

## **APPENDIX A**

### **Field Sampling Logs**

Discrete Surface Soil Samples  
Soil Boring Samples  
Surface Water and Sediment Samples  
August 2012 Sampling

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## **DISCRETE SURFACE SOIL SAMPLES**

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<b>HTRW DRILLING LOG (continued)</b>			DISTRICT USACE - Louisville		BOREHOLE NUMBER <b>LL055-073</b>	
1. COMPANY NAME <b>SAIC</b>			2. DRILLING SUBCONTRACTOR <b>NA</b>		SHEET <b>1</b> OF <b>1</b>	
3. PROJECT <b>RVAAP PBA 2008 RI</b>			4. LOCATION <b>RVAAP 8451 State Route 5 Ravenna, OH 44266</b>			
5. NAME OF DRILLER <b>Auger Ryan Launch Steve Visocky</b>			6. DIRECTION OF BOREHOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEGREES			
7. NOTES PID MAKE/MODEL: <b>N/A</b>			PID SERIAL#: <b>NA</b>		Colors from Munsell Soil Color Chart, Rev	
WATER LEVEL MAKE/MODEL: <b>N/A</b>			WATER LEVEL SERIAL#: <b>N/A</b>		<b>2/22/16 1994</b>	

ELEVATION	DEPTH (Feet)	USCS	CLASSIFICATION OF MATERIALS	SPT DATA (0.5 Feet)	MONITORING (PPM/CPM)	REMARKS (Sample IDs/Depths/Core Box/Etc.)
	0.25					
	0.5	SP				
	0.75					
	1		<b>SANDY SILT (SP). CLAYS (CL).</b> Sands are fine. Gravel is very angular. CLAYS (CL); yellowish brown 10YR 5/8 with dark gray mottling 10YR 4/1. LOOSE. moist with some organics (roots).			collected LL055-073-5237-S at 0850 for full suite. TERMINATED 1' bgs

COMMENTS / SKETCH  
BORING COMPLETE USING A 3" SS HAND AUGER

GEOLOGIST SIGNATURE/DATE <i>Emily Cunningham</i> <b>08-22-2010</b>	QA/QC SIGNATURE/DATE <i>[Signature]</i> <b>2/22/16</b>	BOREHOLE NUMBER <b>LL055 - 073</b>
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<b>HTRW DRILLING LOG (continued)</b>			DISTRICT USACE - Louisville		BOREHOLE NUMBER <b>LL65-074</b>	
			1. COMPANY NAME SAIC		2. DRILLING SUBCONTRACTOR NA	
3. PROJECT <b>RVAAP-PBA2008 RI</b>			4. LOCATION <b>RVAAP 8451 State Route 5 Ravenna, OH 44266</b>			
5. NAME OF DRILLER <b>Steve Visorek</b>			6. DIRECTION OF BOREHOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEGREES			
7. NOTES PID MAKE/MODEL: _____			PID SERIAL#: _____		Colors from Munsell Soil Color Chart, Rev <b>m 2004 1994</b>	
WATER LEVEL MAKE/MODEL: _____			WATER LEVEL SERIAL#: _____			
ELEVATION	DEPTH (Feet)	USCS	CLASSIFICATION OF MATERIALS	SPT DATA (0.5 Feet)	MONITORING (PPM/CPM)	REMARKS (Sample IDs/Depths/Core Box/Etc.)
			CLAY (CL). Trace amount of gravel; very dark grayish brown 10YR 3/2 with Brown 10YR 4/3; medium stiff; damp to moist; non-plastic. some organics (roots, leaves).			1335 collected samples LL65-074-5238-SC LL65-074-5238-MS/M FOR TAL METALS, EXPLOSIVE PATHS
	1		TERMINATED AT 1' BGS BORING COMPLETE USING A.3" SS HAND AUGER			
COMMENTS / SKETCH 						
GEOLOGIST SIGNATURE/DATE <i>Emily Cunningham</i> 02/22/10			QA/QC SIGNATURE/DATE <i>KEJ</i> 2/22/10		BOREHOLE NUMBER <b>LL65-074</b>	

<b>HTRW DRILLING LOG (continued)</b>			DISTRICT		BOREHOLE NUMBER	
			USACE - Louisville		LLess-075	
1. COMPANY NAME			2. DRILLING SUBCONTRACTOR		SHEET 1 OF 1	
SAIC			NA			
3. PROJECT			4. LOCATION			
RVAAP - PBAAP RI			RVAAP 8451 State Route 5 Ravenna, OH 44266			
5. NAME OF DRILLER			6. DIRECTION OF BOREHOLE		DEGREES	
Steve Visorey / Ryan Launch			<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED			
7. NOTES			Colors from Munsell Soil Color Chart, Rev			
PID MAKE/MODEL: _____			PID SERIAL#: _____		12 2004 1994	
WATER LEVEL MAKE/MODEL: _____			WATER LEVEL SERIAL#: _____			

ELEVATION	DEPTH (Feet)	USCS	CLASSIFICATION OF MATERIALS	SPT DATA (0.5 Feet)	MONITORING (PPM/CPM)	REMARKS (Sample IDs/Depths/Core Box/Etc.)
			CLAYCL. Little gravel-angular dark gray 10YR 4/1 with yellowish brown mottling 10YR 5/6. medium stiff wet. non-plastic; little organics and silt.			@1140 collected LLess-075-5246-SO FOR CHROME SPECIATION
	1		TERMINATED 1 FT BGS BORING COMPLETE USING A 3" SS HAND AUGER			

**COMMENTS / SKETCH**

GEOLOGIST SIGNATURE/DATE		QA/QC SIGNATURE/DATE		BOREHOLE NUMBER	
Emily Cunningham 02/22/2010		[Signature] 2/22/10		LLess-075	

<b>HTRW DRILLING LOG (continued)</b>			DISTRICT		BOREHOLE NUMBER	
			USACE - Louisville		LL6SS - 0710	
1. COMPANY NAME			2. DRILLING SUBCONTRACTOR		SHEET 1 OF 1	
SAIC			NA			
3. PROJECT			4. LOCATION			
RVAAP PBH200B RI			RVAAP 8451 State Route 5 Ravenna, OH 44266			
5. NAME OF DRILLER			6. DIRECTION OF BOREHOLE			
Steve Visorey			<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED    DEGREES			
7. NOTES			Colors from Munsell Soil Color Chart, Rev			
PID MAKE/MODEL:			PID SERIAL#:		ml 2004 1994	
WATER LEVEL MAKE/MODEL:			WATER LEVEL SERIAL#:			
ELEVATION	DEPTH (Feet)	USCS	CLASSIFICATION OF MATERIALS	SPT DATA (0.5 Feet)	MONITORING (PPM/CPM)	REMARKS (Sample IDs/Depths/Core Box/Etc.)
			CLAY (CL) gray 10YR 5/1 with dark yellowish brown 10YR 4/6. medium stiff moist. some organics (roots & leaves)			1245 collected LL6SS-0710-52378 FOR TAL METALS & EXPLOSIVES & PAHs
	1		TERMINATED at 1' bgs BORING COMPLETE USING A 3" SI HAND AUGER			
COMMENTS / SKETCH						
<div style="position: relative; width: 100%; height: 100%;"> </div>						
GEOLOGIST SIGNATURE/DATE			QA/QC SIGNATURE/DATE		BOREHOLE NUMBER	
Emily Cunningham 2/22/10			 2/22/10		LL6SS-0710	

<b>HTRW DRILLING LOG</b>			DISTRICT			BOREHOLE NUMBER		
			USACE - Louisville			LL655-077		
1. COMPANY NAME			2. DRILLING SUBCONTRACTOR			SHEET 1 OF 1		
SAIC			NA					
3. PROJECT			4. LOCATION					
RVAAP PBA08-RT			RVAAP 8451 State Route 5 Ravenna, OH 44266					
5. NAME OF DRILLER			6. DIRECTION OF BOREHOLE			DEGREES		
Jeremy Leskone			<input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED					
7. NOTES			PID MAKE/MODEL:			PID SERIAL#:		
NA			NA			Colors from Munsell Soil Color Chart, Rev		
WATER LEVEL MAKE/MODEL:			WATER LEVEL SERIAL#:			2000 Rev ED		
NA			NA					
ELEVATION	DEPTH (Feet)	USCS	CLASSIFICATION OF MATERIALS	SPT DATA (0.5 Feet)	MONITORING (PPM/CPM)	REMARKS (Sample IDs/Depths/Core Box/Etc.)		
		ML	SILT (ML). Some Clay, and med. Sand, significant organics throughout, Brown 10YR 4/3, med. Stiff, Damp, med. Plastic, Trace Fine Gravel.	Hand Auger 0-1	NA	LL655-077-5247-50 @ 1025 for Total Cr + Hex Cr.		
		CL	CLAY (CL), Some Silty, Trace Fine Subangular Gravel, yellowish Brown 10YR 4/4 and Gray 10YR 5/1, soft, med. Plastic to highly plastic, Damp, Trace Sand that is Pale red 10R 6/4					
	1		Terminated Boring at 1' BGS					
			BORING <del>TERMINATED</del> <sup>COMPLETE</sup> USING A 3" SS HAND AUGER					
COMMENTS / SKETCH								
<div style="text-align: right; margin-bottom: 10px;"> </div> <div style="text-align: center;"> <p>Load Line 6 Fence</p> <p>3' E ⊗ LL655-077</p> <p>Tree Line</p> <p>⊗ LL656-083</p> <p>LL656-082 ⊗</p> <p>Wooded Area</p> <p>Deep Ditch w/ water</p> </div>								
GEOLOGIST SIGNATURE/DATE			QA/QC SIGNATURE/DATE			BOREHOLE NUMBER		
2/25/10			03/31/10			LL655-077		

<b>HTRW DRILLING LOG (continued)</b>		DISTRICT USACE - Louisville	BOREHOLE NUMBER <u>U655-078</u>
1. COMPANY NAME SAIC		2. DRILLING SUBCONTRACTOR NA	SHEET 1 OF 1

3. PROJECT <u>RVAAP - PBA 2008 RI</u>		4. LOCATION <u>RVAAP 8451 State Route 5 Ravenna, OH 44266</u>	
5. NAME OF DRILLER <u>Ryan Laurich / Steve Visorel</u>		6. DIRECTION OF BOREHOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEGREES	
7. NOTES PID MAKE/MODEL: _____		PID SERIAL#: _____ Colors from Munsell Soil Color Chart, Rev <u>PL 2004 1994</u>	
WATER LEVEL MAKE/MODEL: _____		WATER LEVEL SERIAL#: _____	

ELEVATION	DEPTH (Feet)	USCS	CLASSIFICATION OF MATERIALS	SPT DATA (0.5 Feet)	MONITORING (PPM/CPM)	REMARKS (Sample IDs/Depths/Core Box/Etc.)
			CLAY (CL): Gray 10R 5/1 with yellowish brown mottling 10R 5/6. trace amount of coarse sand. soft, <del>wet</del> moist. Low plasticity; organics (ROOTS & LEAVES).			1100 collected U655-078-5240 SC U655-078-6058-10A U655-078-6059-10D FOR TAL METAL & EXPLOSIVES & PATHS
	1		TERMINATED 1 FT BGS BORING <del>TERMINATED</del> <sup>COMPLETE</sup> <sub>RECALIBRATED</sub> USING A 3" SS HAND AUGER			

COMMENTS / SKETCH

GEOLOGIST SIGNATURE/DATE <u>Emily Cunningham</u> 02/22/10	QA/QC SIGNATURE/DATE <u>KE</u> 2/22/10	BOREHOLE NUMBER <u>U655-078</u>
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<b>HTRW DRILLING LOG (continued)</b>			DISTRICT USACE - Louisville		BOREHOLE NUMBER LL6SS-079
1. COMPANY NAME SAIC			2. DRILLING SUBCONTRACTOR NA		SHEET 1 OF 1
3. PROJECT RVAAP PBA2006 R3			4. LOCATION RVAAP 8451 State Route 5 Ravenna, OH 44266		
5. NAME OF DRILLER Ryan Laurich			6. DIRECTION OF BOREHOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEGREES		
7. NOTES PID MAKE/MODEL: _____ WATER LEVEL MAKE/MODEL: _____			PID SERIAL#: _____ Colors from Munsell Soil Color Chart, Rev ML 2004 1994		

ELEVATION	DEPTH (Feet)	USCS	CLASSIFICATION OF MATERIALS	SPT DATA (0.5 Feet)	MONITORING (PPM/CPM)	REMARKS (Sample IDs/Depths/Core Box/Etc.)
		CL	CLAY (ML) and SAND (SC). some silt and trace gravel; sands are Brown 10YR 5/3 and sands are strong brown 7.5YR 4/5. Soft, moist. clay is low plasticity and sands are loose, with organics (lose).			@ 10' ID collected LL6SS-079-5241-5 FOR TAL MEXAS & EXPLOSIVES & DMS
	1		TERMINATED 1 FT BGS BORING <del>TERMINATED</del> USING A 3" SS HAND AUGER			

