CORE RECOVERY %

22. DISPOSITION OF BOREHOLE  
DATE STARTED/INSTALLED: 3/22/10 DATE COMPLETED/ABANDONED: 3/22/10

BACKFILL TYPE:  
 GROUT  BENTONITE  TEMPORARY WELL POINT  MONITORING WELL

23. NOTES  
 BKG: ≤ Background BGS: Below Ground Surface CPM: Counts per Minute PPM: Parts per Million  
 ▽ : First Water Encountered ▼ : Static Water Level NA: Not Applicable

LOCATION SKETCH/COMMENTS SCALE: None



GEOLOGIST SIGNATURE/DATE  
[Signature] 3/22/10

QA/QC SIGNATURE/DATE  
[Signature] 3/24/10

BOREHOLE NUMBER  
CBL5b-407



**RVAAP-06  
C-Block Quarry  
CBLsb-007**

Drilling Company : SAIC  
 Driller : Ryan Laurich  
 Designation of Drill : NA  
 Type of Drill Rig : NA  
 Geologist : Steve Visocky  
 Oversight Company : SAIC  
 Borehole Diameter : 3"  
 Sampling Equipment : 3" Hand Auger

RVAAP PBA 2008 Remedial Investigation  
 Ravenna Army Ammunition Plant  
 8451 State Route 5  
 Ravenna, Ohio 44266  
 Portage County

Start Date : 03/22/10; 1550  
 End Date : 03/22/10; 1745  
 Northing Coord. : 559645.74  
 Easting Coord. : 2343725.34  
 Total Depth of Boring : 7.0 ft

Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
0			(0.0' - 5.5') SILT (ML); little Sand; trace Gravel; 10YR3/3 very dark brown; soft; damp; low plasticity; trace organics and roots.	CBLsb-007-5249-SO collected from 0.0' - 1.0' on 03/22/10 at 1615 for TAL Metals + Hg, Explosives, and Asbestos.	1.0'/1.0'	1.0'	Soil Color Chart Munsell 1994 Rev. Ed.
1							
2							
3	ML		(5.5' - 7.0') Fine grained SAND (SW); little Silt; trace Gravel; 10YR3/3 very dark brown with 10YR6/8 brownish yellow iron accumulations; loose; nonplastic; trace organics and roots.	CBLsb-007-5250-SO collected from 1.0' - 4.0' on 03/22/10 at 1645 for TAL Metals + Hg, Explosives, and Asbestos.	3.0'/3.0'	3.0'	
4							
5							
6	SW		Boring terminated at 7.0 ft bgs.	CBLsb-007-5251-SO collected from 4.0' - 7.0' on 03/22/10 at 1710 for TAL Metals + Hg, Explosives, and Asbestos.	3.0'/3.0'	3.0'	Coordinate System: NAD 83
7							

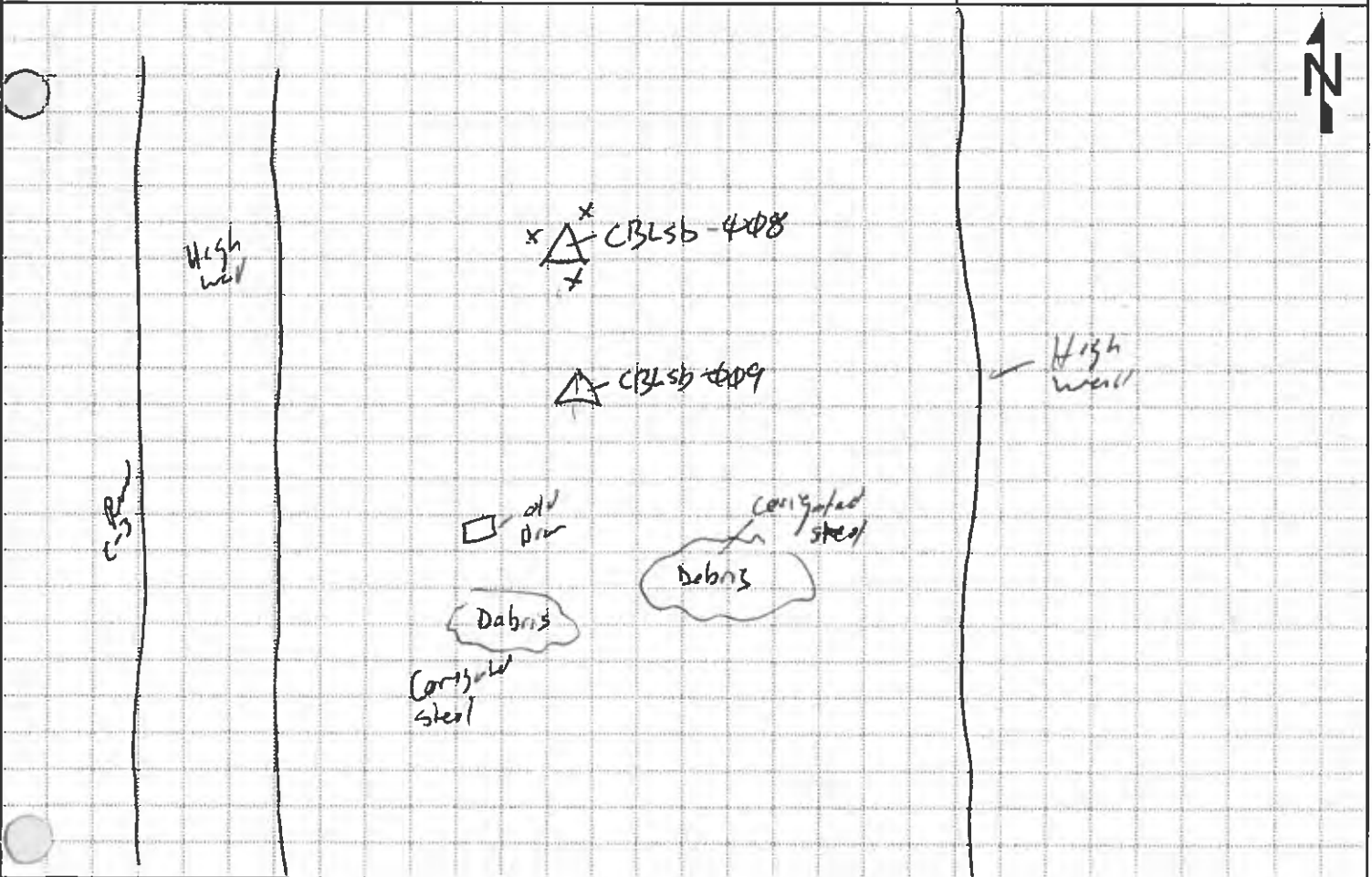
Boring backfilled with sodium bentonite chips and hydrated.  
 0.0' - 1.0' sampled using a 3" hand auger and triangular subsample procedure for explosives as presented in Section 4.5.2.1.1 of the Facility-Wide SAP.  
 Samples were composited and homogenized for all analyses.

