

APPENDIX A

Field Sampling Logs

Discrete Surface Soil Samples
Incremental Sampling Method Surface Soil Samples
Soil Boring Samples
Surface Water and Sediment Samples

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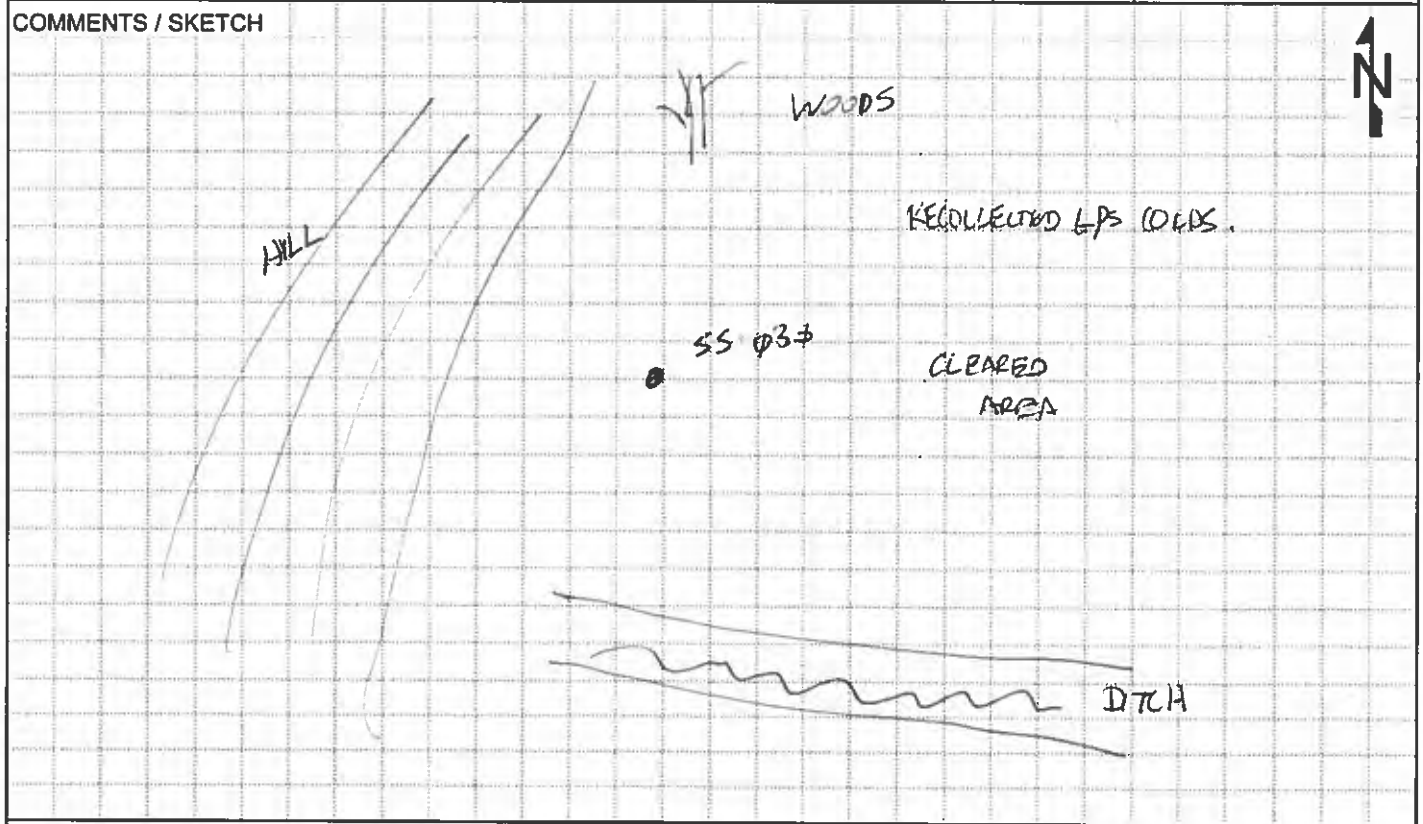
DISCRETE SURFACE SOIL SAMPLES

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HTRW DRILLING LOG		DISTRICT USACE - Louisville	BOREHOLE NUMBER WSA SS-030
1. COMPANY NAME SAIC		2. DRILLING SUBCONTRACTOR NA	SHEET 1 OF 1

3. PROJECT RVAAP PBA08 RI	4. LOCATION RVAAP 8451 State Route 5 Ravenna, OH 44266
5. NAME OF DRILLER STEVE WISSECKY — MIKE DENARD	6. DIRECTION OF BOREHOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEGREES
7. NOTES PID MAKE/MODEL: NA WATER LEVEL MAKE/MODEL: NA	PID SERIAL#: NA Colors from Munsell Soil Color Chart, Rev 1994 WATER LEVEL SERIAL#: NA

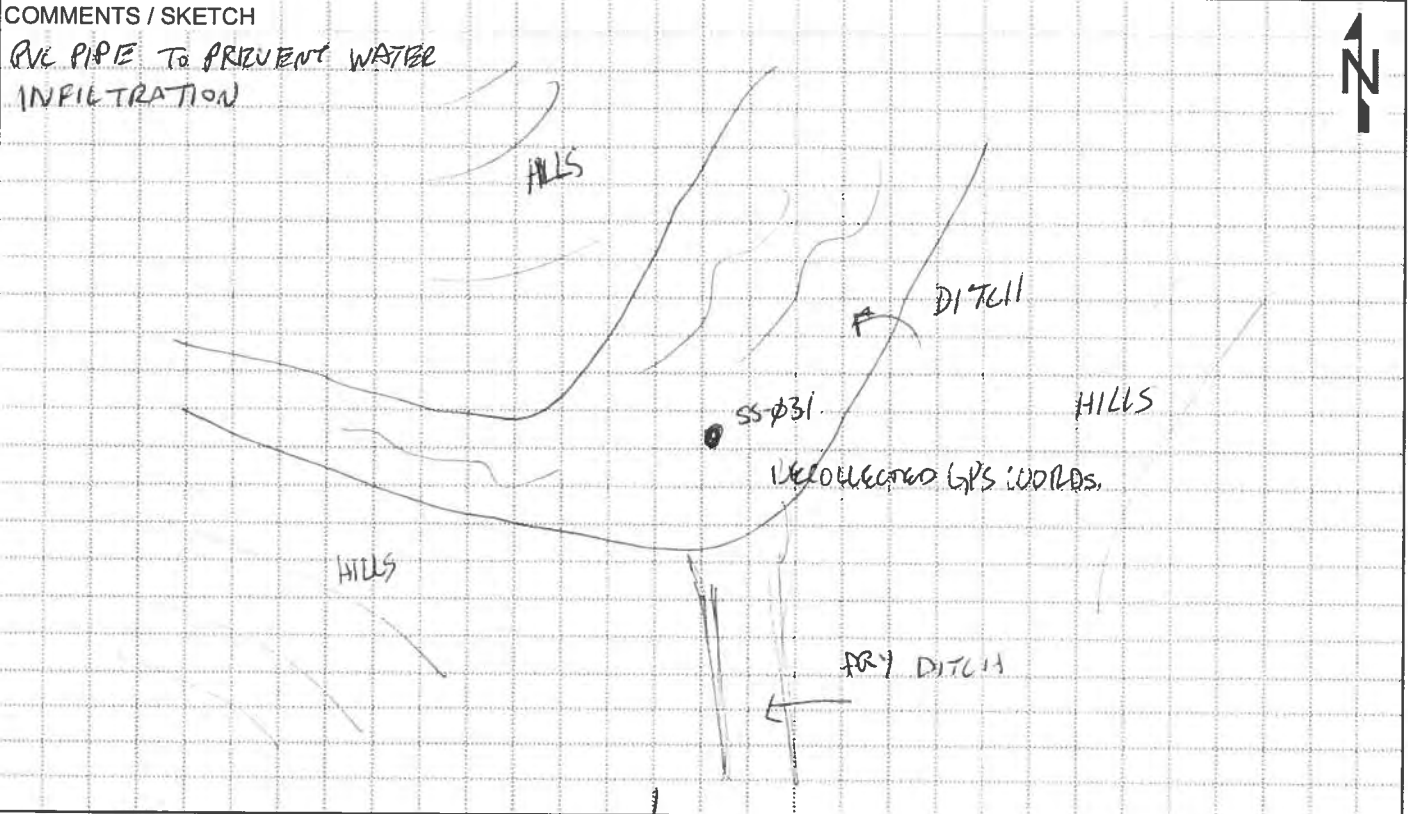
ELEVATION	DEPTH (Feet)	USCS	CLASSIFICATION OF MATERIALS	SPT DATA (0.5 Feet)	MONITORING (PPM/CPM)	REMARKS (Sample IDs/Depths/Core Box/Etc.)
		ML	3H silt SILT, fine sand (30%), little clay, trace gravel and organics (roots), gray 2.5Y 5/1, mottled dark yellowish brown 10YR 4/6, soft, damp, low plasticity, no odors.	Hand auger 0-1'	NA	11 00 WSA SS 030-5653-00 Total Cr Hex Cr
1			Rem Terminated boring at 1'. BORING COMPLETE USING A 3" SS HAND AUGER			



GEOLOGIST SIGNATURE/DATE [Signature] 3/24/10	QA/QC SIGNATURE/DATE [Signature] 03/24/10	BOREHOLE NUMBER WSA SS-030
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HTRW DRILLING LOG		DISTRICT USACE - Louisville	BOREHOLE NUMBER WSA ss ϕ 31
1. COMPANY NAME SAIC		2. DRILLING SUBCONTRACTOR NA	SHEET 1 OF 1
3. PROJECT RVAAP PBA08 RI		4. LOCATION RVAAP 8451 State Route 5 Ravenna, OH 44266	
5. NAME OF DRILLER STEVE VISOCKY		6. DIRECTION OF BOREHOLE <input checked="" type="checkbox"/> VERTICAL <input type="checkbox"/> INCLINED DEGREES	
7. NOTES PID MAKE/MODEL: MA WATER LEVEL MAKE/MODEL: MA		PID SERIAL# NA Colors from Munsell Soil Color Chart, Rev 1/49	

ELEVATION	DEPTH (Feet)	USCS	CLASSIFICATION OF MATERIALS	SPT DATA (0.5 Feet)	MONITORING (PPM/CPM)	REMARKS (Sample IDs/Depths/Core Box/Etc.)
		ML	SILT, little clay, trace sand, fine sand, Angular, light brownish-grey 1 ϕ YR 6/2, soft, moist, low plasticity, mottled brownish-yellow 1 ϕ YR 6/8, trace organics (roots), ϕ - ϕ .2' dark grey, gley 4, SILT.	Hand auger ϕ -1'	MA	11 ϕ 5 WSA ss ϕ 31-SB371-50 Total Cr Hex Cr
	1		Terminated boring + 1' fat.			
BORING COMPLETE USING A 3" SS HAND AUGER						



GEOLOGIST SIGNATURE/DATE <i>Steve Visocky</i> 3/24/10	QA/QC SIGNATURE/DATE <i>[Signature]</i> 03/31/2010	BOREHOLE NUMBER WSA ss ϕ 31
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HTRW DRILLING LOG

DISTRICT
USACE - Louisville

BOREHOLE NUMBER
WSA SS-032

1. COMPANY NAME
SAIC

2. DRILLING SUBCONTRACTOR
NA

SHEET 1 OF 1

3. PROJECT
RVAAP PBA 08 RT

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

5. NAME OF DRILLER
STEVE VISOCKY

6. DIRECTION OF BOREHOLE
 VERTICAL INCLINED DEGREES

7. NOTES
PID MAKE/MODEL: NA PID SERIAL#: NA Colors from Munsell Soil Color Chart, Rev 1/99
WATER LEVEL MAKE/MODEL: NA WATER LEVEL SERIAL#: NA

ELEVATION	DEPTH (Feet)	USCS	CLASSIFICATION OF MATERIALS	SPT DATA (0.5 Feet)	MONITORING (PPM/CPM)	REMARKS (Sample IDs/Depths/Core Box/Etc.)
		SC	SILT (SC), little sand, trace gravel, Angular, +++ light olive brown 2.5 YR (8/3), soft, moist, low plasticity, sly, trace organics (roots); mottled dark yellowish brown 10 YR 4/6	Hand auger 0-1'	NA	1 φ 1 φ WSA SS-032-5655-SD Total Cr Hex Cr
			- φ.8' sandstone fragments, iron stained, weak, red YR 4/4			
			Terminated boring at one foot BORING COMPLETE USING A 3" SS HAND AUGER			

