APPENDIX A

Field Sampling Logs

Discrete Surface Soil Samples Incremental Sampling Method Surface Soil Samples Soil Boring Samples Surface Water and Sediment Samples Asbestos Visual Inspection Report

DISCRETE SURFACE SOIL SAMPLES







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

RVAAP - Multi-Incremental (MI) Field Form SHEET OF USACE - Louisville 1. Sample Team: RVAAP 8451 State Rt. 5 Sura Hise Science to Solutinos RVAAP PBA 2008 RI Ravenna, OH 44266 Stew Visorly 2. Location ID: 3. Revised Coordinates Recorde LL1055-479M Nonio 4. Sample ID: L1435-\$79M-5536 SU 5. Sample Date and Time: 4/13/10 0426 6. Dupe ID: 7. Split ID: 9. MS/MSD Collected: N/A NA 8. MI Equipment Used: 8. Mi Equipment Used. 55 Push Proha 5 Bolt, 55 Bowl 10. Activities in the Area: None 11. Soil Description and Field Notes: SILT (3(), Some Sand, Trace Grow I, Trace Orgoness (Roots) Britt Fraze, Very Dic Gruy 15 Brann 101744/2, Soft, Demp, Med. Plasticity, 1367. OP. Blusy/ PØ. 1 Morthurn & Control A.N. 12. Location Sketch/Comments (not to scale): Mun Sell 1994 6.4 LL1655-090M Retursu' @ d. 1 1410ma - 443 1410ss- \$79m D Grow Dona Pebos entire Refusal Pa. 3 76 13. MI Soil EXPLOSIVES TAL METALS SVOCs PAHS OTHER FULL SUITE (VOCs, SVOCs, Metals, Explosives, Propellants, Pesticides, PCBs) Analyses: Recorded By: St. U.M. 4/13/(0 QC Checked By: RS 4/26/10 (Signature and Date)

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From Solonna to Catulita	USACE - Louisville	DVAAD	QAE1 Chat- Dt C	1. Sample Team:		
From Science to Solutions	RVAAP PBA 2008 RI	RVAAP Ravenn	8451 State Rt. 5 a. OH 44266	e il	twanky	Trente
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4. Sample ID:		······	5. Sample Date and Ti	me:		, <u></u>
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6. Dupe ID:		·····	7. Split ID:		······································	
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8. MI Equipment Used:			9. MS/MSD Collected:			
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	RVAAP - Multi-I	ncremental (MI) Fi	ield Form	SHEET 1	OF	1
From Science to Solutions	USACE - Louisville	RVAAP 8451 State Rt 5	1. Sample Team:	Lunich		
	RVAAP PBA 2008 RI	Ravenna, OH 44266	En 'l (u	and la		
2. Location ID:	a .	3. Revised Coordina	ites Recorded:	minghen	n	·····
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6. Dupe ID:	M-3546-50	4/13/10	1433			
L 1055 - 4891	n-6171-FD	7. Split ID:				
8. MI Equipment Used:		9. MS/MSD Collecter	ting	697M-61	70-	QV_
SSBULL + P.	ush probe	10. Activities in the A	rea: NVL			
11. Soil Description and Fie	eld Notes SILTIM	() little ver 1 to	New			
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From Science to Solutions	USACE - Louisville		9451 04-4- 0	1. Sa	mple Team:	A	1		<u> </u>
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From Science to Solutions	USACE - Louisville	RVAAP 84	1 State Rt 5	. Sample Team:			<u> </u>
	RVAAP PBA 2008 RI	Ravenna, C	H 44266	 Tre	ntry	<u>()</u>	14.
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LIOSS -Q	41m-5548-50		4/13/10	ĺ,e	125		
M		7. 5	plit ID:		··· ····	***	
MI Equipment Used:	1 A L A L As to	9. N	IS/MSD Collected:	ŇA	·		······································
SS BoW	1, Bolt, Hurnhoone	10.	Activities in the Area:	None		······	·····
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	USACE - Louisville		1 Comple T-	l		
From Science to Solutions	RVAAP PBA 2008 RI	RVAAP 8451 Sta	ate Rt. 5	Ryen ta	1510	
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. Sample ID:	·····	5. Sample	Date and Time			·····
Lløss-d	92M-5549-50	4/1-	NIG 177.0			
Dupe ID:		7. Split ID:	10-6	·		
NA			M			
MI Equipment Used:		9. MS/MS[	D Collected: NA			
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From Science to Solutions	USACE - Louisville	RVAAP 8451 State Rt 5	1. Sample Team: Sam	T HUSP	
	RVAAP PBA 2008 RI	Ravenna, OH 44266	SLOWE I	lit-li	
2. Location ID:	462.	3. Revised Coordinate	s Recorded:	· ····································	···
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4. Sample ID:	haze rest in	5. Sample Date and Ti	me:		
6. Dupe ID:	0131-35 34-30	4/13/16	1130		
N	"A	7. Split ID:	A		
8. MI Equipment Used:		9. MS/MSD Collected	<u></u>		
ssizoul A	olt, Push Probe	10. Activities in the Are	a:		
11. Soil Description and	Field Notes: SUTIANS				·
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12. Location Sketch/Com	ments (not to scale):	L10-083M J			
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26 L/U/SS 3. MI Soil Analyses: ∑ EXI □ FUL ∋corded By:	PLOSIVES $\square$ TAL METALS $u = \frac{1}{2} \frac{1}{3} \frac{1}{3}$	Array Brys Array Brys b-075 S SVOCs PAHs OT als, Explosives, Propellants, Pes QC Checked By:	HER_ ticides, PCBs) 2 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	///0	

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## SOIL BORING SAMPLES

	~	DISTRICT			BOREHOLE NUMBER
HIRW DRILLING LO	G	USACE - Loui	sville		L1058-006
1. COMPANY NAME		2. DRILLING SUBCO	INTRACTOR		~
SAIC		Frontz Drilling			SHEET 1 OF
3. PROJECT RUMAP P	BAOS RE	4. LOC.	ATION RVA	AP 8451 State Rout	e 5 Ravenna, OH 44266
5. NAME OF DRILLER DREMY (	ELCRONE	6. MAK	E/MODEL OF DRIL	LL Geoprobe	6620 DT
21 × 1' HAN	ADGER.	8. BOR		N-665728.8141	E-2355317.9046
Louis Aron	ATT CINER	9. 30H		NAD 83	
IIS RY FICEN	The Unice	15. DEF	TH GROUNDWAT		COMPLETED: 1515
2"XY DIAL	IJBE	16. DEF	TH TO WATER/E	LAPSED TIME AFTER BORE	HOLE COMPLETION
12. OVERBURDEN THICKNESS 12. F	T			NA	
13. DEPTH DRILLED INTO BEDROCK NA		17. OTH	IER WATER LEVE	EL MEASUREMENTS (INLCLI	JDE DATE/TIME)
14. TOTAL DEPTH OF BOREHOLE	L FT			NH	
20. CHEMICAL SAMPLES UND	DISTURBED:	DISTURBED:		19. TOTAL NUMBER OF CO	RE BOXES NA
22. DISPOSITION OF BOREHOLE	E STARTED/INSTALLED A O TU	NA OTHER			L COME RECOVERY % MA
BACKFILL TYPE: GROUT		TEMPORARY			13/S
23. NOTES BKG: ≤ Background	BGS: Below Ground Surface	CPM: (	Counts per Minut	te PPM: Parts pe	r Million
: First Water Encoun	tered 🛛 💙 : Stati	ic Water Level	NA: N	ot Applicable	
LOCATION SKETCH/COMMENTS	(P) 1 0mu	5-001		SCALE.	None
				SCALE.	
					and the second
An an franciscus species species and series of the series		www.com		,	NI.
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$\alpha_1(\alpha_1,\alpha_2,\ldots,\alpha_{n-1},\alpha_{n-1},\ldots,\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\ldots,\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_{n-1},\alpha_$		· · · · · · · · · · · · · · · · · · ·			
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VIIII JUN			$\underline{}$	119/10	

Image: Solution structure         Image: Solution structure           RVAAP PBA 2008 Remedial Investigation Ravenna Army Ammunition Plant 8451 State Route 5 Ravenna, Ohio 44266 Portage County			rps rict BA 2008 Remedial Investigation na Army Ammunition Plant 8451 State Route 5 Ravenna, Ohio 44266 Portage County	RVAAP-43           Load Line 10           L10sb-066           Start Date         : 03/16/10; 1430           End Date         : 03/16/10; 1515           Northing Coord.         : 555728.8161           Easting Coord.         : 2355317.9046           Total Depth of Boring         : 12.0 ft			lling Compa signation of be of Drill R ologist ersight Con rehole Diam mpling Equi	any Drill ig npany neter ipment	<ul> <li>: Frontz Drilling</li> <li>: Jeremy Leckrone</li> <li>: Geoprobe 6620DT</li> <li>: Direct Push Technology</li> <li>: Amanda Trenton</li> <li>: SAIC</li> <li>: 2"</li> <li>: 1.5" x 4' Long Acetate Liner</li> <li>: 2" x 4' Dual Tube</li> <li>: 3" Hand Auger</li> </ul>
Depth in feet	USCS Symbol	USCS Graphic	Descriptio	on	Analyses		Recovery	Collection Interval	Comments
0- 1- 2- 3-	CL		(0.0' - 1.25') CLAY (CL); some Silt 10YR4/2 dark grayish brown, 7.5Y N5/ gray, and trace 10YR6/3 pale medium plasticity. (1.25' - 3.8') CLAY (CL); little Silt; t moisture around Gravel; 10Y5/1 g gray; medium stiff; dry to damp; m	; trace Gravel; 'R5/6 strong brown, brown; soft; dry; trace 1/4" Gravel; trace reenish gray, little N5/ edium plasticity.	L10sb-066-5493-SO collected from 0.0' - 1.0' 03/16/10 at 1440 for TAL Metals + Hg, PAHs and Explosives. L10sb-066-5494-SO collected from 1.0' - 4.0' 03/16/10 at 1458 for TAL Metals + Hg, PAHs and Explosives.	on - on -	1.0'/1.0' 2.25'/3.0'		Soil Color Chart Munsell 2000 Rev. Ed.
4- 4- 5- 6-	GC		(3.5' - 3.8') Stiff. (3.8' - 4.5') CLAY and GRAVEL (G gray; very soft; wet; high plasticity. (4.5' - 9.75') SILT (ML); little Clay a greenish gray; medium stiff; damp	C); 10Y5/1 greenish and Gravel; 10Y5/1	L10sb-066-5495-SO collected from 4.0' - 7.0' 03/16/10 at 1505 for TAL Metals + Hg, PAHs and Explosives.	on -	1.6'/3.0'		
7- 7- 8- 8- 9-	ML		(7.0' - 9.75') Silt is 10YR4/4 dark y dry.	ellowish brown and	L10sb-066-5496-SO collected from 7.0' - 12.0 on 03/16/10 at 1515 for	)'	2.4'/3.0'		
10-	ss sw		(9.75' - 10.2') Weathered SANDST dark yellowish brown; hard; dry. (10.2' - 11.9') Medium grained SAI Sandstone fragments; 5Y7/3 pale	FONE (SS); 10YR4/4 ND (SW); trace yellow; dense; dry.	TAL Metals + Hg, PAHs Explosives.	and	2.1'/2.0'		
12-	SS		(11.9' - 12.0') Weathered SANDST dark yellowish brown; hard; dry; m Boring terminated at 12.0 ft bgs. B	rONE (SS); 10YR4/6 icaceous. edrock refusal.					Coordinate System: NAD 83
Borin 0.0' - for ex Samp	g bac 1.0' s plosi bles v	ckfille samp ves a vere	d with sodium bentonite chips and hydra led using a 3" hand auger and triangular is presented in Section 4.5.2.1.1 of the F composited and homogenized for all ana				L1	0sb-066	