**CBLsb-007**



<b>HTRW DRILLING LOG</b>		DISTRICT USACE - Louisville	BOREHOLE NUMBER CBLSb-408
1. COMPANY NAME SAIC		2. DRILLING SUBCONTRACTOR Frontz Drilling	
3. PROJECT PBAΦ - R2		4. LOCATION RVAAP 8451 State Route 5 Ravenna, OH 44266	
5. NAME OF DRILLER Ryan Louch		6. MAKE/MODEL OF DRILL Geoprobe-Sr 5/22/10	
7. SIZES AND TYPES OF SAMPLING EQUIPMENT 3" Hand Auger SS Bowl		8. BOREHOLE LOCATION E 2343773.27 N559549.07	
		9. SURFACE ELEVATION/DATUM NAD 83	
		10. DRILL DATE/TIME 3/22/10 STARTED: 1250 COMPLETED: 1413	
		15. DEPTH GROUNDWATER ENCOUNTERED NA	
		16. DEPTH TO WATER/ELAPSED TIME AFTER BOREHOLE COMPLETION NA	
12. OVERBURDEN THICKNESS 2'			
13. DEPTH DRILLED INTO BEDROCK NA			
14. TOTAL DEPTH OF BOREHOLE 2'		17. OTHER WATER LEVEL MEASUREMENTS (INCLUDE DATE/TIME) NA	
18. GEOTECHNICAL SAMPLES UNDISTURBED: NA DISTURBED: NA		19. TOTAL NUMBER OF CORE BOXES NA	
20. CHEMICAL SAMPLES CHEM: Expl/MetRAD: NA OTHER:		21. TOTAL CORE RECOVERY %	
22. DISPOSITION OF BOREHOLE DATE STARTED/INSTALLED: 3/22/10 DATE COMPLETED/ABANDONED: 3/22/10			
BACKFILL TYPE <input type="checkbox"/> GROUT <input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> TEMPORARY WELL POINT <input type="checkbox"/> MONITORING WELL			
23. NOTES BKG: s Background BGS: Below Ground Surface CPM: Counts per Minute PPM: Parts per Million ▽ : First Water Encountered ▼ : Static Water Level NA: Not Applicable			

<b>LOCATION SKETCH/COMMENTS</b>	<b>SCALE:</b> None
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GEOLOGIST SIGNATURE/DATE St. Viny 3/22/10	QA/QC SIGNATURE/DATE [Signature] 3/24/10	BOREHOLE NUMBER CBLSb-408
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**RVAAP-06**  
**C-Block Quarry**  
**CBLsb-008**

Drilling Company : SAIC  
 Driller : Ryan Laurich  
 Designation of Drill : NA  
 Type of Drill Rig : NA  
 Geologist : Steve Visocky  
 Oversight Company : SAIC  
 Borehole Diameter : 3"  
 Sampling Equipment : 3" Hand Auger

RVAAP PBA 2008 Remedial Investigation  
 Ravenna Army Ammunition Plant  
 8451 State Route 5  
 Ravenna, Ohio 44266  
 Portage County

Start Date : 03/22/10; 1250  
 End Date : 03/22/10; 1415  
 Northing Coord. : 559549.07  
 Easting Coord. : 2343773.27  
 Total Depth of Boring : 2.0 ft

Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
0			(0.0' - 2.0') SILT (ML); little Sand; trace Gravel; trace Clay; 10YR4/2 dark grayish brown; soft; damp; medium plasticity.	CBLsb-008-5253-SO, CBLsb-008-6126-FD, & CBLsb-008-6128-QA collected from 0.0' - 1.0' on 03/22/10 at 1300 for TAL Metals + Hg, Explosives, and Asbestos.	1.0'/1.0'		Soil Color Chart Munsell 1994 Rev. Ed.
1	ML		(1.75' - 2.0') Sand content increases with depth.	CBLsb-008-5254-SO collected from 1.0' - 2.0' on 03/22/10 at 1350 for TAL Metals + Hg, Explosives, and Asbestos.	1.0'/1.0'		
2			Boring terminated at 2.0 ft bgs. Sandstone Bedrock Refusal.				
3							
4							
5							
6							
7							Coordinate System: NAD 83

Boring backfilled with sodium bentonite chips and hydrated.  
 0.0' - 1.0' sampled using a 3" hand auger and triangular subsample procedure for explosives as presented in Section 4.5.2.1.1 of the Facility-Wide SAP.  
 Samples were composited and homogenized for all analyses.