COMMENTS / SKETCH

WATER IN BOREHOLE 8" BGS

GEOLOGIST SIGNATURE/DATE
[Signature] 3/24/10

QA/QC SIGNATURE/DATE
[Signature] 03/24/10

BOREHOLE NUMBER
WSA SS-032

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**INCREMENTAL SAMPLING METHOD (ISM)
(FORMERLY MULTI-INCREMENTAL)
SURFACE SOIL SAMPLES**

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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: MIKE DENALLO
RYAN LAURICH

2. Location ID:

WSA55-φ33M

3. Revised Coordinates Recorded:

NA

4. Sample ID:

WSA55-φ33M-5645-50

5. Sample Date and Time:

03/24/10, 1640

6. Dupe ID:

NA

7. Split ID:

NA9/1 split

8. MI Equipment Used:

PUSH PROBE, BOWL

9. MS/MSD Collected:

WSA55-φ33M-5645-50

10. Activities in the Area:

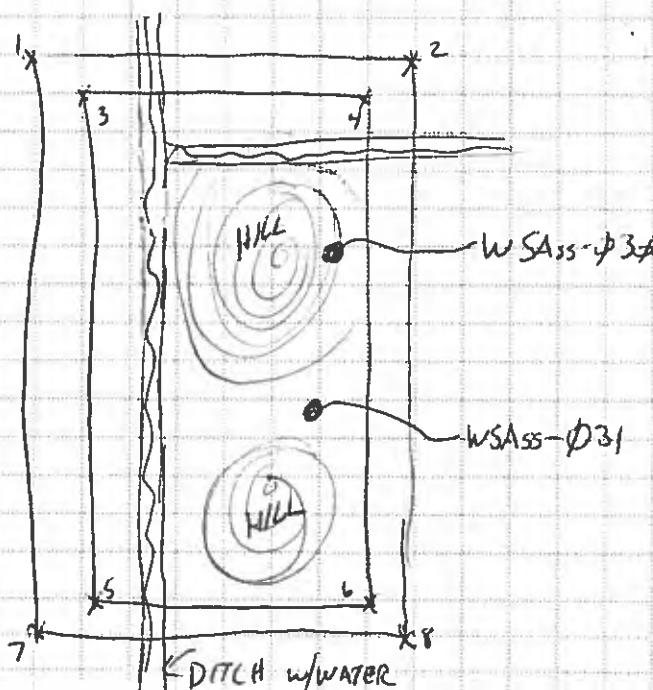
NONE

11. Soil Description and Field Notes:

SC, SILT, little sand, trace clay, trace gravel, fine sand, greyish brown 1P4R 5/2 to dark greyish brown 1P4R 4/2, soft, damp, low plasticity, mottled brownish yellow 1P4R 6/6, trace organics (roots)

90% wooded 10% open field

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



13. MI Soil Analyses:

- EXPLOSIVES TAL METALS SVOCs PAHs OTHER _____
 FULL SUITE (VOCs, SVOCs, Metals, Explosives, Propellants, Pesticides, PCBs)

Recorded By:

S-f Nish 03/24/10
(Signature and Date)

QC Checked By:

Se Nish 3/24/10
(Signature and Date)



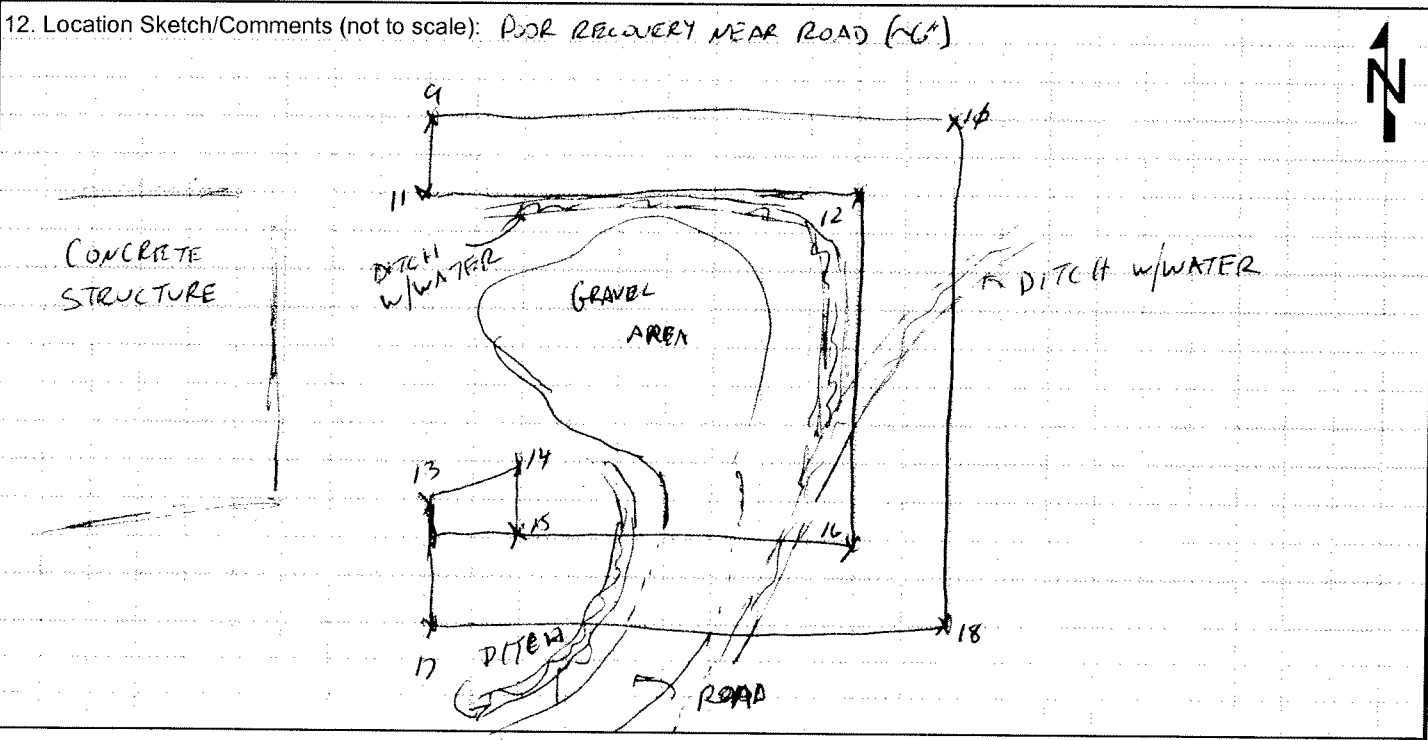
RVAAP - Multi-Incremental (MI) Field Form

SHEET 1 OF 1

USACE - Louisville
RVAAP PBA 2008 RIRVAAP 8451 State Rt. 5
Ravenna, OH 442661. Sample Team: STEVE VISOCKY
SARA HISE

2. Location ID: WSA _{ss} -Ø34M	3. Revised Coordinates Recorded: NA
4. Sample ID: WSA _{ss} -Ø34M-5646-50	5. Sample Date and Time: Ø3/24/1Ø, 16ØØ
6. Dupe ID: WSA _{ss} -Ø34M-6195-FD	7. Split ID: WSA _{ss} -Ø34M-6194-QA
8. MI Equipment Used: PUSH PROBE, BOWL	9. MS/MSD Collected: NA
	10. Activities in the Area: NONE

11. Soil Description and Field Notes: ML, SILT, little fine sand, trace clay, trace gravel, greyish brown, 1ØYR 5/2, soft, damp, low plasticity, mottled 1ØYR 1/8 yellowish-brown, trace organics (roots)



13. MI Soil Analyses:

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

Recorded By: Steve Visocky 03/24/1Ø (Signature and Date)

QC Checked By: Steve Visocky 3/24/1Ø (Signature and Date)



RVAAP - Multi-Incremental (MI) Field Form

SHEET 1 OF 1

USACE - Louisville

RVAAP 8451 State Rt. 5
Ravenna, OH 442661. Sample Team: STEVE VISOCKY
SARA HIDE

2. Location ID

WSA₃₅ - Ø35M

3. Revised Coordinates Recorded:

NA

4. Sample ID

WSA₃₅ - Ø35M - 5648 - 50

5. Sample Date and Time:

03/24/14, 1434

6. Dupe ID

NA

7. Split ID

NA

8. MI Equipment Used:

PUSH PROBE, BOWL

9. MS/MSD Collected: NA

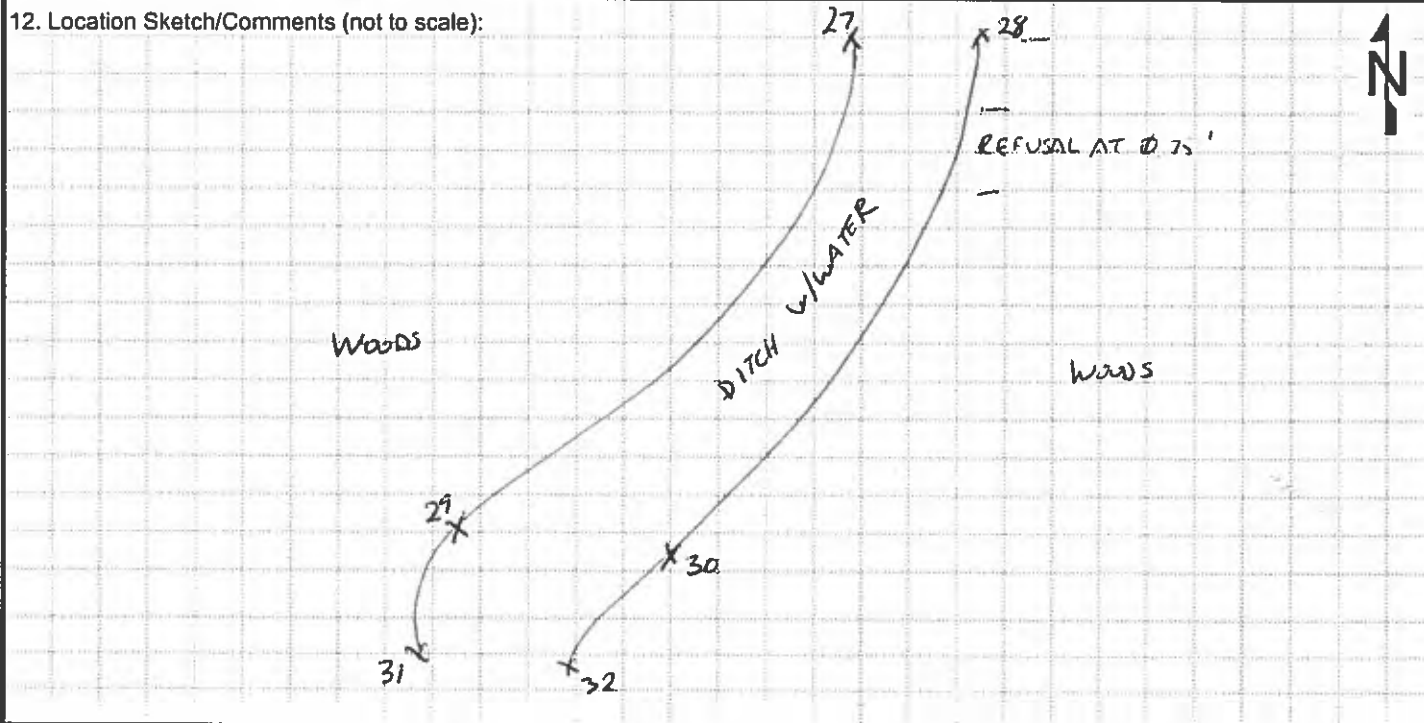
10. Activities in the Area: NONE

11. Soil Description and Field Notes:

ML, SILT, trace clay trace sand (fine), greyish brown 10YR 5/2, soft, damp, ~~non-plastic~~ low plasticity, trace organics (roots), mottled yellowish brown 10YR 5/6.