		DISTRICT				BOREHOLE NUMBER
HIRW DRILLING	LOG	USACE	- Louisville			LIDSB-007
1. COMPANY NAME		2. DRILLIN	G SUBCONTRACTO	DR		
SAIC		Frontz [	Drilling			SHEET 1 OF 2
3. PROJECT RUAAF	PRANE BE		4. LOCATION	RVAAP 8451	State Bout	e 5 Bavenna OH 44266
NAME OF DRILLER JERET	14 LET KROWE		6. MAKE/MODEL	OF DRILL	Geoprobe	(01020) Tr-
SIZES AND TYPES OF SAMPLING EC	QUIPMENT		8. BOREHOLE LC	CATION 555	797.81	IN 355495 195
211 House Ar	$\sim$		9. SURFACE ELE	VATION/DATUM	D14 7101	H NHD 83
S TIAND 1100	t.K.		10. DRILL DATE/T	IME STARTED:	ma ner	COMPLETED: MOULE
15" ×4 them	TE LINER		15. DEPTH GROU	INDWATER ENCOU		NA (0175)
2" DUA TX	<u>次</u>		16. DEPTH TO W/	ATER/ELAPSED TIN	AFTER BORE	HOLE COMPLETION
2. OVERBURDEN THICKNESS	13+ FT		1		N	1
. DEPTH DRILLED INTO BEDROCK	NA		17. OTHER WATE	R LEVEL MEASURI	EMENTS (INLCLU	JDE DATE/TIME)
. TOTAL DEPTH OF BOREHOLE	13FT		1		NK	<del>)</del>
. GEOTECHNICAL SAMPLES	UNDISTURBED: NA	DISTURBE	D: NA	19. TOTAL I	NUMBER OF COR	RE BOXES NA
. CHEMICAL SAMPLES	CHEM:MCT/CAP/PA+ RAD:	NA	OTHER: MA		21. TOTA	
. DISPOSITION OF BOREHOLE	DATE STARTED/INSTALLED: 03	117/10;0	840	DATE COMPLETE	D/ABANDONED:	03/17/10,0945
ACKFILL TYPE: GROUT		Т темі	PORARY WELL POI	NT T	MONITORING V	/ELL
. NOTES BKG: ≤ Background	BGS: Below Ground Surfa	ace	CPM: Counts pe	r Minute	PPM: Parts pe	r Million
: First Water	Encountered V: S	Static Water L	evel	NA: Not Applicat	ole	
OCATION SKETCH/COMM	ENTS				SCALE	Nono
·······					OUALL.	None
	en wood	ARCA SLOOT	QUIRAD THE	(PD)	Ri	LOCATED DORING INTU DITCH AS ORIGINA CATION WAS ON ILL ADJACENT TD
			Z/DATE			BORFHOLE NUMBER
amanda A	1 the 03/17/11	$\bigcirc$	601	) etc.		I I A S 2 MI. 7
A manua M	Uncon spinillo	$-\mu$		J 5/4	9	L'ODUL/

US A of Er Louis	VS Army Corps of Engineers. Louisville District RVAAP PBA 2008 Remedial Investigation Ravenna Army Ammunition Plant 8451 State Route 5 Ravenna, Ohio 44266 Portage County		rps rict BA 2008 Remedial Investigation nna Army Ammunition Plant 8451 State Route 5 Ravenna, Ohio 44266 Portage County	RVAAP-43           Load Line 10           L10sb-067           Start Date         : 03/17/10; 0840           End Date         : 03/17/10; 0945           Northing Coord.         : 555797.81           Easting Coord.         : 2355495.08           Total Depth of Boring         : 13.0 ft			ling Compa ler signation of pe of Drill R ologist ersight Con rehole Dian npling Equ	any f Drill ig npany neter ipment	: Frontz Drilling : Jeremy Leckrone : Geoprobe 6620DT : Direct Push Technology : Amanda Trenton : SAIC : 2" : 1.5" x 4' Long Acetate Liner : 2" x 4' Dual Tube : 3" Hand Auger
Depth in feet	USCS Symbol	USCS Graphic	Descriptio	on	Analyses		Recovery	Collection Interval	Comments
	CL		(0.0' - 2.25') CLAY (CL); some Silt brown, medium stiff; damp; mediu and organics 0.0' - 0.5'.	; little Gravel; 10YR5/3 m plasticity; little roots	L10sb-067-5497-SO collected from 0.0' - 1.0' o 03/17/10 at 0855 for TAL Metals + Hg, PAHs, and Explosives.	on	1.0'/1.0'		Soil Color Chart Munsell 2000 Rev. Ed.
3-			(2.25' - 10.5') SILT (ML); some Sat and lenses; trace Clay; trace Grav 10YR5/4 yellowish brown; medium plasticity. (3.5' - 3.6') Wet Gravel seam, ~1", 3.6' Sand content increases with d	nd, mostly in seams el, 1/4", subangular; a stiff; damp; low subangular. epth.	L10sb-067-5498-SO collected from 1.0' - 4.0' o 03/17/10 at 0915 for TAL Metals + Hg, PAHs, and Explosives.	on	2.9'/3.0'		
5	ML		(6.5' - 10.5') Moist in fine sand lens	ses and pockets.	L10sb-067-5499-SO collected from 4.0' - 7.0' o 03/17/10 at 0925 for TAL Metals + Hg, PAHs, and Explosives.	on	3.1'/3.0'		
8			(9.0' - 10.5') Sand content increase	es with depth.	L10sb-067-5500-SO collected from 7.0' - 13.0' on 03/17/10 at 0945 for TAL Metals + Ho. PAHs.		2.7'/3.0'		
11	sw		(10.5' - 13.0') Medium grained SAI weathered micaceous Sandstone trace Silt; 2.5Y6/4 light yellowish b dry; nonplastic.	ND (SW); some Gravel throughout; rown; medium dense;	and Explosives.		2.9'/3.0'		
13-			Boring terminated at 13.0 ft bgs.						Coordinate System: NAD 83
Boring 0.0' - for ex Samp	g bac 1.0' s plosi [,] ples w	ckfille samp ves a vere	ed with sodium bentonite chips and hydra ed using a 3" hand auger and triangular as presented in Section 4.5.2.1.1 of the F composited and homogenized for all ana	ted. subsample procedure facility-wide SAP. lyses.				L1	0sb-067

	DISTRICT		BOREHOLE NUMBER
HIRW DRILLING LOG	USACE - Louisville		LIØ 513-068
1. COMPANY NAME	2. DRILLING SUBCONTRACTOR		
SAIC	Frontz Drilling		SHEET 1 OF 3
3. PROJECT RUATAP PBADS RI	4. LOCATION RVA	AP 8451 State Route	5 Ravenna, OH 44266
5. NAME OF DRILLER JOREMY LECKRONE	6. MAKE/MODEL OF DRIL	- Geoprobe j	0070DT
OU OUT HOUSE '	8. BOREHOLE LOCATION	555810.54AM	1 2355512, WHE
Presi noce the third the the	9. SURFACE ELEVATION	DATUM 1, \$12.51	Lí+
1.5" × 4 ALETATE LINER 7410 HILLESOU	10. DRILL DATETIME	STARTED: 0940	COMPLETED: 1130
2"DUAL TUBE 5 7 28 SHELDT	10 DE 15. DEPTH GROUNDWAT	ER ENCOUNTERED 18.9	1'bgs
	16. DEPTH TO WATER/EL		DLE COMPLETION
13. DEPTH DRILLED INTO REDPOCK		NF1	
			E DATE/TIME)
18. GEOTECHNICAL SAMPLES		NH	
20. CHEMICAL SAMPLES			BUXES NA
22. DISPOSITION OF BOREHOLE	NA OTHER: NH	21. TOTAL	LUHE RECOVERY % NA
	THO, UTYO DATEC		3117110/1130
23. NOTES BKG: C Background BCO: Balan Ore 10.	TEMPORARY WELL POINT	MONITORING WE	
Brice: > background BGS: Below Ground Surface	CPM: Counts per Minute	PPM: Parts per l	Million
Stati	ic water Level NA: No	t Applicable	
LOCATION SKETCH/COMMENTS		SCALE:	None
	······		
	PODED ARCA J341 SLORE UNSB-0 48 SHORH TROFE FLAT ARONA	J DITCH Priot Hole	
	and a second		en and en en anna an the anna the second
GEOLOGIST SIGNATURE/DATE QA/QC S	SIGNATURE/DATE	Al	OREHOLE NUMBER
( )mandras 1,0-1, polation	XPN.	le l.	LIDSB-0108-

US A of El Louis	Image: Non-Structure         Image: No		A 2008 Remedial Investigation na Army Ammunition Plant 8451 State Route 5 Ravenna, Ohio 44266 Portage County	RVAAP-43           Load Line 10           L10sb-068           Start Date         : 03/17/10; 0940           End Date         : 03/17/10; 1130           Northing Coord.         : 555810.54           Easting Coord.         : 2355512.16           Total Depth of Boring         : 20.0 ft			ng Compa er gnation oʻ of Drill R ogist rsight Cor hole Dian pling Equ	any f Drill lig npany neter ipment	: Frontz Drilling : Jeremy Leckrone : Geoprobe 6620DT : Direct Push Technology : Amanda Trenton : SAIC : 8" : 4.25" Hollow Stem Augers : 28" x 3" Shelby Tube
Depth in feet	USCS Symbol	USCS Graphic	Descripti	on	Analyses		Recovery	Collection Interval	Comments
0	CL		(0.0' - 1.9') CLAY (CL); some Silt; brown with some 2.5Y7/3 yellow m damp; medium plasticity; little root	little Gravel; 10YR5/3 nottling; medium stiff; s from 0.0' - 0.5'.					Soil Color Chart Munsell 2000 Rev. Ed.
2	SM		(1.9' - 3.1') Fine to very fine graine Gravel; little Silt; some seams of C Silt from 2.5' - 3.1'; 10YR4/4 dark y moist.	d SAND (SM); little Clay from 1.9' - 2.5' and yellowish brown; soft;	Shelby Tube		3.0'/4.0'		
4			(3.1' - 11.6') SILT (ML); trace 1/4" Gravel; trace medium to fine grain yellowish brown; stiff; damp; trace accumulations. (5.5' - 7.2') Increase to some medi Sand; damp.	- 1/2" subrounded ed Sand; 10YR5/4 iron and mica um to fine grained	collected from 4.0' - 4.8' 03/17/10 at 0950 for Porosity, Bulk Density, Moisture Content, Total Organic Carbon, Permeability, and Grain S Fraction Analysis.	on Size	3.5'/4.0'		
7	ML		(7.2') Medium to coarse grained S wet; increased sand lenses throug	and seam; moist to hout with depth.					
9	-		(9.1' - 11.6') Increase in Sandston	e Gravel throughout.			3.6'/4.0'		
12- 13-	-		(11.6' - 18.9') Medium grained SAI Sandstone Gravel; little to trace Si 11.6' - 12.3'; 2.5Y6/4 light yellowis dense; dry; nonplastic.	ND (SW); some ilt from h brown; medium	-				
14- - 15-	sw		(14.0') Introduction of micacaous S Harder with depth.	Sandstone and Sand.			3.9'/4.0'		
16-					Shelby Tube				
18-	-				No sample collected.		3.2'/4.0'		
19- - 20-	SS		(18.9' - 20.0') Weathered SANDS grained SAND (SS); 10YR4/4 dark hard; wet; nonplastic.	FONE and medium k yellowish brown;					
21-			Boring terminated at 20.0 ft bgs.						Coordinate System: NAD 83
Boring Shelb	g bad by tub	ckfille bes so	d with sodium bentonite chips and hydra ealed with wax and capped.	ated.				L1	0sb-068