**CBLsb-008**



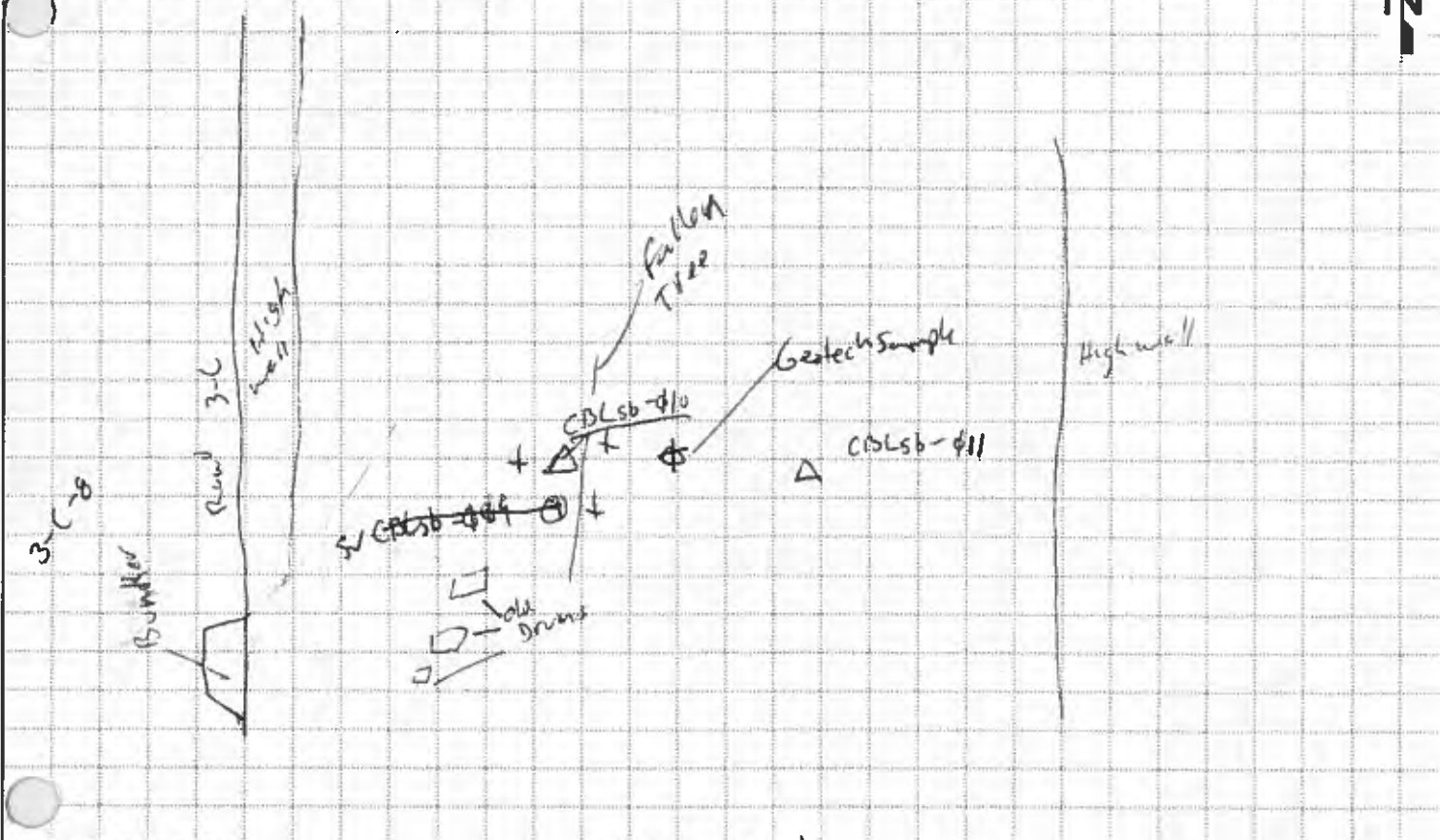
\* Also STELBY TUBE LOCATION

<b>HTRW DRILLING LOG</b>		DISTRICT USACE - Louisville	BOREHOLE NUMBER CBL5b-010
1. COMPANY NAME SAIC		2. DRILLING SUBCONTRACTOR Frontz Drilling	SHEET 1 OF 2
3. PROJECT P3A08 RI		4. LOCATION RVAAP 8451 State Route 5 Ravenna, OH 44266	
5. NAME OF DRILLER Ryan Lovrick		6. MAKE/MODEL OF DRILL Geoprobe 3210	
7. SIZES AND TYPES OF SAMPLING EQUIPMENT SS. Bowl 3" Hand Auger		8. BOREHOLE LOCATION E 234383.58 N 559401.51	
		9. SURFACE ELEVATION/DATUM NAD 83	
		10. DRILL DATE/TIME 3/22/10 STARTED: 0945 COMPLETED: 1100	
		15. DEPTH GROUNDWATER ENCOUNTERED NA	
		16. DEPTH TO WATER/ELAPSED TIME AFTER BOREHOLE COMPLETION NA	
12. OVERBURDEN THICKNESS 4'			
13. DEPTH DRILLED INTO BEDROCK NA		17. OTHER WATER LEVEL MEASUREMENTS (INCLUDE DATE/TIME) NA	
14. TOTAL DEPTH OF BOREHOLE 4'			
18. GEOTECHNICAL SAMPLES UNDISTURBED: NA DISTURBED: NA		19. TOTAL NUMBER OF CORE BOXES NA	
20. CHEMICAL SAMPLES CHEM: C-1103 / metals RAD: NA OTHER:		21. TOTAL CORE RECOVERY %	
22. DISPOSITION OF BOREHOLE DATE STARTED/INSTALLED: 3/22/10 DATE COMPLETED/ABANDONED: 3/22/10			
BACKFILL TYPE: <input type="checkbox"/> GROUT <input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> TEMPORARY WELL POINT <input type="checkbox"/> MONITORING WELL			
23. NOTES BKG: $\leq$ Background BGS: Below Ground Surface CPM: Counts per Minute PPM: Parts per Million $\nabla$ : First Water Encountered $\blacktriangledown$ : Static Water Level NA: Not Applicable			

LOCATION SKETCH/COMMENTS

SCALE: None

80% wooded area  
20% patch brush



GEOLOGIST SIGNATURE/DATE <i>[Signature]</i> 3/22/10	QA/QC SIGNATURE/DATE <i>[Signature]</i> 3/29/10	BOREHOLE NUMBER CBL5b-010
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**RVAAP-06  
C-Block Quarry  
CBLsb-010**

Drilling Company : SAIC  
 Driller : Ryan Laurich  
 Designation of Drill : NA  
 Type of Drill Rig : NA  
 Geologist : Steve Visocky  
 Oversight Company : SAIC  
 Borehole Diameter : 3"  
 Sampling Equipment : 3" Hand Auger

RVAAP PBA 2008 Remedial Investigation  
 Ravenna Army Ammunition Plant  
 8451 State Route 5  
 Ravenna, Ohio 44266  
 Portage County

Start Date : 03/22/10; 0945  
 End Date : 03/22/10; 1100  
 Northing Coord. : 559401.51  
 Easting Coord. : 2343833.58  
 Total Depth of Boring : 4.0 ft

Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
0	SM		(0.0' - 1.0') Fine grained SAND (SM); little Silt; trace Gravel; 2.5Y6/3 light yellowish brown; very loose; moist; nonplastic.	CBLsb-010-5257-SO collected from 0.0' - 1.0' on 03/22/10 at 1000 for TAL Metals + Hg, Explosives, and Asbestos.	1.0/1.0'		Soil Color Chart Munsell 1994 Rev. Ed.
1			(1.0' - 3.0') SILT (ML), little fine grained Sand; trace coarse Gravel; trace Clay; 10YR5/2 grayish brown with 10YR5/8 yellowish brown iron accumulations; soft; damp; nonplastic.	CBLsb-010-5258-SO collected from 1.0' - 4.0' on 03/22/10 at 1025 for TAL Metals + Hg, Explosives, and Asbestos.	3.0/3.0'		
2	ML		(3.0' - 4.0') Medium to coarse grained SAND (SM); trace Silt; trace Gravel; 10YR6/2 light brown; moist; nonplastic; sandstone fragments throughout.				
3	SM		Boring terminated at 4.0 ft bgs. Sandstone Bedrock Refusal.				
4							
5							
6							
7							Coordinate System: NAD 83

Boring backfilled with sodium bentonite chips and hydrated.  
 0.0' - 1.0' sampled using a 3" hand auger and triangular subsample procedure for explosives as presented in Section 4.5.2.1.1 of the Facility-Wide SAP.  
 Samples were composited and homogenized for all analyses.

