

Appendix A

Soil Boring Logs/Field Forms

Landfill North of Winklepeck Burning Grounds Anchor Test Area

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Location ID: _NWSb	-053 +	<u> </u>	Field	d Sampling l	Report			a Army Ammunitio zation of 14 RVAAI	
			Sa	mpling Inform	ation				
Source	Gro	undwater / Product		Surface Wa	ter /	Soi	ls) Sedimen	ts / Sludge	
Method	Bailer		Sam	ple Bottle	/	Scoop		Trowel	
	Pump		Baco	on Bomb		Bowl		Hand Auger	
					Control of the Contro	Push Probe		Plastic Liner	
Type/Construction			7			Mattocks		Ges Probe	X
Miscellaneous	Well Purg Yes - No		/			-			
Sample Collection: 1200 hrs	3			e - MI - Grab of increments taken		Location	: Plotted on Estimated	Map Staked in Field - Measured - Sur	d)
Sample Depth: 2-4 FT	(below surfac	ce) Decon: Decon:	dicated	- Each Day - Eacl	Location			*	
Field Parameters (at time of sample)		Ana	lytical	Parameters		О	ther Para	meters	/
PID / FID Readings:		VOC		TPH GRO		Corrosivity			
Background:	ppm	SVOC	V	TPH DRO		Reactivity Sulfide/Cy	anide		
4.3		Explosives	V	Chromium +6		Ignitability			
Sample:	ppm	Propellants		Nitrate					
Water Level	FT	TAL Metals	V				QA Sam	ples	
Temperature	℃	Pesticides/PCBs	<u> </u>			MS/MSD	Yes / No		NA
Sp. Conductance:	uMHOs	Cyanides				Duplicate ID			NA
pH ²	units	TOC				Equipment Rinse ID			NA.
Turbidity	N.T.U.	Grain Size			I appearance and a second	Trip Blank ID		<u> </u>	VA
 	Sampl	e Description			Split Sample		Sample		/
No oder,	some de	sen stoin	<u>,~&</u>		Name:				
10 y R 3/c+	2.1hz	clay Ch.			Agency/Com Address:	рапу:	100		
((R & 6))	i Wi	5/ 1000	5/	•					
Non plantic	-, Sch	sted, no	4,2 F				/		
						vided: MS/MSD - Duplicate Same as Above - As		Field Blanks	
								100	
Soil sample description should inc	clude:								
Munsell Color Odor Staini	ng Texture	Sorting Plasticity Moi	sture						
Water sample description should i									
Color Odor Sheen Turbio				/			المحددة سيسي		_
logged By: Shallycam		(Please Print)				100	FILIS	1.1	ase Print)
Signature:	OLEGICA CONTRACTOR AND				Sign	nature:		Date: 2113	5_

HTRW DRILLING I	.OG			DET	NCT			-				•						ue nine WS k		53
I COMPANY NAME	\sim			1. DR	AL SU	CONTI	MCTOR		/	4	31							ERT :		
PROJECT RVAAP 14	•						4, 1000	ATION			L	an.	مل و	Q ;-,	W			· · · · · ·		
S NAME OF ORDLER	Leev	\					6. MAN	NTAC	Wes	DESIÓN						LT				•
* SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT			-		-	7	8. HOL	ELOCA	TION	· · · · · · ·							*******			
							9. SURJ	ACE E	LEVATI	ON										
			· · · · · · · · · · · · · · · · · · ·			\dashv	10. DA	TE STA	ATED	α.	556		T			PLETE		<i>م</i> ذا		
12. OVERBURDEN THICKNESS					6	7	15. DE			VATER			,	····			· · · · · · · · · · · · · · · · · · ·	-	230	
13. DEPTH DRELLED INTO ROCK						7	16, DE	TH TO	WATE	L AND I	LAPSE	TIME	APTER	DRILLA	io con	OUSTE)		·	
14. TOTAL DEPTH OF HOLE	10'		•		·····	\dashv	17. 011	ŒR W	TER LI	IVEL ME	AFURE	MENTE	(IPECI	m						
IS GEOTECHNICAL SAMPLES		CHSTURBED		U	UND	-30	5 0	1	9. TOT	AL NUM	BER OF	CORE	3 0%	· · · ·	•			i		·
10. SAMPLES FOR CHEMICAL ANALYSIS		Svoc	Ţ <u>.</u>	METALS		T	OTHER			ď	næx (s	PECETY	1	OTH	GR (3P	ECTY)		I. TOTA	L COR	E,
22, DISPOSITION OF HOLE		BACKIETTED	MON	TORDIG	WELL		Onto			23. 3	CNAT							·		
LOCATION SKETCH/COMMEN	TS	·	1	-						<u> </u>		SCA	_	no						
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PROJECT RVAAP 14		******	-		<i>:</i>		i.,		·	•		<u> </u>		HOLI N	E NC	:). S	b	_ 0	53	3
ENG FORM 5056-R, AUG 9	4																	CEC		

HT	RW	DRILLING LOG	(CONTINUATIO	N SHEET)	 		***	HOLE NUMBER	52
PROJECT	RVA	AP 14	INSPECTOR SY	ahram C	Take	cinia		SHEET SHEET	~~
ELEV.	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	,	ANALYTICAL SAMPLE NO. (f)	SEOM COUNT	R	EMARKS (h)	1
	0.0	7-P 501/ 0.2 1048 3/3 5/10 00ymith came sand a 5/14 20% 0ym 70% 0ym 70%			V	1.8,			
	2	1048 3/4 clay 80%, 514 15% sand 5%	4.3		**	2.0		;	
		104R 3/4 CL S: 1th Clay with some gray staining sit: 18; clay: 85; sand: 5%	3.0			2.0	Gren	d. "3" .	
,		10 yr 3/3 CL 31/20 Clay 5 also: 10% Clay: 80% Sand: 10% Some gray staining	3,8	The second secon		2.0	Stair	ling	
							n ganga makan kan ka ka da da maka da ga ma		
·	9 11 11 11 11 11 11 11 11 11 11 11 11 11	10483/3 chy; 70%, 50%, 50%, 50%, 50%, 50%, 50%, 50%, 5		. <u>/</u>		5.0			
PROJECT	RUK	49 14	D = 10,			HOLE NO	D. LNW	sb-053	