30% wooded 60% Brush 10% open Area

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



13. MI Soil

Analyses:

- EXPLOSIVES TAL METALS SVOCs PAHs OTHER _____
 FULL SUITE (VOCs, SVOCs, Metals, Explosives, Propellants, Pesticides, PCBs)

Recorded By:

Sara Hide 03/24/14
(Signature and Date)

QC Checked By:

Steve Visocky 3/24/14
(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

Ryan Launch, Mike Denello

2. Location ID:

WSA55-036M

3. Revised Coordinates Recorded:

N/A

4. Sample ID:

WSA55-036M-5647-50

5. Sample Date and Time:

03/24/10 1540

6. Dupe ID:

NA

7. Split ID:

NA

8. MI Equipment Used:

PUSH PROBE, BOWL

9. MS/MSD Collected:

~~YES NA WSA55-036M-NA~~

10. Activities in the Area:

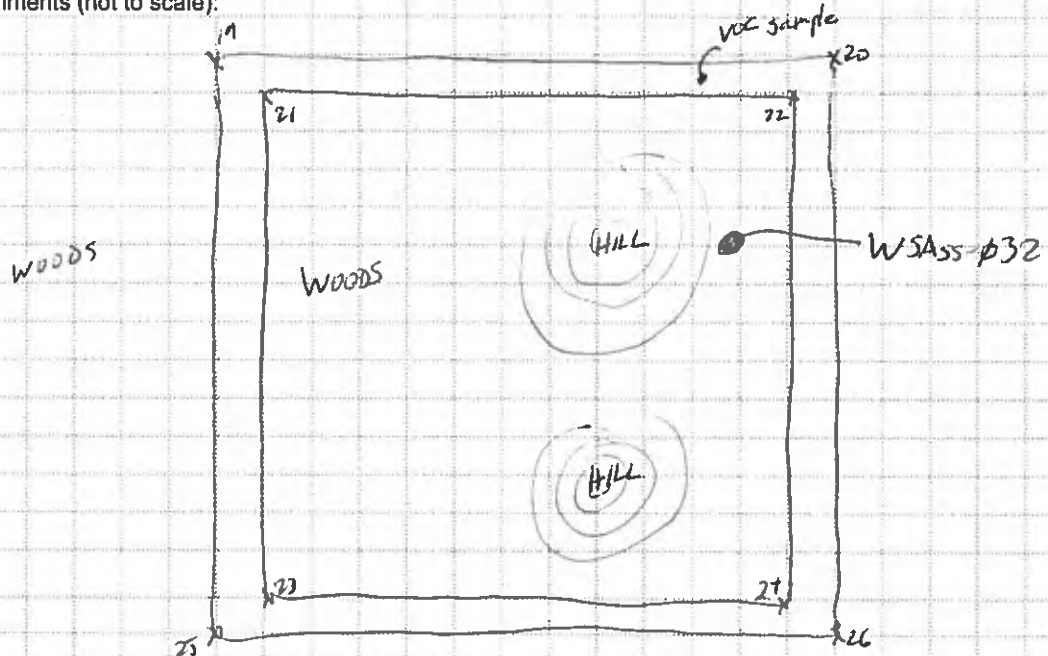
none

11. Soil Description and Field Notes:

SAND, some silt, little clay ^{SM silt}
 SM, SAND, 1. Hic silt, trace clay, trace gravel, fine sand, Angular, light
 olive brown, 2.5 Y 5/3, soft, damp, low plasticity, ^{SM silt} iron
 accumulation, strong brown 7.5 YR 5/8, trace organics (roots)

90% wooded 10% open Area

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



13. MI Soil Analyses:

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

Recorded By:

Sam Nune 03/24/10
 (Signature and Date)

QC Checked By:

Mike Denello 3/24/10
 (Signature and Date)

SOIL BORING SAMPLES

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HTRW DRILLING LOG		DISTRICT USACE - Louisville	BOREHOLE NUMBER At 3/23/10 LE WSASB-021
1. COMPANY NAME SAIC		2. DRILLING SUBCONTRACTOR Frontz Drilling	
3. PROJECT RVAAP PBA 08 RI		4. LOCATION RVAAP 8451 State Route 5 Ravenna, OH 44266	
5. NAME OF DRILLER JEREMY LEKARONE		6. MAKE/MODEL OF DRILL Geoprobe 6024 DT	
7. SIZES AND TYPES OF SAMPLING EQUIPMENT 3" x 1' HAND AUGER 1.5" x 4' ACETATE LINER 2" x 4' DUAL TUBE		8. BOREHOLE LOCATION 559412.41' N 2357472.23' E	
		9. SURFACE ELEVATION/DATUM 951.79 NAD 83	
		10. DRILL DATE/TIME 03/23/10 STARTED: 1035 COMPLETED: 1140	
		15. DEPTH GROUNDWATER ENCOUNTERED 7.9'	
		16. DEPTH TO WATER/ELAPSED TIME AFTER BOREHOLE COMPLETION NA	
12. OVERBURDEN THICKNESS 13+ FT			
13. DEPTH DRILLED INTO BEDROCK NA		17. OTHER WATER LEVEL MEASUREMENTS (INCLUDE DATE/TIME) NA	
14. TOTAL DEPTH OF BOREHOLE 13 FT			
18. GEOTECHNICAL SAMPLES UNDISTURBED: _____ DISTURBED: _____		19. TOTAL NUMBER OF CORE BOXES NA	
20. CHEMICAL SAMPLES CHEM EXPL/MET/RAI/RAD: NA OTHER: _____		21. TOTAL CORE RECOVERY % NA	
22. DISPOSITION OF BOREHOLE DATE STARTED/INSTALLED: 03/23/10; 1035		DATE COMPLETED/ABANDONED: 03/23/10; 1140	
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			
LOCATION SKETCH/COMMENTS			SCALE: None
GEOLOGIST SIGNATURE/DATE Amanda Jrenton 03/23/10		QA/QC SIGNATURE/DATE R. Smith 4/26/10	
			BOREHOLE NUMBER WSASB-021



RVAAP-45
Wet Storage Area
WSAsb-021

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 : 03/23/10; 1035
 End Date : 03/23/10; 1140
 Northing Coord. : 559012.41
 Easting Coord. : 2357472.23
 Total Depth of Boring : 13.0'

Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
0	ML		(0.0' - 0.3') SILT (ML); little Clay; some Gravel, <3/4"; 10YR3/2 very dark grayish brown; loose; damp; nonplastic; organics throughout.	WSAsb-021-5611-SO collected from 0.0' - 1.0' on 03/23/10 at 1055 for TAL Metals + Hg, PAHs, and Explosives.	1.0'/1.0'		Soil Color Chart Munsell 2000 Rev. Ed.
1	CL		(0.3' - 2.75') CLAY (CL); some Silt; trace Gravel, <1/4"; 2.5Y5/2 gray brown, 5Y6/1 gray, and 10YR5/6 yellowish brown; medium stiff; damp; low plasticity; trace organics.	WSAsb-021-5612-SO collected from 1.0' - 4.0' on 03/23/10 at 1108 for TAL Metals + Hg, PAHs, and Explosives.	2.6'/3.0'		
3	ML		(2.75' - 4.25') SILT (ML); some very fine grained Sand; little Clay; 2.5Y6/6 olive yellow, 2.5Y5/4 light olive brown, and 6/N gray; damp.				
4							
5			(4.25' - 7.9') CLAY (CL); some Silt; 10YR5/4 yellowish brown, 6/N gray, and 2.5Y6/6 olive yellow; stiff; damp; low plasticity.	WSAsb-021-5613-SO, WSAsb-021-6201-FD, & WSAsb-021-6205-QA collected from 4.0' - 7.0' on 03/23/10 at 1120 for TAL Metals + Hg, PAHs, and Explosives.	3.1'/3.0'		
6	CL		(6.5' - 7.9') Siltier.				
7							
8	SM		(7.9' - 9.1') SAND and SILT (SM); 2.5Y5/4 yellowish brown; stiff; damp to moist.		2.85'/3.0'		
9							
10	ML		(9.1' - 10.6') Weathered SHALE and SILT (SH/ML); 2.5Y5/4 yellowish brown; stiff; brittle; damp until 10.1' then dry.	WSAsb-021-5614-SO, WSAsb-021-6202-FD, & WSAsb-021-6206-QA collected from 7.0' - 13.0' on 03/23/10 at 1135 for TAL Metals + Hg, PAHs, and Explosives.			
11			(10.6' - 13.0') Weathered SHALE (SH); 2.5Y5/4 yellowish brown; hard; brittle; dry.				
12	SH		(11.5' - 13.0') Shale is 2.5Y4/1 dark gray.		3.9'/3.0'		
13			Boring terminated at 13.0 ft bgs.				

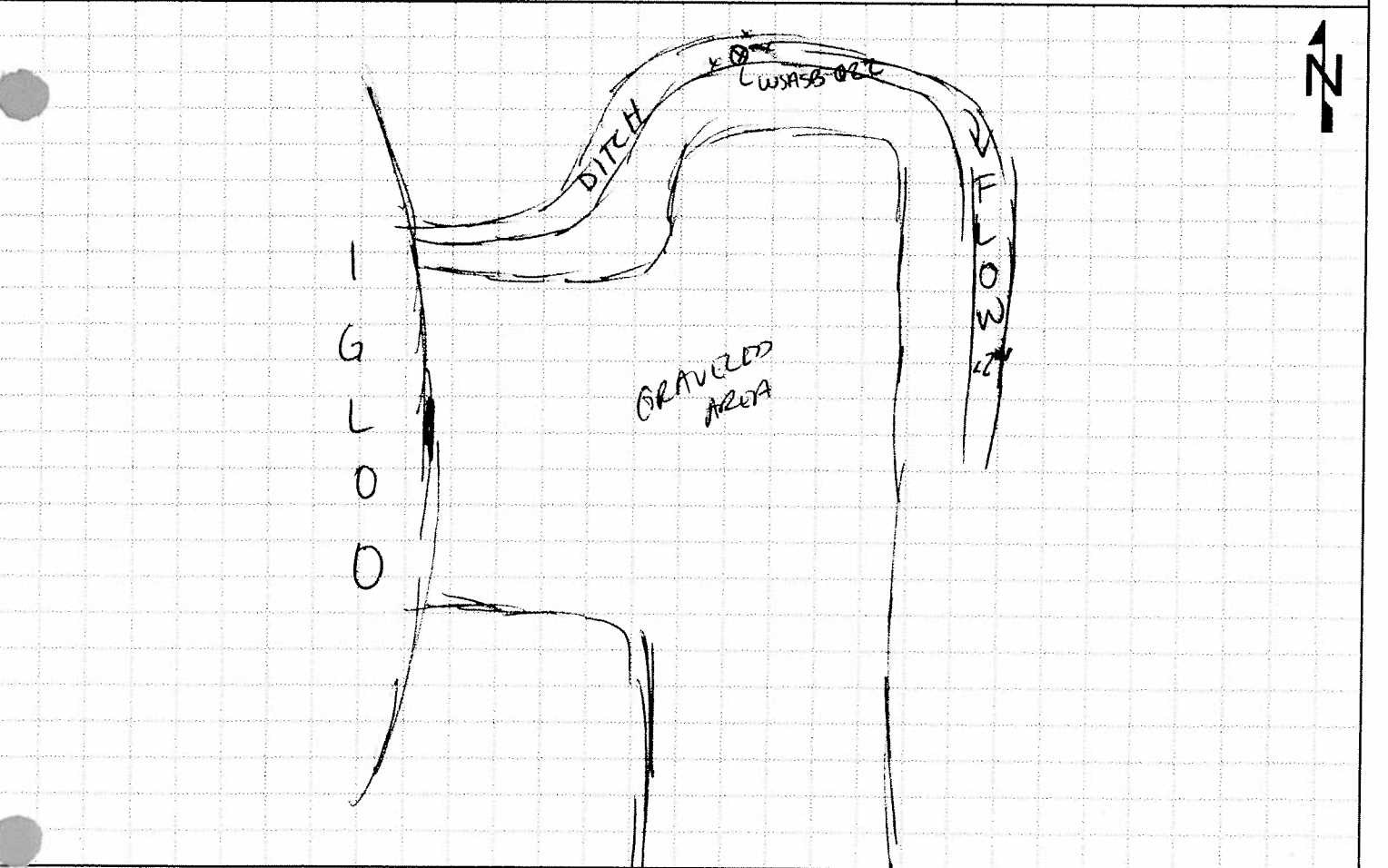
Coordinate System: NAD 83

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.