**CBLsb-010**



RVAAP-06  
C-Block Quarry  
CBLsb-010

Drilling Company : Frontz Drilling  
 Driller : Jeremy Leckrone  
 Designation of Drill : NA  
 Type of Drill Rig : NA  
 Geologist : Steve Visocky  
 Oversight Company : SAIC  
 Borehole Diameter : 3"  
 Sampling Equipment : 3" Hand Auger  
 : 28" x 3" Shelby Tube

RVAAP PBA 2008 Remedial Investigation  
 Ravenna Army Ammunition Plant  
 8451 State Route 5  
 Ravenna, Ohio 44266  
 Portage County

Start Date : 03/22/10; 1650  
 End Date : 03/22/10; 1700  
 Northing Coord. : 559401.51  
 Easting Coord. : 2343833.58  
 Total Depth of Boring : 3.5 ft

Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
0	SM		(0.0' - 1.0') Fine grained SAND (SM); little Silt; trace Gravel; 2.5Y6/3 light yellowish brown; very loose; moist; nonplastic.	Shelby Tube CBLsb-010-5269-SO collected from 1.5' - 3.5' bgs on 03/22/10 at 1700 for Porosity, Bulk Density, Moisture Content, Total Organic Carbon, Permeability, and Grain Size Fraction Analysis	2.0/2.0		Soil Color Chart Munsell 1994 Rev. Ed.
1			(1.0' - 3.0') SILT (ML), little fine grained Sand; trace coarse Gravel; trace Clay; 10YR5/2 grayish brown with 10YR5/8 yellowish brown iron accumulations; soft; damp; nonplastic.				
2	ML						
3	SM		(3.0' - 3.5') Medium to coarse grained SAND (SM); trace Silt; trace Gravel; 10YR6/2 light brown; moist; nonplastic; sandstone fragments throughout.				
4			Boring terminated at 3.5 ft bgs.				
5							
6							
7							Coordinate System: NAD 83

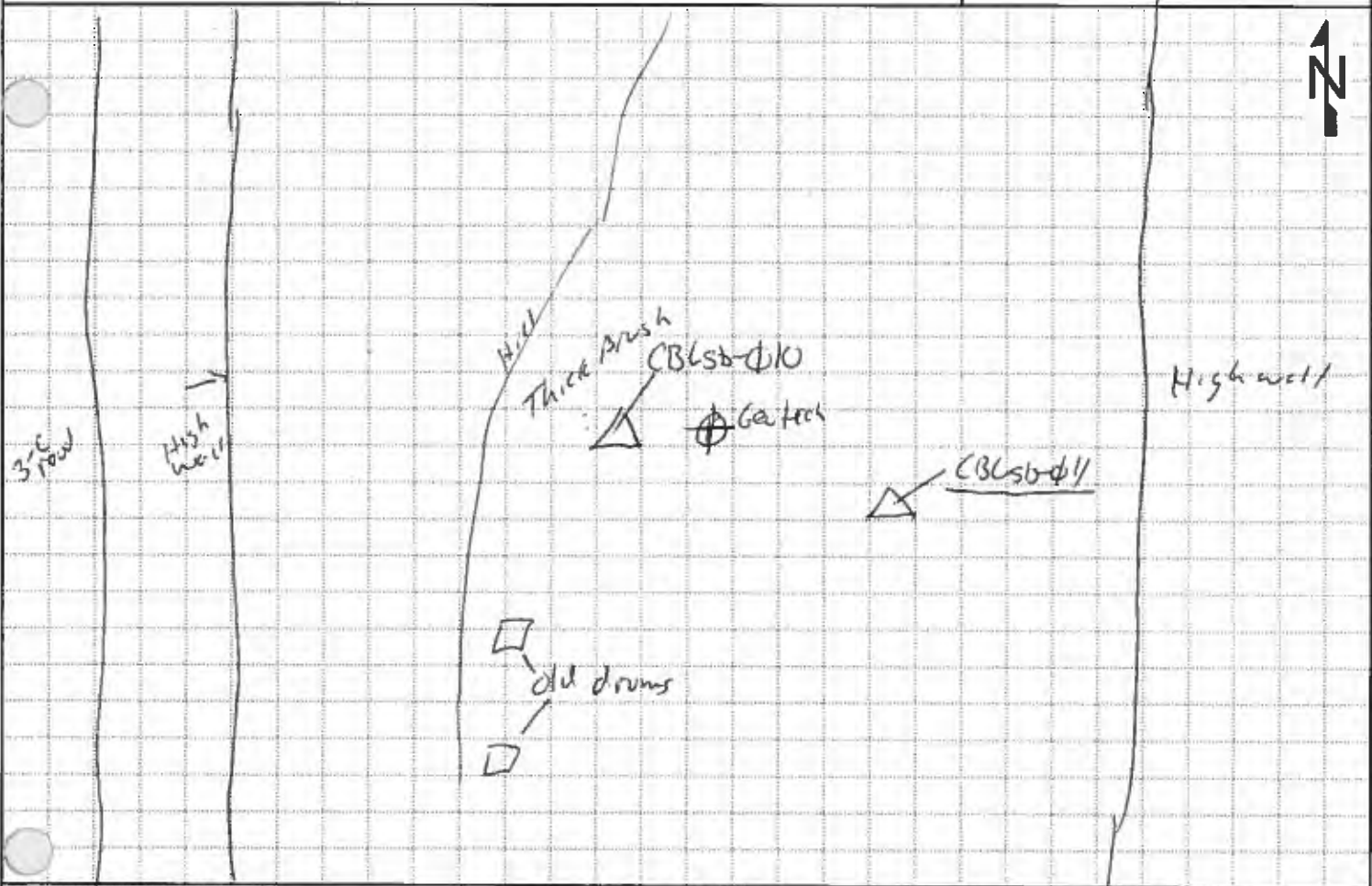
Boring backfilled with sodium bentonite chips and hydrated.  
 Shelby tube sealed with wax and capped.