	DISTRICT	<u> </u>			BOREHOLE NUMBER
HIRW DRILLING LOG	USACE	- Louisville			1105B-0100
1. COMPANY NAME	2. DRILLING	SUBCONTRACTOR			
SAIC	Frontz D	rilling			SHEET 1 OF
3. PROJECT RUMAP PBA 08	RI	4. LOCATION	RVAAP 8451 8	State Route 5	Ravenna, OH 44266
NAME OF DRILLER JEREMY LELKRT	ME	6. MAKE/MODEL OF	DRILL (	Geoprobe (	01020 DT
SIZES AND TYPES OF SAMPLING EQUIPMENT		8. BOREHOLE LOCA	ATION N-555	713.5410	E-2355413.V
3'X I TAND FLUGOR		9. SURFACE ELEVA	TION/DATUM N	1083	
I.S" X4 ACETATE U	NOR	10. DRILL DATE/TIN	E STARTED: )	656	COMPLETED: 1725
2" × 4" AFF DUAL T	UBE	15. DEPTH GROUN	WATER ENCOUN	ERED NA	-
2. OVERBURDEN THICKNESS - 12 -		16. DEPTH TO WAT	ER/ELAPSED TIME		E COMPLETION
B. DEPTH DRILLED INTO BEDROCK NA		17. OTHER WATER	EVEL MEASUREM		
I. TOTAL DEPTH OF BOREHOLE				ΛM	
3. GEOTECHNICAL SAMPLES UNDISTURBED:	DISTURBED		19. TOTAL NU	MBER OF CORE E	I BOXES NA
). CHEMICAL SAMPLES CHEM: MFT /And /FVA	L RAD: NA	OTHER: 1 6	l	21. TOTAL CO	
2. DISPOSITION OF BOREHOLE DATE STARTED/INST/	ALLED:03/10/10	· 16570 0	ATE COMPLETED/	BANDONED:	3/10/10:1720
ACKFILL TYPE: F GROUT SENTONI	те Гтемр	ORARY WELL POINT	Г м		
NOTES BKG: < Background BGS: Below Gr	round Surface	CPM: Counts per I	finute P	PM: Parts per M	illion
: First Water Encountered	T: Static Water Le	evel N	A: Not Applicable		
OCATION SKETCH/COMMENTS		NA	s		None
		<u> </u>			
			BRAS	53 N	Verve

US A of El Louis	US Army Corps of Engineers. Louisville District		A 2008 Remedial Investigation na Army Ammunition Plant 8451 State Route 5 Ravenna, Ohio 44266 Portage County	RVAAP-43           Load Line 10           L10sb-069           Start Date         : 03/16/10; 1656           End Date         : 03/16/10; 1725           Northing Coord.         : 555713.5410           Easting Coord.         : 2355473.655           Total Depth of Boring         : 13.0 ft			ling Compa ler signation of ve of Drill R ologist ersight Con ehole Dian npling Equ	any f Drill ig npany neter ipment	: Frontz Drilling : Jeremy Leckrone : Geoprobe 6620DT : Direct Push Technology : Amanda Trenton : SAIC : 2" : 1.5" x 4' Long Acetate Liner : 2" x 4' Dual Tube : 3" Hand Auger
Depth in feet	USCS Symbol	USCS Graphic	Descripti	on	Analyses		Recovery	Collection Interval	Comments
0	CL		(0.0' - 1.0') CLAY (CL); some Silt; 10YR4/3 brown; soft; low plasticity (0.75' - 1.0') Mostly Gravel Fill; wet borehole. (1.0' - 3.8') Poorly sorted SAND (S	trace Sand and Gravel; ; ;; water running down P); some subangular	L10sb-069-5503-SO collected from 0.0' - 1.0' c 03/16/10 at 1700 for TAL Metals + Hg, PAHs, and	on	1.0'/1.0'		Soil Color Chart Munsell 2000 Rev. Ed.
2	SP		Gravel; trace Silt.		Explosives. L10sb-069-5504-SO collected from 1.0' - 4.0' c 03/16/10 at 1710 for TAL Metals + Hg, PAHs, and Explosives.	ิท	1.55'/3.0'		
4			(3.8' - 11.0') SILT; trace Gravel;10 brown; medium stiff; damp; low pla	YR5/4 yellowish asticity.	L10sb-069-5505-SO collected from 4.0' - 7.0' c 03/16/10 at 1715 for TAL Metals + Hg, PAHs, and Explosives.	on	3.0'/3.0'		
7 — 7 — 8 — 9 — 10 —	ML		(7.0' - 11.0') Stiff. (7.5' - 9.0') Damp to moist in pocke (8.0' - 8.2') Rounded Gravel, ~1/2" (9.0' - 11.0') Moist.	ets. , with Silt matrix.	L10sb-069-5506-SO collected from 7.0' - 13.0' on 03/16/10 at 1723 for		2.7'/3.0'		
111- 112- 122- 133-	ML		(11.0' - 13.0') Medium grained SAI trace Sandstone Gravel; 2.5Y6/4 li dense; dry.	ND and SILT (ML/SM); ight yellowish brown;	TAL Metals + Hg, PAHs, and Explosives.		2.95'/3.0'		
Boring 0.0' - for ex Samp	g bac 1.0' s plosi les v	ckfille samp ves a vere (	d with sodium bentonite chips and hydra led using a 3" hand auger and triangular as presented in Section 4.5.2.1.1 of the F composited and homogenized for all ana	ted. subsample procedure acility-wide SAP. lyses.	<u> </u>			L1	Osb-069

	DISTRICT			BOBEHOLE NUMBER
HTRW DRILLING LOG	USACE	- Louisville		40SB-070
1. COMPANY NAME	2. DRILLING	SUBCONTRACTOR		
SAIC	Frontz D	rilling		SHEET 1 OF 2
3. PROJECT BUAAP PBA D8 RT		4. LOCATION RVAAP 84	151 State Route	5 Ravenna, OH 44266
5. NAME OF DRILLER JOREMY LECKRONE		6. MAKE/MODEL OF DRILL	Geoprobe (	eleza DT
7. SIZES AND TYPES OF SAMPLING EQUIPMENT		8. BOREHOLE LOCATION N-5	55739.2118	E-2355678.8494
3" × 1' HAND AUGER		9. SURFACE ELEVATION/DATUM	NAD 83	
1,5"×4" ACETATE UNE	r.	10. DRILL DATE/TIME STARTE	□: 1530	
2" × 4' DUAL TUBE		15. DEPTH GROUNDWATER END 16. DEPTH TO WATER/ELAPSED		9 OLE COMPLETION
12. OVERBURDEN THICKNESS > 13 FT			$\mathcal{M}$	
13. DEPTH DRILLED INTO BEDROCK NA		17. OTHER WATER LEVEL MEAS		
14. TOTAL DEPTH OF BOREHOLE 13. FT			, <i></i> ,,,	•
18. GEOTECHNICAL SAMPLES UNDISTURBED:	DISTURBED	19. TOT,	AL NUMBER OF COR	EBOXES NA
20. CHEMICAL SAMPLES CHEMMET / PH H CHECO:	NA	OTHER:	21. TOTAL	CORE RECOVERY %
22. DISPOSITION OF BOREHOLE DATE STARTED/INSTALLED:	14/10;	1530 DATE COMPLE	TED/ABANDONED:	03/10/10; 1040
BACKFILL TYPE: 🔽 GROUT 🗭 BENTONITE	Г ТЕМР	DRARY WELL POINT	MONITORING W	ELL
23. NOTES BKG: ≤ Background BGS: Below Ground Surface	9	CPM: Counts per Minute	PPM: Parts per	Million
: First Water Encountered V : Sta	tic Water Le	vel NA: Not Appli	cable	
LOCATION SKETCH/COMMENTS			SCALE:	None
		······		
	RAS:	3 A SY FLAT TICE BRU	5-44	
seologist signature/date Nenton 03/10/10	SIGNATORE	DATE	5/12/145	BOREHOLE NUMBER LOSB-070

US A of Er Louis	VS Army Corps of Engineers. Louisville District RVAAP PBA 2008 Remedial Investigation Ravenna Army Ammunition Plant 8451 State Route 5 Ravenna, Ohio 44266 Portage County		A 2008 Remedial Investigation na Army Ammunition Plant 8451 State Route 5 Ravenna, Ohio 44266 Portage County	RVAAP-43           Load Line 10           L10sb-070           Start Date         : 03/16/10; 1530           End Date         : 03/16/10; 1640           Northing Coord.         : 555739.2118           Easting Coord.         : 2355678.8494           Total Depth of Boring         : 13.0 ft			lling Compa ller signation of oe of Drill R ologist ersight Con rehole Dian mpling Equ	any [:] Drill ig npany neter ipment	: Frontz Drilling : Jeremy Leckrone : Geoprobe 6620DT : Direct Push Technology : Amanda Trenton : SAIC : 2" : 1.5" x 4' Long Acetate Liner : 2" x 4' Dual Tube : 3" Hand Auger
Depth in feet	USCS Symbol	USCS Graphic	Descriptio	on	Analyses		Recovery	Collection Interval	Comments
0	ML		(0.0' - 1.2') SILT; some Clay; little f brown, 10YR5/6 yellowish brown, a yellow; medium stiff; dry; medium p roots throughout; some slag/ ballas	ine Gravel; 10YR4/3 and 5Y8/3 pale plasticity; little fine st.	L10sb-070-5507-SO collected from 0.0' - 1.0' o 03/16/10 at 1545 for	on	1.0'/1.0'		Soil Color Chart Munsell 2000 Rev. Ed.
2	SP		(1.2' - 4.6') Medium grained SAND trace Silt; 10YR4/4 dark yellowish medium dense; dry; nonplastic.	(SP); some Gravel; brown; loose to	TAL Metals + Hg, PAHs, and Explosives. L10sb-070-5508-SO collected from 1.0' - 4.0' o 03/16/10 at 1615 for TAL Metals + Hg, PAHs, and Explosives.	on	2.3'/3.0'		
			(4.0' - 4.6') Damp to moist. (4.6' - 11.5') SILT (ML); little Grave 10YR5/4 yellowish brown; medium low plasticity.	I, 1/4", subangular; stiff; crumbly; dry;	L10sb-070-5509-SO, L10sb-070-6174-FD, & L10sb-070-6178-QA collected from 4.0' - 7.0' o 03/16/10 at 1620 for TAL Metals + Hg, PAHs, and Explosives.	on	A 1.5'/3.0' B 2.2'/3.0'		
7	ML		(8.5' - 9.8') 2.5Y7/6 Yellow. (9.8' - 11.5') Damp to moist.		L10sb-070-5510-SO collected from 7.0' - 13.0' on 03/16/10 at 1640 for TAL Metals + Hg, PAHs,	,	4.0'/3.0'		
11- 	SW		(11.5' - 12.5') Medium grained SAN Sandstone Gravel; 5Y7/3 pale yell	ND (SW); little ow; dense; dry.	and Explosives.		2.7'/3.0'		
13-	SM		(12.5' - 13.0') SAND, SANDSTONI pale yellow; dense; dry. Boring terminated at 13.0 ft bgs.	L, and SILT (SM); 5Y7/3	-				Coordinate System: NAD 83
Boring 0.0' - for ex Samp Twin I	g bac 1.0' s plosi iles w boreh	ckfille samp ves a vere o noles	d with sodium bentonite chips and hydra led using a 3" hand auger and triangular is presented in Section 4.5.2.1.1 of the F composited and homogenized for all ana were drilled to obtain volume required for	ted. subsample procedure acility-wide SAP. lyses. or analyses.				L1	0sb-070