COMMENTS / SKETCH

GEOLOGIST SIGNATURE/DATE Emily Cunningham 04-22-2014	QA/QC SIGNATURE/DATE [Signature] 2/22/14	BOREHOLE NUMBER LL6SS-079
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<b>HTRW DRILLING LOG (continued)</b>			DISTRICT USACE - Louisville		BOREHOLE NUMBER <b>LL655-020</b>	
			2. DRILLING SUBCONTRACTOR NA		SHEET 1 OF 1	
1. COMPANY NAME SAIC			4. LOCATION RVAAP 8451 State Route 5 Ravenna, OH 44266			
3. PROJECT <b>RVAAP-020 2005 RI</b>			6. DIRECTION OF BOREHOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEGREES			
5. NAME OF DRILLER <b>Steve Visocky</b>			7. NOTES PID MAKE/MODEL: _____ PID SERIAL#: _____ Colors from Munsell Soil Color Chart, Rev WATER LEVEL MAKE/MODEL: _____ WATER LEVEL SERIAL#: _____ <b>RL 2004 1994</b>			
ELEVATION	DEPTH (Feet)	USCS	CLASSIFICATION OF MATERIALS	SPT DATA (0.5 Feet)	MONITORING (PPM/CPM)	REMARKS (Sample IDs/Depths/Core Box/Etc.)
		CL	CLAY (CL). TRACE Gravel- angular; Grayish Brown 10YR 5/2 and Brownish yellow 10YR 6/4; soft. damp; medium plasticity; trace organics (roots).			1015 collected LL655-020-5246-E FOR CHROME SPECIMEN
	1		TERMINATED 1 FT BAGS BORING <del>TERMINATED</del> <sup>COMPLETE</sup> USING A 3" SS HAND AUGER <del>RE-DRILL</del>			
COMMENTS / SKETCH						
GEOLOGIST SIGNATURE/DATE <i>Emily Cunningham</i> 02-22-2010			QA/QC SIGNATURE/DATE <i>RE</i> 2/22/10		BOREHOLE NUMBER <b>LL655-020</b>	

## **SOIL BORING SAMPLES**

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# HTRW DRILLING LOG

DISTRICT

USACE - Louisville

BOREHOLE NUMBER

LL6SB-008

1. COMPANY NAME

SAIC

2. DRILLING SUBCONTRACTOR

Frontz Drilling

SHEET 1 OF 2

3. PROJECT

RVAAP PBA 08 RI

4. LOCATION

RVAAP 8451 State Route 5 Ravenna, OH 44266

5. NAME OF DRILLER

JEREMY LECKOWE ; FRITZ DERUNG

6. MAKE/MODEL OF DRILL

Geoprobe 6020 DT

7. SIZES AND TYPES OF SAMPLING EQUIPMENT

3" 2" HAND AUGER  
1.5" x 4' ACETATE LINER  
2" DUAL TUBE

8. BOREHOLE LOCATION

553019.6520, 2353794.3176

9. SURFACE ELEVATION/DATUM

NAD 83

10. DRILL DATE/TIME

03/01/10 STARTED: 1045 COMPLETED: 1150

15. DEPTH GROUNDWATER ENCOUNTERED

NA

16. DEPTH TO WATER/ELAPSED TIME AFTER BOREHOLE COMPLETION

NA

12. OVERBURDEN THICKNESS

13+ FT

13. DEPTH DRILLED INTO BEDROCK

NA

14. TOTAL DEPTH OF BOREHOLE

13 FT

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: H<sub>2</sub>O / EXA / PH

RAD: NA

OTHER: NA

21. TOTAL CORE RECOVERY %

NA

22. DISPOSITION OF BOREHOLE

DATE STARTED/INSTALLED: 03/01/10

DATE COMPLETED/ABANDONED:

BACKFILL TYPE:

☐ GROUT☒ BENTONITE☐ TEMPORARY WELL POINT☐ MONITORING WELL

23. NOTES

BKG:  $\leq$  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

\* LL6SB-008

⊗

\*

N 20° E

⊗ mwd02-LL6

LL6 ROAD

GEOLOGIST SIGNATURE/DATE

Amanda J. Hester 03/01/10

QA/QC SIGNATURE/DATE

J. J. J. 3/12/10

BOREHOLE NUMBER

LL6SB-008



**RVAAP-33**  
**Load Line 6**  
**LL6sb-068**

Drilling Company : Frontz Drilling  
Driller : Jeremy Leckrone  
Designation of Drill : Geoprobe 6620DT  
Type of Drill Rig : Direct Push Technology  
Geologist : Amanda Trenton  
Oversight Company : SAIC  
Borehole Diameter : 2"  
Sampling Equipment : 1.5" x 4' Long Acetate Liner  
: 2" x 4' Dual Tube  
: 3" Hand Auger

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

Start Date : 03/01/10; 1045  
End Date : 03/01/10; 1150  
Northing Coord. : 553619.6520  
Easting Coord. : 2353794.3176  
Total Depth of Boring : 13.0 ft

Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
0	SC		(0.0' - 1.1') CLAY and medium to fine grained SAND (SC), trace Gravel, 1/2" - 3", subangular; 10YR3/3 dark brown; soft; damp; medium plasticity; roots and organics throughout, trace brick and sandstone fragments.	LL6sb-068-5215-SO collected from 0.0' - 1.0' on 03/01/10 at 1105 for TAL Metals + Hg, PAHs, and Explosives.	1.0'/1.0'		Soil Color Chart Munsell 2000 Rev. Ed.
1	CL		(1.1' - 2.9') CLAY (CL); trace fine grained Sand; 10YR5/3 brown with 10YR6/6 brownish yellow and trace 10YR4/1 dark gray mottling; soft; damp; medium plasticity.				
2	CL		(2.9' - 4.2') SILT (ML); little Clay; trace fine grained Sand and Gravel, 1/4", subrounded; 2.5Y4/4 olive brown, 10YR5/3 brown, and 10YR4/4 dark yellowish brown; soft; damp to dry.	LL6sb-068-5216-SO collected from 1.0' - 4.0' on 03/01/10 at 1130 for TAL Metals + Hg, PAHs, and Explosives.	2.1'/3.0'		
3	ML		(4.2' - 8.4') CLAY (CL); little Silt; trace Gravel, < 1/4", subangular; 7.5YR4/6 strong brown mottled 2.5Y6/1 gray and 10YR5/4 yellowish brown; stiff; dry; low plasticity. Silt content decreases with depth. (4.5' - 6.2') Color is 10YR5/1 gray with 10YR4/6 dark yellowish brown mottling.				
4	CL		(6.2' - 8.4') Color is 10YR4/3 brown with 10YR8/2 very pale brown mottling.	LL6sb-068-5217-SO collected from 4.0' - 7.0' on 03/01/10 at 1150 for TAL Metals + Hg, PAHs, and Explosives.	2.85'/3.0'		
5	CL		(8.4' - 9.6') Clayey SAND (SC); trace Gravel, 1/4" - 3/8", subrounded; 10YR4/4 dark yellowish brown; medium stiff; damp. (9.0 - 9.6') Stiffer; increased clay content.				
6	SC		(9.6 - 13.0) Fine Grained SAND (SW); 10YR4/3 brown; medium dense; damp; nonplastic. (10.0' - 13.0') Trace lenses of moisture.	LL6sb-068-5218-SO collected from 7.0' - 13.0' on 03/01/10 at 1210 for TAL Metals + Hg, PAHs, and Explosives.	2.55'/3.0'		
7	SC						
8	SW				2.9'/3.0'		
9	SW						
10							
11							
12							
13			Boring terminated at 13.0 ft bgs.				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.

**LL6sb-068**

# HTRW DRILLING LOG

DISTRICT

USACE - Louisville

BOREHOLE NUMBER

LL65b-009

1. COMPANY NAME

SAIC

2. DRILLING SUBCONTRACTOR

Frontz Drilling

SHEET 1 OF 2

3. PROJECT RVAAP PBA 08 RI

4. LOCATION

RVAAP 8451 State Route 5 Ravenna, OH 44266

5. NAME OF DRILLER JEREMY LEURONE

6. MAKE/MODEL OF DRILL

Geoprobe 6020 DT

7. SIZES AND TYPES OF SAMPLING EQUIPMENT

3" ~~2~~ HAND AUGER  
1.5" X 4' ACETATE LINER  
2" DUAL TUBE

8. BOREHOLE LOCATION

553244.7435; 2353472.2318

9. SURFACE ELEVATION/DATUM

NAD 83

10. DRILL DATE/TIME

02/25/10

STARTED: 1400

COMPLETED: 1510

15. DEPTH GROUNDWATER ENCOUNTERED

NA

16. DEPTH TO WATER/ELAPSED TIME AFTER BOREHOLE COMPLETION

NA

12. OVERBURDEN THICKNESS

13+ FT

13. DEPTH DRILLED INTO BEDROCK

NA

14. TOTAL DEPTH OF BOREHOLE

13+ FT

18. GEOTECHNICAL SAMPLES

UNDISTURBED: —

DISTURBED: —

19. TOTAL NUMBER OF CORE BOXES

NA

20. CHEMICAL SAMPLES

CHEM: FUSITE

RAD: NA

OTHER: NA

21. TOTAL CORE RECOVERY % NA

22. DISPOSITION OF BOREHOLE

DATE STARTED/INSTALLED: 02/25/10; 1400

DATE COMPLETED/ABANDONED: 02/25/10; 1510

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

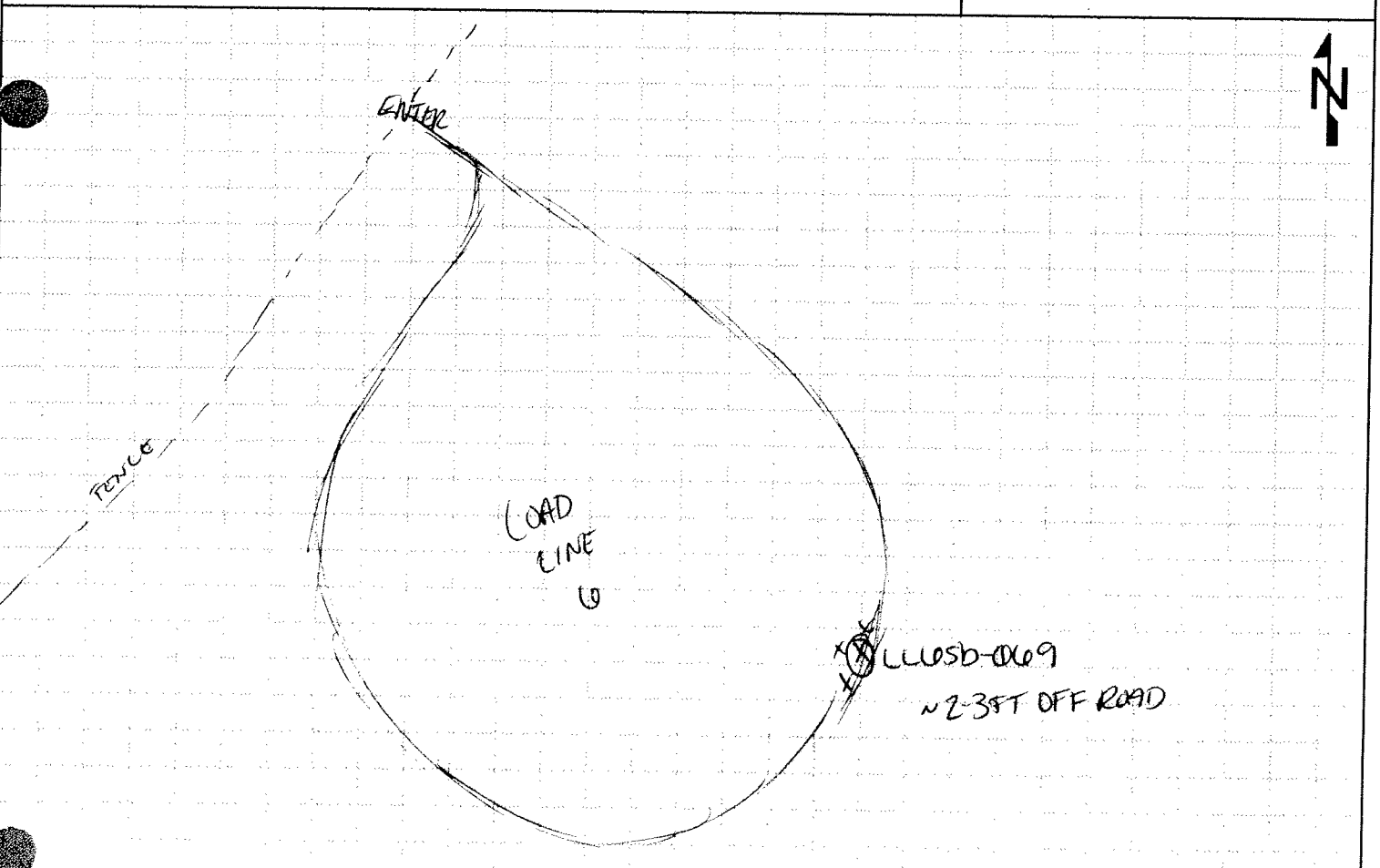
▼ : Static Water Level

NA: Not Applicable

LOCATION SKETCH/COMMENTS

SCALE:

None



GEOLOGIST SIGNATURE/DATE

Amanda Henton 02/25/10

QA/QC SIGNATURE/DATE

St. Vasey 3/12/10

BOREHOLE NUMBER

LL65b-009



RVAAP-33  
Load Line 6  
LL6sb-069

Drilling Company : Frontz Drilling  
Driller : Jeremy Leckrone  
Designation of Drill : Geoprobe 6620DT  
Type of Drill Rig : Direct Push Technology  
Geologist : Amanda Trenton  
Oversight Company : SAIC  
Borehole Diameter : 2"  
Sampling Equipment : 1.5" x 4' Long Acetate Liner  
: 2" x 4' Dual Tube  
: 3" Hand Auger

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

Start Date : 02/25/10; 1400  
End Date : 02/25/10; 1510  
Northing Coord. : 553244.7435  
Easting Coord. : 2353472.2318  
Total Depth of Boring : 13.0 ft

Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments			
0	CL		(0.0' - 2.75') CLAY (CL); some Silt; 10YR4/3 brown; medium stiff; damp; medium plasticity; debris including wire and slag from 0.0' - 0.5'.	LL6sb-069-5219-SO collected from 0.0' - 1.0' on 02/25/10 at 1412 for VOCs, SVOCs, PCBs, Pesticides, Explosives, Propellants, and TAL Metals + Hg.  LL6sb-069-5220-SO collected from 1.0' - 4.0' on 02/25/10 at 1440 for VOCs, SVOCs, PCBs, Pesticides, Explosives, Propellants, and TAL Metals + Hg.  LL6sb-069-5221-SO collected from 4.0' - 7.0' on 02/25/10 at 1452 for VOCs, SVOCs, PCBs, Pesticides, Explosives, Propellants, and TAL Metals + Hg.  LL6sb-069-5222-SO collected from 7.0' - 13.0' on 02/25/10 at 1509 for VOCs, SVOCs, PCBs, Pesticides, Explosives, Propellants, and TAL Metals + Hg.	1.0'/1.0'		Soil Color Chart Munsell 2000 Rev. Ed.			
1			(1.25' - 2.75') Introduction of trace Gravel, < 1/4", subrounded; 10YR8/2 very pale brown mottling.							
2	SC		(2.75' - 4.35') Fine grained SAND and CLAY (SC), trace Gravel, < 1/4", subrounded; 10YR4/3 brown with trace 2.5YR 6/8 red; medium stiff; damp, moist in pockets.		2.35'/3.0'					
3										
4	SW		(4.35' - 9.3') Fine to very fine grained SAND (SW); little Clay; trace Gravel, < 1/4", subrounded; 10YR4/3 brown with trace 5YR5/8 yellowish red; medium dense; damp. Clay content decreases with depth. Trace clay by 4.75'. Gravel content increases with depth.		2.6'/3.0'					
5										
6					ML			(9.3' - 13.0') SILT and CLAY (ML); trace Gravel; decreasing fine grained Sand content with depth; trace medium grained Sand lenses; 10YR4/3 brown and 5Y5/1 gray; stiff; dry; low plasticity. (9.9' - 10.2') Sandstone fragments.	2.35'/3.0'	
7										
8	ML		(9.3' - 13.0') SILT and CLAY (ML); trace Gravel; decreasing fine grained Sand content with depth; trace medium grained Sand lenses; 10YR4/3 brown and 5Y5/1 gray; stiff; dry; low plasticity. (9.9' - 10.2') Sandstone fragments.	3.4'/3.0'						
9										
10	ML		(9.3' - 13.0') SILT and CLAY (ML); trace Gravel; decreasing fine grained Sand content with depth; trace medium grained Sand lenses; 10YR4/3 brown and 5Y5/1 gray; stiff; dry; low plasticity. (9.9' - 10.2') Sandstone fragments.	3.4'/3.0'						
11										
12	ML		(9.3' - 13.0') SILT and CLAY (ML); trace Gravel; decreasing fine grained Sand content with depth; trace medium grained Sand lenses; 10YR4/3 brown and 5Y5/1 gray; stiff; dry; low plasticity. (9.9' - 10.2') Sandstone fragments.	3.4'/3.0'						
13										
13			Boring terminated at 13.0 ft bgs.				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.					LL6sb-069					

# HTRW DRILLING LOG

DISTRICT

USACE - Louisville

BOREHOLE NUMBER

LL6SB-070

1. COMPANY NAME

SAIC

2. DRILLING SUBCONTRACTOR

Frontz Drilling

SHEET 1 OF 2

3. PROJECT

RVAAP PBA-08 RT

4. LOCATION

RVAAP 8451 State Route 5 Ravenna, OH 44266

5. NAME OF DRILLER

Jeremy Leckrone

6. MAKE/MODEL OF DRILL

Geoprobe 6020 DT

7. SIZES AND TYPES OF SAMPLING EQUIPMENT

3" x 2" HAND AUGER  
15" x 4' ACETATE LINER  
2" DUAL TUBE

8. BOREHOLE LOCATION

553308.7487; 2353153.1686

9. SURFACE ELEVATION/DATUM

NAD 83

10. DRILL DATE/TIME

STARTED: 1310

COMPLETED: 1530

15. DEPTH GROUNDWATER ENCOUNTERED

11.5

16. DEPTH TO WATER/ELAPSED TIME AFTER BOREHOLE COMPLETION

NA

12. OVERBURDEN THICKNESS

13+ FT

13. DEPTH DRILLED INTO BEDROCK

NA

14. TOTAL DEPTH OF BOREHOLE

13 FT BGS

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: EXA/MA/WH

RAD: NA

OTHER: NA

21. TOTAL CORE RECOVERY % NA

22. DISPOSITION OF BOREHOLE

DATE STARTED/INSTALLED: 03/01/10; 1310

DATE COMPLETED/ABANDONED: 03/01/10; 1530

BACKFILL TYPE:

☐ GROUT☒ BENTONITE☐ TEMPORARY WELL POINT☐ MONITORING WELL

23. NOTES

BKG:  $\leq$  Background

BGS: Below Ground Surface

CPM: Counts per Minute

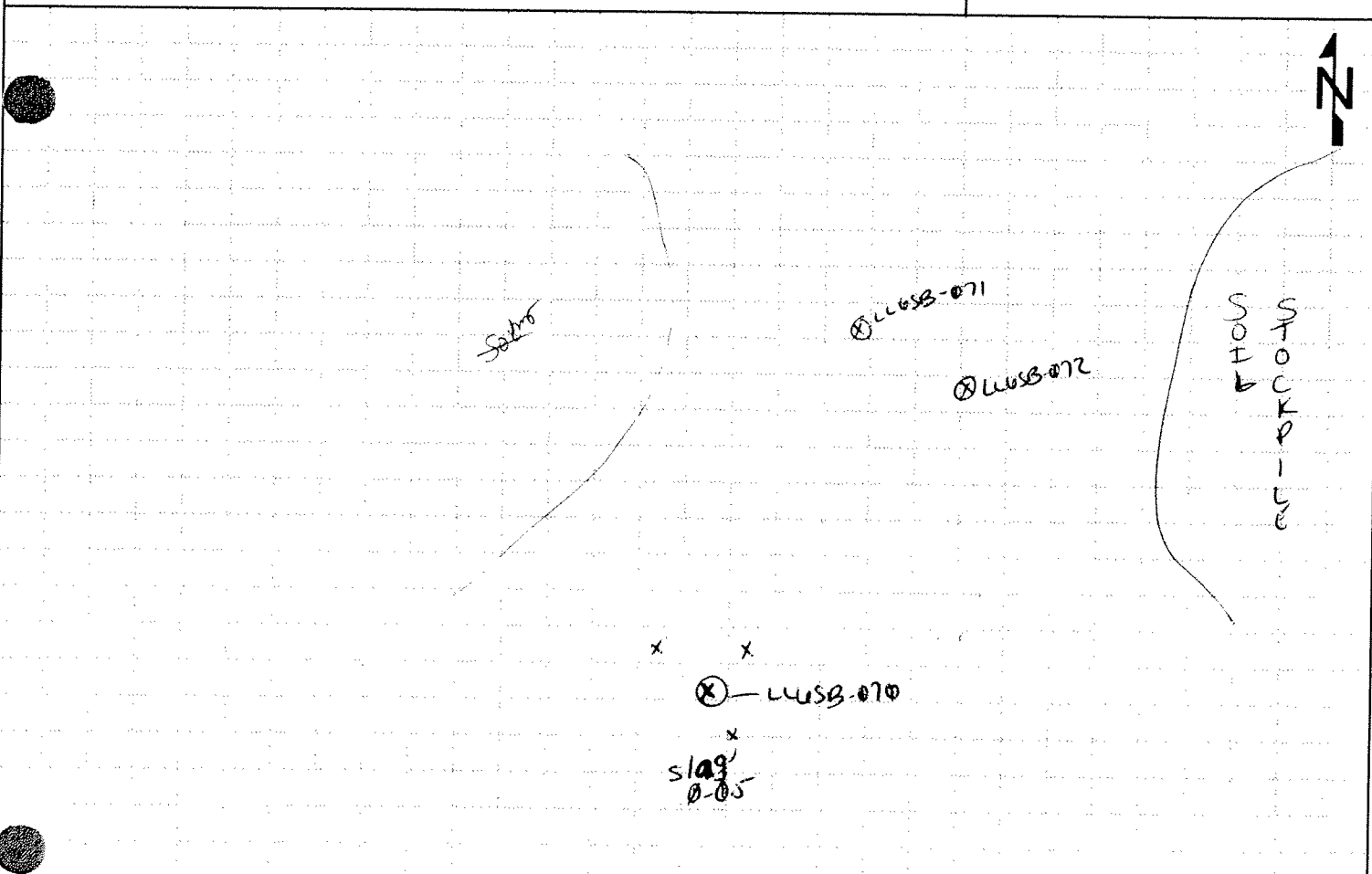
PPM: Parts per Million

 $\nabla$  : First Water Encountered $\blacktriangledown$  : Static Water Level

NA: Not Applicable

## LOCATION SKETCH/COMMENTS

SCALE: None



GEOLOGIST SIGNATURE/DATE

Amanda Jester 03/01/10

QA/QC SIGNATURE/DATE

J. Jester 3/12/10

BOREHOLE NUMBER

LL6SB-070



**US Army Corps  
of Engineers®**  
Louisville District



**RVAAP-33**  
**Load Line 6**  
**LL6sb-070**

Drilling Company : Frontz Drilling  
Driller : Jeremy Leckrone  
Designation of Drill : Geoprobe 6620DT  
Type of Drill Rig : Direct Push Technology  
Geologist : Amanda Trenton  
Oversight Company : SAIC  
Borehole Diameter : 2"  
Sampling Equipment : 1.5" x 4' Long Acetate Liner  
: 2" x 4' Dual Tube  
: 3" Hand Auger

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

Start Date : 03/01/10; 1310  
End Date : 03/01/10; 1530  
Northing Coord. : 553368.7487  
Easting Coord. : 23553153.1686  
Total Depth of Boring : 13.0 ft

Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
0	CL		(0.0' - 1.5') CLAY (CL); some medium grained Sand; little 1" subangular Gravel and Slag from 0.0' - 1.0'; 10YR4/4 yellowish brown; Sand is 10YR5/6 yellowish brown and 10YR6/4 pale red; soft; wet to moist from 0.0' - 0.4'; medium plasticity; little organics from 0.0' - 0.5'.	LL6sb-070-5223-SO collected from 0.0' - 1.0' on 03/01/10 at 1330 for TAL Metals + Hg, PAHs, and Explosives.	1.0'/1.0'		Soil Color Chart Munsell 2000 Rev. Ed.
1	CL		(1.5' - 5.6') CLAY (CL), trace fine grained Sand, trace Gravel, 1/4" - 1/2"; 10YR4/3 brown with 10YR6/6 brownish yellow and 10YR5/1 gray mottling; medium stiff; dry; medium plasticity.	LL6sb-070-5224-SO and MS/MSD collected from 1.0' - 4.0' on 03/01/10 at 1435 for TAL Metals + Hg, PAHs, and Explosives.	1.8'/3.0'		
2	CL		(4.2' - 5.6') Stiff.		3.0'/4.0'		
3	CL		(4.5' - 5.6') Introduction of 10YR8/2 very pale brown.				
4	CL						
5	CL			LL6sb-070-5225-SO collected from 4.0' - 7.0' on 03/01/10 at 1515 for TAL Metals + Hg, PAHs, and Explosives.	3.0'/3.0'		
6	SW		(5.6' - 6.5') Fine to very fine grained SAND (SW), little Silt, trace Gravel; 10YR4/4 dark yellowish brown and 2.5YR4/3 reddish brown; medium dense; damp; nonplastic.				
7	ML		(6.5' - 11.5') SILT (ML); some fine and very fine grained Sand; trace Gravel, 1/4" - 1/2", subangular; 10YR4/3 brown; medium dense; dry.		3.0'/3.0'		
8	ML						
9	ML						
10	ML			LL6sb-070-5226-SO collected from 7.0' - 13.0' on 03/01/10 at 1530 for TAL Metals + Hg, PAHs, and Explosives.	3.5'/3.0'		
11	ML						
12	SW		(11.5' - 12.4') Medium grained SAND (SW); 10YR4/3 brown; medium dense; wet; nonplastic. (12.2' - 12.4') Silt content increases with depth.				Coordinate System: NAD 83
13	ML		(12.4' - 13.0') SILT (ML), little fine grained Sand, trace 1/4" Gravel; 5RB5/1 bluish gray; medium stiff; dry.				
			Boring terminated at 13.0 ft bgs.				