CBLsb-010

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<b>HTRW DRILLING LOG</b>		DISTRICT USACE - Louisville	BOREHOLE NUMBER CBLsb-φ11
1. COMPANY NAME SAIC		2. DRILLING SUBCONTRACTOR Frontz Drilling	SHEET 1 OF 2
3. PROJECT RVAAP P3A φ8 -27		4. LOCATION RVAAP 8451 State Route 5 Ravenna, OH 44266	
5. NAME OF DRILLER Drew Lorrich		6. MAKE/MODEL OF DRILL Geoprobe SV 3/23P	
7. SIZES AND TYPES OF SAMPLING EQUIPMENT 3" Hand Auger SS Bowl		8. BOREHOLE LOCATION E 2343866 06 N 559401.51	
12. OVERBURDEN THICKNESS 4.5'		9. SURFACE ELEVATION/DATUM NAD 83	
13. DEPTH DRILLED INTO BEDROCK NA		10. DRILL DATE/TIME 3/23/10 STARTED: 1130 COMPLETED: 1230	
14. TOTAL DEPTH OF BOREHOLE 4.5'		15. DEPTH GROUNDWATER ENCOUNTERED NA	
18. GEOTECHNICAL SAMPLES UNDISTURBED: NA DISTURBED: NA		16. DEPTH TO WATER/ELAPSED TIME AFTER BOREHOLE COMPLETION NA	
20. CHEMICAL SAMPLES CHEM: RAD: NA OTHER: Full suite		17. OTHER WATER LEVEL MEASUREMENTS (INCL. DATE/TIME) NA	
22. DISPOSITION OF BOREHOLE DATE STARTED/INSTALLED: 3/23/10 DATE COMPLETED/ABANDONED: 3/23/10		19. TOTAL NUMBER OF CORE BOXES NA	
23. NOTES BKG: ≤ Background BGS: Below Ground Surface CPM: Counts per Minute PPM: Parts per Million ▽ : First Water Encountered ▼ : Static Water Level NA: Not Applicable		21. TOTAL CORE RECOVERY %	

BACKFILL TYPE  GROUT  BENTONITE  TEMPORARY WELL POINT  MONITORING WELL



GEOLOGIST SIGNATURE/DATE Se Wimp 3/23/10	QA/QC SIGNATURE/DATE RE 3/24/10	BOREHOLE NUMBER CBLsb-φ11
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RVAAP-06  
C-Block Quarry  
CBLsb-011

Drilling Company : SAIC  
 Driller : Ryan Laurich  
 Designation of Drill : NA  
 Type of Drill Rig : NA  
 Geologist : Steve Visocky  
 Oversight Company : SAIC  
 Borehole Diameter : 3"  
 Sampling Equipment : 3" Hand Auger

RVAAP PBA 2008 Remedial Investigation  
 Ravenna Army Ammunition Plant  
 8451 State Route 5  
 Ravenna, Ohio 44266  
 Portage County

Start Date : 03/23/10; 1130  
 End Date : 03/23/10; 1230  
 Northing Coord. : 559401.51  
 Easting Coord. : 2343866.06  
 Total Depth of Boring : 4.5 ft

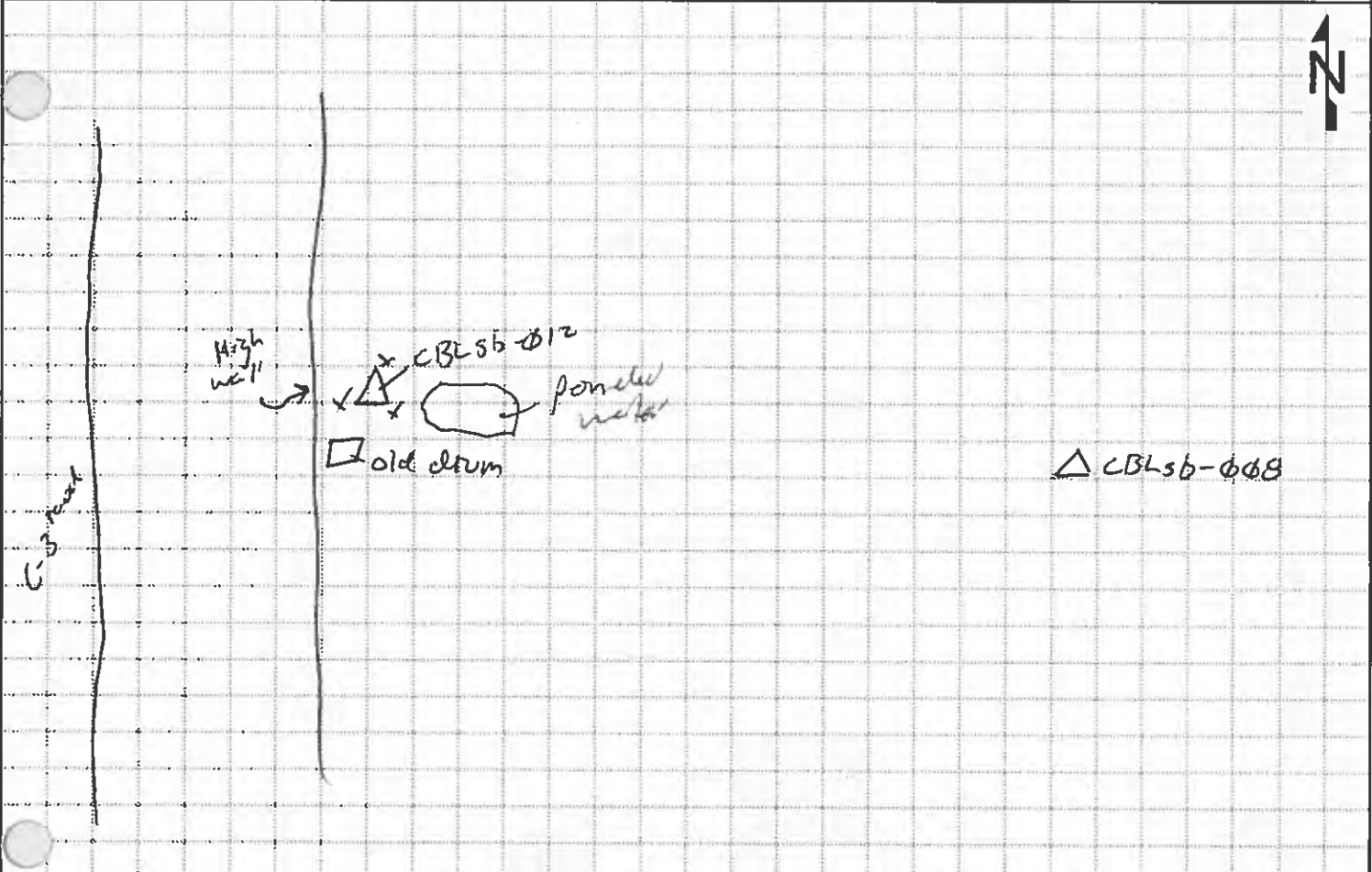
Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
0			(0.0' - 3.0') Fine grained SAND (SW); trace Silt; trace fine Gravel; 10YR4/2 dark grayish brown; loose; moist; nonplastic; sandstone fragments throughout.	CBLsb-011-5261-SO collected from 0.0' - 1.0' on 03/23/10 at 1200 for VOCs, SVOCs, PCBs, Pesticides, Explosives, Propellants, TAL Metals + Hg, and Asbestos.	1.0'/1.0'		Soil Color Chart Munsell 1994 Rev. Ed.
1	SW						
2				CBLsb-011-5262-SO, CBLsb-011-6127-FD, & CBLsb-011-6129-QA collected from 1.0' - 4.0' on 03/23/10 at 1215 for VOCs, SVOCs, PCBs, Pesticides, Explosives, Propellants, TAL Metals + Hg, and Asbestos.	3.0'/3.0'		
3			(3.0' - 4.2') Fine grained SAND (SM); little Silt; trace Gravel; trace Clay; 10YR4/4 dark yellowish brown with 7.5YR5/6 strong brown iron accumulations; loose; moist; nonplastic.				
4	SM						
4			(4.2' - 4.5') Medium grained SAND (SW); trace Silt; 7.5YR4/6 strong brown; loose; moist; nonplastic.	CBLsb-011-5263-SO collected from 4.0' - 4.5' on 03/23/10 at 1230 for VOCs, SVOCs, PCBs, Pesticides, Explosives, Propellants, TAL Metals + Hg, and Asbestos.	0.5'/0.5'		
5	SW						
5			Boring terminated at 4.5 ft bgs. Sandstone Bedrock Refusal.				
6							
7							Coordinate System: NAD 83