PTTRW DHILLING LOG       USACE - Louisville         1.COMPANY NAME       2.0RILING SUBCONTRACTOR         SAIC       Fronte Drilling         3.PROJECT RUTAP       PBA         DECTRUTAP       PBA         0.STAME OF DRILLER       ELOCATION         R.MAE OF DRILLER       ELOCATION         S.MAE OF DRILLER       ELOCATION         S.SUBRACE ELEVATION AND AS       SUBPACE ELEVATION AND AS         S.SUBRACE ELEVATION ENDERVIEW       ISUBPACE ELEVATION AND AS         S.OTHACKALES OF ELEVATION ELEVATION ELEVATION AND AS       SUBPACE ELEVATION AND AS         S.OTHACKALES OF ELEVATION EL	LIOSB-071
1. COMPANY NAME       2. DRULING SUBCONTRACTOR         SAIC       Frontz Drilling         3. PROJECT RUTAP POA OS RIL       4. LOCATION RVAAP 8451 State R         MARE OF DRILLED DROCMY       C. C.R.DUE       6. MAREMODEL OF DRILL       Geoption         3. WARE OF DRILLED DROCMY       C.C.R.DUE       6. MAREMODEL OF DRILL       Geoption         3. SUBFACE LEVATION ALLOCAL       6. MAREMODEL OF DRILL       Geoption         3. SUBFACE LEVATION DATUMALING EDUIPMENT       8. BORENCE LOCATION N. 555364.         3. SUBFACE LEVATIONDATUM ALD D'S       1. SUBFACE LEVATIONDATUM ALD D'S         2. OVERBURDEN THICKNESS REFUSAL COLLETE LINER       1. DEPTH GROUNDWATER BEDOTING ALL D'S         3. DEPTH DRILLED INTO BEDROCK       NA       17. OTHER WATER LEVEL MEASUREMENTS (NH         4. TOTAL DEPTH OR BORENCLE ONLY FER REFUSAL - GO S'       18. DEPTH GROUNDWATER BEDROCK       19. TOTAL NUMBER OF         3. DEPTH DRILLED INTO BEDROCK       NA       17. OTHER WATER LEVEL MEASUREMENTS (NH       17. OTHER WATER LEVEL MEASUREMENTS (NH         4. TOTAL DEPTH OR BORENCLE ONLY FER REFUSALLED (DSTILLED (DSTI	
SAIC       Frontz Drilling <ul> <li>PROJECT RUMAP</li> <li>PRANE OF DRILLER</li> <li>CALLER</li> <li>CALER</li> <li>CALER</li> <li>CALER</li> <li>CALER<th>~</th></li></ul>	~
S. PROJECT RUMAP PBALOS RET     ALAP 8451 State R      ANAME OF DRILLET DEXEMPT     SAMPLING COLLIPMENT     SIZES AND TYPES OF SAMPLING COLLIPMENTS (IM     TOTAL DEPTH OF BOREHOLE     OVERBURDEN THICKNESS     SIZES AND TYPES OF SAMPLING COLLIPS     OVERBURDEN THICKNESS     OVERBURDEN	SHEET 1 OF 2
NAME OF DRILLER SIZES AND TYPES OF SAMELING EQUIPMENT 3" × 1' THAN MACODE INS'' × 4' ALETATE LANER 3" × 4' DUAL TUSE OVERBURGENT TRICKISS REFLORD LOANER 0" SAME THORN STATED 3" × 4' DUAL TUSE OVERBURGENT TRICKISS REFLORD LOANER 0" SAME THORN STATED 10 DEPTH OF BOREHOLE OVERBURGENT TRICKISS REFLORD LOANER COMPLETE INFORMATION STATED 10 DEPTH OF BOREHOLE OVERBURGENT TRICKISS NA 10 DEPTH OF BOREHOLE OVERBURGENT 10 TOTAL INDIFER 10 TOTAL INDIFER	oute 5 Ravenna, OH 44266
SIZES AND TYPES OF SAMPLING EQUIPMENT 3'' × 1' THAND ADGOR 1,5'' × 1' ALZETATE UNER 3'' × 4' TUAL TUBE OVERBURDEN THICKNESS REFUSAL CALLERE OVERBURDEN THICKNESS REFUSAL CALLERE (0.5' 10. DEUTH ORILLED INTO BEDROCK NA 17. OTHER WATER LEVEL MEASUREMENTS DEPTH ORILLED INTO BEDROCK NA 17. OTHER WATER LEVEL MEASUREMENTS IND OF BOREHOLE DATE STARTED: NSTALLED. (0.5' 19. TOTAL NUMBER OF CHEMICAL SAMPLES CHEMMET/MALSO. RAD: NA 17. OTHER WATER LEVEL MEASUREMENTS (NA 17. OTHER WATER LEVEL MEASUREMENTS 18. CHEMMET/MALSON (NA 17. OTHER WATER LEVEL MEASUREMENTS 19. FIRST WATER ENCOUND BURGES CPM: COUNTS PRI MINUE 19. FIRST WATER ENCOUND SURFACE 19. STARTED INSTALLED 10. THER 10. AND ADDICA 10. OTHER 10. AND ADDICA 10. OTHER 10.	pe(0(020))
S" × 1 ¹ TAND AUGOL IS SURFACE ELEVATION DATUM MAD S SURFACE ELEVATION/DATUM MAD S SURFACE ELEVATION/DATUM MAD S SURFACE ELEVATION/DATUM MAD S S S S S S S S S S S S S	5118 (F-7255525 4
IST × 4' ALETATE UNER 3" × 4' DUAL TUBE OVERBURDEN THICKNESS REFUSAL COULDER (0.5' TO DEUTH DRILLED INTO BEDROCK NA TOTAL DEPTH OF BORENCLE CONCRETE REFUSAL - (0.5' GEOTECHNICAL SAMPLES UNDISTURBED: DISTURBED: DISTURBED:	3
∂" × 4' DUAL TUBE         OVERBURDEN THICKNESS REFIDENCL COULDET G.S'         DEPTH DRILLED INTO BEDROCK         NA         TOTAL DEPTH OR DEPROCE         ON PERSURPCIS         ONE PERSURPCIS         ON PERSURPCIS         OPERSURPCIS         DISTURPS         DEVENDING FOR SOPERSOLE         DISTURPS         DEPSTICION OF BOREHOLE         DISTURPS         DISTURPS         DISTURPS         DISTURPS         DISTURPS         DISTURPS         DISTURPS         DISTURPS         DISTURPS    <	COMPLETED: 1410
OVERBURDEN THICKNESS       REF.SAC_COLLETE_G.ST         DEPTH DRILLED INTO BEDROCK       NA         TOTAL DEPTH OF BOREACE       CONCRETE_REFUSAL - 6/5'         GEOTECHNICAL SAMPLES       UNDISTURBED:         DISTURBED:       DISTURBED:         GEOTECHNICAL SAMPLES       CHEMMET/MALGARAD:         NA       OTTAL NUMBER OF         CHEMOLE SAMPLES       CHEMMET/MALGARAD:         CHEMOLE SAMPLES       CHEMMET/MALGARAD:         DEPOSITION OF BOREHOLE       DATE STARTEDINISTALLED:         DEPOSITION OF BOREHOLE       DATE STARTEDINISTALLED:         DEPOSITION OF BOREHOLE       DATE STARTEDINISTALLED:         XRILL TYPE:       GROUT         VE BENTONTE       TEMOCRARY WELL POINT         VERTIL TYPE:       GROUT         VERTIL TYPE:       VERTIL TYPE:         VERTIL TYPE:       GROUT         VERTIL TYPE:       VERTIL TYPE:         VERTIL TYPE:       VERTIL TYPE:         VERTIL TYPE:       VERTIL TYPE:         VERTIL TYPE:       VERTIL TYPE:         VERTIL TYPE:       VERTIL TYPE: </td <td>J/A DIBEHOLE COMPLETION</td>	J/A DIBEHOLE COMPLETION
DEPTH DRILLED INTO BEDRICCK NA TOTAL DEPTH OF BOREHOLE (DOM RETE REFUSAL - 6.5' GEOTECHNICAL SAMPLES UNDISTURBED: 19. TOTAL NUMBER OF CHEMICAL SAMPLES CHEMICT//MH Kar RAD: NA OTHER: 19. TOTAL NUMBER OF DISPOSITION OF BOREHOLE DATE STARTED/INSTALLED: (D3110/10); /32 (D DATE COMPLETED/ABANDON XFILL TYPE: GROUT	A
TOTAL DEPTH OF BOREHOLE ONLETE REFUSAL - 6.5'       INDISTURBED:       ISTURBED:       ISTURBED:       ISTURBED:       ISTURBED:       ISTOTAL NUMBER OF         CHEMACHAL SAMPLES       UNDISTURBED:       DISTURBED:       ISTURBED:       ISTURED:       ISTURBED:       ISTURBED: <td>CLUDE DATE/TIME)</td>	CLUDE DATE/TIME)
GEOTECHNICAL SAMPLES UNDISTURBED: II. TOTAL NUMBER OF CHEMICAL SAMPLES CHEMMET/MAILER: II. TOTAL NUMBER OF DISPOSITION OF BOREHOLE DATE STARTED/INSTALLED: ()3/1 ()/(); /32 () DATE COMPLETED/ABANDON XKFILL TYPE: [ GROUT ]7 BENTONITE [' TEMPORARY WELL POINT [' MONITORIN NOTES BKG: S Background BGS: Below Ground Surface CPM: Counts per Minule PPM: Part C: First Water Encountered ] : Static Water Level NA: Not Applicable XCATION SKETCH/COMMENTS SCALE: 0059-015 U006 012 U006 012 U006 012 0000 000000000000000000000000000	<i>I</i> A
CHEMICAL SAMPLES       CHEMIALE //PAH.bar. RAD:       NA       OTHER:       P1. T         DISPOSITION OF BOREMOLE       DATE STARTED/INSTALLED:       (D31/16)/16)/132.0       DATE COMPLETED/ABANDON         CKFILL TYPE:       I GROUT       I BENTONITE       I'' TEMPORARY WELL POINT       I'' MONITORIN         NOTES       BKG: S Background       BGS: Below Ground Surface       CPM: Counts per Minute       PPM: Part         V:       First Water Encountered       V: Static Water Level       NA: Not Applicable         DCATION SKETCH/COMMENTS       SCALE:         0390/13       012       0020         0016       012       012       012         0017       014       014       014         01590       012       000001       014	
DISPOSITION OF BOREHOLE DATE STARTED/INSTALLED: (D3/16/10; /320 DATE COMPLETED/ABANDON CKFILL TYPE: [' GROUT V BENTONITE [' TEMPORARY WELL POINT / MONITORIN NOTES BKG: \$ Background BGS: Below Ground Surface CPM: Counts per Minule PPM: Part. V : First Water Encountered : Static Water Level NA: Not Applicable CATION SKETCH/COMMENTS SCALE: 0050/15 0000000000000000000000000000000	DTAL CORE RECOVERY %
CKFILL TYPE: <ul> <li>GROUT</li> <li>BENTONITE</li> <li>TEMPORARY WELL POINT</li> <li>MONITORIN</li> </ul> NOTES       BKG: S Background       BGS: Below Ground Surface       CPM: Counts per Minute       PPM: Part:         V       : First Water Encountered <li>Static Water Level</li> <li>NA: Not Applicable</li> DCATION SKETCH/COMMENTS <ul> <li>SCALE:</li> <li>U036</li> </ul>	=D: (M2/11/2/1/1/1/1/1/
NOTES BKG: S Background BGS: Below Ground Surface CPM: Counts per Minute PPM: Part. T: First Water Encountered : Static Water Level NA: Not Applicable DCATION SKETCH/COMMENTS COSP.013 COSP.013 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.014 COSP.01	$\frac{1}{2} \left( \frac{1}{2} \right) \left( 1$
Image: State Control of Con	GWELL
DCATION SKETCH/COMMENTS SCALE:	per Million
DCATION SKETCH/COMMENTS	
2 1058-013 3 2 1058-012 1058-012 1058-012 0 10 10 10 10 10 10 10 10 10	None
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US A of El Louis	Army ngin sville /AAI Ra	P PE aven	A 2008 Remedial Investigation na Army Ammunition Plant 8451 State Route 5 Ravenna, Ohio 44266 Portage County	RVAA Load Lin L10sb Start Date : 03/ End Date : 03/ Northing Coord. : 556 Easting Coord. : 236 Total Depth of Boring : 6.5	<b>NP-43</b> <b>ne 10</b> <b>-071</b> (16/10; 1320 (16/10; 1410 5384.5008 55535.5818 ift	Dril Dril De: Typ Ge Ov Boi Sai	lling Compa ller signation o be of Drill R ologist ersight Cor rehole Dian mpling Equ	any f Drill ig npany neter ipment	: Frontz Drilling : Jeremy Leckrone : Geoprobe 6620DT : Direct Push Technology : Amanda Trenton : SAIC : 2" : 1.5" x 4' Long Acetate Liner : 2" x 4' Dual Tube : 3" Hand Auger
Depth in feet	USCS Symbol	USCS Graphic	Descripti	on	Analyses		Recovery	Collection Interval	Comments
			(0.0' - 0.7') SILT and FILL; little Cla Sand; 10YR4/3 brown; soft; damp and piece of blue plastic (~1"). (0.7' - 4.0') FILL; Sandstone; Gravy some Clavey Silt matrix; 10YP4/3	ay; little fine grained ; trace brick, gravel, el; Concrete; Sand; brown and 10YP4/1	L10sb-071-5511-SO collected from 0.0' - 1.0' 03/16/10 at 1330 for TAL Metals + Hg, PAHs, and Explosives.	on -	1.0'/1.0'		Soil Color Chart Munsell 2000 Rev. Ed. Multiple boreholes offset and drilled. All resulted in concrete refusal at 6.5 ft
			some Clayey Silt matrix; 10YR4/3 dark gray; dry; building material.	brown and 10YR4/1	L10sb-071-5512-SO collected from 1.0' - 4.0' 03/16/10 at 1403 for TAL Metals + Hg, PAHs, and Explosives.	on -	1.0'/3.0' 1.6'/3.0'		bgs.
			(4.0' - 6.5') FILL; brick; trace concr material. Boring terminated at 6.5 ft bgs. Cc	ete; wet; building	L10sb-071-5513-SO collected from 4.0' - 6.5' 03/16/10 at 1405 for TAL Metals + Hg, PAHs, and Explosives.	on -	1.0'/2.5' 1.0'/2.5'		
7-									Coordinate System: NAD 83
Boring 0.0' - for ex Samp Twin I	g bac 1.0' s plosi [,] les w boreh	kfille samp ves a vere o noles	d with sodium bentonite chips and hydra led using a 3" hand auger and triangular is presented in Section 4.5.2.1.1 of the F composited and homogenized for all ana were drilled to obtain volume required for	ted. subsample procedure facility-wide SAP. lyses. or analyses.				L1	0sb-071