WSAsb-021

HTRW DRILLING LOG		DISTRICT USACE - Louisville	BOREHOLE NUMBER WSASB-022
1. COMPANY NAME SAIC		2. DRILLING SUBCONTRACTOR Frontz Drilling	
3. PROJECT RVAAP PBA DB RT		4. LOCATION RVAAP 8451 State Route 5 Ravenna, OH 44266	
5. NAME OF DRILLER JEREMY LECKRONE		6. MAKE/MODEL OF DRILL Geoprobe U020 DT	
7. SIZES AND TYPES OF SAMPLING EQUIPMENT 3" x 1" HAND AUGER 1.5" x 4' ACETATE LINER 2" x 4' DUAL TUBE		8. BOREHOLE LOCATION N 559458.0730' E 2357500.8575'	
		9. SURFACE ELEVATION/DATUM NAD 83	
		10. DRILL DATE/TIME 03/23/10 STARTED: 0755 COMPLETED: 1000	
		15. DEPTH GROUNDWATER ENCOUNTERED 7.5'	
12. OVERBURDEN THICKNESS 13+ FT		16. DEPTH TO WATER/ELAPSED TIME AFTER BOREHOLE COMPLETION NA	
13. DEPTH DRILLED INTO BEDROCK NA		17. OTHER WATER LEVEL MEASUREMENTS (INCLUDE DATE/TIME) NA	
14. TOTAL DEPTH OF BOREHOLE 13 FT			
18. GEOTECHNICAL SAMPLES UNDISTURBED: _____ DISTURBED: _____		19. TOTAL NUMBER OF CORE BOXES NA NA	
20. CHEMICAL SAMPLES CHEM: <u>COAL/MET/PAH</u> RAD: NA OTHER: _____		21. TOTAL CORE RECOVERY % NA	
22. DISPOSITION OF BOREHOLE DATE STARTED/INSTALLED: 03/23/10; 0755		DATE COMPLETED/ABANDONED: 03/23/10; 1000	
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 ∇ : First Water Encountered \blacktriangledown : Static Water Level NA: Not Applicable			

LOCATION SKETCH/COMMENTS	SCALE: None
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GEOLOGIST SIGNATURE/DATE Amanda Trenton 03/23/10	QA/QC SIGNATURE/DATE RS 4/26/10	BOREHOLE NUMBER WSASB-022
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RVAAP-45
Wet Storage Area
WSAsb-022

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 : 03/23/10; 0755
 End Date : 03/23/10; 1000
 Northing Coord. : 559458.0730
 Easting Coord. : 2357500.8575
 Total Depth of Boring : 13.0'

Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
0	ML	[ML Graphic]	(0.0' - 0.3') SILT (ML); little Clay; some Gravel, <3/4", angular; 10YR3/2 very dark grayish brown; loose; wet from water in ditch; nonplastic.	WSAsb-022-5615-SO collected from 0.0' - 1.0' on 03/23/10 at 0850 for VOCs, SVOCs, PCBs, Pesticides, Explosives, Propellants, and TAL Metals + Hg.	1.0'/1.0'		Soil Color Chart Munsell 2000 Rev. Ed.
1	CL	[CL Graphic]	(0.3' - 0.8') CLAY (CL); little Silt; trace Gravel, <1/2", subangular; trace Sand lenses; 2.5Y5/3 brown, trace 7.5YR6/6 reddish yellow, and 5Y5/2 olive gray; medium stiff; damp; medium plasticity.		A 2.9'/3.0'		Sample interval was wet due to surface water in ditch. Soil was dry. VOCs were collected from first core.
2	CL	[CL Graphic]	(0.8' - 4.7') CLAY (CL); little Silt; trace Gravel, <1/4"; 2.5Y6/4 light yellowish brown, little 10YR5/6 yellowish brown, and 2.5Y5/1 gray; medium stiff, stiff by 2.0'; dry; medium plasticity.	WSAsb-022-5616-SO, WSAsb-022-6200-FD, & WSAsb-022-6204-QA collected from 1.0' - 4.0' on 03/23/10 at 0915 for VOCs, SVOCs, PCBs, Pesticides, Explosives, Propellants, and TAL Metals + Hg.	B 3.0'/4.0'		
3	CL	[CL Graphic]			C 3.9'/4.0'		
5	GC	[GC Graphic]	(4.7' - 5.7') CLAY and GRAVEL (GC); Gravel is <1" and subangular; some Sand; 10YR5/4 yellowish brown; loose; wet.	WSAsb-022-5617-SO collected from 4.0' - 7.0' on 03/23/10 at 0935 for VOCs, SVOCs, PCBs, Pesticides, Explosives, Propellants, and TAL Metals + Hg.	3.0'/3.0'		
6	CL	[CL Graphic]	(5.7' - 7.5') CLAY (CL); little Silt; trace Gravel, <1/2"; 10YR5/4 yellowish brown and 2.5Y6/1 gray; stiff; dry; medium plasticity.				
7	CL	[CL Graphic]	(6.9' - 7.5') Siltier.				
8	GM	[GM Graphic]	(7.5' - 7.8') Subangular GRAVEL (GM); silt matrix; 10YR5/4 yellowish brown; wet.				
9	SH	[SH Graphic]	(7.8' - 13.0') Weathered SHALE (SH); 10YR7/3 very pale brown, little 10YR5/6 yellowish brown; brittle; crumbly; dry.		4.0'/3.0'		
10	SH	[SH Graphic]	(9.9' - 10.5') Shale is black with some 10YR5/6 yellowish brown.	WSAsb-022-5618-SO collected from 7.0' - 13.0' on 03/23/10 at 0955 for VOCs, SVOCs, PCBs, Pesticides, Explosives, Propellants, and TAL Metals + Hg.			
11	SH	[SH Graphic]			4.0'/3.0'		
12	SH	[SH Graphic]	(12.0' - 13.0') Hard.				
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. Twin boreholes were drilled to obtain volume required for analyses.

WSAsb-022



RVAAP-45
Wet Storage Area
WSAsb-023

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 : 03/23/10; 1605
 End Date : 03/23/10; 1650
 Northing Coord. : 559473.00
 Easting Coord. : 2357031.00
 Total Depth of Boring : 13.0'

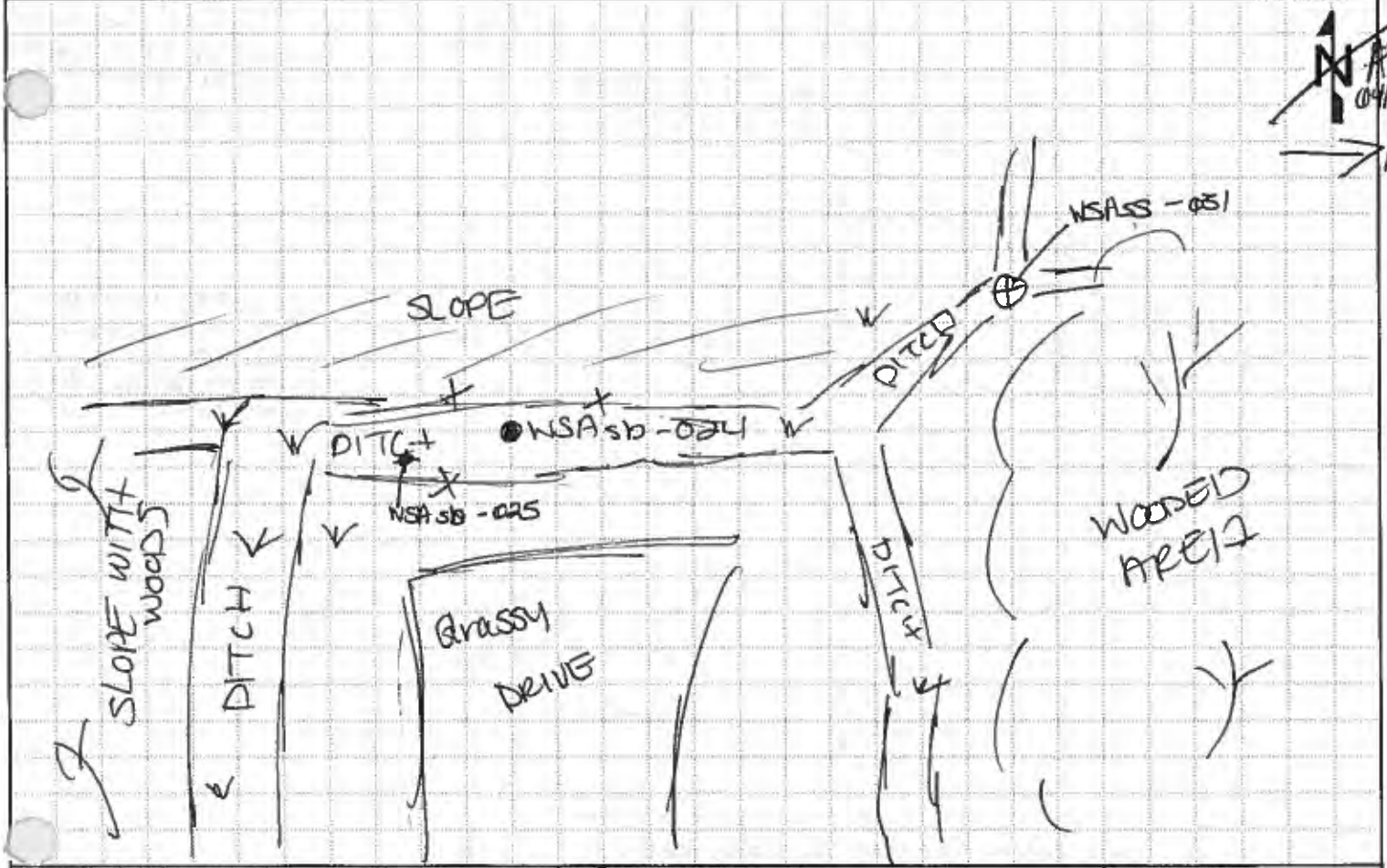
Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
0	ML		(0.0' - 0.25') SILT (ML); some Clay; 10YR4/2 dark grayish brown; loose; damp; organics throughout.	WSAsb-023-5619-SO collected from 0.0' - 1.0' on 03/23/10 at 1622 for TAL Metals + Hg, PAHs, and Explosives.	1.0'/1.0'		Soil Color Chart Munsell 2000 Rev. Ed.
1	CL		(0.25' - 1.65') CLAY (CL); little Silt; 10YR4/3 brown, 10YR5/6 yellowish brown, and N7/ light gray; medium stiff; damp to dry.				
2	SW		(1.65' - 2.1') SAND (SW); little fines; 2.5Y5/4 light olive brown; loose; wet; nonplastic.	WSAsb-023-5620-SO collected from 1.0' - 4.0' on 03/23/10 at 1630 for TAL Metals + Hg, PAHs, and Explosives.	2.65'/3.0'		
3	ML		(2.1' - 2.6') SILT (ML); some fine grained Sand; trace Clay; 2.5Y5/4 light olive brown; stiff; damp.				
4	SM		(2.6' - 6.7') Fine grained SAND and SILT (SM); 2.5Y5/4 light olive brown; medium dense; damp. (3.5' - 4.0') Softer. (4.0' - 5.0') Moist.				
5				WSAsb-023-5621-SO collected from 4.0' - 7.0' on 03/23/10 at 1637 for TAL Metals + Hg, PAHs, and Explosives.	2.75'/3.0'		
6							
7			(6.7' - 10.7') Very fine to fine grained SAND (SW); little Silt; 2.5Y5/4 light olive brown; dense; damp, moist in pockets; nonplastic.	WSAsb-023-5622-SO collected from 7.0' - 13.0' on 03/23/10 at 1650 for TAL Metals + Hg, PAHs, and Explosives.	3.35'/3.0'		
8							
9	SW		(9.2' - 10.7') Very dense.				
10			(10.0' - 10.7') Medium grained SAND; moist.	3.0'/3.0'			
11			(10.7' - 13.0') SILT (ML); little Sand; trace Gravel; 10YR5/4 yellowish brown; stiff; dry.				
12	ML						
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.

WSAsb-023

HTRW DRILLING LOG		DISTRICT USACE - Louisville	BOREHOLE NUMBER WSA SB-024
1. COMPANY NAME SAIC		2. DRILLING SUBCONTRACTOR Frontz Drilling	
3. PROJECT BVAAP - PBAOB RI		4. LOCATION RVAAP 8451 State Route 5 Ravenna, OH 44266	
5. NAME OF DRILLER Jeremy LeRone (Ethan) Frontz - helper		6. MAKE/MODEL OF DRILL Geoprobe 10620 DT	
7. SIZES AND TYPES OF SAMPLING EQUIPMENT 3" x 1' HAND RUBBER 1.5" x 4' ACETATE LINER 2" x 4' DUAL TUBE		8. BOREHOLE LOCATION N-5592015794' E-235700258'	
		9. SURFACE ELEVATION/DATUM NA 83	
		10. DRILL DATE/TIME STARTED: 3/24/10 0920 COMPLETED: 3/24/10 1105	
		15. DEPTH GROUNDWATER ENCOUNTERED NA	
		16. DEPTH TO WATER/ELAPSED TIME AFTER BOREHOLE COMPLETION NA	
12. OVERBURDEN THICKNESS 13 + FT		17. OTHER WATER LEVEL MEASUREMENTS (INCLUDE DATE/TIME) NA	
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: MET/PAH/DIA RAD: NA OTHER: _____		21. TOTAL CORE RECOVERY % NA	
22. DISPOSITION OF BOREHOLE DATE STARTED/INSTALLED: 03/24/10; 0920		DATE COMPLETED/ABANDONED: 03/24/10; 1105	
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 Emily Cunningham 03/24/10	QA/QC SIGNATURE/DATE Amanda Henton 04/02/10	BOREHOLE NUMBER WSA SB-024
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RVAAP-45
Wet Storage Area
WSAsb-024

Drilling Company : Frontz Drilling
 Driller : Jeremy Leckrone
 Designation of Drill : Geoprobe 6620DT
 Type of Drill Rig : Direct Push Technology
 Geologist : Emily Cunningham
 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 : 03/24/10; 0920
 End Date : 03/24/10; 1120
 Northing Coord. : 559261.5794
 Easting Coord. : 2357002.258
 Total Depth of Boring : 13.0'

Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
0	ML		(0.0' - 1.0') Clayey SILT (ML); little 1/2" Gravel; trace Sand; 10YR5/8 yellowish brown and 10YR6/1 gray; moist; slight plasticity; trace organics (roots).	WSAsb-024-5623-SO collected from 0.0' - 1.0' on 03/23/10 at 0920 for TAL Metals + Hg, PAHs, and Explosives.	1.0'/1.0'		Soil Color Chart Munsell 2000 Rev. Ed.
1	ML		(1.0' - 2.2') SILT (ML); some Clay; 10YR4/6 dark yellowish brown and 10YR6/1 gray; moist; slight plasticity.				
2			(2.2' - 5.1') Sandy SILT (ML); trace fine Gravel; 2.5Y5/4 light olive brown; damp; nonplastic.	WSAsb-024-5624-SO, WSAsb-024-6207-QA, & WSAsb-024-6208-FD collected from 1.0' - 4.0' on 03/24/10 at 1025 for TAL Metals + Hg, PAHs, and Explosives.	A 2.4'/3.0' B 3.2'/4.0'		
3	ML						
4			(5.1' - 7.0') Silty SAND (SM); 2.5Y5/4 light olive brown; stiff; moist to wet; nonplastic.	WSAsb-024-5625-SO collected from 4.0' - 7.0' on 03/24/10 at 1043 for TAL Metals + Hg, PAHs, and Explosives.	2.9'/3.0'		
5	SM						
6			(6.5' - 7.0') Hard; dry.	WSAsb-024-5626-SO collected from 7.0' - 13.0' on 03/24/10 at 1105 for TAL Metals + Hg, PAHs, and Explosives.	3.4'/3.0'		
7	SM						
8			(7.0' - 12.5') Silty SAND (SM); 1/2" Gravel; 2.5Y5/6 light olive brown; medium dense; dry; nonplastic.	WSAsb-024-5626-SO collected from 7.0' - 13.0' on 03/24/10 at 1105 for TAL Metals + Hg, PAHs, and Explosives.	3.4'/3.0'		
9	SM						
10			(11.5' - 12.5') Less dense, crumbles easily.	WSAsb-024-5626-SO collected from 7.0' - 13.0' on 03/24/10 at 1105 for TAL Metals + Hg, PAHs, and Explosives.	3.8'/3.0'		
11	SM						
12			(12.5' - 13.0') Fine to medium grained SAND (SM); little Silt; 10YR5/8 yellowish brown; loose; moist; nonplastic.	WSAsb-024-5626-SO collected from 7.0' - 13.0' on 03/24/10 at 1105 for TAL Metals + Hg, PAHs, and Explosives.	3.8'/3.0'		
13	SM						
			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.
 Twin boreholes were drilled to obtain volume required for analyses.

WSAsb-024

HTRW DRILLING LOG		DISTRICT	BOREHOLE NUMBER
1. COMPANY NAME SAIC		USACE - Louisville	WSASb-025 <i>shadi</i>
2. DRILLING SUBCONTRACTOR Frontz Drilling		SHEET 1 OF 24	
3. PROJECT RVAAP PBA 08 RF		4. LOCATION RVAAP 8451 State Route 5 Ravenna, OH 44266	
5. NAME OF DRILLER Jeremy Leckrone		6. MAKE/MODEL OF DRILL Geoprobe V620DT	
7. SIZES AND TYPES OF SAMPLING EQUIPMENT 1.5" x 4' ACEDATE LINER 2' x 4' DUAL TUBE 4 1/4" x 5' Hollow Stem Augers		8. BOREHOLE LOCATION N-559243.5018' E-2355003.32'	
12. OVERBURDEN THICKNESS 23.8 FT		9. SURFACE ELEVATION/DATUM NAD 83	
13. DEPTH DRILLED INTO BEDROCK NA		10. DRILL DATE/TIME 03/24/10	
14. TOTAL DEPTH OF BOREHOLE 28 FT		11. STARTED: 0830 COMPLETED: 1105	
18. GEOTECHNICAL SAMPLES UNDISTURBED: TWO DISTURBED: _____		15. DEPTH GROUNDWATER ENCOUNTERED	
19. TOTAL NUMBER OF CORE BOXES NA		16. DEPTH TO WATER/ELAPSED TIME AFTER BOREHOLE COMPLETION NA	
20. CHEMICAL SAMPLES CHEM at 2100 RAD: NA OTHER: _____		17. OTHER WATER LEVEL MEASUREMENTS (INCLUDE DATE/TIME) NA	
21. TOTAL CORE RECOVERY % NA		22. DISPOSITION OF BOREHOLE DATE STARTED/INSTALLED: 03/24/10 DATE COMPLETED/ABANDONED: 03/24/10	
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			
LOCATION SKETCH/COMMENTS			SCALE: None
GEOLOGIST SIGNATURE/DATE Amanda Trenton 03/24/10		QA/QC SIGNATURE/DATE RSM 04/26/10	
		BOREHOLE NUMBER WSASB-025	



RVAAP-45
Wet Storage Area
WSAsb-025

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 : 03/24/10; 0830
 End Date : 03/24/10; 1105
 Northing Coord. : 559243.5618
 Easting Coord. : 2355003.32
 Total Depth of Boring : 28.0 ft

Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
0			(0.0' - 1.5') Medium grained SAND (SM); little Silt; little sandstone Gravel; 10YR5/6 yellowish brown, 10YR5/3 brown, and 5YR6/6 reddish yellow; medium dense; dry; nonplastic; trace slag, coal, and brick fill; sand and sandstone is micaceous.				Soil Color Chart Munsell 2000 Rev. Ed.
1	SM		(1.5' - 6.6') SILT (ML); some fine grained Sand; trace Clay; trace Gravel, <1/2", subangular; 2.5Y5/4 yellowish brown; medium stiff; dry.		3.25'/4.0'		
2				Shelby Tube WSAsb-025-5627-SO collected from 4.0' - 5.2' on 03/24/10 at 1036 for Porosity, Bulk Density, Moisture Content, Total Organic Carbon, Permeability, and Grain Size Fraction Analysis.			
3							
4	ML		(6.0' - 6.6') Sand content increases with depth.		4.0'/4.0'		
5							
6							
7			(6.6' - 8.8') Fine and very fine grained SAND (SM); little Silt; 10YR5/4 yellowish brown; dense; moist.	Shelby Tube WSAsb-025-5628-SO collected from 12.0' - 13.1' (Shelby refusal) on 03/24/10 at 1042 for Porosity, Bulk Density, Moisture Content, Total Organic Carbon, Permeability, and Grain Size Fraction Analysis.			Coordinate System: NAD 83
8	SM		(8.8' - 14.1') Fine and very fine grained SAND (SW); trace Silt; 10YR5/4 yellowish brown and 10YR5/6 yellowish brown; dense; dry to damp in pockets.		4.0'/4.0'		
9			(10.0' - 10.8') Siltier; little <1/4" Gravel.				
10			(10.8' - 14.1') Coarser grained Sand and Gravel (<1" subangular).				
11							
12	SW		(12.5' - 14.1') Hard.	4.0'/4.0'			
13							
14							
15	SW		(14.1' - 15.8') Fine and very fine grained SAND (SW); 10YR5/3 brown & 10YR5/6 yellowish brown; dense; moist.				

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

WSAsb-025



RVAAP-45
Wet Storage Area
WSAsb-025

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 : 03/24/10; 0830
 End Date : 03/24/10; 1105
 Northing Coord. : 559243.5618
 Easting Coord. : 2355003.32
 Total Depth of Boring : 28.0 ft

Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
15	SW		Soil description located on page 1.				Soil Color Chart Munsell 2000 Rev. Ed.
16			(15.8' - 19.5') Very fine grained SAND (SM); some Silt; some coarser grained Sand and Gravel, < 1", subangular; 10YR5/3 brown, little 10YR5/6 yellowish brown; hard; dry. Silt content increases with depth.		4.0'/4.0'		
17	SM						
18			(19.5' - 20.9') SILT (ML); some Sand; little Gravel, <1.25", subangular; 2.5Y4/2 dark grayish brown, little 10YR5/6 yellowish brown.		4.0'/4.0'		
19	ML						
20							
21	SS		(20.9' - 21.2') SANDSTONE; weathered; micaceous.		4.0'/4.0'		
22	SW		(21.2' -22.0') Medium grained SAND (SW); some Sandstone fragments.				
23	ML		(22.0' - 23.3') SILT (ML); little Sand; little Gravel, 1/4" - 3/4", subangular; N4/ dark gray with some 10YR5/3 brown; hard; dry; low plasticity.				
24	SH		(23.3' - 23.8') Weathered SHALE and SILT (SH); 2.5Y6/1 gray; hard; dry.				
25			(23.8' - 28.0') Weathered SHALE (SH); 2.5Y6/1 gray; brittle; crumbly; dry.		4.0'/4.0'		
26	SH						
27							
28			Boring terminated at 28 ft bgs. Offset and auger for Shelby tube collection.				
29							
30							