Boring backfilled with sodium bentonite chips and hydrated.  
 0.0' - 1.0' sampled using a 3" hand auger and triangular subsample procedure for explosives as presented in Section 4.5.2.1.1 of the Facility-Wide SAP.  
 Samples were composited and homogenized for all analyses, except VOCs.

CBLsb-011

<b>HTRW DRILLING LOG</b>		DISTRICT USACE - Louisville	BOREHOLE NUMBER CBLsb-012
1. COMPANY NAME SAIC		2. DRILLING SUBCONTRACTOR Frontz Drilling	SHEET 1 OF 2
3. PROJECT RVAAP P/BACB-RP		4. LOCATION RVAAP 8451 State Route 5 Ravenna, OH 44266	
5. NAME OF DRILLER Ryan Louch		6. MAKE/MODEL OF DRILL Geoprobe S-shield	
7. SIZES AND TYPES OF SAMPLING EQUIPMENT 3" Hand Auger SS Row		8. BOREHOLE LOCATION E 2343702.04 N 559540.51	
		9. SURFACE ELEVATION/DATUM NAD 83	
		10. DRILL DATE/TIME 3/22/10 STARTED: 1430 COMPLETED: 1525	
		15. DEPTH GROUNDWATER ENCOUNTERED wt	
		16. DEPTH TO WATER/ELAPSED TIME AFTER BOREHOLE COMPLETION wt	
12. OVERBURDEN THICKNESS 3'		17. OTHER WATER LEVEL MEASUREMENTS (INCL. DATE/TIME) wt	
13. DEPTH DRILLED INTO BEDROCK NA			
14. TOTAL DEPTH OF BOREHOLE 3'			
18. GEOTECHNICAL SAMPLES UNDISTURBED: <i>nr</i> DISTURBED:		19. TOTAL NUMBER OF CORE BOXES NA	
20. CHEMICAL SAMPLES CHEM: <i>Explosives</i> RAD: NA OTHER:		21. TOTAL CORE RECOVERY %	
22. DISPOSITION OF BOREHOLE DATE STARTED/INSTALLED: 3/22/10 DATE COMPLETED/ABANDONED: 3/22/10			
BACKFILL TYPE <input type="checkbox"/> GROUT <input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> TEMPORARY WELL POINT <input type="checkbox"/> MONITORING WELL			
23. NOTES BKG: $\leq$ Background BGS: Below Ground Surface CPM: Counts per Minute PPM: Parts per Million $\nabla$ : First Water Encountered $\blacktriangledown$ : Static Water Level NA: Not Applicable			

LOCATION SKETCH/COMMENTS SCALE: None



GEOLOGIST SIGNATURE/DATE <i>St. Wm</i> 3/22/10	QA/QC SIGNATURE/DATE <i>RP</i> 3/24/10	BOREHOLE NUMBER CBLsb-012
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RVAAP-06  
C-Block Quarry  
CBLsb-012

Drilling Company : SAIC  
 Driller : Ryan Laurich  
 Designation of Drill : NA  
 Type of Drill Rig : NA  
 Geologist : Steve Visocky  
 Oversight Company : SAIC  
 Borehole Diameter : 3"  
 Sampling Equipment : 3" Hand Auger

RVAAP PBA 2008 Remedial Investigation  
 Ravenna Army Ammunition Plant  
 8451 State Route 5  
 Ravenna, Ohio 44266  
 Portage County

Start Date : 03/22/10; 1430  
 End Date : 03/22/10; 1525  
 Northing Coord. : 559540.51  
 Easting Coord. : 2343702.04  
 Total Depth of Boring : 3.0 ft

Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
0			(0.0' - 2.0') SILT (ML); little fine grained Sand; trace Gravel; 10YR5/2 grayish brown; soft; damp; medium plasticity; trace organics (wood/decaying matter).	CBLsb-012-5265-SO collected from 0.0' - 1.0' on 03/22/10 at 1440 for TAL Metals + Hg, Explosives, and Asbestos.	1.0'/1.0'		Soil Color Chart Munsell 1994 Rev. Ed.
1	ML						
2			(2.0' - 3.0') Fine grained SAND (SM); little Silt; trace Gravel; trace Clay; 10YR4/3 brown with 7.5YR5/6 strong brown iron accumulations; loose; moist; low plasticity; trace organics and roots throughout.	CBLsb-012-5266-SO collected from 1.0' - 3.0' on 03/22/10 at 1515 for TAL Metals + Hg, Explosives, and Asbestos.	2.0'/2.0'		
3	SM		Boring terminated at 3.0 ft bgs. Sandstone Bedrock Refusal.				
4							
5							
6							
7							Coordinate System: NAD 83

Boring backfilled with sodium bentonite chips and hydrated.  
 0.0' - 1.0' sampled using a 3" hand auger and triangular subsample procedure for explosives as presented in Section 4.5.2.1.1 of the Facility-Wide SAP.  
 Samples were composited and homogenized for all analyses.