	DISTRICT			BOREHOLE NUMBER
HIRW DRILLING LOG	USACE - I	Louisville		108-072
1. COMPANY NAME	2. DRILLING S	SUBCONTRACTOR		
SAIC	Frontz Dril	lling		SHEET 1 OF 2
3. PROJECT RUAAP PBA 108 RT	4.	LOCATION RVAAP 84	451 State Boute	5 Bavenna OH 44266
5. NAME OF DRILLER YROMY LECKRONE	6.	MAKE/MODEL OF DRILL	Geoprobe	0(020)
7. SIZES AND TYPES OF SAMPLING EQUIPMENT	8.	BOREHOLE LOCATIONN - 5	55346,493	E-2554692094
3"×1 HAND HUGER	9.	SURFACE ELEVATION/DATUN	NAD 83	60505747077
1.5" × 4 ACETATE LINER	10	0. DRILL DATE/TIME STARTE	ED: 1226	COMPLETED: 1320
DUVUI DIA TIRE	15	5. DEPTH GROUNDWATER ENG	COUNTERED NF	1
	16	3. DEPTH TO WATER/ELAPSED		DLE COMPLETION
12. OVERBURDEN THICKNESS >13FT			$\mathcal{N} \mathcal{H}$	
14. TOTAL DEPTH OF BOREHOLE	17	7. OTHER WATER LEVEL MEAS	UREMENTS (INLCLUD	E DATE/TIME)
18. GEOTECHNICAL SAMPLES		1.2.1.4- 110 TOT	WHT	POVED
20. CHEMICAL SAMPLES	DISTURBED:	<u>+3+4</u>	21 TOTAL	
22. DISPOSITION OF BOREHOLE DATE STARTED/INSTALLED (73/1)	INA UN			2 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
BACKFILL TYPE: GROUT FEBENTONITE				SIIGIIO, BZO
23. NOTES BKG: ≤ Background BGS: Below Ground Surface	CF	PM: Counts per Minute	PPM: Parts per M	Aillion
: First Water Encountered V : Stat	ic Water Leve	NA: Not Appl	cable	Minori
			SCALE:	None
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US A of El Louis	Army ngin sville /AAI Ra	P PE aven	A 2008 Remedial Investigation na Army Ammunition Plant 8451 State Route 5 Ravenna, Ohio 44266 Portage County	RVAA Load Lin L10sb Start Date : 03/ End Date : 03/ Northing Coord. : 555 Easting Coord. : 238 Total Depth of Boring : 13.	<b>.P-43</b> <b>ne 10</b> <b>-072</b> (16/10; 1226 (16/10; 1320) 5346.4936 55469.3094 0 ft	Dril Dril Des Typ Geo Ove Bor Sar	ling Compa ler signation of ve of Drill R ologist ersight Con ehole Dian npling Equ	any f Drill ig npany neter ipment	: Frontz Drilling : Jeremy Leckrone : Geoprobe 6620DT : Direct Push Technology : Amanda Trenton : SAIC : 2" : 1.5" x 4' Long Acetate Liner : 2" x 4' Dual Tube : 3" Hand Auger
Depth in feet	USCS Symbol	USCS Graphic	Descripti	on	Analyses		Recovery	Collection Interval	Comments
0	ML		(0.0' - 2.5') SILT (ML); some Clay; and Gravel; 10YR4/3 brown, 10YR brown and some 10YR5/1 gray; so plasticity. (1.25') Medium grained Sand lens	trace pockets of Sand 84/4 dark yellowish oft; damp; low ; moist.	L10sb-072-5515-SO, L10sb-072-6173-FD, & L10sb-072-6177-QA collected from 0.0' - 1.0' o 03/16/10 at 1235 for TAL Metals + Hg, PAHs, and Explosives.	on	1.0'/1.0' 2.6'/3.0'		Soil Color Chart Munsell 2000 Rev. Ed.
	ML GM	2 - 9 - 0 2 - 0 - 0	(2.5' - 4.0') SILT (ML); little fine gra 10YR4/4 dark yellowish brown with brown; medium stiff; crumbly; dry. (4.0' - 4.25') SAND and GRAVEL ( medium dense; moist; some Sand (4.25' - 10.25') SILT (ML); little Cla Sand and Gravel, 1/4", subangular yellowish brown; dry; slightly micad (5.8' - 6.2' )Sandstone fragments;	ained Sand and Clay; n little 10YR5/3 GM); some Silt matrix; stone fragments. y; trace fine grained r; 10YR4/4 dark ceous. increased Sand	L10sb-072-5516-SO collected from 1.0' - 4.0' c 03/16/10 at 1258 for TAL Metals + Hg, PAHs, and Explosives. L10sb-072-5517-SO collected from 4.0' - 7.0' c 03/16/10 at 1310 for TAL Metals + Hg, PAHs, and Explosives	on on	3.2'/3.0'		
7	ML		(7.0' - 10.25') Moist.		L10sb-072-5518-SO		2.4'/3.0'		
10- 	ML		(10.25' - 13.0') SILT (ML); little fine Gravel, 1/4" - 3/4"; 10YR4/4 dark y dry.	e grained Sand; trace rellowish brown; stiff;	collected from 7.0' - 13.0' on 03/16/10 at 1320 for TAL Metals + Hg, PAHs, and Explosives.	1	2.8'/3.0'		Coordinate System: NAD 92
Boring 0.0' - for ex Samp	g bac 1.0' s plosiv les w	kfille samp ves a vere o	d with sodium bentonite chips and hydra led using a 3" hand auger and triangular as presented in Section 4.5.2.1.1 of the F composited and homogenized for all ana	ted. subsample procedure facility-wide SAP. lyses.				L1	Osb-072

	DISTRICT			BOREHOLE NUMBER
HTRW DRILLING LOG	USACE	- Louisville		LID SB-073
1. COMPANY NAME	2. DRILLIN	G SUBCONTRACTOR		
SAIC	Frontz [	Drilling		SHEET 1 OF Z
3. PROJECT KUAAD PBA OS RE	• [	4. LOCATION RVAA	P 8451 State Rout	e 5 Ravenna, OH 44266
5. NAME OF DRILLER JERONY UELROVE		6. MAKE/MODEL OF DRILL	Geoprobe	1010200551
7. SIZES AND TYPES OF SAMPLING EQUIPMENT		8. BOREHOLE LOCATION	-555418,221	E-2255399 NA!
3" X 1' HAND AUGER		9. SURFACE ELEVATION/D/	ATUM 1 19083	<u> </u>
2" VU DUAL TURE		10. DRILL DATE TIME ST	ARTED: 1015	COMPLETED: 1120
15" × 4' ALETATE LINER		15. DEPTH GROUNDWATER		
12. OVERBURDEN THICKNESS >13FT		-	NH	
13. DEPTH DRILLED INTO BEDROCK NA		17. OTHER WATER LEVEL N	AEASUREMENTS (INLCL)	UDE DATE/TIME)
14. TOTAL DEPTH OF BOREHOLE 3FT			NA	
18. GEOTECHNICAL SAMPLES UNDISTURBED:	DISTURBE	): [19.	TOTAL NUMBER OF CO	
20. CHEMICAL SAMPLES CHEM	NA	OTHER:	21. TOTA	L CORE RECOVERY %
22. DISPOSITION OF BOREHOLE DATE STARTED/INSTALLED/12.	10/10 ·10	DIS DATE CO		A2/11/10:1120
BACKFILL TYPE: GROUT BENTONITE				
23. NOTES BKG: ≤ Background BGS: Below Ground Suite		CPM: Counte nor Minute		YELL
$\sum$ : First Water Encountered $\longrightarrow$	tatic Water I		PPM: Parts pe	er Million
	Matic Water L	evei NA: Not		······
LOCATION SKETCH/COMMENTS			SCALE:	None
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EOLOGIST SIGNATURE/DATE	C. STONATURE	DATE		BOREHOLE NUMBER
( Imandes hat originaling	1/14	~ / `	Ala ha	110ch-A73
WITHING THE STORY	$V \rightarrow$		SICIA	IUNDUNN

US A of Eu Louis	Army ngin sville /AAI Ra	P PE aven	rps Friet BA 2008 Remedial Investigation Ina Army Ammunition Plant 8451 State Route 5 Ravenna, Ohio 44266 Portage County	RVAA Load Lin L10sb Start Date : 03/ End Date : 03/ Northing Coord. : 555 Easting Coord. : 238 Total Depth of Boring : 13.	<b>NP-43</b> <b>ne 10</b> <b>-073</b> (16/10; 1015 (16/10; 1120 5418.23 55397.00 0 ft	Dril Dri De: Typ Ge Ove Bo Sar	ling Compar ler signation of l pe of Drill Rig ologist ersight Comp rehole Diame mpling Equip	ny Drill Dany Dany Deter Doment	: Frontz Drilling : Jeremy Leckrone : Geoprobe 6620DT : Direct Push Technology : Amanda Trenton : SAIC : 2" : 1.5" x 4' Long Acetate Liner : 2" x 4' Dual Tube : 3" Hand Auger
Depth in feet	USCS Symbol	USCS Graphic	Descriptio	Dn	Analyses		Recovery	Collection Interval	Comments
	ML		(0.0' - 0.5') FILL; Brick; Gravel; sor roots. (0.5' - 2.5') SILT (ML); and medium some Gravel throughout, 1/4" - 1", yellowish brown; soft; dry; low plas	ne Silty matrix; some n to fine grained Sand; subangular; 10YR5/4 ticity.	L10sb-073-5519-SO, L10sb-073-6172-FD, & L10sb-073-6176-QA collected from 0.0' - 1.0' o 03/16/10 at 1030 for VOC SVOCs, PCBs, Pesticide Explosives, Propellants,	on Cs, es, and	1.0'/1.0' A 2.25'/3.0'		Soil Color Chart Munsell 2000 Rev. Ed.
3	ML		(2.5' - 3.3') SILT (ML); some fine g Gravel; 2.5Y3/1 very dark gray; dry micaceous. (3.3' - 6.8') Clayey SILT (ML); trace 10YR5/4 yellowish brown; soft.	rained Sand; trace /; low plasticity; a fine Gravel (1/4");	L10sb-073-5520-SO collected from 1.0' - 4.0' o 03/16/10 at 1045 for VOC SVOCs, PCBs, Pesticide Explosives, Propellants, TAL Metals + Hg.	on Cs, es, and	B 1.0'/4.0'		
5	ML		6.0' - Fine to medium grained San damp; soft to very soft.	d lens; wet; Silt is	L10sb-073-5521-SO collected from 4.0' - 7.0' o 03/16/10 at 1100 for VOO SVOCs, PCBs, Pesticide Explosives, Propellants, TAL Metals + Hg.	on Cs, es, and	1.5'/3.0'		
7- 	sw		(6.8' - 8.6') Medium grained SAND 5YR4/6 yellowish red; medium der	(SW); little Gravel; nse; wet.			1.9'/3.0'		
9	SM		(8.6' - 9.0') SILT and SAND (SM); I subangular; 10YR4/4 dark yellowis (9.0' - 12.5') SILT (ML); some Sand dark yellowish brown; soft; low plas (10.0' - 10.8') Medium stiff. (10.8' - 12.5') Stiff.	little Gravel, 1/4" - 1"; sh brown; soft; damp. d; little Clay; 10YR4/4 sticity.	L10sb-073-5522-SO collected from 7.0' - 13.0 on 03/16/10 at 1120 for VOCs, SVOCs, PCBs, Pesticides, Explosives, Propellants, and TAL Me + Hg.	tals			
11							2.7'/3.0'		
13-	SW		(12.5' - 13.0') Medium grained SAN (SW); 10YR6/4 light yellowish brow Boring terminated at 13.0 ft bgs.	ND and SANDSTONE wn; medium dense; dry.					Coordinate System: NAD 83
Boring 0.0' - for ex Samp Twin	g bac 1.0' s plosi [,] les w boreł	kfille samp ves a vere noles	d with sodium bentonite chips and hydra led using a 3" hand auger and triangular as presented in Section 4.5.2.1.1 of the F composited and homogenized for all ana were drilled to obtain volume required for	ted. subsample procedure acility-wide SAP. lyses except VOCs. or analyses.				L1	0sb-073