(Proponent: CECW-EG)

Location ID: LNWSK)-05°	Ć+~≤' 0	Field	l Sampling R	Report	Ravenna Army Ammunition Plant Characterization of 14 RVAAP AOCs					
			Sai	mpling Informa	ition						
Source	Grou	ındwater / Product		Surface Wat	er /	Soil	Sedimen	nts / Sludge			
Method	Bailer		Sam	ole Bottle		Scoop		Trowel			
	Pump		Baco	n Bomb		Bowl		Hand Auger			
	grade and a second	· · · · · · · · · · · · · · · · · · ·				Push Probe		Plastic Liner			
Type/Construction	**			1	100	Mattocks		Georobe	X		
Miscellaneous	Well Purg Yes - No	ing Form	/								
Sample Collection: 1220 hrs				- MI - Grab	,	Location	Plotted or	Map Staked in F	ield		
Sample Depth: 2-4 FT (below surfac	ce) Decon Dec	dicated	f increments taken: Each Day - Each	Location		Estimate	d - Measured - 3	surveyeu .		
Field Parameters (at time of sample)		Ana	lytical ≤ ₹	Parameters		0	ther Para	nmeters			
PID'/FID Readings:		VOC	**	TPH GRO		Corrosivity					
Background:	ppm	(SVOC)	2	TPH DRO		Reactivity Sulfide/Cy	ranide				
0.0		Explosives	1	Chromium +6		Ignitability					
Sample: O. O	ppm	Propellants		Nitrate							
Water Level	FT	TAL Metals	V				QA Sam	ples			
Temperature	°C	Pesticides/PCBs				MS/MSD	Yes / No		NA		
Sp. Conductance:	uMHOs	Cyanides				Duplicate ID			NA		
рН	units	TOC				Equipment Rinse III			NA		
Furbidity	N.T.U.	Grain Size				Trip Blank ID			NA		
7.5 yr (+) reader, ment, so silt, 35/ clay, 60	Fe Stee	e Description	(W)\			· ID:		Field Blanks			
Soil sample description should inc Munsell Color Odor Stainin Water sample description should in	ng Texture	Sorting Plasticity Mois	ture	·							
Color Odor Sheen Turbio Logged By: Signature:		(Please Print)				wed by: ERIC nature: SISI	euis 1	Date: 2	Please Print)		

HTRW DRILLING LOC	3	DISTRICT		-	•		LIVISH 054			
I CHAPANI NAME MVM		1. DREL SUSCO	TRACTOR J	721			SHEET SHEETS			
RVAAPI	لب		4. LOCATI		Lane	L CON	<u> </u>			
NAME OF DROLER	Leen		6. MANUF	ACTURERS C	ESIGNATION OF DELL	541				
* SIZES AND TYPES OF DRALING AND SAMPLING EDUPMENT			8. HOLE LOCATION							
			9. SURFAC	B ELEVATIO	N .	<u>.</u>	<u> </u>			
			10. DATE		· · · · · · · · · · · · · · · · · · ·	II, DATE COMPLETED				
12. OVERBURDEN THICKNESS				- OG -	TEX ENCOUNTERED	11-09.	-04			
13. DEPTH DRELLED BYTO ROCK			I 6. DEPTH	TO WATER	AND ELAPSED TIME APT	ER DRELLING COMPLETED				
14. TOTAL DEPTH OF HOLE	7		1		TEL MEABURED-GENTS (SPI					
18 GEOTECHMICAL SAMPLES	DISTURBED	UNDSTU			. NUMBER OF CORE BOX	•				
10. SAMPLES FOR CHEDIGCAL ANALYSIS	≤ voc	NGTALS	OTHER (SP	1	OTHER ESPECIEYS	OTHER (SPECIFY)	21. TOTAL CORE			
22, (HISPOSITION OF HOLE			20/00/25 On Ass ras	(Ves	D. SIGNATURE OF DISP		AECOVERY .			
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LOCATION SKETCH/COMMENTS	•				SCALE					
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PROJECT RUAAP 14						HOLE NO.	0F/=			
ENG FORM 5056-R, AUG 94		····				LNW Sh	nent: CECW-E(i)			

	RW	DRILLING LOG		OITAUNITNO					HOLE NO	
CUECT	RVA	AP 12	IN	SPECTOR	Shahra		aherin	i'a	SHEET	SHEETS
ELEV. (A)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)		FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR COREBOX NO. (4)	ANALYTICAL SAMPLE NO. (8)	Kanghary Broncome	i	REMARKS (h)	
	ن ن	Jones 1 7.54R 3/1		00			1.3	·		
-		Topsoil silm clay			والمعاولة و	e en de compresse de la compre	williand and the second	STAGES SOLES AND AND SHEET IN STAFF SHEET AND	CONTROL PRINTED FOR THE WINDS AND ADDRESS.	and the second second
],]	7.5 YR 4/6						• .		
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	目	Reddish stain								
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NECT	RU	AAP 14	$\overline{\Box}$	D= 10) /	I	HOLE N	10. 15/1/1/ SI	056	÷

(Proponent: CECW-EG)