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.  
Twin boreholes were drilled to obtain volume required for analyses.

**LL6sb-070**

# HTRW DRILLING LOG

DISTRICT

USACE - Louisville

BOREHOLE NUMBER

LLWSB-071

1. COMPANY NAME

SAIC

2. DRILLING SUBCONTRACTOR

Frontz Drilling

SHEET 1 OF 2

3. PROJECT

RVAAP IBA 08 RE

4. LOCATION

RVAAP 8451 State Route 5 Ravenna, OH 44266

5. NAME OF DRILLER

JEREMY LECKRONE

6. MAKE/MODEL OF DRILL

Geoprobe 6620DT

7. SIZES AND TYPES OF SAMPLING EQUIPMENT

3" 2" HAND AUGER  
1.5" X 4' ACETATE LINER  
2" DUAL TUBE

8. BOREHOLE LOCATION

553510.8815 ; 2353086.3371

9. SURFACE ELEVATION/DATUM

NAD 83

10. DRILL DATE/TIME

STARTED: 1235 COMPLETED: 1425

15. DEPTH GROUNDWATER ENCOUNTERED

~11.5

16. DEPTH TO WATER/ELAPSED TIME AFTER BOREHOLE COMPLETION

NA

12. OVERBURDEN THICKNESS

13' FT

13. DEPTH DRILLED INTO BEDROCK

NA

14. TOTAL DEPTH OF BOREHOLE

13 FT

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: EXR/MET/PAR RAD: NA

OTHER: NA

21. TOTAL CORE RECOVERY %

22. DISPOSITION OF BOREHOLE

DATE STARTED/INSTALLED: 03/01/10; 1235

DATE COMPLETED/ABANDONED: 03/01/10; 1425

BACKFILL TYPE:

☐ GROUT

☒ BENTONITE

☐ TEMPORARY WELL POINT

☐ MONITORING WELL

23. NOTES

BKG:  $\leq$  Background

BGS: Below Ground Surface

CPM: Counts per Minute

PPM: Parts per Million

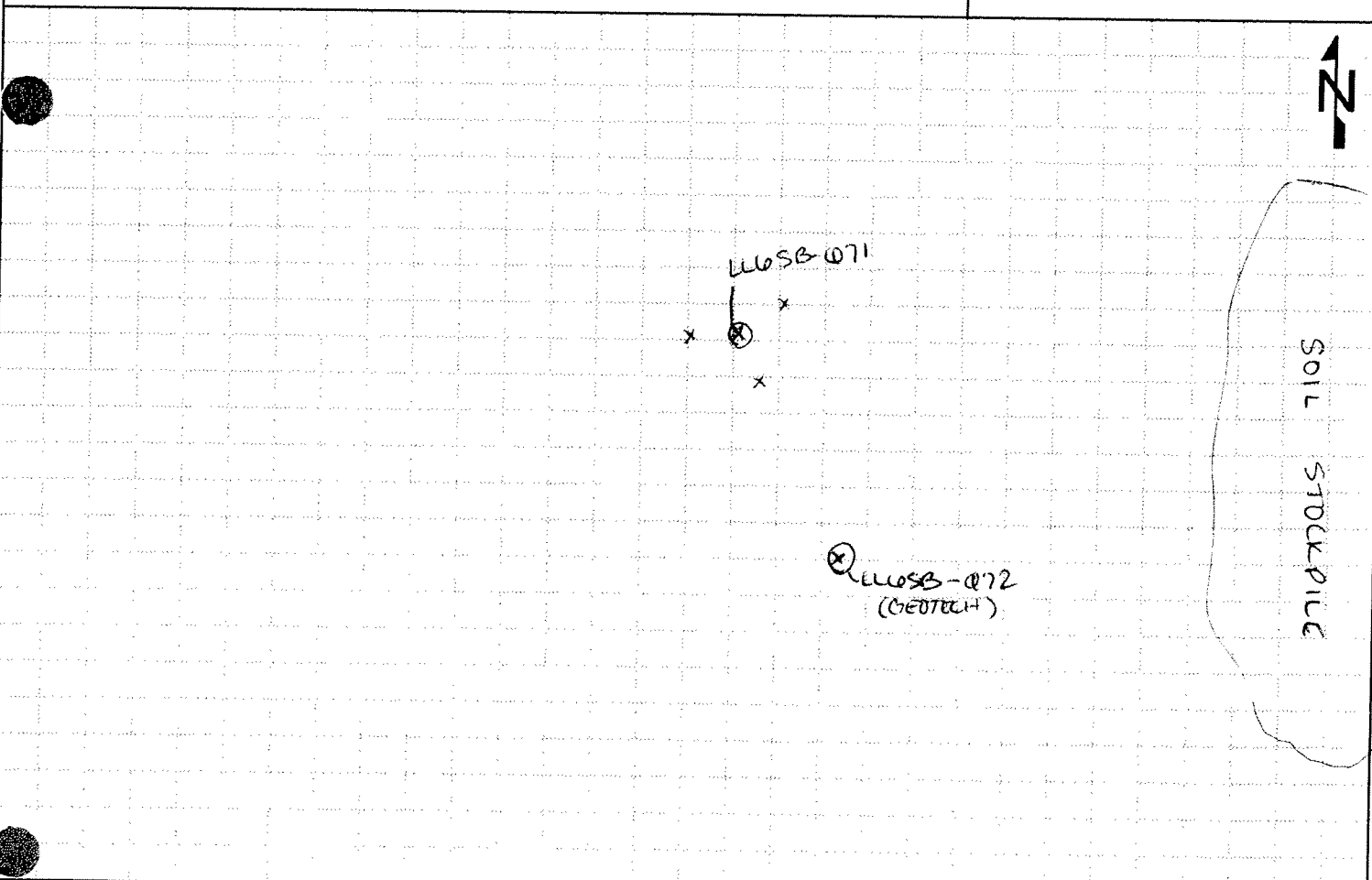
$\nabla$  : First Water Encountered

$\blacktriangledown$  : Static Water Level

NA: Not Applicable

LOCATION SKETCH/COMMENTS

SCALE: None



GEOLOGIST SIGNATURE/DATE

Amanda Trenton 03/01/10

QA/QC SIGNATURE/DATE

See Vay 3/12/10

BOREHOLE NUMBER

LLWSB-071



**US Army Corps  
of Engineers®**  
Louisville District



**RVAAP-33**  
**Load Line 6**  
**LL6sb-071**

Drilling Company : Frontz Drilling  
Driller : Jeremy Leckrone  
Designation of Drill : Geoprobe 6620DT  
Type of Drill Rig : Direct Push Technology  
Geologist : Amanda Trenton  
Oversight Company : SAIC  
Borehole Diameter : 2"  
Sampling Equipment : 1.5" x 4' Long Acetate Liner  
: 2" x 4' Dual Tube  
: 3" Hand Auger

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

Start Date : 03/01/10; 1235  
End Date : 03/01/10; 1425  
Northing Coord. : 553510.8815  
Easting Coord. : 2353086.3371  
Total Depth of Boring : 13.0 ft

Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
0			(0.0' - 4.0') CLAY (CL); some medium grained Sand; trace Gravel and Slag, 1/4" - 1/2", subrounded; 10YR5/1 gray and 10YR 4/4 yellowish brown; soft; wet to moist from surface runoff 0.0' - 0.4 then dry; medium plasticity; organics from 0.0' - 0.75'.	LL6sb-071-5227-SO collected from 0.0' - 1.0' on 03/01/10 at 1253 for TAL Metals + Hg, PAHs, and Explosives.  LL6sb-071-5228-SO, LL6sb-071-6068-FD, & LL6sb-071-6070-QA collected from 1.0' - 4.0' on 03/01/10 at 1400 for TAL Metals + Hg, PAHs, and Explosives.  LL6sb-071-5229-SO, LL6sb-071-6069-FD, & LL6sb-071-6071-QA collected from 4.0' - 7.0' on 03/01/10 at 1405 for TAL Metals + Hg, PAHs, and Explosives.	1.0'/1.0'		Soil Color Chart Munsell 2000 Rev. Ed.
1			(1.6' - 4.0) Medium stiff.				
2	CL				2.1'/3.0'		
3							
4			(4.0' - 7.0') CLAY (CL); little Silt; trace Gravel, 1/4", subangular; 10YR4/3 brown with little 10YR8/2 very pale brown mottling; stiff; dry; low plasticity.				
5	CL			LL6sb-071-5230-SO collected from 7.0' - 13.0' on 03/01/10 at 1425 for TAL Metals + Hg, PAHs, and Explosives.	3.1'/3.0'		Coordinate System: NAD 83
6							
7			(7.0' - 8.3') Clayey SILT (ML); trace Gravel, 1/4" - 1/2", subrounded; 10YR4/4 dark yellowish brown; stiff; dry; crumbly; low plasticity.				
8	ML						
9			(8.3' - 8.9') Fine grained SAND (SW); trace Gravel, 1/4" - 1/2", subrounded; 10YR4/4 dark yellowish brown; medium dense; moist; nonplastic.		2.8'/3.0'		
10			(8.9' - 10.0') Clayey SILT (ML); trace Gravel, 1/4" - 1/2", subrounded; 10YR4/4 dark yellowish brown; stiff; dry; crumbly; low plasticity.				
11	ML						
12			(10.0' - 10.1') Medium grained SAND seam (SW); dry. (10.1' - 13.0') Fine to very fine grained SAND (SW); 10YR4/4 dark yellowish brown; medium dense; moist, wet in pockets; nonplastic.		3.6'/3.0'		
13	SW						
			Boring terminated at 13.0 ft bgs.				

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.