HTRW DRILLING LOG	DISTRICT		BOREHOLE NUMBER	
	USACE	- Louisville		LIØ53-074
1. COMPANY NAME	2. DRILLING	G SUBCONTRACTOR		
SAIC	Frontz D	Drilling	···· ··· ··· ··· ··· ··· ··· ··· ··· ·	SHEET 1 OF 2
3. PROJECT RUAAP PBA OS RE		4. LOCATION RV	AAP 8451 State Rou	ite 5 Ravenna, OH 44266
5. NAME OF DRILLER TEREMY LEURONE		6. MAKE/MODEL OF DR	-Gcoprobe	101020 DT 15
7. SIZES AND TYPES OF SAMPLING EQUIPMENT		8. BOREHOLE LOCATIO	™ <del>555140.08</del>	235534 00-
3"x1" HTAND TUGER		9. SURFACE ELEVATIO	N/DATUM 1,013.69	Ft NAD 83
		10. DRILL DATE/TIME	STARTED: 0830	COMPLETED: 1005
		15. DEPTH GROUNDWA	ATER ENCOUNTERED	
		16. DEPTH TO WATER/I	ELAPSED TIME AFTER BOR	EHOLE COMPLETION
12. DERTH DRILLED INTO DEDDOOR			M4	
		17. OTHER WATER LEV		LUDE DATE/TIME)
14. TOTAL DEPTH OF BOHEHOLE 7 FT			1\VF	t
20. CHEMICAL SAMPLES UNDISTURBED:	DISTURBED	D:	19. TOTAL NUMBER OF CO	DRE BOXES NA
22. DISPOSITION OF ROBELIOUS	NA	OTHER:	21. TOT	AL CORE RECOVERY %
	; שו <i>ו</i> שוו <i>ב</i>	UNSO DATE	COMPLETED/ABANDONED	03/14/10;1005
BACKFILL TYPE: J GROUT V BENTONITE	TEMP	ORARY WELL POINT	MONITORING	WELL
BKG: S Background BGS: Below Ground Surfa	ace	CPM: Counts per Minu	ute PPM: Parts p	er Million
: First Water Encountered V : S	Static Water Le	evel NA: I	Not Applicable	
LOCATION SKETCH/COMMENTS			SCALE:	None
			N- 30)1	38. 101 5267 1021 N
e b b b b b b b b b b b b b b b b b b b	BORD HON D. I.	-LIOSEST PRUSH THIC	E-2354	5357. Ø93 N

US A of E Louis	Army ngin sville VAAI Ra	P PE aven	A 2008 Remedial Investigation na Army Ammunition Plant 8451 State Route 5 Ravenna, Ohio 44266 Portage County	RVAA Load Lin L10sb Start Date : 03/ End Date : 03/ Northing Coord. : 555 Easting Coord. : 236 Total Depth of Boring : 7.0	P-43 ne 10 -074 (16/10; 0830 (16/10; 1005 55138.967 55357.093 ft	Dril Dril Des Typ Geo Bor Sar	ling Compa ler signation o be of Drill R ologist ersight Cor rehole Dian mpling Equ	any f Drill ig npany neter ipment	: Frontz Drilling : Jeremy Leckrone : NA : NA : Amanda Trenton : SAIC : 3" : 3" Hand Auger
Depth in feet	USCS Symbol	USCS Graphic	Descripti	on	Analyses		Recovery	Collection Interval	Comments
	SM		(0.0' - 0.5') Fine grained SAND (SI 10YR3/2 very dark grayish brown; surface is wet; medium plasticity; s (0.5' - 3.0') SILT and fine to very fin little Clay; some Sandstone fragme and 10YR5/6 yellowish brown; sof plasticity; some roots throughout;	M); some Silt; little Clay; very soft; damp, some thick tree roots. ne grained SAND (SM); ents; 10YR4/3 brown t; damp; medium	L10sb-074-5523-SO collected from 0.0' - 1.0' 03/16/10 at 0845 for VOC SVOCs, PCBs, Pesticide Explosives, Propellants, TAL Metals + Hg.	on Cs, es, and	1.0'/1.0'		Soil Color Chart Munsell 2000 Rev. Ed.
2-	SM				L10sb-074-5524-SO collected from 1.0' - 4.0' 03/16/10 at 0920 for VOO SVOCs, PCBs, Pesticide Explosives, Propellants, TAL Metals + Hg.	on Cs, es, and	3.0'/3.0'		
	SC		(3.0' - 5.5') Fine grained SAND (SG Gravel; 10YR4/6 dark yellowish br some 5B5/1 bluish gray. (5.5' - 7.0') SILT (ML); some fine g Gravel; 10YR4/3 brown and 7.5YF soft; damp; medium plasticity.	C); some Clay; little own, 10YR4/3 brown, rained Sand; little 25/8 yellowish red;	L10sb-074-5525-SO + MS/MSD collected from 4 - 7.0' on 03/16/10 at 0943 for VOCs, SVOCs, PCBs Pesticides, Explosives, Propellants, and TAL Me + Hg.	4.0' 5 3,	3.0'/3.0'		
7-			Boring terminated at 7.0 ft bgs.						Coordinate System: NAD 83
Borin 0.0' - for ex Samp	g bac 1.0' s plosi ples v	ckfille samp ves a vere o	d with sodium bentonite chips and hydra led using a 3" hand auger and triangular as presented in Section 4.5.2.1.1 of the F composited and homogenized for all ana	ted. subsample procedure facility-wide SAP. lyses except VOCs.				L1	0sb-074

	DISTRICT				BOREHOLE NUMBER
	USACE	- Louisville			L105B-075
1. COMPANY NAME	2. DRILLING	SUBCONTRACTOR			
SAIC	Frontz D	rilling			SHEET 1 OF
3. PROJECT RUAMP PBH (DS BIT		4. LOCATION RVA	AP 8451 S	tate Route	5 Ravenna, OH 44266
5. NAME OF DRILLER JEREMY LELK-RONE		6. MAKE/MODEL OF DRIL	L G	ieoprobe	
7. SIZES AND TYPES OF SAMPLING EQUIPMENT		8. BOREHOLE LOCATION	555UR	1.939 N	C 2356070E AT
3" XI HAND HUGER		9. SURFACE ELEVATION	DATUM		
15" ×4 ACETATE LINER		10. DRILL DATE/TIME	STARTED:	300	COMPLETED: 1425
2" VUIDIA TURE		15. DEPTH GROUNDWAT	ER ENCOUNT	EREDNA	
12 OVERBURDEN THICKNESS		16. DEPTH TO WATER/EL	APSED TIME /	AFTER BOREI	HOLE COMPLETION
13. DEPTH DRILLED INTO BEDROCK NA		17 OTHER WATER LEVEL			
14. TOTAL DEPTH OF BOREHOLE		D. OTHER WATER LEVE	LMEASUHEME		
18. GEOTECHNICAL SAMPLES	DISTUDBED	L	9 TOTAL NUN		
20. CHEMICAL SAMPLES CHEMINGTON OWN BAD					
22. DISPOSITION OF BOREHOLE DATE STARTED/INSTALLED:	1010	IZALO DATEC		BANDONED	M312110: 1175
BACKFILL TYPE: GROUT BENTONITE	T TEMP		Mr Mr	NITORING M	Ψ-11 /11Ψ/1965
23. NOTES BKG: < Background BGS: Below Ground Surfa	ice	CPM: Counts per Minute	e PF	M: Parts ne	r Million
: First Water Encountered	static Water Le	evel NA: No	ot Applicable	in rate pe	
LOCATION SKETCH/COMMENTS			S	CALE:	None
Eronwoos Mostly Clear Some Small Frees + Enssn	sire i po	DTTCH	5-075 Gerue	ocoustre crea	5
Jeologist signature/date 03/17/10	C SIGNATUTE	DATE	5/1.	2/15	BOREHOLE NUMBER

US A of El Louis	Army ngin sville /AAI Ra	P PE aven	A 2008 Remedial Investigation na Army Ammunition Plant 8451 State Route 5 Ravenna, Ohio 44266 Portage County	RVAA Load Lin L10sb Start Date : 03/ End Date : 03/ Northing Coord. : 555 Easting Coord. : 235 Total Depth of Boring : 9.0	P-43 ne 10 -075 17/10; 1306 17/10; 1425 5268,989 56070.00 ft	Dril Dril Des Typ Geo Bor Sar	ling Compa ler signation of be of Drill R ologist ersight Con rehole Dian npling Equ	any f Drill ig npany neter ipment	: Frontz Drilling : Jeremy Leckrone : Geoprobe 6620DT : Direct Push Technology : Amanda Trenton : SAIC : 2" : 1.5" x 4' Long Acetate Liner : 2" x 4' Dual Tube : 3" Hand Auger
Depth in feet	USCS Symbol	USCS Graphic	Description	on	Analyses		Recovery	Collection Interval	Comments
0-	CL		(0.0' - 0.9') CLAY (CL); some Silt; t 10YR4/3 brown; soft; medium plas throughout. (0.9' - 2.75') Fine to medium graine Silt and Gravel; 10YR4/4 dark yelle dense; wet; nonplastic.	trace Sand and Gravel; ticity; organics ed SAND (SM); trace owish brown; medium	L10sb-075-5527-SO collected from 0.0' - 1.0' o 03/17/10 at 1403 for TAL Metals + Hg, PAHs, and Explosives.	on -	1.0'/1.0'		Soil Color Chart Munsell 2000 Rev. Ed.
2	SM		(2.75' - 8.0') SILT (ML); some fine Sand; trace Gravel; 10YR4/4 dark medium stiff to stiff; damp; low pla	to very fine grained yellowish brown; sticity.	L10sb-075-5528-SO collected from 1.0' - 4.0' o 03/17/10 at 1415 for TAL Metals + Hg, PAHs, and Explosives.	on -	2.1'/3.0'		
4	ML				L10sb-075-5529-SO collected from 4.0' - 7.0' o 03/17/10 at 1420 for TAL Metals + Hg, PAHs, and	on	3.1'/3.0'		
6-					Explosives. L10sb-075-5530-SO collected from 7.0' - 9.0' o	on			
8-	SP		(8.0' - 9.0') SAND (SP); some Silt; Sandstone; 5Y7/3 pale yellow; der Boring terminated at 9.0 ft bgs. Be	some weathered ise; dry. drock Refusal	03/17/10 at 1423 for TAL Metals + Hg, PAHs, and Explosives.	-	2.0'/2.0'		Coordinate System: NAD 83
Boring 0.0' - for ex Samp	g bac 1.0' s plosi bles v	kfille samp ves a vere o	d with sodium bentonite chips and hydra led using a 3" hand auger and triangular is presented in Section 4.5.2.1.1 of the F composited and homogenized for all ana	ted. subsample procedure acility-wide SAP. lyses.				L1	0sb-075