Location ID: LNWSD Date: 11-09-6		S0	Field	l Sampling I	Report			a Army Ammunition zation of 14 RVAAP	
Date.	· · · · · · · · · · · · · · · · · · ·		Sar	unlina Inform	ation				
Source	Crox	undwater / Product	Sai	mpling Inform Surface Wa		Sai	is)/ Sedimen	te / Sludge	
Method	Bailer	indwater / Froduct	Sami	ole Bottle	/	Scoop	Sedimen	Trowel	
Method	Pump			n Bomb		Bowl		Hand Auger	
	rump		Daco	n Bono		Push Probe		Plastic Liner	
Type/Construction		/		1		Mattocks		GenProbe	×
Miscellaneous	Well Purg Yes - No	ing Form	/				<u> </u>		
Sample Collection: 1330 hrs		Sample Type: Cor				Location	: Plotted or	Map Staked in Field	
Sample Depth: 2-4 FT (below surfac	te) Decon: Ded		f increments taken: - Each Day - Each			Estimate	d - Measured - Surve	eyed
Field Parameters (at time of sample)		Anal	ytical	Parameters		O	ther Para	meters	
PID / FID Readings:		VOC		TPH GRO		Corrosivity			
Background:	ppm	SVOC	1	TPH DRO		Reactivity Sulfide/Cy	anide		
(2)		Explosives	V	Chromium +6		Ignitability			
Sample: 0.0	ppm	Propellants		Nitrate					
Water Level	FT	TAL Metals	V				QA Sam	ples	
Temperature	°C	Pesticides/PCBs				MS/MSD	Yes / No	N	A
Sp. Conductance:	uMHOs	Cyanides				Duplicate ID		NA	Λ
рН	units	TOC				Equipment Risse ID		NA	١.
Turbidity	N.T.U.	Grain Size				Trip Blank ID		NA	1
Clay 60'/ NO Oday NOST; NO Soil sample description should income	silt some n pla	e Description 35/, Sance Ord Sto	42 TW	51,		ided: MS/MSD - Duplicate Same as Above - As		Field Blanks	
Munsell Color Odor Stainii	ng Texture	Sorting Plasticity Moist	ure		/				
Water sample description should i	nclude:								
Color Odor Sheen Turbio	dity			į					
Logged By: Shelingar	<u> </u>	(Please Print)			Revie	wed by: EUL	FUIS	(Please	Print)
Signature:	AND THE PROPERTY OF THE PROPER				Sign	nature: <u>Sl</u>	źh_	Date: 2/1/05	
		•							

HTRW DRILLING LO	G	DISTRICT			•			٠	HOLEST	360× 255
I COMPANY NAME		1. DRELL SUBCON		721				, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		SICETS
			4. LOCATE						<u> </u>	
I NAME OF DROLLER	lf 14 d Keen		6. MANUT	CTUNERS D	ESIGNATION O	F DRILL	lave) (Li	N	
SIZES AND TYPES OF DRELING AND SAMPLING EQUIPMENT			8. HOLE LO	CATION			54	e L	7	
			*. SURFAC	e elevation	×.					
			IO. DATES	TAKTED	~ 5 L-	"		OMPLETED		
12. OVERBURDEN THOCKNESS		****			TER ENCOUNT	TELED				
13. DEPTH DRELED DITO ROCK		· ·	16. DEPTH	TO WATER	NO BLASSO	TIME AFTE	DRELING	OMPLETED		»
14. TOTAL DEPTH OF HOLE	10		17. OTHER	WATER LEV	EL MEASUREM	ENTS (SPEC	ורייב			
IS GEOTECHNICAL SAMPLES	DISTURBED	UNDSTUR	郎	19. TOTAL	NUMBER OF C	ORE BOXE				
20. SAMPLES FOR CHEMICAL ANALYSIS	S voc	METALS	OTHER (SPI		OTHER (SP	iam	OTHER	SPECSY1	AECON	TAL CORE
22, (HSPOSITION OF HOLE		TORDNO WELL	OTHER (SH		D. SIGNATUS	E OF DISPE	CTOR			<u> </u>
LOCATION SKETCH/COMMENTS				<u>L</u>	-	SCALE:				
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PROJECT RUAAP	۸,	·	·	<u> </u>	· · · · ·	<u></u> -T	HOLE 1	NO.	<u></u>	
ENG FORM 5056-R, AUG 94	14					.3	LNW			CW-EG

HT	RW	DRILLING LOG	(0	ONTINUATION	N SHEET)			HOLE NUMBER
PROJECT	Rv	APP 14	INS	PECTOR	hram -	savoi	nia.	SHEET SHEETS
ELEV.	DEPTH (b)	DESCRIPTION OF MATERIALS	,	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO.	BLOWCOUNT Reconst	REMARKS (N)
·	Ξ	10/R 4/6	<u>a</u>	1.8			2.0	Fe029tain
	Ξ	clay 20% Ct Silt 20% Silty clay with reddish Egrey						0 9
	ئ 1111111111	staining stay		1,9			2.0	F= 0. 01.1
-		10 yr 4/6 cling 601, CL silty 35%, sand 5%, silty clay		· • •		X		1=02 Stain 3, 1'
		sand 5% sitty clay	,	₹ , ₩	· -		20	
				١,٨			2.0	
	, III	10 YR 3/3 ML Silt 60%		DA				
	8	Silt 60% Silt Clay 35% Dabay sand 5% with con Some reddish gravel	mi d	1.5			Z, O	Feozstain 7.0° gravels
		clay 60% Ch 5:1+ 25% sand 15% 5:1+7 clay	# - 1					
ROJECT	R,		0	۶/0′		<u> </u>	HOLEN	01~~ Sb-055

LNWSb-055-5b 4-6

(Proponent: CECW-EG)