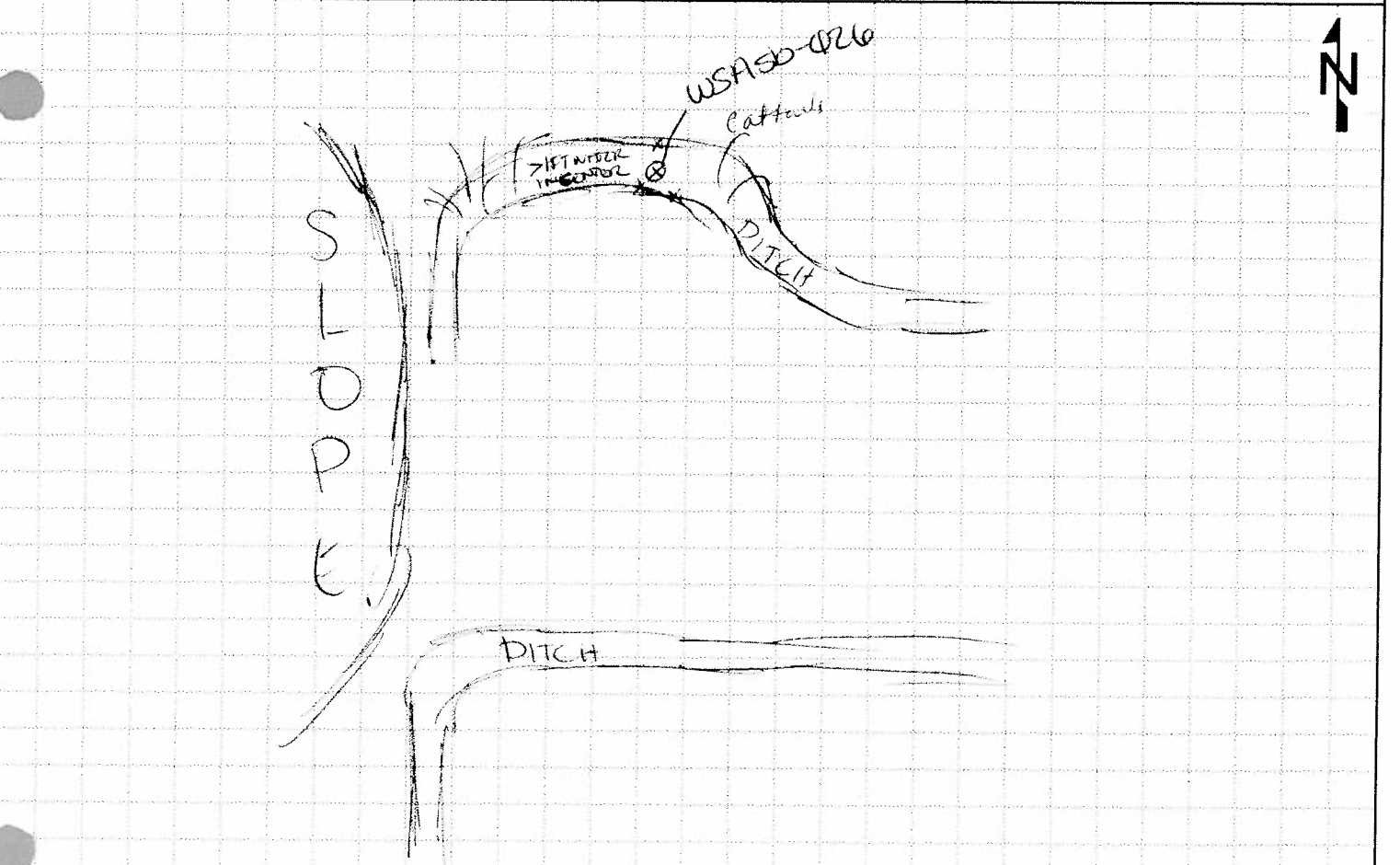
Coordinate System: NAD 83

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

WSAsb-025

HTRW DRILLING LOG		DISTRICT USACE - Louisville	BOREHOLE NUMBER WSASD-026
1. COMPANY NAME SAIC		2. DRILLING SUBCONTRACTOR Frontz Drilling	
3. PROJECT RVAAP PBA 08 RI		4. LOCATION RVAAP 8451 State Route 5 Ravenna, OH 44266	
5. NAME OF DRILLER Jeremy Letkrome		6. MAKE/MODEL OF DRILL Geoprobe 6024DT	
7. SIZES AND TYPES OF SAMPLING EQUIPMENT 3" x 1' HAND AUGER 1.5" x 4' ACETATE LINER 2" x 4' DUAL TUBE		8. BOREHOLE LOCATION N. 559131.69' E 235707.47'	
		9. SURFACE ELEVATION/DATUM NA 83	
		10. DRILL DATE/TIME 03/23/10 STARTED: 1340 COMPLETED: 1440	
		15. DEPTH GROUNDWATER ENCOUNTERED NA	
12. OVERBURDEN THICKNESS > 13 FT		16. DEPTH TO WATER/ELAPSED TIME AFTER BOREHOLE COMPLETION NA	
13. DEPTH DRILLED INTO BEDROCK NA		17. OTHER WATER LEVEL MEASUREMENTS (INCLUE DATE/TIME) NA	
14. TOTAL DEPTH OF BOREHOLE 13 FT			
18. GEOTECHNICAL SAMPLES UNDISTURBED: _____ DISTURBED: _____		19. TOTAL NUMBER OF CORE BOXES NA	
20. CHEMICAL SAMPLES CHEM: <u>AC/PAH/CXA</u> RAD: NA OTHER: _____		21. TOTAL CORE RECOVERY % NA	
22. DISPOSITION OF BOREHOLE DATE STARTED/INSTALLED: 03/23/10; 1340		DATE COMPLETED/ABANDONED: 03/23/10; 1440	
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: \triangleleft Background BGS: Below Ground Surface CPM: Counts per Minute PPM: Parts per Million ∇ : First Water Encountered \blacktriangledown : Static Water Level NA: Not Applicable			

LOCATION SKETCH/COMMENTS	SCALE: None
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GEOLOGIST SIGNATURE/DATE Amanda Jenton 03/23/10	QA/QC SIGNATURE/DATE R. J. 4/26/10	BOREHOLE NUMBER WSASD-026
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RVAAP-45
Wet Storage Area
WSAsb-026

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 : 03/23/10; 1340
 End Date : 03/23/10; 1440
 Northing Coord. : 559131.69
 Easting Coord. : 2357047.47
 Total Depth of Boring : 13.0'

Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
0	ML		(0.0' - 0.8') SILT (ML); some Clay; 10YR4/2 dark grayish brown; very soft, wet from surface water in ditch; organics throughout.	WSAsb-026-5629-SO collected from 0.0' - 1.0' on 03/23/10 at 1400 for TAL Metals + Hg, PAHs, and Explosives.			Soil Color Chart Munsell 2000 Rev. Ed.
1			(0.8' - 13.0') SILT (ML); some Clay; 10YR5/3 brown, 10YR5/6 yellowish brown, and 10Y6/1 greenish gray; medium dense; damp; exterior slightly wet from surface runoff.	WSAsb-026-5630-SO collected from 1.0' - 4.0' on 03/23/10 at 1407 for TAL Metals + Hg, PAHs, and Explosives.	2.8'/4.0'		
2							
3							
4			(4.0' - 13.0') SILT is 5Y5/3 olive and 10YR5/6 yellowish brown; dry.				
5			(5.0' - 13.0') Introduction of trace Clay and trace Gravel, <1/2", subangular.	WSAsb-026-5631-SO and MS/MSD collected from 4.0' - 7.0' on 03/23/10 at 1420 for TAL Metals + Hg, PAHs, and Explosives.	3.2'/3.0'		
6							
7	ML		(7.5' - 13.0') Very stiff.				
8							
9							
10				WSAsb-026-5632-SO collected from 7.0' - 13.0' on 03/23/10 at 1440 for TAL Metals + Hg, PAHs, and Explosives.	3.5'/3.0'		
11							
12			(11.5' - 13.0') Damp.				
13			Boring terminated at 13.0 ft bgs.		4.0'/3.0'		

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.

WSAsb-026

HTRW DRILLING LOG		DISTRICT	BOREHOLE NUMBER
1. COMPANY NAME SAIC		USACE - Louisville	WSASB-027
3. PROJECT RVAAP PBA 08 RI		2. DRILLING SUBCONTRACTOR Frontz Drilling	SHEET 1 OF 2
5. NAME OF DRILLER JEREMY LEKRONE		4. LOCATION RVAAP 8451 State Route 5 Ravenna, OH 44266	
7. SIZES AND TYPES OF SAMPLING EQUIPMENT 3" x 1 1/2" HAND AUGER 1.5" x 4' ACETATE LINER 2" x 4' DUAL TUBE		6. MAKE/MODEL OF DRILL Geoprobe 10620 DT	
12. OVERBURDEN THICKNESS 713 FT		8. BOREHOLE LOCATION N 559044.54' E 2357011.73'	
13. DEPTH DRILLED INTO BEDROCK NA		9. SURFACE ELEVATION/DATUM 947.25' NAD 83	
14. TOTAL DEPTH OF BOREHOLE 13 FT		10. DRILL DATE/TIME STARTED: 1445 COMPLETED: 1550	
18. GEOTECHNICAL SAMPLES UNDISTURBED: _____ DISTURBED: _____		15. DEPTH GROUNDWATER ENCOUNTERED 7.5 FT	
20. CHEMICAL SAMPLES CHEM: <u>NO/PA/UA</u> RAD: NA OTHER: _____		16. DEPTH TO WATER/ELAPSED TIME AFTER BOREHOLE COMPLETION NA	
22. DISPOSITION OF BOREHOLE DATE STARTED/INSTALLED: 03/23/10; 1445 DATE COMPLETED/ABANDONED: 03/23/10; 1550		17. OTHER WATER LEVEL MEASUREMENTS (INCLUDE DATE/TIME) NA	
BACKFILL TYPE: <input type="checkbox"/> GROUT <input checked="" type="checkbox"/> BENTONITE <input type="checkbox"/> TEMPORARY WELL POINT <input type="checkbox"/> MONITORING WELL		19. TOTAL NUMBER OF CORE BOXES NA	
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		21. TOTAL CORE RECOVERY % NA	
LOCATION SKETCH/COMMENTS			SCALE: None
GEOLOGIST SIGNATURE/DATE Amanda Henton 03/23/10		QA/QC SIGNATURE/DATE RS 04/26/10	BOREHOLE NUMBER WSASB-027



RVAAP-45
Wet Storage Area
WSAsb-027

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 : 03/23/10; 1445
 End Date : 03/23/10; 1550
 Northing Coord. : 559043.221
 Easting Coord. : 2357007.016
 Total Depth of Boring : 13.0'

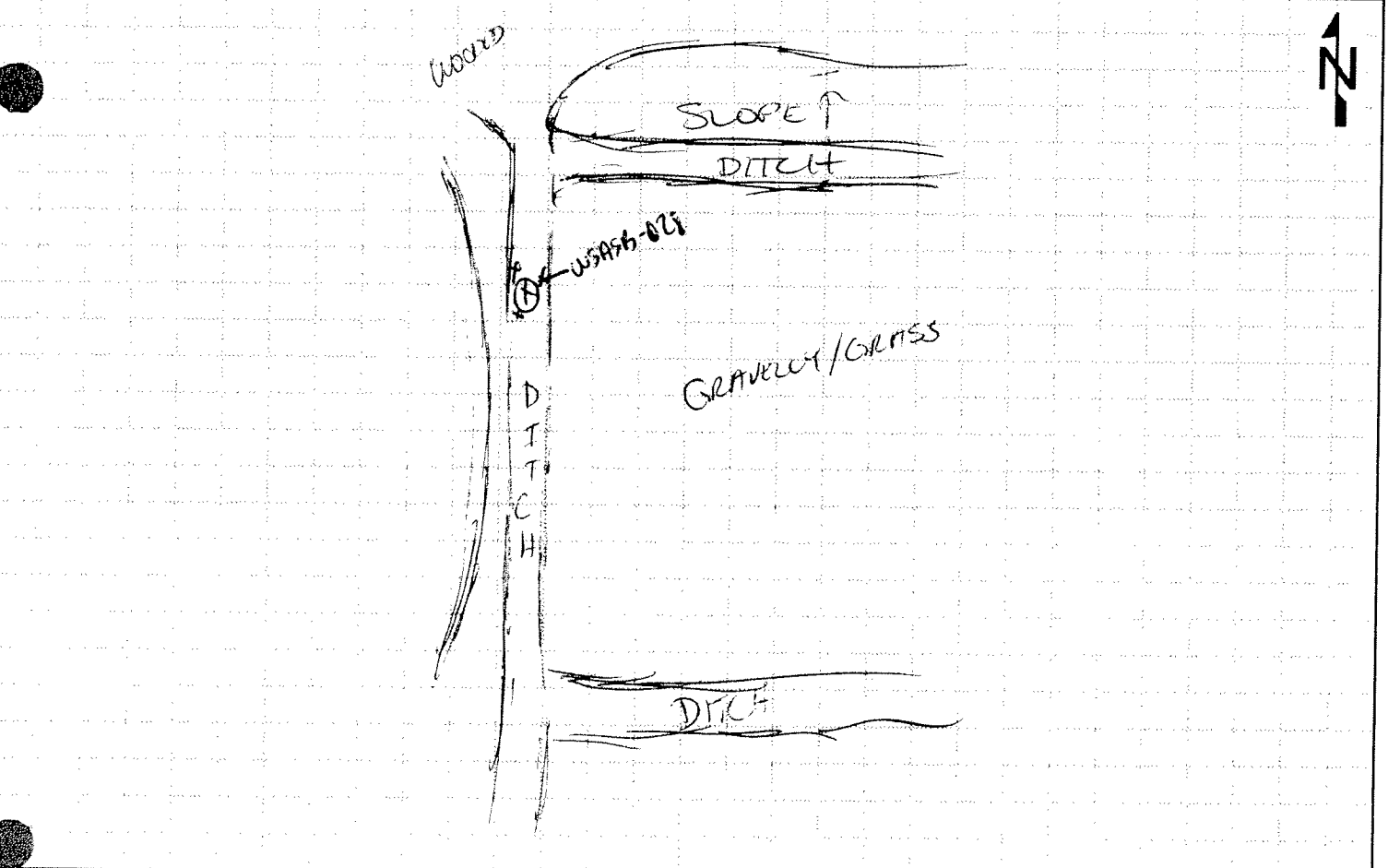
Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
0	ML		(0.0' - 0.4') SILT (ML); some Sand; some Gravel, <1"; 10YR4/2 dark grayish brown; loose; wet from surface; organics throughout.	WSAsb-027-5633-SO and MS/MSD collected from 0.0' - 1.0' on 03/23/10 at 1500 for TAL Metals + Hg, PAHs, and Explosives.	1.0'/1.0'		Soil Color Chart Munsell 2000 Rev. Ed.
1		(0.4' - 4.0') SILT (ML); some Clay; trace Sand lenses; 2.5Y6/6 olive yellow; medium stiff; dry to damp. Clay content increases with depth.	2.65'/3.0'				
2	ML			WSAsb-027-5634-SO collected from 1.0' - 4.0' on 03/23/10 at 1515 for TAL Metals + Hg, PAHs, and Explosives.			
4			(4.0' - 7.4') CLAY (CL); some Silt; trace Gravel, <1/2", subangular; Sand lenses throughout; 2.5Y5/4 light olive brown; stiff; damp; medium plasticity.	WSAsb-027-5635-SO collected from 4.0' - 7.0' on 03/24/10 at 1530 for TAL Metals + Hg, PAHs, and Explosives.	3.5'/3.0'		
5	CL		(6.5' - 7.4') Sand content increases with depth.				
7			(7.4' - 7.5') GRAVEL (GC); Sandy Clay matrix; 2.5Y5/4 light olive brown; wet.	WSAsb-027-5636-SO collected from 7.0' - 13.0' on 03/23/10 at 1545 for TAL Metals + Hg, PAHs, and Explosives.	3.0'/3.0'		
8	GC		(7.5' - 10.5') Fine grained SAND and CLAY (SC); little Silt; little 1/2" Gravel; 2.5Y5/4 light olive brown; dense; moist to wet; low plasticity.				
9	SC						
11			(10.5' - 13.0') Very fine and fine grained SAND (SW); trace fines; trace Gravel, <1/2", subangular; 2.5Y5/4 light olive brown; medium dense; dry.		3.5'/3.0'		
12	SW						
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.