**LL6sb-071**

# HTRW DRILLING LOG

DISTRICT

USACE - Louisville

BOREHOLE NUMBER

LLWSB-072

1. COMPANY NAME

SAIC

2. DRILLING SUBCONTRACTOR

Frontz Drilling

SHEET 1 OF 2

3. PROJECT

RVAAP PBA 08 RI

4. LOCATION

RVAAP 8451 State Route 5 Ravenna, OH 44266

5. NAME OF DRILLER

Jeremy Leckrone

6. MAKE/MODEL OF DRILL

Geoprobe L620DT

7. SIZES AND TYPES OF SAMPLING EQUIPMENT

2"x4' ALUMINUM LINER  
2" DIA. TUBE  
4 1/4" HSAs  
3" SHALBY TUBE

8. BOREHOLE LOCATION

553510.8815 : 2353086.3371

9. SURFACE ELEVATION/DATUM

NAD 83

10. DRILL DATE/TIME

STARTED: 1/4/08

COMPLETED: 1/6/03

15. DEPTH GROUNDWATER ENCOUNTERED

11.5 FT

16. DEPTH TO WATER/ELAPSED TIME AFTER BOREHOLE COMPLETION

NA

12. OVERBURDEN THICKNESS

21.25 FT

13. DEPTH DRILLED INTO BEDROCK

NA

14. TOTAL DEPTH OF BOREHOLE

21.25 FT / 10.5 FT (core)

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

NA

18. GEOTECHNICAL SAMPLES

UNDISTURBED: 2

DISTURBED: NA

19. TOTAL NUMBER OF CORE BOXES

NA

20. CHEMICAL SAMPLES

CHEM: NA

RAD: NA

OTHER: NA

21. TOTAL CORE RECOVERY %

NA

22. DISPOSITION OF BOREHOLE

DATE STARTED/INSTALLED: 03/01/10; 1440

DATE COMPLETED/ABANDONED: 03/04/10; 1033

BACKFILL TYPE:

☐ GROUT

☒ BENTONITE

☐ TEMPORARY WELL POINT

☐ 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

LLWSB-003

LLWSB-071

LLWSB-072

SOIL STOCKPILE

GRADED NEARBY WELL

LLWSB-003

WATER LEVEL  $\approx$  11 FT POS

GEOLOGIST SIGNATURE/DATE

Amanda Jentz 03/01/10

QA/QC SIGNATURE/DATE

Joe Voj 3/12/10

BOREHOLE NUMBER

LLWSB-072



RVAAP-33  
Load Line 6  
LL6sb-072

Drilling Company : Frontz Drilling  
Driller : Jeremy Leckrone  
Designation of Drill : Geoprobe 6620DT  
Type of Drill Rig : Direct Push Technology  
Geologist : Amanda Trenton  
Oversight Company : SAIC  
Borehole Diameter : 8"  
Sampling Equipment : 4.25" Hollow Stem Augers  
: 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 : 03/01/10; 1440  
End Date : 03/01/10; 1633  
Northing Coord. : 553510.8815  
Easting Coord. : 2353086.3371  
Total Depth of Boring : 21.25 ft

Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
0	CL		(0.0' - 1.5') CLAY (CL); some medium grained Sand; little Gravel, 1/4" - 1"; 10YR4/4 yellowish brown and 10YR5/1 gray; soft; moist from 0.0' - 0.5' then dry; medium plasticity; little organics.	Shelby Tube LL6sb-072-5231-SO collected from 4' - 5' on 03/01/10 at 1555 for Porosity, Bulk Density, Moisture Content, Total Organic Carbon, Permeability, and Grain Size Fraction Analysis. Shelby tube refusal at 5' bgs.	1.0'/2.0'		Soil Color Chart Munsell 2000 Rev. Ed.
1	CL		(1.5' - 5.5') CLAY (CL); trace fine grained Sand; little Silt; 10YR4/3 brown with 10YR6/6 brownish yellow and 10YR5/1 gray; medium stiff; dry; medium plasticity.				
2	CL		(5.5' - 6.5') Fine grained SAND (SM); little to some Silt; trace Gravel; 10YR4/4 dark yellowish brown; medium dense; damp.				
3	SM		(6.5' - 12.5') SAND and SILT (SM); sandier in pockets; trace fine Gravel; 10YR4/3 brown; medium dense; damp.	Shelby Tube LL6sb-072-5232-SO collected from 9' - 10.5' on 03/01/10 at 1615 for Porosity, Bulk Density, Moisture Content, Total Organic Carbon, Permeability, and Grain Size Fraction Analysis. Shelby tube refusal at 10.5' bgs.	1.5'/2.0'		
4	SM		(11.25' - 11.75') Moist.				
5	SM		(12.5' - 21.25') SILT (ML); little fine grained Sand; trace Clay; trace 1/4" Gravel; 5RB5/1 bluish gray; stiff to hard; dry.				
6	SW						
7	SW						
8	SW						
9	SW						
10	SW						
11	SW						
12	SW						
13	SW						
14	SW						
15	SW						
16	SW						
17	SW						
18	SW						
19	SW						
20	SW						
21	SH		(21.25') Weathered SHALE; hard; dry.				
22			Boring terminated at 21.25 ft bgs.				Coordinate System: NAD 83

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

LL6sb-072

# HTRW DRILLING LOG

DISTRICT USACE - Louisville	BOREHOLE NUMBER LL05B-083
1. COMPANY NAME SAIC	2. DRILLING SUBCONTRACTOR Frontz Drilling
SHEET 1 OF 2	

3. PROJECT RVAAP PBA 08 RI	4. LOCATION RVAAP 8451 State Route 5 Ravenna, OH 44266
5. NAME OF DRILLER JEREMY LOCKRONE	6. MAKE/MODEL OF DRILL NA Geoprobe
7. SIZES AND TYPES OF SAMPLING EQUIPMENT 3" 2" Hand Auger	8. BOREHOLE LOCATION 52598.7757, 2353057.3031
	9. SURFACE ELEVATION/DATUM NAD 83
	10. DRILL DATE/TIME 02/25/10
	STARTED: 0920 COMPLETED: 1015
	15. DEPTH GROUNDWATER ENCOUNTERED NA
	16. DEPTH TO WATER/ELAPSED TIME AFTER BOREHOLE COMPLETION NA
12. OVERBURDEN THICKNESS 5.5+ FT	17. OTHER WATER LEVEL MEASUREMENTS (INCLUDE DATE/TIME) NA
13. DEPTH DRILLED INTO BEDROCK NA	
14. TOTAL DEPTH OF BOREHOLE 5.5 FT (REFUSAL)	
18. GEOTECHNICAL SAMPLES UNDISTURBED: _____ DISTURBED: _____	19. TOTAL NUMBER OF CORE BOXES NA
20. CHEMICAL SAMPLES CHEM: EXA/MET/AM RAD: NA OTHER: NA	21. TOTAL CORE RECOVERY % NA
22. DISPOSITION OF BOREHOLE DATE STARTED/INSTALLED: 02/25/10; 0920 DATE COMPLETED/ABANDONED: 02/25/10; 1015	
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: ≤ 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 Amanda Hentm 02/25/10	QA/QC SIGNATURE/DATE [Signature] 3/12/10	BOREHOLE NUMBER LL05B-083
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RVAAP-33  
Load Line 6  
LL6sb-083

Drilling Company : Frontz Drilling  
Driller : Jeremy Leckrone  
Designation of Drill : NA  
Type of Drill Rig : NA  
Geologist : Amanda Trenton  
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 : 02/25/10; 0920  
End Date : 02/25/10; 1015  
Northing Coord. : 552598.7757  
Easting Coord. : 2353057.3031  
Total Depth of Boring : 5.5 ft

Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
0	ML		(0.0' - 0.5') SILT (ML); some Clay and medium grained Sand; trace fine Gravel; 10YR4/3 brown; medium stiff; damp; medium plasticity; significant organics throughout.	LL6sb-083-5233-SO collected from 0.0' - 1.0' on 02/25/10 at 0933 for TAL Metals + Hg, PAHs, and Explosives.	1.0'/1.0'		Soil Color Chart Munsell 2000 Rev. Ed.
1			(0.5' - 4.0') CLAY (CL); some Silt; trace fine subangular Gravel; trace Sand lenses; 10YR4/4 yellowish brown with 10YR5/1 gray; Sand is 10R6/4 pale red; soft; damp; medium plasticity to high plasticity.	LL6sb-083-5234-SO collected from 1.0' - 4.0' on 02/25/10 at 0956 for TAL Metals + Hg, PAHs, and Explosives.	3.0'/3.0'		
2	CL						
3							
4			(4.0' - 5.5') CLAY (CL); little Silt; trace Gravel, 1/4", subangular; 10YR4/4 brown with little 10YR8/2 very pale brown mottling; stiff; dry; medium to low plasticity.	LL6sb-083-5235-SO collected from 4.0' - 5.5' on 02/25/10 at 1015 for TAL Metals + Hg, PAHs, and Explosives.	1.5'/1.5'		
5	CL						
6			Boring terminated at 5.5 ft bgs. Hand auger refusal.				
7							
8							
9							
10							
11							
12							
13							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.

LL6sb-083

## **SURFACE WATER AND SEDIMENT SAMPLES**

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RL  
7/5/12

RVAAP

# RVAAP PBA08 RI - Surface Water and Wet Sediment Sample Log

USACE - Louisville	RVAAP 8451 State Rt. 5 Ravenna, OH 44266
2. PROJECT: RVAAP PBA 2008 RI	
3. Sample Team	SHEET 1 OF 2

1. COMPANY NAME: SAIC

4. LOCATION ID: RVAAP - LLS-D-081

5. Coordinates Recorded: N/A

5. Surface Water Equipment Used: N/A

SAMPLE TYPE: N/A

6. Sample ID and Time 7/5/12  
REFER TO LOG FOR  
LLSD-081

7. Dupe ID (if needed) N/A

8. MS/MSD ID (if needed) N/A

9. Split ID (if needed) N/A

10. Wet Sediment Equipment Used: PUSH PROBE

SAMPLE TYPE: COMPOSITE 0-0.5' bgs

11. Sample ID LLSD-081-5243-SD 0840

12. Dupe ID (if needed) N/A

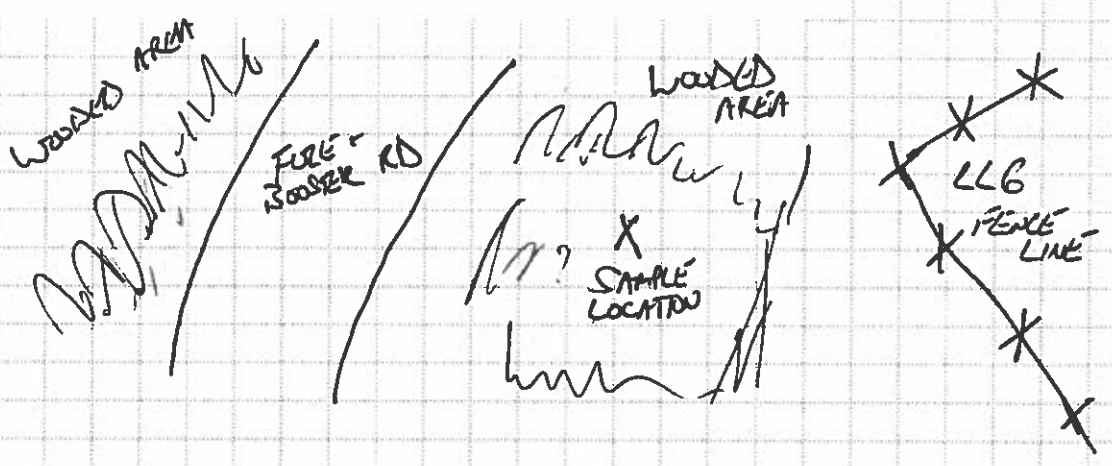
13. MS/MSD ID (if needed) N/A

14. Split ID (if needed) N/A

Weather Conditions: P. CLOUDY 31°F Activities in the Area NONE

LOCATION SKETCH/COMMENTS SCALE: None

Field Notes: NO SURFACE WATER AVAILABLE, STREAM/DITCH MAY BE SEASONAL  
WET SEDIMENT - SILT + CLAYS (OH), SOME SAND + TRACE GRAVEL  
CLAYS - DARK GREY 10 YR 4/1  
SAND - DARK BROWN 10 YR 3/3  
VERY SOFT; MOIST; HIGH PLASTICITY IN CLAY - SAND VERY LOOSE  
WITH ROOTS/ORGANICS



## SURFACE WATER ANALYSES:

- ☐ EXPLOSIVES ☐ TAL METALS ☐ SVOCs ☐ OTHER \_\_\_\_\_  
☐ FULL SUITE (VOCs, SVOCs, Metals, Explosives, Propellants, Pesticides, PCBs)

## WET SEDIMENT ANALYSES:

- ☒ EXPLOSIVES ☒ TAL METALS ☐ SVOCs ☐ OTHER \_\_\_\_\_  
☐ FULL SUITE (VOCs, SVOCs, Metals, Explosives, Propellants, Pesticides, PCBs)

Recorded By: RE  
(Signature and Date)  
2/18/10

QC Checked by: Emily Cunningham  
(Signature and Date)  
2/18/2010

RVAAP

# RVAAP PBA08 RI - Surface Water and Wet Sediment Sample Log

USACE - Louisville

2. PROJECT: RVAAP PBA 2008 RI

RVAAP 8451 State Rt. 5  
Ravenna, OH 44266

1. COMPANY NAME: SAIC

3. Sample Team

Emily Cunningham &amp; Steve Visoky

SHEET 1 OF 1

4. LOCATION ID: L10SW-081

5. Coordinates Recorded:

5. Surface Water Equipment Used: GRAB DIRECTLY INTO BOTTLES SAMPLE TYPE: GRAB

6. Sample ID

L10SW-081-5242-SW

7. Dupe ID (if needed)

NA

8. MS/MSD ID (if needed)

NA

9. Split ID (if needed)

NA

10. Wet Sediment Equipment Used:

SAMPLE TYPE:

11. Sample ID

SEE LOG FROM 2/10/2010

12. Dupe ID (if needed)

NA

13. MS/MSD ID (if needed)

14. Split ID (if needed)

Weather Conditions: 35°F OVERCAST

Activities in the Area NONE

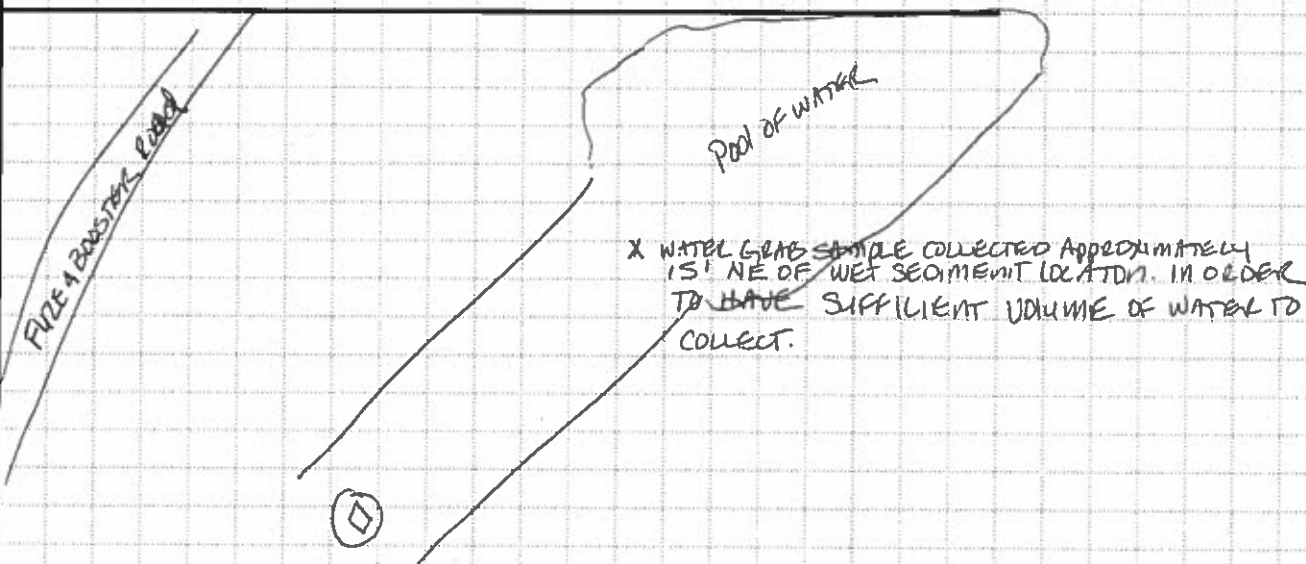
LOCATION SKETCH/COMMENTS

SCALE: None

Field Notes: ON 2/10/2010 WET SEDIMENT WAS COLLECTED BUT THE

DITCH DID NOT HAVE ENOUGH WATER TO COLLECT. LOCATION WAS RECHECKED

ON 3/02/2010 AND HAD ENOUGH WATER TO COLLECT, SO FULL SUITE WAS COLLECTED.



## SURFACE WATER ANALYSES:

- ☐ EXPLOSIVES   ☐ TAL METALS   ☐ SVOCs   ☐ OTHER \_\_\_\_\_  
☒ FULL SUITE (VOCs, SVOCs, Metals, Explosives, Propellants, Pesticides, PCBs)

## WET SEDIMENT ANALYSES:

- ☐ EXPLOSIVES   ☒ TAL METALS   ☐ SVOCs   ☐ OTHER \_\_\_\_\_  
☒ FULL SUITE (VOCs, SVOCs, Metals, Explosives, Propellants, Pesticides, PCBs)

Recorded By:

Emily Cunningham  
(Signature and Date) 03/03/10

QC Checked by:

St. Vici / 3/3/10  
(Signature and Date)

## SAMPLE LOG SHEET

PROJECT NAME: RVAAP PBA08 RI

PROJECT NO: 172819.00.09456.00.9200.02.200

SAMPLING LOCATION: LL6 SW - 081 DATE COLLECTED (MM/DD/YY): 03/16/14TIME: 0925SAMPLE TEAM: STEVE VIOCKY, SARAH SEWEATHER: SUNNY, 35°F ACTIVITIES IN AREA: NONE

FIELD OBSERVATIONS (i.e. Water color, odor, flow....):

STAGNANT, CLEAR. LEAVES AND SEDIMENT ON DITCH BOTTOM.  
NO ODOR.PHOTOGRAPH ID(S): <sup>SA</sup>~~14A~~ LL6 SW - 081

FIELD MEASUREMENTS	READING	UNITS	SERIAL NO.	LAST CALIB.
TEMPERATURE:	4.82	°C	15566	03/16/14
pH:	6.79	S.U	↓	↓
CONDUCTIVITY:	0.256	mS/cm	↓	↓
DO:	5.74	mg/L	↓	↓
TURBIDITY:	7.8	NTU	15559	↓
OTHER _____:				

Recorded By: Steve Nick 03/16/14  
(Signature)

QC Checked by:

Steve Nick 03/16/14  
(Signature)

RL  
7/5/12

RVAAP

**RVAAP PBA08 RI - Surface Water  
and Wet Sediment Sample Log**

USACE - Louisville

2. PROJECT: RVAAP PBA 2008 RI

RVAAP 8451 State Rt. 5  
Ravenna, OH 44266

1. COMPANY NAME: SAIC

3. Sample Team

EVAN LAUREICH

EMILY CUNNINGHAM

SHEET 1 OF 2

4. LOCATION ID: LLLSWISD-082

5. Coordinates Recorded:

5. Surface Water Equipment Used: NONE

SAMPLE TYPE: GRAB

6. Sample ID and Time

LLLSW-082-5244-SW; 1530

7. Dupe ID (if needed)

NO

8. MS/MSD ID (if needed)

NO

9. Split ID (if needed)

NO

10. Wet Sediment Equipment Used: HAND PUSH PROBE

SAMPLE TYPE: COMPOSITE; VDR-Grabe Composite

11. Sample ID

LLLSW-082-5245-SD; 1530

12. Dupe ID (if needed)

LLLSW-082-6063-FD

13. MS/MSD ID (if needed)

NO

14. Split ID (if needed)

LLLSW-082-6062-GA

Weather Conditions: 28°F, SNOWY, OVERCAST; MOD. WIND

Activities in the Area: NONE

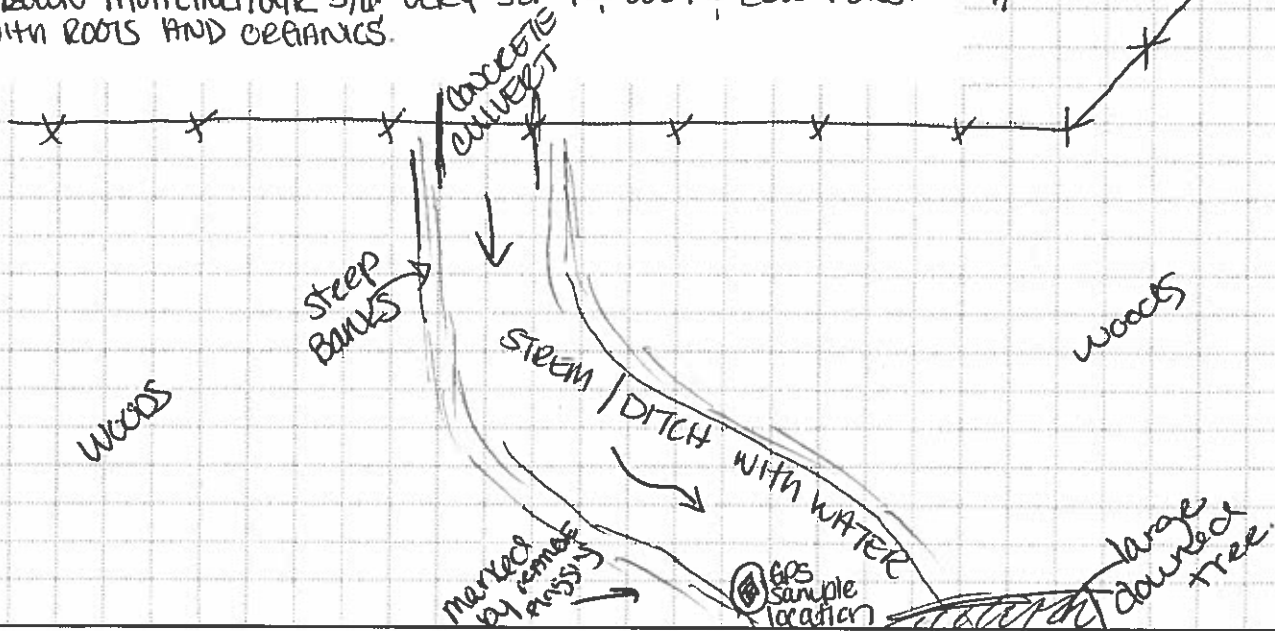
LOCATION SKETCH/COMMENTS

02-17-2010

SCALE: None

Field Notes: SAMPLES collected under ~6" of snow and a few" of ice. water was about 3" deep. wet sediment collected by making holes in ice 5ft around main sample point. Field Dupe and Split collected on wet sediment.

SEDIMENT: <sup>SILTY</sup> CLAY (OL) WITH ORGANIC CLAYS AND SILTS; SOME SAND. VERY DARK GRAY 10YR 3/1 WITH DARK YELLOWISH BROWN MOTTLING 10YR 3/1. VERY SOFT; WET; LOW PLASTICITY; WITH ROOTS AND ORGANICS.



**SURFACE WATER  
ANALYSES:**

- ☐ EXPLOSIVES ☐ TAL METALS ☐ SVOCs ☐ OTHER \_\_\_\_\_  
☒ FULL SUITE (VOCs, SVOCs, Metals, Explosives, Propellants, Pesticides, PCBs)

**WET SEDIMENT  
ANALYSES:**

- ☐ EXPLOSIVES ☐ TAL METALS ☐ SVOCs ☐ OTHER \_\_\_\_\_  
☒ FULL SUITE (VOCs, SVOCs, Metals, Explosives, Propellants, Pesticides, PCBs)

Recorded By:

Emily Cunningham  
(Signature and Date)  
02/17/2010

QC Checked by:

REJ  
(Signature and Date)  
2/18/10

## SAMPLE LOG SHEET

PROJECT NAME: RVAAP PBA08 RI

PROJECT NO: 172819.00.09456.00.9200.02.200

SAMPLING LOCATION: LL6SW-082 DATE COLLECTED (MM/DD/YY): 13/16/14TIME: 1430SAMPLE TEAM: STEVE VISOCKY, SARA HISEWEATHER: SUNNY, 35°F ACTIVITIES IN AREA: NONE

FIELD OBSERVATIONS (i.e. Water color, odor, flow....):

CLEAR, LEAVES + SEDIMENT ON BOTTOM. NO ODOR. STEADY LOW FLOWPHOTOGRAPH ID(S): N/A

FIELD MEASUREMENTS	READING	UNITS	SERIAL NO.	LAST CALIB.
TEMPERATURE:	4.91	°C	15560	03/16/14
pH:	7.00	S.U	↓	↓
CONDUCTIVITY:	0.037	mS/cm	↓	↓
DO:	5.84	mg/L	↓	↓
TURBIDITY:	7.87	NTU	15559	↓
OTHER _____:				

Recorded By:

S. Hise 03/16/14  
(Signature)

QC Checked by:

Steve Visocky 3/16/14  
(Signature)



## RVAAP - Surface Water &amp; Wet Sediment Field Form

SHEET 1 OF 1

USACE - Louisville

RVAAP 8451 State Rt. 5  
Ravenna, OH 442661. Sample Team: Mike Benello,  
Steve Visody, Chad Lawrence