Location ID:	- 056	~ \$6	Field	l Sampling I	Report				Ammunition f 14 RVAAP		
			Sa	mpling Inform	ation						
Source	Grou	indwater / Product	/	Surface Wa	ter 🗸	Śoi	ls / Sedimen	Sediments / Sludge			
Method	Bailer		Sam	ple Bottle	X	Scoop		Trowe	1		
	Pump		Bacc	n Bomb	/ -	Bowl		Hand.	Auger		
	200				1000	Push Probe		Plastic	: Liner		
Type/Construction				/		Mattocks		Gres	probe	X	
Miscellaneous	Well Purg Yes - No	ing Form									
Sample Collection: \(\lambda_{\sigma}\to\) hrs Sample Depth: \(\lambda_{\sigma}\tilde{\beta}\) FT (If MI, # c	- MI - Grab of increments taken: Each Day - Each	Location	Location	Plotted on Estimated	Map (S	Staked in Field asured - Surv	D veyed	
Field Parameters (at time of sample)		Ana	lytical	Parameters		О	ther Para	meter	s /		
PID / FID Readings:		VOC		TPH GRO		Corrosivity					
Background:	ppm	SVOC	X	TPH DRO		Reactivity Sulfide/Cy	anide				
71.S		Explosives	X	Chromium +6		Ignitability					
Sample:	ppm	Propellants		Nitrate							
Water Level	FT	TAL Metals	X				QA Sam	ples			
Temperature	°C	Pesticides/PCBs				MS/MSD	Yes / No		Q	NA)	
Sp. Conductance:	uMHOs	Cyanides				Duplicate ID	inwsb.	056	-Dup N	A	
рН	units	TOC				Equipment Rinse ID			(M)	D	
Terrbidity	N.T.U.	Grain Size				Trip Blank ID			(N	D_	
10 MR 4/6 Silt 60! maist, No.	clas		der		Name: Agency/Com Address:	Split ID: LNWSb-C TEN JENT pany: JSACE DE MARTIN U SVILLE, KY	CELPL LOUISY JTHER	-ED- ルビ 山ビ	JZ-PAZ	A A	
Soil sample description should inc Munsell Color Odor Stainin Water sample description should i Color Odor Sheen Turbio	ng Texture	Sorting Plasticity Moi	sture			ided: MS/MSD. Duplicate ame as Above : As		Field Bla	iks		
ogged By: Stahm	The second state of the se	(Please Print)				wed by: FRIC	eus L	Date		ee Print)	

Signature:

HTRW DRILLING LO	3	DISTRICT			· · · · · ·		LAWS5-056
I CIMPANY NAME		1. DREAL SUBCON	TRACTOR /	1-5-1			SHEET SHEETS
PROJECT RVAAP	Lange		4. LOCATION		Varie	Vill &	
NAME OF DRELET	Keen		6 MANUFACTUR	LERS DESIGNATI		54	17
SIZES AND TYPES OF CRELING AND SAAPUNG EQUIPMENT			8. HOLE LOCATIO	ON ·	· ,,, ·, · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·	
			. SURFACE ELE	VATION	-	·	
			10. DATE START	ED - 0	·	II. DATE COMPLETED	
12. OVERBURDEN TIGCKNESS			15. DEPTH GROU				
13. DEPTH DRELLED BYTO ROCK			16. DEPTH TO W	ATER AND ELAP	SED TIME AFTE	R DRILLING COMPLETED	
14. TOTAL DEPTH OF HOLE	10/		17. OTHER WATE	DR LEVEL MEAST	ALIMINTE (SPE	arn	
IE GEOTECHNICAL SAMPLES	DISTURBED	U UNDISTURI	BED 19.	TOTAL NUMBER	OF CORE BOXE	s .	
10. SAMPLES FOR CHEMICAL ANALYSIS	Svoc	METALS	OTHER (SPECIFY)	<u> </u>	R (SPECIFY)	OTHER (SPECIFY)	31. TOTAL CORE
22, DISPOSITION OF HOLE	BACIVELED M	ONETORING WELL	OTHER (SPECER)	2). SIGN	ATURE OF DISP	CTOR	
LOCATION SKETCH/COMMENTS			· ————————————————————————————————————		SCALE:		
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PROJECT RUAAP 14						HOLE NO.	sb-056
ENG FORM 5056-R, AUG 94							nent: CECW-EG)

			(CONTINUATIO	N SHEET)			HOLE NUMBER
PROJECT	RUA	AP 1cq	INSPECTOR Sh	alwan T	alher	inia	SHEET SHEETS
ELEV. (a)	DEPTH (a)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO.	STOM COUNT	REMARKS (h)
		7.5 YR 3/3 topsoil M Silt with comeclos 10 YR 4/6	_			1.8	
	11111111	Silty Glay w some son clay: 05% Silt+30% Ch smel: 5%		·			Feozstain
	2	said: 5%	1,7			20	
	7	104R 414	-				
•	4	10 yr 4/4 Clay go! silt go! silty can cl	1.8		*	2.0	
				. <u>.</u>	The		
	ر السالسا	10 y R 3/6 Clip: 40/, ML 5, 14 50/, ML sand 101,		-		2.0	
		wet contrated	\				
		Clay 30% ML					
	8	10100 1 1	0,5			20	
		10 yr 4/4 Silt 701 Clay 301					
PROJECT		weathered bed Te	s \0'			HOLE	10. LNW Sb-056

(Proponent: CECW-EG)

1400 - LMNSb-056-50.

4-6

		DRILLING LOG		ONTINUATION					HOLE NUMBER
PROJECT	RUL	tap 14	IN:	SPECTOR NO	doran '	Jar	erini	α .	SHEET SHEETS
ELEV. (a)	DEPTH (a)	DESCRIPTION OF MATERIALS (c)		FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (4)	ANALYTICAL SAMPLE NO.	BLOW COUNT		REMARKS (h)
		2.54R 4/1					-		
		med still to still clay go! sand 10!	•	·					
	12 III	O. 30 /		i: :				City of) - A
	=	Sand 101,					:	Stor	led /
		Silt 5"						000	12
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OVECT	RUA	AP 14 (TD	5	121			HOLEN	10. LNV	v 86-056