WSAsb-027

HTRW DRILLING LOG		DISTRICT USACE - Louisville	BOREHOLE NUMBER WSASB-028
1. COMPANY NAME SAIC		2. DRILLING SUBCONTRACTOR Frontz Drilling	
3. PROJECT RVAAP PBA DR RT		4. LOCATION RVAAP 8451 State Route 5 Ravenna, OH 44266	
5. NAME OF DRILLER JEREMY LECKRONE		6. MAKE/MODEL OF DRILL Geoprobe W20DT	
7. SIZES AND TYPES OF SAMPLING EQUIPMENT 3" x 1' HAND AUGER 1.5" x 4' ACETATE LINER 2" x 4' DUAL TUBE		8. BOREHOLE LOCATION N-558914.3195' E 2357007.9308	
		9. SURFACE ELEVATION/DATUM NAD 83	
		10. DRILL DATE/TIME 03/23/10	
		STARTED: 1207 COMPLETED: 1320	
		15. DEPTH GROUNDWATER ENCOUNTERED 10.3 FT	
		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: _____ DISTURBED: _____		19. TOTAL NUMBER OF CORE BOXES NA	
20. CHEMICAL SAMPLES CHEM: NES / PAH / VPC RAD: NA OTHER: _____		21. TOTAL CORE RECOVERY % NA	
22. DISPOSITION OF BOREHOLE DATE STARTED/INSTALLED: 03/23/10; 1207		DATE COMPLETED/ABANDONED: 03/23/10; 1320	
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
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GEOLOGIST SIGNATURE/DATE Amanda Sention 03/23/10	QA/QC SIGNATURE/DATE RS 4/26/10	BOREHOLE NUMBER WSASB-028
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**RVAAP-45
Wet Storage Area
WSAsb-028**

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 : 03/23/10; 1207
 End Date : 03/23/10; 1320
 Northing Coord. : 558916.3195
 Easting Coord. : 235007.9308
 Total Depth of Boring : 13.0'

Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
0	ML		(0.0' - 0.3') SILT (ML); some Clay; trace <1/4" Gravel; 10YR4/2 dark grayish brown; very soft; wet from surface water; high plasticity; organics throughout.	WSAsb-028-5637-SO collected from 0.0' - 1.0' on 03/23/10 at 1230 for VOCs, SVOCs, PCBs, Pesticides, Explosives, Propellants, and TAL Metals + Hg.	1.0'/1.0'		Soil Color Chart Munsell 2000 Rev. Ed.
1	ML		(0.3' - 0.7') SILT (ML); some Clay; 5Y5/1 gray, little 7.5Y5/8 strong brown; medium stiff; damp; low plasticity.				
2			(0.7' - 5.1') SILT and CLAY (ML/CL); 10YR5/6 yellowish brown and 5Y6/2 light olive gray; medium stiff; dry to damp; low plasticity.	2.7'/3.0'			
3	ML			WSAsb-028-5638-SO collected from 1.0' - 4.0' on 03/23/10 at 1240 for VOCs, SVOCs, PCBs, Pesticides, Explosives, Propellants, and TAL Metals + Hg.			
4							
5				WSAsb-028-5639-SO collected from 4.0' - 7.0' on 03/23/10 at 1305 for VOCs, SVOCs, PCBs, Pesticides, Explosives, Propellants, and TAL Metals + Hg.	3.1'/3.0'		
6	ML		(5.1' - 6.1') SILT (ML); 2.5Y5/4 light olive brown; medium dense; moist to wet.				
7			(6.1' - 8.3') SILT (ML); little Gravel and Shale; 2.5Y5/4 light olive brown; stiff; dry.				
8	ML						
9			(8.3' - 10.3') Fine grained SAND and SILT (SM); trace <1/2" Gravel; 10YR5/4 yellowish brown; moist to wet.	WSAsb-028-5640-SO collected from 7.0' - 13.0' on 03/23/10 at 1318 for VOCs, SVOCs, PCBs, Pesticides, Explosives, Propellants, and TAL Metals + Hg.	3.15'/3.0'		
10	SM		(9.2' - 10.3') Color is 2.5Y4/2 dark grayish brown.				
11			(10.3' - 11.85') SAND (SW); fine to coarse grained, coarsening downward; 10YR5/4 yellowish brown; medium dense; wet; nonplastic.	3.5'/3.0'			
12	SW						
13			(11.85' - 13.0') Fine grained SAND and SILT (SM); 10YR5/4 yellowish brown; medium dense; moist.				
			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.

WSAsb-028

HTRW DRILLING LOG		DISTRICT	BOREHOLE NUMBER
1. COMPANY NAME SAIC		USACE - Louisville	WSASB-029
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 LUCKRONE		6. MAKE/MODEL OF DRILL Geoprobe NA	
7. SIZES AND TYPES OF SAMPLING EQUIPMENT 3" x 1' HAND AUGER		8. BOREHOLE LOCATION N 59° 07' 08.340" E - 23510 862.9209'	
		9. SURFACE ELEVATION/DATUM NAD 83	
		10. DRILL DATE/TIME 03/24/10 STARTED: 1110 COMPLETED: 1205	
		15. DEPTH GROUNDWATER ENCOUNTERED NA	
		16. DEPTH TO WATER/ELAPSED TIME AFTER BOREHOLE COMPLETION NA	
12. OVERBURDEN THICKNESS 7 FT		17. OTHER WATER LEVEL MEASUREMENTS (INCLUDE DATE/TIME) NA	
13. DEPTH DRILLED INTO BEDROCK NA			
14. TOTAL DEPTH OF BOREHOLE 7 FT			
18. GEOTECHNICAL SAMPLES UNDISTURBED: _____ DISTURBED: _____		19. TOTAL NUMBER OF CORE BOXES NA	
20. CHEMICAL SAMPLES CHEM: TUMT/QUALPAD: NA OTHER: _____		21. TOTAL CORE RECOVERY % NA	
22. DISPOSITION OF BOREHOLE DATE STARTED/INSTALLED: _____ DATE COMPLETED/ABANDONED: _____			
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: <input type="checkbox"/> Background BGS: <input type="checkbox"/> Below Ground Surface CPM: <input type="checkbox"/> Counts per Minute PPM: <input type="checkbox"/> Parts per Million ▽ : First Water Encountered ▼ : Static Water Level NA: Not Applicable			
LOCATION SKETCH/COMMENTS			SCALE: None
GEOLOGIST SIGNATURE/DATE Amanda Venton 03/24/10		QA/QC SIGNATURE/DATE RBM 04/26/10	
		BOREHOLE NUMBER WSASB-029	



**RVAAP-45
Wet Storage Area
WSAsb-029**

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 : 03/24/10; 1110
 End Date : 03/24/10; 1205
 Northing Coord. : 559097.8346
 Easting Coord. : 2356862.9269
 Total Depth of Boring : 7.0'

Depth in feet	USCS Symbol	USCS Graphic	Description	Analyses	Recovery	Collection Interval	Comments
0	ML		(0.0' - 0.9') SILT (ML); some Sand; little Clay; trace Gravel; 10YR5/4 yellowish brown; damp; soft to medium dense; low plasticity; little roots/organics.	WSAsb-029-5641-SO collected from 0.0' - 1.0' on 03/24/10 at 1135 for TAL Metals + Hg, PAHs, and Explosives.	1.0'/1.0'		Soil Color Chart Munsell 2000 Rev. Ed.
1			(0.9' - 5.5') Very fine grained SAND (SM); some Silt; trace <1/2" gravel; 10YR5/4 yellowish brown; medium dense; damp in pockets. Silt content decreases with depth.	WSAsb-029-5642-SO collected from 1.0' - 4.0' on 03/24/10 at 1150 for TAL Metals + Hg, PAHs, and Explosives.	3.0'/3.0'		
5	SW		(5.5' - 7.0') Fine to medium grained SAND (SW); 10YR5/3 brown and 10YR6/3 pale brown; medium dense; dry to damp.	WSAsb-029-5643-SO collected from 4.0' - 7.0' on 03/24/10 at 1200 for TAL Metals + Hg, PAHs, and Explosives.	3.0'/3.0'		
7			Boring terminated at 7.0 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.

WSAsb-029

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SURFACE WATER AND SEDIMENT SAMPLES

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RVAAP - Surface Water & Wet Sediment Field Form

SHEET 1 OF 1

USACE - Louisville
RVAAP PBA 2008 RIRVAAP 8451 State Rt. 5
Ravenna, OH 442661. Sample Team: SARA HISE
RICH SPRINZL

2. Location ID: WSA sw/sd - 037

3. Revised Coordinates Recorded: N 55°08'1.423" E 2356.116.004'

4. Surface Water Sample ID: WSA SW - 037 - 5656 - SW

5. Date and Time: 03/23/10, 1400

6. Dupe ID (if needed): N/A

7. Split ID (if needed): N/A

8. Surface Water Sample Type and Equipment Used: GRAB, NO SPECIAL EQUIP.

9. MS/MSD: N/A

10. Wet Sediment Sample ID: WSA sd - 037 - 5649 - SD

11. Date and Time: 03/23/10, 1005

12. Dupe ID (if needed): N/A

13. Split ID (if needed): N/A

14. Wet Sediment Sample Type and Equipment Used: GRAB, PUSH PROBE, TROWEL

15. MS/MSD: N/A

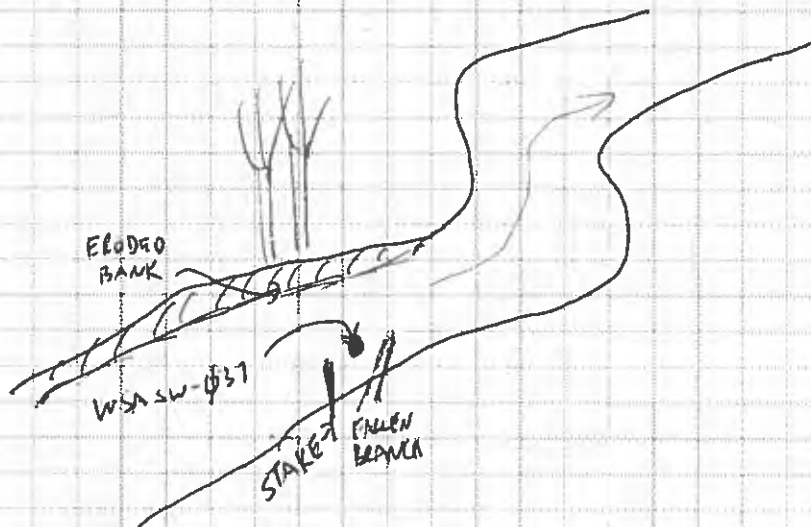
16. Weather Conditions: 36°F, SLIGHT BREEZE, LIGHT RAIN

17. Activities in the Area: NONE

LOCATION SKETCH/COMMENTS

SCALE: None

Field Notes: STREAM IS CLEAR, GRAVELLY BOTTOM W/SOME BRANCHES. A FEW BUBBLES ON SURFACE, MODERATE FLOW



FIELD MEASUREMENTS	READING	UNITS	SERIAL NO.	LAST CALIB.
TEMPERATURE:	<u>6.54</u>	°C	<u>155704</u>	<u>03/23/10</u>
pH:	<u>7.74</u>	S.U.		
CONDUCTIVITY:	<u>0.186</u>	mS/cm		
DO:	<u>10.249</u>	mg/L		
TURBIDITY:	<u>0.14</u>	NTU	<u>15557</u>	
OTHER				

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:

Sara J. Hise
(Signature and Date)

QC Checked by:

[Signature] 03/31/2010
(Signature and Date)