## 2. Location ID:

LL6sw/sd - 084

## 3. Revised Coordinates Recorded:

NA

## 4. Surface Water Sample ID:

LL6sw - 084 - 5794 - SW

## 5. Date and Time:

4/11/10 1645

## 6. Dupe ID (if needed):

NA

## 7. Split ID (if needed):

NA

## 8. Surface Water Sample Type and Equipment Used: Direct Fill - Grab

9. MS/MSD: NA

## 10. Wet Sediment Sample ID:

LL6sd - 084 - 5795 - SD

## 11. Date and Time:

4/11/10 1805

## 12. Dupe ID (if needed):

NA

## 13. Split ID (if needed):

NA

## 14. Wet Sediment Sample Type and Equipment Used: Composite Ponar, 55 Bawl + Spoon

15. MS/MSD: NA

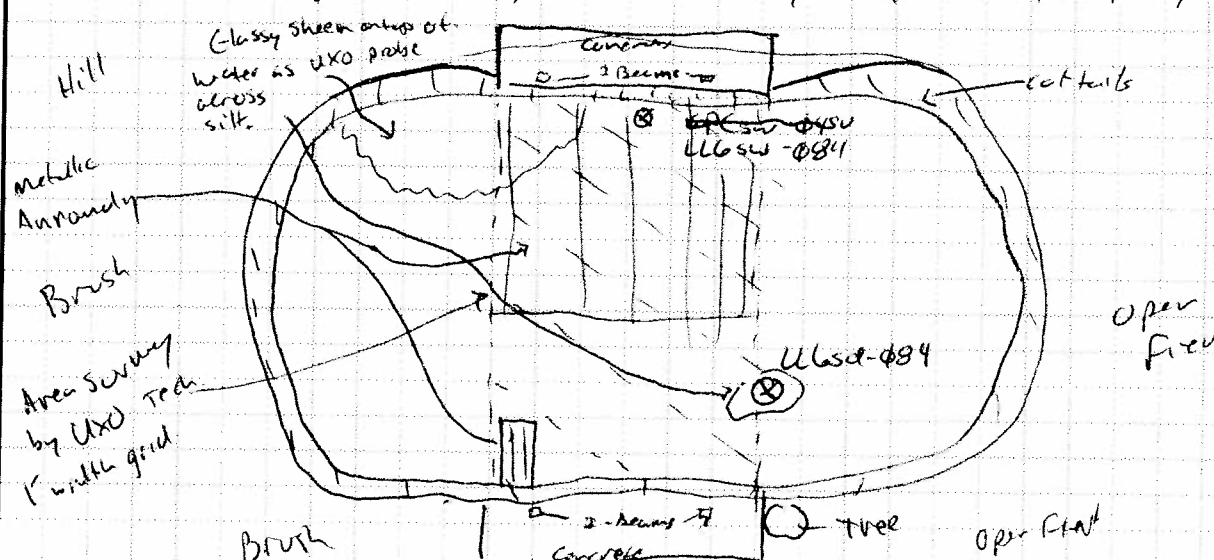
## 16. Weather Conditions: Sunny 80°F

## 17. Activities in the Area: None

## LOCATION SKETCH/COMMENTS

SCALE: None

Field Notes: water depth (deepest 15') - Clear, Brown, Tadpoles, Salamanders  
SILT (MC) Trace Organics (Decaying Leaves + Cat tails), Dk Grey 10YR 3/1, wet, non plastic.



FIELD MEASUREMENTS	READING	UNITS	SERIAL NO.	LAST CALIB.
TEMPERATURE:	7.51	°C	15558	4/11/10
pH:	8.32	S.U		
CONDUCTIVITY:	0.152	mS/cm		
DO:	10.15	mg/L		
TURBIDITY:	6.72	NTU	15557	
OTHER <u>Seil</u> :	0.07		15558	

## SURFACE WATER ANALYSES:

☐ EXPLOSIVES ☐ TAL METALS ☐ SVOCs ☐ OTHER  
☒ FULL SUITE (VOCs, SVOCs, Metals, Explosives, Propellants, Pesticides, PCBs)

## WET SEDIMENT ANALYSES:

☒ EXPLOSIVES ☒ TAL METALS ☐ SVOCs ☐ OTHER  
☐ FULL SUITE (VOCs, SVOCs, Metals, Explosives, Propellants, Pesticides, PCBs)

Recorded By:

SE Wh 4/11/10  
(Signature and Date)

QC Checked by:

RSm 4/12/10  
(Signature and Date)

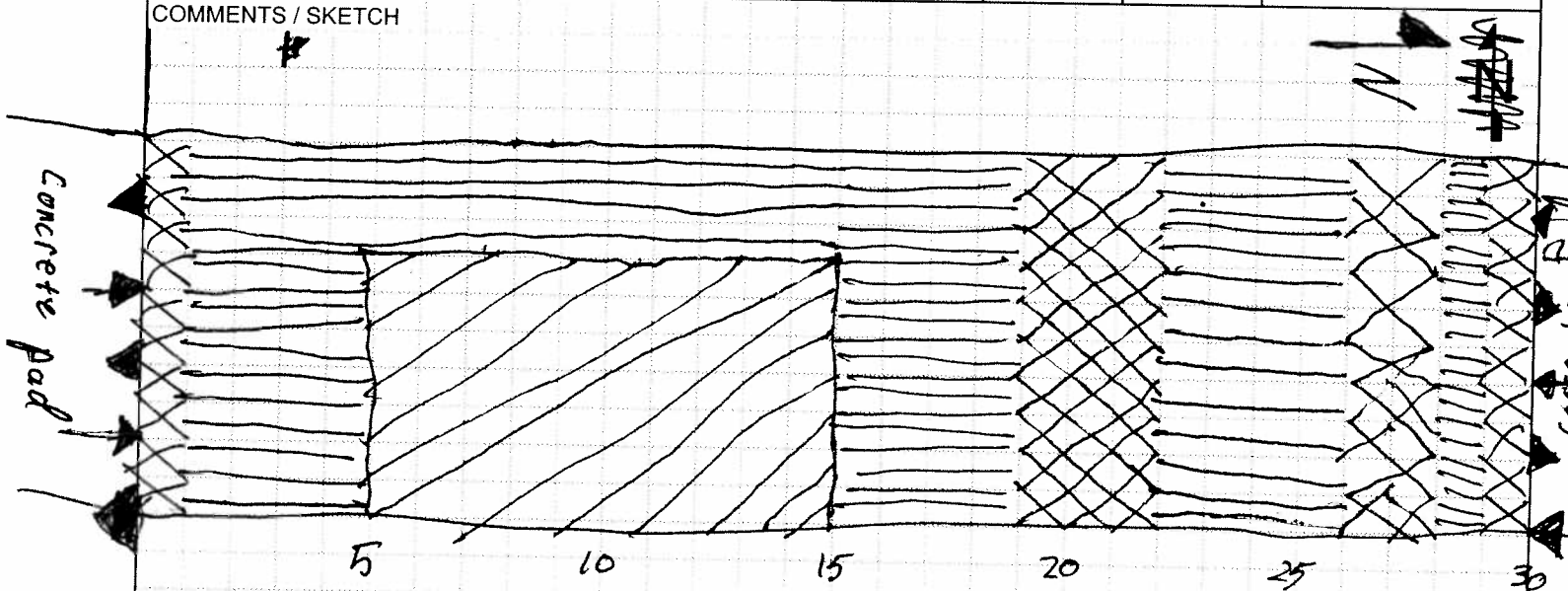
# Underwater Survey

## USTRW DRILLING LOG

DISTRICT USACE - Louisville		BOREHOLE NUMBER <i>Underwater Test Pit</i> LL65d/sw-084	
1. COMPANY NAME <i>SAIG USA Environmental</i>		2. DRILLING SUBCONTRACTOR NA	
3. PROJECT <i>RVAAP PBA09RT</i>		4. LOCATION RVAAP 8451 State Route 5 Ravenna, OH 44266	
5. NAME OF DRILLER		6. DIRECTION OF BOREHOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEGREES	
7. NOTES PID MAKE/MODEL: WATER LEVEL MAKE/MODEL:		PID SERIAL#: WATER LEVEL SERIAL#: Colors from Munsell Soil Color Chart, Rev	

ELEVATION	DEPTH (Feet)	USCS <i>Symbol</i>	CLASSIFICATION OF MATERIALS	SPT DATA (0.5 Feet)	MONITORING (PPM/CPM)	REMARKS (Sample IDs/Depths/Core Box/Etc.)
			Little to no deflection - Area void of anomalies			
			Deflection showed deflection of +/- 10. Interpretation was various items possibly 1-1.5ft in length			Believe to be pieces of I-beam from crane frame
			Deflection show rapid change Interpretation was items of 1-1.5ft in length			Believe to be fragmentation and other ferrous metal objects
	1					
			→ ← Location of pull and direction			

### COMMENTS / SKETCH



GEOLOGIST SIGNATURE/DATE <i>Lawrence, Chad</i> <i>4/12/10</i>	QA/QC SIGNATURE/DATE <i>RSmyl</i> <i>4/12/10</i>	BOREHOLE NUMBER LL65d/sw-084
--	---	---------------------------------

7/15/12

RVAAP

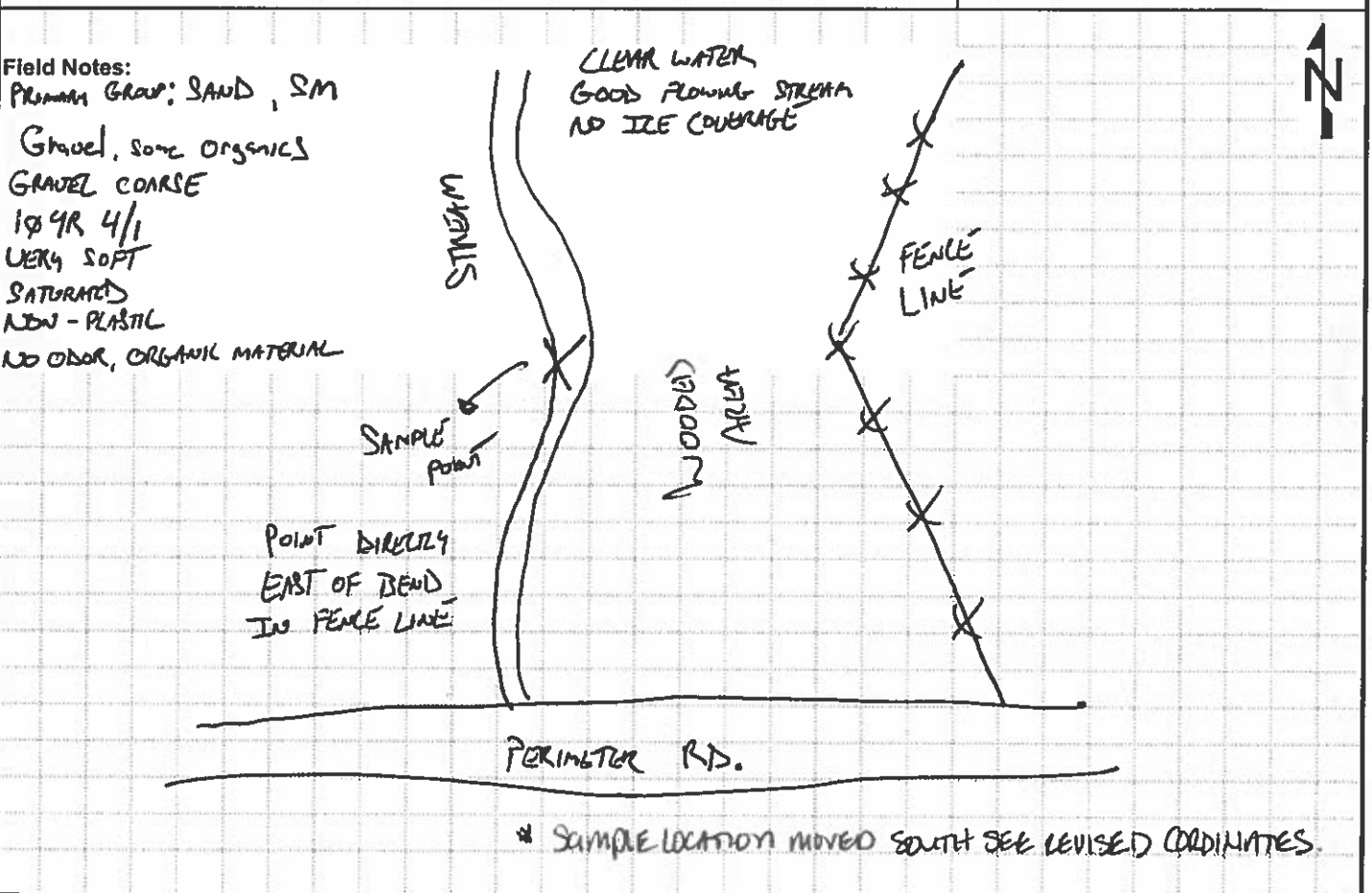
# RVAAP PBA08 RI - Surface Water and Wet Sediment Sample Log

USACE - Louisville	RVAAP 8451 State Rt. 5 Ravenna, OH 44266
2. PROJECT: RVAAP PBA 2008 RI	
3. Sample Team: <u>MIKE DENALLO, RYAN LANNAN</u>	SHEET 1 OF 2