	-		Field	l Sampling F	Panort							
Location ID: <u>LNW3</u>	,-05	7-50	I ica	ı samhımê r	epor i			a Army Ammunition zation of 14 RVAAP				
Date:	<u> </u>		·									
			Sa	mpling Informa	tion							
Source	Grou	ındwater / Product	/	Surface Wat	er /	Soil	ls / Sedimen	ts / Sludge				
Method	Bailer		Sam	ple Böttle	\mathcal{A}_{\perp}	Scoop		Trowel				
	Pump		Bacc	n Bomb		Bowl		Hand Auger				
						Push Probe		Plastic Liner				
Type/Construction		<u> </u>				Mattocks		Cerphobe	X.			
Miscellaneous	Well Purg Yes - No	ing Form	/									
Sample Collection: 1500 hrs		Sample Type: Co	omposite	- MI - Grab of increments taken:		Location	Plotted on	Map - Staked in Field d - Measured - Surv)			
Sample Depth: FT (below surfac	ce) Decon: De	- Each Day - Each	Location		Estimated	1 - Ivicasureu - 5urv	eyeu				
Field Parameters (at time of sample)		Ana	Parameters		O	ther Para	meters					
PID / FID Readings:		VOC		TPH GRO		Corrosivity						
Background: - O. C		SVOC	X	TPH DRO		Reactivity Sulfide/Cy	vanide					
7/0-	ţ-	Explosives	X	Chromium +6		Ignitability						
Sample:	ppm	Propellants		Nitrate								
Water Level	FT	TAL Metals	X				QA Sam	QA Samples				
									I			
Temperature	℃	Pesticides/PCBs				MS/MSD	Yes / No	1	IA .			
Temperature Sp. Conductance:	°C uMHOs	Pesticides/PCBs Cyanides				MS/MSD Duplicate ID	Yes / No	N _A				
Sp. Conductance:	uMHOs units					Duplicate ID Equipment Rinse ID	Yes / No	N ₂	A A			
Sp. Conductance:	uMHOs	Cyanides			Colonia de dicinación (son porter de	Duplicate ID	Yes / No	N _A	A A			
Sp. Conductance:	uMHOs units N.T.U.	Cyanides TOC	+q		Split Sample	Duplicate ID Equipment Rinse ID Trip Blank ID Split	Yes / No Sample	N ₂	A A			
Sp. Conductance:	uMHOs units N.T.U. Sample	Cyanides TOC Grain Size Poscription	100.5		Name:	Duplicate ID Equipment Rinse ID Trip Blank ID Split		N ₂	A A			
Sp. Conductance:	uMHOs units N.T.U. Sample	Cyanides TOC Grain Size Poscription	1015		-	Duplicate ID Equipment Rinse ID Trip Blank ID Split		N ₂	A A			
Sp. Conductance:	uMHOs units N.T.U. Sample	Cyanides TOC Grain Size Poscription	TO.		Name: Agency/Con	Duplicate ID Equipment Rinse ID Trip Blank ID Split		N ₂	A A			
Sp. Conductance:	uMHOs units N.T.U. Sample	Cyanides TOC Grain Size Poscription	tar.		Name: Agency/Con Address:	Duplicate ID Equipment Rinse ID Trip Blank ID Split ID:	Sample	NA NA NA	A A			
Sp. Conductance:	uMHOs units N.T.U. Sample	Cyanides TOC Grain Size e Description	1015		Name: Agency/Con Address:	Duplicate ID Equipment Rinse ID Trip Blank ID Split	Sample Trip Blants	NA NA NA	A A			
Sp. Conductance:	uMHOs units N.T.U. Sample	Cyanides TOC Grain Size e Description	to.v		Name: Agency/Con Address:	Duplicate ID Equipment Rinse ID Trip Blank ID Split ID: ID: Ipany:	Sample Trip Blants	NA NA NA	A A			
Sp. Conductance: pH Purbidity OYR 4/c, well surfeed a/	uMHOs units N.T.U. Sample	Cyanides TOC Grain Size e Description	1015		Name: Agency/Con Address:	Duplicate ID Equipment Rinse ID Trip Blank ID Split ID: ID: Ipany:	Sample Trip Blants	NA NA NA	A A			
Sp. Conductance: pH Thrbidity Soil sample description should income.	uMHOs units N.T.U. Sample	Cyanides TOC Grain Size e Description Solvery Solv	- comp		Name: Agency/Con Address:	Duplicate ID Equipment Rinse ID Trip Blank ID Split ID: ID: Ipany:	Sample Trip Blants	NA NA NA	A A			
Sp. Conductance: pH Parbidity Soil sample description should income Munsell Color Odor Staining	uMHOs units N.T.U. Sample Gw DG Clude: clude: mg Texture	Cyanides TOC Grain Size e Description Solvery Solv	- comp	10 //	Name: Agency/Con Address:	Duplicate ID Equipment Rinse ID Trip Blank ID Split ID: ID: Apany: Addd: MS/MSD - Duplicate	Sample Trip Blants	NA NA NA	A A			
Sp. Conductance: pH Turbidity Soil sample description should incompany to the sample description should be sample description should be sample description should be sample description should be	uMHOs units N.T.U. Sample Clude: Ing Texture include:	Cyanides TOC Grain Size e Description Solvery Solv	- comp		Name: Agency/Con Address:	Duplicate ID Equipment Rinse ID Trip Blank ID Split ID: ID: Apany: Addd: MS/MSD - Duplicate	Sample Trip Blants	NA NA NA	A A			
Sp. Conductance: pH Purbidity Soil sample description should income Munsell Color Odor Staining	uMHOs units N.T.U. Sample G. G	Cyanides TOC Grain Size e Description Solvery Solv	sture		Name: Agency/Con Address: QA/QC Prov Parameters:	Duplicate ID Equipment Rinse ID Trip Blank ID Split ID: Spany: Same as Above - As	Sample Trip Blants	No.	A A			