CBLsb-012

**AUGUST 2012 SAMPLING**

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# RVAAP - Multi-Incremental (MI) Field Form

SHEET 1 OF 1

USACE - Louisville

RVAAP 8451 State Rt. 5  
Ravenna, OH 442661. Sample Team: KATIE WELLS  
AMANDA TRENTON

2. Location ID:

CBL SS-003M

3. Revised Coordinates Recorded:

NA

4. Sample ID:

CBLSS-003M-5876-SO

5. Sample Date and Time:

08/10/12; 1100

6. Dupe ID:

CBLSS-003M-6247-FD

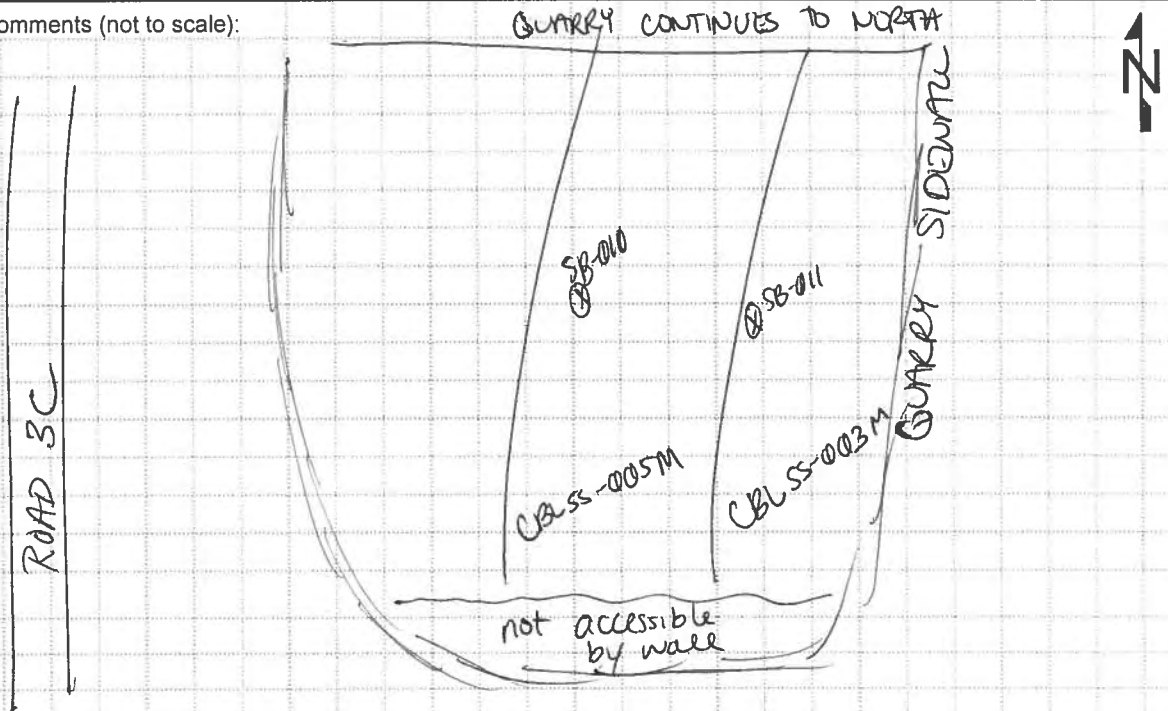
7. Split ID:

NA

8. MI Equipment Used:

3/8" SS PUSH PROBE9. MS/MSD Collected: NA10. Activities in the Area: NONE11. Soil Description and Field Notes: sand (sw); trace Gravel; little organics from surface, 104R5/4 yellowish brown; loose; dry; nonplastic. Sand above sandstone bedrock in quarry.

12. Location Sketch/Comments (not to scale):



13. MI Soil

Analyses:

 EXPLOSIVES     TAL METALS     SVOCs     PAHs     OTHER Total + Hexavalent Chromium  
 FULL SUITE (VOCs, SVOCs, Metals, Explosives, Propellants, Pesticides, PCBs)

Recorded By:

Amanda Trenton 08/10/12  
(Signature and Date)

QC Checked By:

Katie Wells 10/17/12  
(Signature and Date)



# RVAAP - Multi-Incremental (MI) Field Form

SHEET 1 OF 1

USACE - Louisville

RVAAP 8451 State Rt. 5  
Ravenna, OH 44266

1. Sample Team: KATIE WELLS  
AMANDA TRENTO

2. Location ID:

CBLSS-005M

3. Revised Coordinates Recorded:

NA

4. Sample ID:

CBLSS-005M-5877-S0

5. Sample Date and Time:

08/10/12; 1105

6. Dupe ID:

NA

7. Split ID:

NA

8. MI Equipment Used:

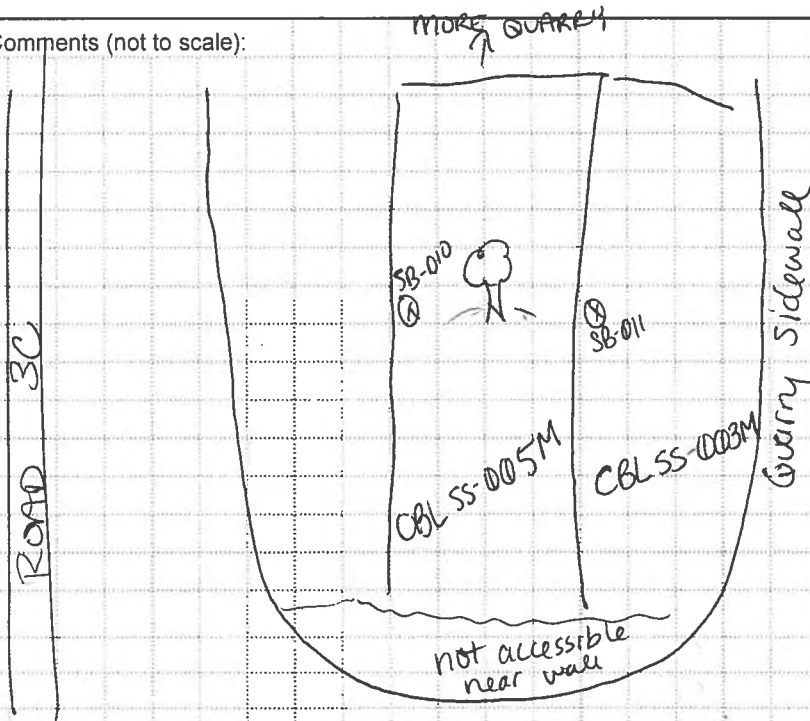
3/8" SS PUSH PROBE

9. MS/MSD Collected: NA

10. Activities in the Area: NONE

11. Soil Description and Field Notes: SAND (sw); trace SS gravel; little organics from surface; 104R5/4 yellowish brown; loose, dry; nonplastic.