4. LOCATION ID: <u>FWS SW/SD - 101</u>	5. Coordinates Recorded: <u>N: 549516.98 E: 2353985.52 ELV 957.01A</u>
6. Surface Water Equipment Used: <u>BOTTLE</u>	SAMPLE TYPE: <u>GRAB</u>
6. Sample ID and Time: <u>FWS SW - 101 - 5008 - SW 1000</u>	7. Dupe ID (if needed): <u>N/A</u>
8. MS/MSD ID (if needed): <u>N/A</u>	9. Split ID (if needed): <u>N/A</u>
10. Wet Sediment Equipment Used: <u>PUSH PROBE</u>	SAMPLE TYPE: <u>VOCs - GRAB, ALL OTHERS COMPOSITE</u>
11. Sample ID: <u>FWS SD - 101 - 5009 - SD</u>	12. Dupe ID (if needed): <u>N/A</u>
13. MS/MSD ID (if needed): <u>N/A</u>	14. Split ID (if needed): <u>N/A</u>

Weather Conditions: <u>28°F OVERCAST</u>	Activities in the Area: <u>N/A</u>
--	------------------------------------

LOCATION SKETCH/COMMENTS	SCALE: None
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SURFACE WATER ANALYSES:	
<input type="checkbox"/> EXPLOSIVES <input type="checkbox"/> TAL METALS <input type="checkbox"/> SVOCs <input type="checkbox"/> OTHER _____	
<input checked="" type="checkbox"/> FULL SUITE (VOCs, SVOCs, Metals, Explosives, Propellants, Pesticides, PCBs)	
WET SEDIMENT ANALYSES:	
<input type="checkbox"/> EXPLOSIVES <input type="checkbox"/> TAL METALS <input type="checkbox"/> SVOCs <input type="checkbox"/> OTHER _____	
<input checked="" type="checkbox"/> FULL SUITE (VOCs, SVOCs, Metals, Explosives, Propellants, Pesticides, PCBs)	
Recorded By: <u>KEJ 2-25-10</u> (Signature and Date)	QC Checked by: <u>Mike Denallo 02/26/10</u> (Signature and Date)

## SAMPLE LOG SHEET

PROJECT NAME: RVAAP PBA08 RI

PROJECT NO: 172819.00.09456.00.9200.02.200

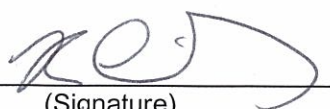
SAMPLING LOCATION: FSW SW - 101 DATE COLLECTED (MM/DD/YY): 3/15/10TIME: 1555SAMPLE TEAM: Ryan LAMICH, MIKE DENNLOWEATHER: 40°F, BREEZY, CLOUDY ACTIVITIES IN AREA: N/A

FIELD OBSERVATIONS (i.e. Water color, odor, flow....):

CLEAR WATER, AVG. FLOW, NO ODORSKL3/15/10PHOTOGRAPH ID(S): N/ATEMP 42.06°F

FIELD MEASUREMENTS	READING	UNITS	SERIAL NO.	LAST CALIB.
TEMPERATURE:		°C	15556	3/15/10
pH:	7.06	S.U	↓	↓
CONDUCTIVITY:	0.076	mS/cm	↓	↓
DO:	12.18	mg/L	↓	↓
TURBIDITY:	7.69	NTU	15557	3/15/10
OTHER <u>N/A</u> :	<u>42.06 KL</u>			<u>OK</u>

Recorded By:

  
 (Signature)  
3/15/10

QC Checked by:

  
 (Signature)  
03/10/2010

ru  
7/5/12

RVAAP

# RVAAP PBA08 RI - Surface Water and Wet Sediment Sample Log

USACE - Louisville

2. PROJECT: RVAAP PBA 2008 RI

RVAAP 8451 State Rt. 5  
Ravenna, OH 44266

1. COMPANY NAME: SAIC

3. Sample Team

Ryan Laurich

Emily Cunningham

SHEET 1 OF 2

4. LOCATION ID: FWSSW-103

5. Coordinates Recorded: YES (N) 552471.97 (E) 235710.4  
ew. 905.42 Ft.

5. Surface Water Equipment Used: NONE

SAMPLE TYPE: GRAPE

6. Sample ID and Time

FWSSW-103-5012-SW-1009

7. Dupe ID (if needed)

NO

8. MS/MSD ID (if needed)

NO

9. Split ID (if needed)

NO

10. Wet Sediment Equipment Used: Hand Rush Probe

SAMPLE TYPE: Composite, VOCs Grape Composite

11. Sample ID

FWSSD-103-5013-SD-1009

12. Dupe ID (if needed)

NO

13. MS/MSD ID (if needed)

NO

14. Split ID (if needed)

NO

Weather Conditions: 31°F, P. cloudy, some wind.

Activities in the Area: NONE

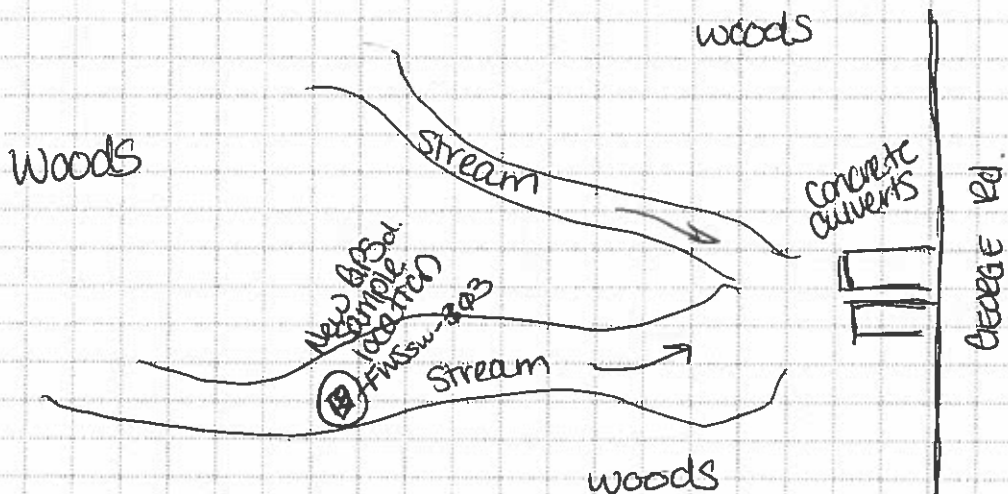
LOCATION SKETCH/COMMENTS

SCALE: None

Field Notes: Wet Sediment: 0-3" SANDY SILT (SM); trace amount of gravel; loose, fine to medium grains; wet.

3-6" CLAY (CL); some silt and sand; Gray 10YR 6/1 with brownish yellow mottling 10YR 6/8; soft, damp to moist; low plasticity; roots and leaves.

surface water collected under ~1 ft of snow and 4" of ice. Sample taken on 2/18/10 at 1000



## SURFACE WATER ANALYSES:

☐ EXPLOSIVES ☐ TAL METALS ☐ SVOCs ☐ OTHER  
☒ FULL SUITE (VOCs, SVOCs, Metals, Explosives, Propellants, Pesticides, PCBs)

## WET SEDIMENT ANALYSES:

☐ EXPLOSIVES ☐ TAL METALS ☐ SVOCs ☐ OTHER  
☒ FULL SUITE (VOCs, SVOCs, Metals, Explosives, Propellants, Pesticides, PCBs)

Recorded By:

Emily Cunningham  
(Signature and Date) 2/18/10

QC Checked by:

RE  
(Signature and Date) 2/18/10

## SAMPLE LOG SHEET

PROJECT NAME: RVAAP PBA08 RI

PROJECT NO: 172819.00.09456.00.9200.02.200

SAMPLING LOCATION: FWSSW-103 DATE COLLECTED (MM/DD/YY): 03/14/2010TIME: 0927SAMPLE TEAM: HEATHER MILLERWEATHER: 40°F, Sunny no wind ACTIVITIES IN AREA: NONE

FIELD OBSERVATIONS (i.e. Water color, odor, flow....):

WATER IS CLEAR WITH 1-2 INCHES OF GOOD FLOW. THIS STREAM LOOKS LIKE  
A NATURAL STREAM W/ 3' HIGH BANKS ON EACH SIDE.

PHOTOGRAPH ID(S): NONE TAKEN

3.68°C

FIELD MEASUREMENTS	READING	UNITS	SERIAL NO.	LAST CALIB.
TEMPERATURE:	<del>39.02</del> 3.68 °C	<del>°F</del> °C	15556	03/16/2010 BY SV
pH:	7.83	S.U	↓	↓
CONDUCTIVITY:	0.1168	mS/cm	↓	↓
DO:	13.59	mg/L	↓	↓
TURBIDITY:	7.80	NTU	↓	↓
OTHER _____:	NA	NA	RL NA 15557	↓

Recorded By: Heather Miller 03/14/2010  
(Signature)

QC Checked by:

[Signature]  
 (Signature)  
3/14/10

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## **AUGUST 2012 SAMPLING**

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## RVAAP - Surface Water &amp; Wet Sediment Field Form

SHEET

1

OF

1

USACE - Louisville

RVAAP PBA 2008 RI

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

2. Location ID:

LL6-096

3. Revised Coordinates Recorded:

N: 41°10'30.94832" W: 81°06'08.79823"

4. Surface Water Sample ID:

LL6SW-096-5871-SW

5. Date and Time:

08/09/12; 1200

6. Dupe ID (if needed):

NA

7. Split ID (if needed):

NA

8. Surface Water Sample Type and Equipment Used: DIRECT FILL - GRAB

9. MS/MSD: NA

10. Wet Sediment Sample ID:

LL6SD-096-5870-SD

11. Date and Time:

08/09/12; 1210

12. Dupe ID (if needed):

NA

13. Split ID (if needed):

NA

14. Wet Sediment Sample Type and Equipment Used: COMPOSITE (NOVOL SAMPLE) + SCOOP, 10A1, quats

15. MS/MSD: NA

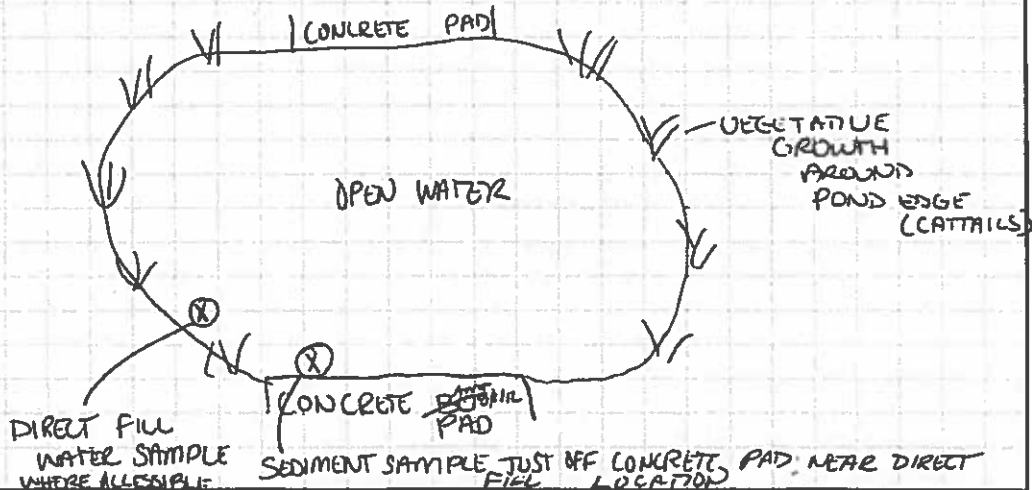
16. Weather Conditions: 75°F; light rain

17. Activities in the Area: none

LOCATION SKETCH/COMMENTS

SCALE: None

Field Notes: POND STEEPLY DROPS OFF; COLLECT BOTTLES OFF EDGE OF POND; POND IS CLEAR W/ SOME AQUATIC VEGETATIVE GROWTH. SEDIMENT IS LIGHT GRAY; SILTY CLAY W/ LITTLE FINE SAND, VERY SOFT, ORGANICS THROUGHOUT



FIELD MEASUREMENTS COLLECTED W/ A HANNA HI9823 METER + HANNA HI98703 Turbidity Meter

FIELD MEASUREMENTS	READING	UNITS	SERIAL NO.	LAST CALIB.
TEMPERATURE:	22.87	°C	110-004840	08/09/12
pH:	6.50	S.U		
CONDUCTIVITY:	0.190	mS/cm		
DO:	3.29	mg/L		
TURBIDITY:	1.23	NTU	110-020052	
OTHER ORP:	108.9	mV	110-004840	

## SURFACE WATER

ANALYSES:

☐ EXPLOSIVES ☐ TAL METALS ☐ SVOCs ☐ OTHER  
☒ FULL SUITE (VOCs, SVOCs, Metals, Explosives, Propellants, Pesticides, PCBs)

## WET SEDIMENT

ANALYSES:

☐ EXPLOSIVES ☐ TAL METALS ☐ SVOCs ☐ OTHER  
☒ FULL SUITE (VOCs, SVOCs, Metals, Explosives, Propellants, Pesticides, PCBs)

Recorded By:

Amanda Trenton  
(Signature and Date) 08/09/12

QC Checked by:

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

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