HTRW DRILLING LO	G	DISTRUCT			,				HOLE SI	B
E COMPANY NAME	M	1. DREL SUBCON	TRACTOR	A	-57				SHEET	SHEETS
PROJECT RVA	P 14		4. LOCATION		lan	J. F.	U_j		· · · · · ·	,
NAME OF DRILLER	Leen		6 MANUFAC	TVILENS DE	O NOTTANDIE	DRILL	541	1-4		
* SZEN AND TYPE: OF HALLING AND NAADUN GOUDMENT			8. HOLE LOCA	ATION	·····		٠٠٠٠٠		<u> </u>	
			• SURFACE E	LEVATION		· · · · · · · · · · · · · · · · · · ·		-		
			IO. DATE STA	URTED C.C.	Ó	T	II, DATE COM			
12. OVERBURDEN THICKNESS	,	*****			ER ENCOUNT	DUED .	11 2 6	- q . a	7	
13. DEPTH DRILLED INTO ROCK			IS, DEPTH TO	WATER A	ND ELAPSED 1	THE AFTER	DRELING COM	PUSTED		·
4. TOTAL DEPTH OF HOLE	10/		17. OTHER W	ATER LEVE	L MEASUREM	ENTS (SPECI	m			
IS GEOTECHNICAL SAMPLES	DISTURBED	UNDISTUR	SED SED	19. TOTAL	NUMBER OF C	ONE BOXES	<u>.</u>			
10. SAMPLES FOR CHEMICAL ANALYSIS	§ voc	METALS	OTHER (SPEC		OTHER (SPE	cam	OTHER (SP	com	II. TOT	AL CORE
22, DISPOSITION OF HOLE	BACK/FLLED MO	HETORING WELL	COLVINOS OTRES (SPEC		U. SIGNATUR	LOF DISPEC	TOR	=	ــــــــــــــــــــــــــــــــــــــ	
LOCATION SKETCH/COMMENTS						CALE:				
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PAAP	14			,			HOLE NO). 'W	Sh	057
NG FORM 5056-R, AUG 94	1 1									CW-EG

		DRILLING LOG		ONTINUATIO	N SHEET)				HOLE NUMBER
OFCT (X VAI	4P 14	IN:		Wam T		~1°Q		SHEET SHEETS
ELEV. (a)	DEPTH (b)	DESCRIPTION OF MAYERIALS (c)		FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (4)	ANALYTICAL SAMPLE NO. (8	BLOW COUNT - (g)		REMARKS (h)
	0 =	18/R 3/1	16	\2			1.3		
		Silt 801, , clay 15%							
	Ţ	Salt 801, clay 15%. sand 5%. 104R 4/8 ML							
		Clay357		-			;		
	ء ا	some gravels		1.3			' '		
	2 =	some graves		/ - 2			2.0		
	\exists								
:	7 =								
							:		
	4 =			1.7	. '	*	2.0		
	Ξ				. •	1			
	=				: :				•
	5 🗄	104R 4/4							
	\exists	60's silt ML	Mana					-	
	∃	60% silt ML 70% sand 10% clay					2.0		
	$\ell \exists$	vol clay		1.4					
	Ξ	*							
	\exists	104R 4/4 M							
ŀ	7 =	20% silt ML							· ·
	=	net wet							
	E	104R 46)	e.			2		
	7 =	5:14 80/ ML					وسيطسب		
	=	cley 20%		1 - 12-					
	킄	O '			,			21 A	
	a = 1	Still 10/8 3/4	-						
	7 =	Still 10/R 3/4 SIN 30 / ML Clay 15/			<i>:</i>				
	目	Clay (\$5)	, l						
	10 =	Sand 5							
NECT	RV	AAP 14 T	7) = 10			HOLE	10, ~~	1 8b-057

(Proponent: CECW-EG)

LNWsh - 057.5h

Location ID: LMVSb	<u>-05%</u>	3-50	Field	d Sampling R	leport			na Army Ammunition ization of 14 RVAAP	
Date:	y Cir								
	T		Sar	mpling Informa					
Source	 	andwater / Product	4	Surface Wat	ier /		Sedimen		
Method	Bailer		-	ple Bottle	\mathcal{A}_{-}	Scoop		Trowel	
	Groundwater / Product Bailer Pump West Purging Form Yes - No Sample Type: FT (below surface) Decon: SVOC Explosives ppm Propellants TAL Metals C Pesticides/PCBs uMHOs Cyanides units TOC N.T.U. Grain Size Sample Description		Baco	on Bomb		Bowl		Hand Auger	
	Bailer Pump Weit Purging Form Yes - No The Stample Type: The Stample Type: Decon: Sters A A A A A A A A A A A A A					Push Probe		Plastic Liner	
Type/Construction						Mattocks		Gerprobe	X
Miscellaneous	Well Purg	ging Form							
Sample Collection: 1570 hrs	;	Sample Type: Co	omposite	e - MI - Grab of increments taken:		Location:		n Map - Staked in Field ed - Measured - Surv	
Sample Depth: FT (below surfac	ce) Decon: De	dicated	Each Day - Each	Location	——————————————————————————————————————	Edimuss	1 - Measured - par.	/eyeu
Field Parameters (at time of sample)		Ana	lytical	Parameters		O1	ther Para	meters	/
PID / FID Readings:		VOC		TPH GRO		Corrosivity			
	ppm	SVOC	X	TPH DRO		Reactivity Sulfide/Cya	anide		
1.7		Explosives	×	Chromium +6		Ignitability			
Sample:	ppm	Propellants		Nitrate					
Water Level	FT	TAL Metals	X				QA Sam	ples	
Temperature	℃	Pesticides/PCBs				MS/MSD	Yes / No	N	NA
Sp. Conductances	uMHOs	Cyanides				Duplicate ID		N.F	A
рН	units	TOC				Equipment Rinse ID		N/	A
Yurbidity	N.T.U.	Grain Size				Trip Blank ID		NA	A
Soil sample description should inc Munsell Color Odor Stainin Water sample description should it Color Odor Sheen Turbic	clude: ing Texture include:	tworic, co	~ Sc	ed		eID:		Field Blanks	
Logged By: Chahau		(Please Print))		Revie	wed by: FRG	EUUS	> (Plea	se Print)
	_					1		Date: 2 1 05	Ī