SURFACE WATER AND SEDIMENT SAMPLES

RVAA PBA08 RI - Surface Water	USACE - Louisville	RVA	AP 8451 State Rt. 5
and Wet Sediment Sample Log	3 Sample Team MILL St		
T. CONTRAINT INAIVIE. SAIC	s. sample ream Viike De	she	ET 1 OF 1
4. LOCATION ID: LI 1 1 Colomba	5. Cordinates Recorded:	societan 1	·····
5. Surface Water Equipment Used:		<u></u>	
6. Sample ID and Time	7. Dupe ID (if needed)		······································
11-10-50- N/11-100	e ter	MIF	
8. MS/MSD ID (if needed)	9. Split ID (if needed)	A A	
10. Wet Sediment Equipment Used:		NVA	(tor)
11. Sample ID	12. Dupe ID (if needed)	amposit / (meg (	1003 )
LLIUSA-094-5531-5D	N/A		<u></u>
I3. MS/MSD ID/(if needed)	14. Split ID (if needed)		
Veather Conditions: $P_{c}(10,22,25)$	Activities	in the Area A A A	
OCATION SKETCH/COMMENTS		SCALE: None	
Peril loose, moist, low plasticit ingterial present.	n) costs & orge	ης 	
	24	RO	001
	9		
		1	
		1 10 mui-	MAG
	in ten an	- Lihum-	yuru
		ael	
V B		28	
- 1001 5	••••••••••••••••••••••••••••••••••••••	121	· · · · · · · · · · · · · · · · · · ·
V LIDS2-094		DS/	nię i za się posie i sania na na sie na s Na sie na sie n
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Ditch	toh	IL	
2800 29			
SURFACE WATER ANALYSES: EXPLOSIVES TAL METAL FULL SUITE (VOCs, SVOCs, Me	S SVOCs OTHER	sticides, PCBs)	
WET SEDIMENT	tais, Explosives, Propellants, Pe		
	tais, Explosives, Fropeliants, Pe		
ANALYSES: EXPLOSIVES TAL METAL FULL SUITE (VOCs, SVOCs, Me	S SVOCs OTHER	sticides, PCBs)	
ANALYSES: EXPLOSIVES TAL METAL FULL SUITE (VOCs, SVOCs, Me AL. A. N. A. J. A. J. D. D. D.	S SVOCs OTHER stals, Explosives, Propellants, Pe	sticides, PCBs)	
ANALYSES: EXPLOSIVES TAL METAL FULL SUITE (VOCs, SVOCs, Me Recorded By: (Signature and Date)	S SVOCs OTHER tals, Explosives, Propellants, Pe als, Explosives, Propellants, Pe C Checked by:	sticides, PCBs)	

<u> Zair</u>	RVAAP	Courte a NA				
		- Surrace vv	ater & w	et Sediment	Field Form	
From Spinger to Salutions	USACE - L	ouisville	RVAAP	8451 State Rt 5	1. Sample Team: Px	AN LAIRING
From ocience to oblutions	RVAAP PE	A 2008 RI	Ravenna	a, OH 44266	EMINI C.	March a comment
2. Location ID:	 		I	3. Revised Coordinate	es Recorded:	
LIUSI	0-094			-		
i. Surface Water Sample ID:	MIL 5	525-SN		5. Date and Time:	1200	
	5-444-5				10; 1340	
. Dape id (ii necaca).				1. Opin ID (il Needed)		
3. Surface Water Sample Type a	ind Equipment U	sed: NAME LA	000	I		O MEMED: A VO
0. Wet Sediment Sample ID:	0.1			11. Date and Time:		[9. MS/MSD: NC
·Liest	5-049-	5531-5D (	see theid.	Taken o	n @2/18/2010	1645
2. Dupe ID (if needed):	and the second secon			13. Split ID (if needed)		,
4. Wet Sediment Sample Type :	and Equipment I	lsed.				1
6. Weather Conditions: 111 C	East			17 Activities in the Arr	a DONE	15. MS/MSD:
	T, SUNT	M, LIGHT L	CIMID		<u> </u>	
OCATION SKETCH/CO	MMENTS				SCALE:	None
11/200		1.0	$\mu$ 1 (	peon	Q ^Q	
X per ( Frentie		LIOSUS	· · · · · · · · · · · · · · · · · · ·			
K ARU ( FRINCE		box y		× 110 1	TEACE X	
A per ( Frenche		ber y		<u>×110</u>	TEALLY X	
FUNCE FUNCE FUNCE FUNCE FUNCE	MENTS	READING	UNITS	SERIAL NO.		AST CALIB.
FIELD MEASURE TEMPERA	MENTS TURE:	READING 3,5	UNITS °C	SERIAL NO.		AST CALIB.
FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE FUNCE	MENTS TURE: pH:	READING 3.5 5.35	UNITS °C S.U	SERIAL NO.	ENCE X L 03-	AST CALIB. - <u>φ</u> 9 - <u>201φ</u>
FIELD MEASURE TEMPERA CONDUCT	MENTS ITURE: pH: TIVITY:	READING 3.5 5.35 0.11 12	UNITS °C S.U mS/cm	SERIAL NO.	ENCE X L/	AST CALIB. Φ9 - 2010
FIELD MEASURE TEMPERA CONDUCT	MENTS TURE: pH: TIVITY: DO:	READING 3.5 5.35 0.11 lp 13.94	UNITS °C S.U mS/cm mg/L	SERIAL NO.	EALE X L, 03-	AST CALIB. 09 - 2014
FIELD MEASURE TEMPERA CONDUCT TURB	MENTS TURE: pH: TIVITY: DO: SIDITY:	READING 3,5 5.35 0,116 13,94 9.0	UNITS °C S.U mS/cm mg/L NTU		EN(E X L) 03-	AST CALIB. Φ9 - 201Φ
FIELD MEASURE TEMPERA CONDUCT	MENTS TURE: pH: TIVITY: DO: BIDITY:	READING 3.5 5.35 0.116 13.94 9.0	UNITS °C S.U mS/cm mg/L NTU		ENCE X Li 03-	AST CALIB.
		READING 3.5 5.35 9.11 (p 13, 24 9.0	UNITS °C S.U mS/cm mg/L NTU		ENCE X 03-	AST CALIB. 09 - 2014
	MENTS TURE: pH: TIVITY: DO: BIDITY: EXPLOSIVES ULL SUITE (1) XPLOSIVES	READING         3.5         5.35         0.11 lp         13.94         8.0	UNITS °C S.U mS/cm mg/L NTU	SERIAL NO. (DII(Q) (DII(Q) ) CCs OTHER sives, Propellants,	Pesticides, PCBs)	AST CALIB. 09 - 201Ψ
	MENTS TURE: pH: TIVITY: DO: BIDITY: EXPLOSIVES ULL SUITE (1) XPLOSIVES ULL SUITE (1)	READING         3.5         5.35         0.11 (p         13, 94         9.0	UNITS °C S.U mS/cm mg/L NTU ALS SVC letals, Explos	SERIAL NO. (D\\(Q) CS OTHER_ sives, Propellants, Sives, Propellants,	Pesticides, PCBs)	AST CALIB. 09 - 2010
FIELD MEASURE TEMPERA CONDUCT TURB OTHER SURFACE WATER NALYSES: E FI VET SEDIMENT NALYSES: E FI Recorded By:	MENTS TURE: pH: TIVITY: DO: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SIDITY: SI	READING 3.5 5.35 0.11 lp 13.94 9.0 TAL META VOCS, SVOCS, M UTAL META VOCS, SVOCS, M MARINE Date	UNITS °C S.U mS/cm mg/L NTU ALS SVC letals, Explose ALS SVC etals, Explose ALS Checked	SERIAL NO. (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(Q) (D))(	En C x	AST CALIB. 09 - 2010 5/5/10

Pa	2	of 2
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	S	AMPLE LO	OG SHEET	
ROJECT NAME: RVA	AP PBA08 F	RI	PROJECT NO:	172819.00.09456.00.9200.02
AMPLING LOCATION: <u>L</u>	1\$SW-\$9		DATE COLLECTED	(MM/DD/YY): <u>/://///p</u>
	·			TIME:
AMPLE TEAM: <u>Strue</u>	VISOCKY,	SARA HU	se	
EATHER: SUNNY, 35°	F	A	CTIVITIES IN ARE	A: JUBSURFACE SAMPLINE
				UPSTREAM
ELD OBSERVATIONS (i.e.	Water color, or	dor, flow)		
10 0200 -LOW.	TOTAL	CRASS	AND LEAVES	ON STREAMBED.
U UUUN, at pells	W/30 - 5U			
		SH		
		£		***
	D-SW-Q	1dl		
	- <u>-</u>	<u> </u>		
FIELD MEASUREMENTS	READING	UNITS	SERIAL NO.	LAST CALIB.
	4 19	1°C		
TEMPERATURE:	7. 05	+~	15560	Ø3/16/1\$
TEMPERATURE:	7.03	S.U	15564	\$3/16/1\$
TEMPERATURE: pH: CONDUCTIVITY: ••••	7.03 6.55 37 p.083 w	S.U mS/cm	15564	\$3/1L/1\$
TEMPERATURE: pH: CONDUCTIVITY: •••• DO: TURBIDITY:	7. ØS 6.55 37 <del>p.083 x</del> 6.71	S.U mS/cm mg/L	15564	\$3/1L/1\$
TEMPERATURE: pH: CONDUCTIVITY: ••• DO: TURBIDITY: OTHER	7. Ø3 6.55 37 <del>J. Ø83 "</del> 6.71 11.5	S.U mS/cm mg/L NTU	15564	\$3/1L/1\$
TEMPERATURE: pH: CONDUCTIVITY: •••• DO: TURBIDITY: OTHER	7. Ø3 6. 55 31 <del>p. Ø8 3 x</del> 6. 71 11. 5	S.U mS/cm mg/L NTU	15564	\$3/1L/1\$
TEMPERATURE: pH: CONDUCTIVITY: •••• DO: TURBIDITY: OTHER	7. Ø3 6.55 31 <del>p. Ø83 "</del> 6.71 11.5	S.U mS/cm mg/L NTU	15564	\$3/16/1¢
TEMPERATURE: pH: CONDUCTIVITY: •••• DO: TURBIDITY: OTHER	7. ØS 6.55 31 <del>p.083 x</del> 6.71 11. 5	S.U mS/cm mg/L NTU	15564	\$3/16/1\$
TEMPERATURE: pH: CONDUCTIVITY: •••• DO: TURBIDITY: OTHER	7. Ø3 6. 55 31 <del>p. Ø8 3 x</del> 6. 71 11. 5	S.U mS/cm mg/L NTU	15564	\$3/1L/1\$
TEMPERATURE: pH: CONDUCTIVITY: •••• DO: TURBIDITY: OTHER	7. Ø3 6. 55 31 <del>p. Ø83 "</del> 6. 71 11. 5	S.U mS/cm mg/L NTU	15564	
TEMPERATURE: pH: CONDUCTIVITY: •••• DO: TURBIDITY: OTHER	7. ØS 6.55 31 <del>p.083</del> 6.71 11.5	S.U mS/cm mg/L NTU	15564	
TEMPERATURE: pH: CONDUCTIVITY: •••• DO: TURBIDITY: OTHER	7. ØS 6. 55 51 <del>p. Ø8 3 x</del> 6. 71 11. 5	S.U mS/cm mg/L NTU	15564	
TEMPERATURE: pH: CONDUCTIVITY: •••• DO: TURBIDITY: OTHER	7. ØS 6. 55 31 <del>p. Ø83 "</del> 6. 71 11. 5	S.U mS/cm mg/L NTU	15564	\$3/1L/1\$
TEMPERATURE: pH: CONDUCTIVITY: •••• DO: TURBIDITY: OTHER:	7. Ø3 6. 55 31 <del>p. Ø8 3 v</del> 6. 71 11. 5	S.U mS/cm mg/L NTU	1556¢ 15559	\$ Unil 2/11/11/11
CONDUCTIVITY:	7. Ø3 6. 55 31 <del>p. Ø8 3 x</del> 6. 71 11. 5	S.U mS/cm mg/L NTU	2556¢ 15559 15559	\$3/16/14
TEMPERATURE:         pH:         CONDUCTIVITY:         DO:         TURBIDITY:         OTHER	7. Ø3 6. 55 31 <del>p. Ø8 3 v</del> 6. 71 11. 5	S.U mS/cm mg/L NTU	1556¢ 15559 15559 QC Checked by:	\$7/16/14 July 3/16/10 (Signature)
TEMPERATURE:         pH:         CONDUCTIVITY:         DO:         TURBIDITY:         OTHER         :orded By:	$7. \varphi_{3}$ 6.55 $7 \varphi_{-} \varphi_{5} g_{3}$ 6.71 11.5 11.5 $V_{13.e}$ ture)	S.U mS/cm mg/L NTU	2556¢	\$ 1/1 / 1 \$