12. Location Sketch/Comments (not to scale):



13. MI Soil Analyses:

- EXPLOSIVES  
 TAL METALS  
 SVOCs  
 PAHs  
 OTHER Total + Hexavalent Chromium  
 FULL SUITE (VOCs, SVOCs, Metals, Explosives, Propellants, Pesticides, PCBs)

Recorded By: Amanda Trento 08/10/12 (Signature and Date)  
Checked By: Katie Wells 10/17/12 (Signature and Date)

HTRW DRILLING LOG		DISTRICT	BOREHOLE NUMBER
		USACE- Louisville	CBL86- $\phi$ 25
1. COMPANY NAME		2. DRILLING SUBCONTRACTOR	
SAIC		NA	
3. PROJECT		4. LOCATION	
RVAAP PBA 08 RI		8451 State Route 5 Ravenna OH 44266	
5. NAME OF DRILLER		6. MAKE/MODEL OF DRILL	
NA		NA	
7. SIZES AND TYPES OF SAMPLING EQUIPMENT		8. BOREHOLE LOCATION	
3" Stainless Steel Hand Auger		C-Block Quarry	
		9. DRILL DATE/TIME	
		STARTED: 08/14/12 1125	
		COMPLETED: 1140	
		10. DEPTH GROUNDWATER ENCOUNTERED	
		NA	
11. OVERBURDEN THICKNESS		12. DEPTH TO WATER/ELAPSED TIME AFTER BOREHOLE COMPLETION	
2'		NA	
13. DEPTH DRILLED INTO BEDROCK		14. CHEMICAL SAMPLES (circle)	
NA		VOC SVOCs PAHs PCBs	
15. TOTAL DEPTH OF BOREHOLE		Pesticides Explosives TAL Metals Propellants	
2'		Total Cr/Hex Cr	
16. DISPOSITION OF BOREHOLE			
BACKFILL TYPE: <input type="checkbox"/> GROUT <input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> TEMPORARY WELL POINT <input type="checkbox"/> MONITORING WELL			
17. NOTES			
BKG: $\leq$ Background BGS: Below Ground Surface PPM: Parts per Million			
$\nabla$ : First Water Encountered $\blacktriangledown$ : Static Water Level NA: Not Applicable			
LOCATION SKETCH/COMMENTS			SCALE: None
GEOLOGIST SIGNATURE/DATE		QA/QC SIGNATURE/DATE	
Katie Wells 08/14/12		Amanda Jenton 08/13/12	
		BOREHOLE NUMBER	
		CBL86- $\phi$ 25	

HTRW DRILLING LOG			DISTRICT	BOREHOLE NUMBER		
1. COMPANY NAME			2. DRILLING SUBCONTRACTOR		SHEET 2 OF 2	
3. PROJECT			4. DIRECTION OF BOREHOLE			
5. NOTES			PID SERIAL#:		Colors from Munsell Soil Color Chart, Rev 2000 Revised Edition	
ELEVATION	DEPTH (Feet)	USCS	CLASSIFICATION OF MATERIALS	RECOVERY (ft)	MONITORING (PPM)	REMARKS (Sample IDs/Depths/Etc.)
	1	SW	Sand (SW), little sandstone fragments, coarse, subangular, yellowish-brown (104R 5/4), loose, damp (from precipitation), non-plastic, presence of roots, organic material (wood).	Hand Auger 0-1'	NA	CBLsb-025-5878-S0 for Hex Cr & Total Cr, 1135 08/10/12
	2		Sand (SW) and sandstone fragments, coarse, subangular, yellowish-brown (104R 4/5), loose, dry, non-plastic, organic material (wood).	Hand Auger 1-2'	NA	CBLsb-025-5879-S0 for Hex Cr & Total Cr 1140 08/10/12
	3		Boring terminated at 2' bgs Sandstone refusal			
	4					
	5					
	6					
	7					
	8					
	9					
	10					
GEOLOGIST SIGNATURE/DATE			QA/QC SIGNATURE/DATE		BOREHOLE NUMBER	
Katie Wells 08/10/12			Amanda Jentzen 08/13/12		CBLsb-025	



<b>HTRW DRILLING LOG</b>		DISTRICT USACE- Louisville	BOREHOLE NUMBER CBLsb-φ26
1. COMPANY NAME SAIC		2. DRILLING SUBCONTRACTOR NA	
3. PROJECT RVAAP PBA 08 RI		4. LOCATION 8451 State Route 5 Ravenna OH 44266	
5. NAME OF DRILLER NA		6. MAKE/MODEL OF DRILL NA	
7. SIZES AND TYPES OF SAMPLING EQUIPMENT 3" Stainless Steel Hand Auger		8. BOREHOLE LOCATION C-Block Quarry	
		9. DRILL DATE/TIME STARTED: 08/09/12 1730 COMPLETED: 1800	
11. OVERBURDEN THICKNESS 1.8'		10. DEPTH GROUNDWATER ENCOUNTERED NA	
13. DEPTH DRILLED INTO BEDROCK NA		12. DEPTH TO WATER/ELAPSED TIME AFTER BOREHOLE COMPLETION NA	
15. TOTAL DEPTH OF BOREHOLE 1.8'		14. CHEMICAL SAMPLES (circle) VOC    SVOCs    PAHs    PCBs Pesticides    Explosives    TAL Metals    Propellants <u>Total Cr/HexCr</u>	
16. DISPOSITION OF BOREHOLE BACKFILL TYPE: <input type="checkbox"/> GROUT <input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> TEMPORARY WELL POINT <input type="checkbox"/> MONITORING WELL			
17. NOTES    BKG: ≤ Background    BGS: Below Ground Surface    PPM: Parts per Million ▽ : First Water Encountered    ▼ : Static Water Level    NA: Not Applicable			
LOCATION SKETCH/COMMENTS		SCALE: None	
GEOLOGIST SIGNATURE/DATE Katie Wells 08/10/12		QA/QC SIGNATURE/DATE Amanda Inenton 08/13/12	
		BOREHOLE NUMBER CBLsb-φ26	

<b>HTRW DRILLING LOG</b>			DISTRICT USACE- Louisville		BOREHOLE NUMBER CBLsb-026	
1. COMPANY NAME SAIC			2. DRILLING SUBCONTRACTOR NA		SHEET 2 OF 2	
3. PROJECT RVAAP PBA 08 RI			4. DIRECTION OF BOREHOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEGREES			
5. NOTES    PID MAKE/MODEL: NA			PID SERIAL#: NA		Colors from Munsell Soil Color Chart, Rev 2000 Revised Edition	
ELEVATION	DEPTH (Feet)	USCS	CLASSIFICATION OF MATERIALS	RECOVERY (ft)	MONITORING (PPM)	REMARKS (Sample IDs/Depths/Etc.)
	1	SW	Sand (sw), little sand stone fragments, coarse, subangular, yellowish-brown (10YR 5/4), loose, non-plastic, presence of roots, organic material (wood).	Hand Auger 0-1'	NA	CBLSB-026-5881-80 plus MS/MSD for Hex Cr and Total Cr, plus dupe: CBLSB-026-6248-FD 1745 08/09/12
	2			Hand Auger 0-1'	NA	CBLSB-026-5882-80 for Hex Cr and Total Cr, 1800 08/09/12
	3		Boring terminated at 1.8' bgs Sandstone refusal			
	4					
	5					
	6					
	7					
	8					
	9					
	10					
GEOLOGIST SIGNATURE/DATE Katie Wells 08/10/12			QA/QC SIGNATURE/DATE Amanda Trenton 08/13/12		BOREHOLE NUMBER CBLsb-026	