HTRW DRILLING LO)G	DISTRICT			ž	LAMSP - 026
CIMPANY NAME	\sim	1. DREL SUBCON	TRACTOR A	77		SHEET SHEETS
RVAA	914		4. LOCATION		bell	
I NAME OF DRELER	dreen		6 MANUFACTURE	RS DESIGNATION OF DRELL	54 L	
* SIZEN AND TYPES OF DRELLING AND SAMPLING EQUIPMENT			8. HOLE LOCATION	×		
			*. SUNFACE ELEV	ATION		· · · · · · · · · · · · · · · · · · ·
			10 DATE STARTE	م - مرح	11. DATE COMPLETED	_0_
12. OVERBURDEN THICKNESS		*****		DWATER ENCOUNTERED	1 (1 - 8)	
13. DEPTH DRELLED DATO ROCK			16. DEPTH TO WA	TER AND BLAPSED TIME APTE	R DRELLING COMPLETED	
14. TOTAL DEPTH OF HOLE	101		17, OTHER WATER	LIEVEL MEASUREMENTS (SPE	am	
18 DEOTECHNICAL SAMPLES	DISTURBED	UNDSTUR	BED 19.70	OTAL NUMBER OF CORE BOX	is .	
10. SAMPLES FOR CHEMICAL ANALYSIS	₹ voc	METALS	OTHER (SPECIFY)	OTHER ISPECIEVY	OTHER (SPECIEV)	11. TOTAL CORE
22 _L DISPOSITION OF HOUS	BACK/FELED MON	NETORING WELL	ONO STATE	2). SIGNATURE OF DISP	e TRA	
LOCATION SKETCH/COMMENTS				SCALE:	· · · · · · · · · · · · · · · · · · ·	
	•			SCALE:		
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IN A PROVE			-			
PROJECT RUARP 1	4	1			HOLENO. LNWSh	-058
ENG FORM 5056-R, AUG 94						nent: CECW-E(i)

HT	RW	DRILLING LOG	(CONTINUATIO	N SHEET)			HOLE NUMBER
ROJECT	RVF	IAP 14	INSPECTOR SV	whom	Tares	(inic	SHEET SHEETS
ELEV.	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (4)	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO. (8)	BLOW COUNT - tol	REMARKS (h)
		7.5483/2 M				1.0	FROZ Stain
		104R \$16					at 0.22 with
	, =	SIL 70/ ML					oxyanic
	=	day 20%					
		sand lol.				·	
	2		100			0.7	
	2 H			·		·	·
-				t.			
	J		1-7				
	4 =			·		2.0	
		1048 3/4 ML 15% Sit ML 5% Sould					
	5 3	107K 3/4 ML					
		15% dy					
		5/ saud	1.4				
	6	Safe	, i				
					·		
	=						
	7 =						•
	目	1018 11/1	_				
	3	104R 4/4 MI SILL 95%	0.6				
		clay 5'					
	=	soft	,				e e
	見る						
	' =			<i>:</i>			
	目	. :					•
OJECT	10 <u> </u>					1,151,711	_
WEU !	RVA	FAP 14	TD=	101		HOLEN	o. NW Sb-058

(Proponent: CECW-EG)

1530 LNWSD-058

4-6

[r										
Location ID:		59-50	Field	l Sampling F	Report			a Army Amm zation of 14 R		
Date: 11 - 10 - 04										
			Sar	npling Informa	ation					
Source	Grou	ındwater / Product		Surface Wat	ter	Goil	s Sedimen	ts / Sludge		
Method	Bailer		Samp	ole Bottle		Scoop		Trowel		
	Pump	State of the state	Baco	n Bomb		Bowl		Hand Auger		
		- Andrewson Property Control of the				Push Probe		Plastic Liner	r	
Type/Construction	d					Mattocks		George	she	X
Miscellaneous	Well Purg Yes - No	ing Form	7							
Sample Collection: 0400 hrs		Sample Type: Con		- MI - Grab f increments taken:		Location		Map Staked		ved
Sample Depth: 4-6 /FT	below surfac		Estimated	1 - Mcasarca	i - Sarves	you				
Field Parameters (at time of sample)		Anal	ytical	Parameters		О	ther Para	meters		/
PID / FID Readings:		VOC	,	TPH GRO		Corrosivity				
Background:	ppm	SVOC	1	TPH DRO		Reactivity Sulfide/Cy	anide/			
1,6		Explosives	V	Chromium +6		Ignitability				
Sample:	ppm	Propellants		Nitrate						
Water Level	FT	TAL Metals	V				QA Sam	ples		
Temperature	°C	Pesticides/PCBs				MS/MSD	Yes / No		NA	.
Sp. Conductance:	uMHOs	Cyanides				Duplicate ID			NA.	
рН	units	тос				Equipment Rinse ID			NA	
Turbidity	N.T.U.	Grain Size		·		Trip Blank ID			NA	
104R C+/3	Sample 7 VQ	e Description	940	July J	Split Sample		Sample		/	
- MOIST TO	meter	, non plan	1		Name: Agency/Com	ipany:			_	
2000	V ASS	and 211	1		Address:			/-		
						200 St. 12 1 2 2 3 1 2 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3				
		•				v ided: MS/MSD - Duplicate Same as Above — A		Field Blanks		
					Tarameters		Linite	3.5		
Soil sample description should in	clude:									
Munsell Color Odor Staini	ng Texture	Sorting Plasticity Moiss	ture		/					
Water sample description should	include:									
Color Odor Sheen Turbi	dity					• 777				
Logged By: Shall ro	ens 1	Www (Please Print)			Revie	wed by:	FEUL	S	(Please I	Print)
Signature:		andre to the state of the state			Sign	nature:	la	Date: _2	1/05	<u>, </u>