RVAA PBA08 RI - Surface Water	USACE - 2. PROJEC	Louisvill T: RVAAP	e PBA 2008	RI			RVAAP Ravenna	8451 a, OH	State 4426	Rt. 5 6
1. COMPANY NAME: SAIC	3. Sample T	eam Q			5					
		KU	AN LA	FURIC	14		SHEET	1	OF	2
4. LOCATION ID: FILC - 1-1 102	EMIU	5. Cordinat	WNIN es Recorde	<u>PittAr</u> ed:	n					
5. Surface Water Equipment Used:		SAMDI E	TVDE	0.0	00					
6. Sample ID and Time		7. Dupe ID	(if needed	) ene	HB					
FWSSW-102-5010-5W; 0945	5	- D upo iD	(111000000	N	ð					
8. MS/MSD ID (if needed)	ę	9. Split ID (	if needed)	20	5					
10. Wet Sediment Equipment Used: WAND PVSH PPOBE		SAMPLE	TYPE:	CO	mpos	ME.	except	V0	Cs.	
11. Sample ID FWSSD - 192 - 5011 - SD - 0945	1	12. Dupe IE	) (if neede	d) NO		,	F			
13. MS/MSD ID (if needed)	1	I4. Split ID	(if needed I	) NO						
Weather Conditions: OVERCAST, SNOWY 116HT1	WIND 7.	70 F	Activ	vities in th	ne Area	NON	)E			
LOCATION SKETCH/COMMENTS			,	j	sc	ALE:	None			
<u> </u>		: 1	5	1		1 1	1 1	5 3		1
										. 4
Field Notes: VERY WOODED AREA. LOCA	FILCON 1.	SAO	2000	WH	4					N
IN OFF THE ROAD SUCHAGE WATE	R COLLE	CTED	BYH	and	• • • • • • • • • • • • • • • • • • • •					- F -
CLEARED away ~ 2' OF SNOW a	ind Bre	DICE	ICE 1	WITH	-					<b></b>
HAMMER USED A MAND PUSH PRO	BE TO	COLU	ECT S	EDIN	1ENT	· · · · · · · · · · · · · · · · · · ·				
THE WET SEDIMENT WAS MOSTLY CUP	ty (ci);	som	e siau	nd au	nd					
trace amounts of silt. Yellowish	BROWN	IOYK	5/61	NITH	DAEN	C				
ARAY 10 YR 4/1 mottling. Soft to medium	n stiff	mois	st to	wet	•					
Iow plasticity, and trace organics	, (decov	in posi	ngle	aves)	1		ands			
, J'			0			V	wus			
		~								
		BAN	C						·····	
etron M			$\sim$				***			
SHEWI	a samp	10		$\sum$						
	) locat	ion		$\langle$						
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WOOds						····· f; ····	····			····\$
						1				
ANALYSES: EXPLOSIVES TAL METAL X FULL SUITE (VOCs, SVOCs, Me	_S 🗌 SVO etals, Explos	Cs 🗌	OTHER opellants	, Pesti	cides, P	CBs)				
WET SEDIMENT										
ANALYSES: EXPLOSIVES TAL METAL FULL SUITE (VOCs, SVOCs, Me	₋S □ SVO atals, Explos	Cs 🔲 ives, Pro	OTHER opellants	, Pestic	cides, P	CBs)				
			~	a			i.l.			
(Satisfier and Date)	QC Checked	d by:	F	D		2/	IFILA			
(Signature and Date)) 2/117-12/010				(Sign	ature ar	nd Date	)			

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PLO: 20FZ

	SA	AMPLE LO	OG SHEET	
PROJECT NAME: RVAA	P PBA08 F	RI	PROJECT NO	: 172819.00.09456.00.9200.02.200
SAMPLING LOCATION: Fru SAMPLE TEAM: $\overline{(141)}$ WEATHER: $40^{\circ} \overrightarrow{F}$ , $CL$	J SW - Je Laurich .0087	MIKE A	DATE COLLECTED	(MM/DD/YY): <u>3/15/10</u> TIME: <u>1645</u>
FIELD OBSERVATIONS (i.e. ) <u>CLUMR</u> , AUG, <u>M</u>	Nater color, oo pい んつ	dor, flow) Obok	: נ	л. ЧС
	1 31	15/14		
PHOTOGRAPH ID(S):	14	111 700		
	IEMP	41.361		
FIELD MEASUREMENTS	READING	UNITS	SERIAL NO.	LAST CALIB.
FIELD MEASUREMENTS TEMPERATURE:	READING	91.367 UNITS °C	SERIAL NO.	LAST CALIB.
FIELD MEASUREMENTS TEMPERATURE: pH:	READING	<b>UNITS</b> °C S.U	SERIAL NO.	LAST CALIB. S/15/14
FIELD MEASUREMENTS TEMPERATURE: pH: CONDUCTIVITY:	1644 READING 7.26 Ø.\$94	<b>UNITS</b> °C S.U mS/cm	SERIAL NO.	LAST CALIB. S/15/14
FIELD MEASUREMENTS TEMPERATURE: pH: CONDUCTIVITY: DO:	1EMP READING 7.26 Ø.\$94 12.26	UNITS °C S.U mS/cm mg/L	SERIAL NO.	LAST CALIB. 3/15/14
FIELD MEASUREMENTS TEMPERATURE: pH: CONDUCTIVITY: DO: TURBIDITY:	12.26 6.42	UNITS °C S.U mS/cm mg/L NTU	SERIAL NO.	LAST CALIB. 3/15/14 3/15/14
FIELD MEASUREMENTS TEMPERATURE: pH: CONDUCTIVITY: DO: TURBIDITY: OTHER:	1EMP READING 7.26 Ø.\$94 12.26 6.42	UNITS °C S.U mS/cm mg/L NTU	SERIAL NO. 15556 15557 NA QU	LAST CALIB. 3/15/14 3/15/14

Asbestos Visual Inspection Report

	ASBESTOS VISU	JAL INSPECTION REPORT
AREA OF C	ONCERN: LOAD LINE 10	
DATE INSPE	ECTED (MM/DD/YY): 10/05/	11 TIME: 1145-1300
FIELD OBSE approximate	ERVATIONS ~ description of ACM id location of ACM. If no ACM is identif	entified found (if any), initial determination if ACM is friable, fied at the AOC, please note in this section:
No UIS	ible discernible suspe	ect asbestos containing material
observe	A. No indication at a	aspestos burial.
Heavy	schrubs, grass, and veg	etation throughout area abscurre
Visible	inspection of the co	nual Example reads build is
		conte, romer rous, buriaings,
walk-w	vays particuly to comp	pletely overgraun,
<u> </u>	vays particuly to comp	pletely overgraun,
walk-w	vays particuly to comp	pletery overgraun.
NITIAL CORI	RECT LINE(S)	pletery overgraws,
NITIAL CORI	RECT LINE(S)	INSPECTION OF LOCATIONS BELIEVED TO POTENTIALLY
NITIAL CORI	RECT LINE(S) I HAVE PERFORMED A VISUAL HAVE ASBESTOS CONTAINING	INSPECTION OF LOCATIONS BELIEVED TO POTENTIALLY MATERIAL WITHIN THE AREA OF CONCERN. IN THOSE
NITIAL CORI	RECT LINE(S) I HAVE PERFORMED A VISUAL HAVE ASBESTOS CONTAINING LOCATIONS, THERE WAS NO VI	INSPECTION OF LOCATIONS BELIEVED TO POTENTIALLY MATERIAL WITHIN THE AREA OF CONCERN. IN THOSE ISABLY DISCERNABLE ASBESTOS CONTAINING MATERIAL
<u>ыа I К-ш</u> INITIAL CORI	RECT LINE(S) I HAVE PERFORMED A VISUAL HAVE ASBESTOS CONTAINING LOCATIONS, THERE WAS NO VI I HAVE VISUALY INSPECTED TH	INSPECTION OF LOCATIONS BELIEVED TO POTENTIALLY MATERIAL WITHIN THE AREA OF CONCERN. IN THOSE ISABLY DISCERNABLE ASBESTOS CONTAINING MATERIAL HE RVAAP AOC AND DID NOT IDENTIFY ANY INDICATIONS
NITIAL CORI	RECT LINE(S) I HAVE PERFORMED A VISUAL HAVE ASBESTOS CONTAINING LOCATIONS, THERE WAS NO VI I HAVE VISUALY INSPECTED TH THAT ASBESTOS CONTAINING	INSPECTION OF LOCATIONS BELIEVED TO POTENTIALLY MATERIAL WITHIN THE AREA OF CONCERN. IN THOSE ISABLY DISCERNABLE ASBESTOS CONTAINING MATERIAL HE RVAAP AOC AND DID NOT IDENTIFY ANY INDICATIONS MATERIAL WAS PREVIOUSLY DISPOSED AT THE AOC.
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KRB NITIAL CORI KRB Jignature) EITH R. BICI	RECT LINE(S) I HAVE PERFORMED A VISUAL HAVE ASBESTOS CONTAINING LOCATIONS, THERE WAS NO VI I HAVE VISUALY INSPECTED TH THAT ASBESTOS CONTAINING I HAVE VISUALY INSPECTED TH ASBESTOS CONTAINING MATER R Bull KEL, CHMM, REP, CAHES	INSPECTION OF LOCATIONS BELIEVED TO POTENTIALLY MATERIAL WITHIN THE AREA OF CONCERN. IN THOSE ISABLY DISCERNABLE ASBESTOS CONTAINING MATERIAL HE RVAAP AOC AND DID NOT IDENTIFY ANY INDICATIONS MATERIAL WAS PREVIOUSLY DISPOSED AT THE AOC. HE RVAAP AOC STATED ABOVE AND IDENTIFIED THE RIAL DESCRIBED IN THE FIELD OBSERVATIONS SECTION. 
<u>KCB</u> Signature) EITH R. BICH	RECT LINE(S) I HAVE PERFORMED A VISUAL HAVE ASBESTOS CONTAINING LOCATIONS, THERE WAS NO VI I HAVE VISUALY INSPECTED TH THAT ASBESTOS CONTAINING I HAVE VISUALY INSPECTED TH ASBESTOS CONTAINING MATER R Bull KEL, CHMM, REP, CAHES ES31476	INSPECTION OF LOCATIONS BELIEVED TO POTENTIALLY MATERIAL WITHIN THE AREA OF CONCERN. IN THOSE ISABLY DISCERNABLE ASBESTOS CONTAINING MATERIAL HE RVAAP AOC AND DID NOT IDENTIFY ANY INDICATIONS MATERIAL WAS PREVIOUSLY DISPOSED AT THE AOC. HE RVAAP AOC STATED ABOVE AND IDENTIFIED THE RIAL DESCRIBED IN THE FIELD OBSERVATIONS SECTION. - 10-5.11(Date)