RVAAP - Surface Water & Wet Sediment Field Form

SHEET 1 OF 1

USACE - Louisville

RVAAP 8451 State Rt. 5
Ravenna, OH 44266

1. Sample Team: RICH SPRINZL

RVAAP PBA 2008 RI

SARA HISE

2. Location ID:

WSA sw/rd - 038

3. Revised Coordinates Recorded:

NORTHING: 559 717.33, EAST: 235 6587.40

4. Surface Water Sample ID:

WSA SW - 038 - 5657 - SW

5. Date and Time:

03/23/10, 1140

6. Dupe ID (if needed):

N/A

7. Split ID (if needed):

N/A

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

9. MS/MSD: N/A

10. Wet Sediment Sample ID:

WSA rd - 038 - 5657 - SD

11. Date and Time:

03/23/10, 1145

12. Dupe ID (if needed):

N/A

13. Split ID (if needed):

N/A

14. Wet Sediment Sample Type and Equipment Used: SS BOWL AND PUSH PROBE

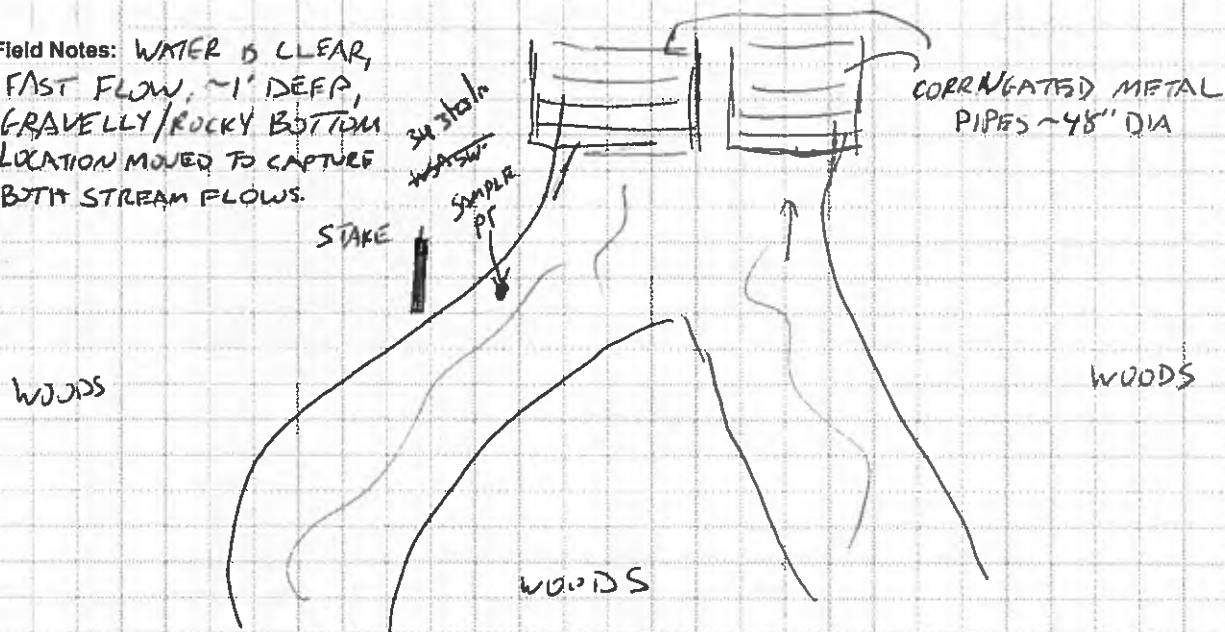
15. MS/MSD: N/A

16. Weather Conditions: 40°F, CLOUDY, SCATTERED RAIN 17. Activities in the Area: NONE

LOCATION SKETCH/COMMENTS

SCALE: None

Field Notes: WATER IS CLEAR,
FAST FLOW, ~1' DEEP,
GRAVELLY/ROCKY BOTTOM
LOCATION MOVED TO CAPTURE
BOTH STREAM FLOWS.



FIELD MEASUREMENTS	READING	UNITS	SERIAL NO.	LAST CALIB.
TEMPERATURE:	6.93	°C	15560	03/23/10
pH:	8.01	S.U	↓	↓
CONDUCTIVITY:	0.166	mS/cm	↓	↓
DO:	10.51	mg/L	↓	↓
TURBIDITY:	7.79	NTU	15557	↓
OTHER:				

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:

S. L. Nair 03/23/10
(Signature and Date)

QC Checked by:

[Signature] 03/31/2010
(Signature and Date)



RVAAP - Surface Water & Wet Sediment Field Form

SHEET 1 OF 1

USACE - Louisville

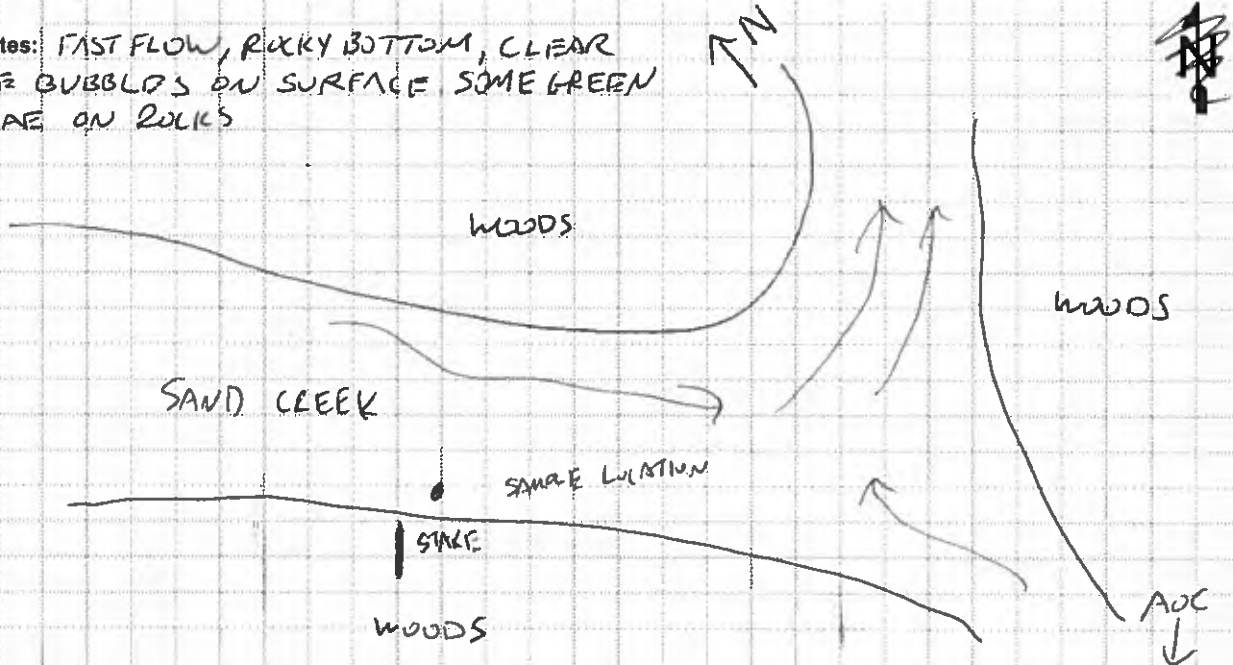
RVAAP 8451 State Rt. 5
Ravenna, OH 442661. Sample Team: RICH STRIDEL JR #3110
SARA HISE, RYAN LAURICH

2. Location ID: <u>WSA_{sd}/sw - 039</u>		3. Revised Coordinates Recorded: <u>NONE</u>	
4. Surface Water Sample ID: <u>WSA_{sw} - 039-5658-SW</u>		5. Date and Time: <u>03/23/14, 1504</u>	
6. Dupe ID (if needed): <u>NA</u>		7. Split ID (if needed): <u>NA</u>	
8. Surface Water Sample Type and Equipment Used: <u>DIRECT FILL</u>			9. MS/MSD: <u>NA</u>
10. Wet Sediment Sample ID: <u>WSA_{sd} - 039-5651-SD</u>		11. Date and Time: <u>03/23/14, 1515</u>	
12. Dupe ID (if needed): <u>NA</u>		13. Split ID (if needed): <u>NA</u>	
14. Wet Sediment Sample Type and Equipment Used: <u>SS BOWL AND PUSH PROBE</u>			15. MS/MSD: <u>NA</u>
16. Weather Conditions: <u>41°F - CLOUDY</u>		17. Activities in the Area: <u>NONE</u>	

LOCATION SKETCH/COMMENTS

SCALE: None

Field Notes: FAST FLOW, RICKY BOTTOM, CLEAR
SOME BUBBLES ON SURFACE SOME GREEN
ALGAE ON ROCKS



FIELD MEASUREMENTS	READING	UNITS	SERIAL NO.	LAST CALIB.
TEMPERATURE:	6.64	°C	15560	03/23/14
pH:	7.73	S.U	↓	↓
CONDUCTIVITY:	0.113	mS/cm		
DO:	10.47	mg/L	↓	↓
TURBIDITY:	20.3	NTU		
OTHER:				

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:

S. / H. 03/23/14
(Signature and Date)

QC Checked by:

[Signature] 03/23/14
(Signature and Date)



RVAAP - Surface Water & Wet Sediment Field Form

SHEET 1 OF 1

USACE - Louisville

RVAAP 8451 State Rt. 5
Ravenna, OH 44266

1. Sample Team: Rich Sprinzl

Steve Visocky
Heather Miller (FM)

2. Location ID:

WSA_{sw} - 040

3. Revised Coordinates Recorded:

NA

4. Surface Water Sample ID:

WSA_{sw} - 040

5. Date and Time:

3/31/10 1130

6. Dupe ID (if needed):

WSA_{sw} - 040 - 6198 - FD

7. Split ID (if needed):

WSA_{sw} - 040 - 6198 - QA

8. Surface Water Sample Type and Equipment Used:

Direct Fill

9. MS/MSD: NA

10. Wet Sediment Sample ID:

WSA_{sd} - 040

11. Date and Time:

3/30/10 1130

12. Dupe ID (if needed):

NA

13. Split ID (if needed):

NA

14. Wet Sediment Sample Type and Equipment Used:

SS bowl + spoon

15. MS/MSD: NA

16. Weather Conditions:

Sunny 38 F

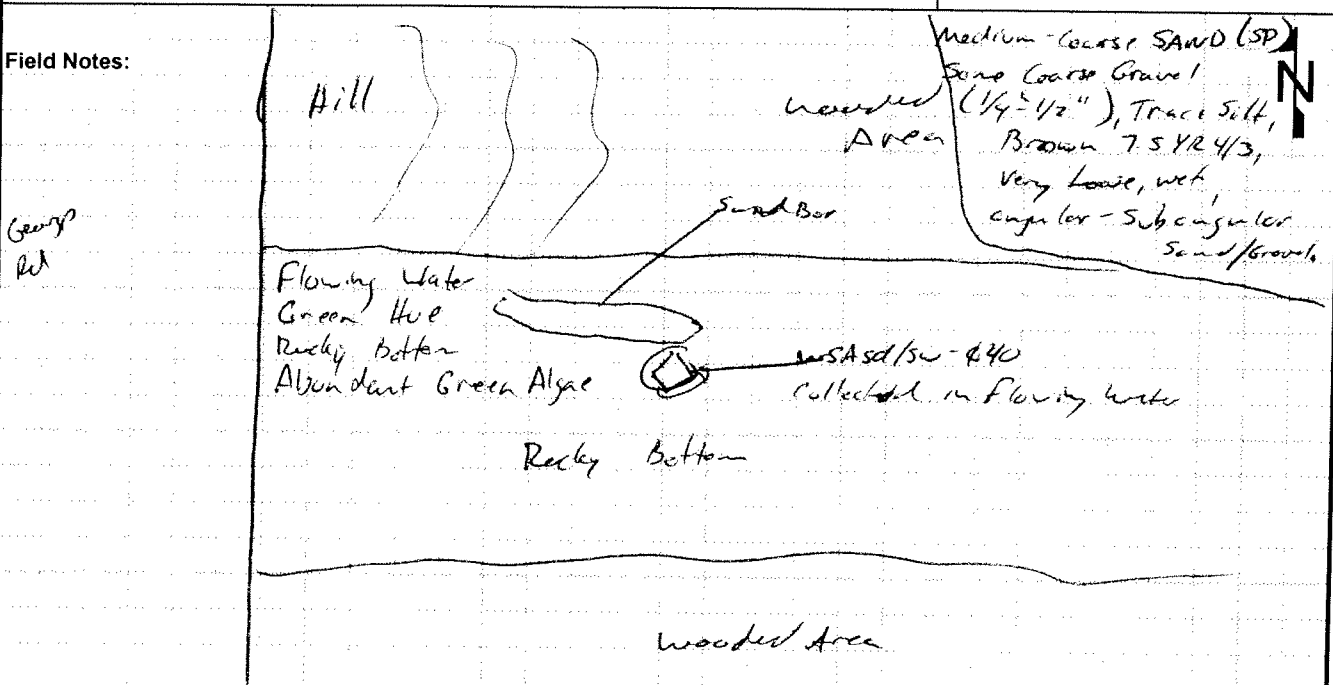
17. Activities in the Area:

none

LOCATION SKETCH/COMMENTS

SCALE: None

Field Notes:



FIELD MEASUREMENTS	READING	UNITS	SERIAL NO.	LAST CALIB.
TEMPERATURE:	6.28	°C	15558	3/30/10
pH:	7.42	S.U	↓	↓
CONDUCTIVITY:	164	mS/cm	↓	↓
DO:	11.46	mg/L	↓	↓
TURBIDITY:	6.02	NTU	15557	↓
OTHER _____				

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:

 (Signature and Date) 3/31/10

QC Checked by:

 (Signature and Date) 3/31/10