HTRW DRILLING LO	G	DISTRICT		•		HOUE STABLEK
I CHAPAN' NAME MKM		1. DREL SUBCON	TRACTOR AST			SHEET SHEETS
I PRIJECT RVAPP 12	T		4. LOCATION	Land f	U.	
I NAME OF DROLLER Ted 1	ceen		6. MANUFACTURERS (DESIGNATION OF DREAL	54 1	$ \overline{} $
* SIZES AND TYPES OF DRILLING AND SALDUNG BOURMENT			8. HOLE LOCATION	. , , , , , , , , , , , , , , , , , , ,	· · · · · · · · · · · · · · · · · · ·	
			. SURFACE ELEVATIO	Ň		
			10. DATE STARTED	.	II. DATE COMPLETED	
12. OVERBURDEN THICKNESS			13. DEPTH GROUNDW		1-10	
13. DEPTH DRELED BITO ROCK		· · · · · · · · · · · · · · · · · · ·	16, DEPTH TO WATER	AND BLAPSED TIME AFTER	L DRELLING COMPLETED	
14. TOTAL DEPTH OF HOLE	10'		17. OTHER WATER LET	/EL MEASURADARNTS (SPEC	277 1	
IS DEOTECHNICAL SAMPLES	DISTURBED	UNDSTAR	BED 19 TOTA	L NUMBER OF CORE BOXES	•	
10. SAMPLES FOR CHOOGCAL ANALYSIS	∫ voc	METALS	OTHER (SPECIFY)	OTHER (SPECIPY)	OTHER (SPECIFY)	11: YOTAL CORE
22_CHSPOSITION OF HOLE	BACKUFLLED MON	STORDIG WELL	emples ives	2). SIGNATURE OF DISPE	CTOR	
LOCATION SKETCH/COMMENTS				SCALE:		
				SCALE.		
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PROJECT ARP 1CT			·		HOLENO.	054
ENG FORM 5056-R, AUG 94				<u> </u>		nent: CECW-EG)

HT	RW	DRILLING LOG	(CONTINUATIO	N SHEET)			HOLE NUMBER
PROJECT	RV	APP 14	INSPECTOR S	hahram	Tah	erin;	
ELEV. (A)	DEPTH (b)	Description of Materials (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO.	Remodelies	REMARKS (h)
	9O =	MYR 4/6 monst Silt \$0% clango!	1.2			1.8	
		514 70%, clay201 ML cond 101 ML 1048 414	_			1.0	
	٦ =	1048 4/4					·
		sile 80%, clay 10%.					
		ronder, restaining					
	2=		1.2			1.8	
		104R 4K4 ML	~	·		·	
		sand 51, 5:14 60%					metsilt
	3 =	clay 35% very met		·			2,2
•	目	vero visi		:			
	, 🗦	104R4/3 ML		ижетриялык кальна тулкорогия цер уулгастопровалын ад	W Ze	<u></u> , 2	
	43	Sill 85% clays	1.00		N.	4,0	
	킄	10484/3 ML Sill 85% clays sand met		. -			,
	5=	, we collect					
.	∄	· `					
	目					}	
	6 =		1,1	-		08	
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	_ =						
	7 =						·
	=	2020 1					·
	g \exists	104R 4/4 Drey Stiff Silt 80%	1,2			0.8	
	"]	sand loil, clayloi					
	딀	with some stay					7 A
		meathered socks					
				·			
	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	. r		·			
ROJECT	107	1/4-00				HOLEN	0
	······································	PAPP 14	TD=1	D'		HOLEN	2NW5b-059

Location ID: NWSD	-06	0	Field	l Sampling I	Report	Ravenna Army Ammunition Plan Characterization of 14 RVAAP AOC							
			Sai	mpling Inform	ation								
Source	Gro	indwater / Product		Surface Wa		Çoil	s Sedimen	its / Sludge					
Method	Bailer		Samp	ole Bottle	\mathcal{M}	Scoop		Trowel					
	Pump		Baco	n Bomb		Bowl		Hand Auger					
						Push Probe		Plastic Liner					
Type/Construction		1, 11 11 11 11 11 11 11 11 11 11 11 11 1				Mattocks		Geo Prohe	X				
Miscellaneous	Well Purg	ing Form				September 1							
Sample Collection: 9970 hrs	77.03 - 110	Sample Type: Con				Location:	Plotted on	Map Staked in Field	5				
Sample Depth: 6 FT (1	below surfac	re) Decon: Dec		f increments taken: - Each Day - Each	Location		Estimate	d - Measured - Surv	eyed				
Field Parameters (at time of sample)		Anal	ytical	Parameters		O	ther Para	nmeters					
PID / FID Readings:		VOC		TPH GRO		Corrosivity							
Background: 0.0	ppm	SVOC	~	TPH DRO		Reactivity Sulfide/Cy	anide						
0.9		Explosives	V	Chromium +6		Ignitability							
Sample:	ppm	Propellants		Nitrate									
Water Level	FT	TAL Metals	V			QA Samples							
Temperature	°C	Pesticides/PCBs				MS/MSD	Yes / No	N	Α				
Sp. Conductance:	uMHOs	Cyanides		_		Duplicate ID		N.A	١				
рН	units	TOC				Equipment Rinse 1D		NA	\				
Turbidity	N.T.U.	Grain Size				Trip Blank ID		NA	١				
Soil sample description should incident the Munsell Color Odor Staining Water sample description should in Color Odor Sheen Turbid	Jen Solution (1997) Jen Solut	Sorting Plasticity Moist	ian	ed d 101,	Parameters:	PiD: pauy: ided: MS/MSD Duplicate - Same as Above - As	Listed						
Logged By: Shall Tam T	inheri	(Please Print)		· · · · · · · · · · · · · · · · · · ·		wed by: ERIC nature:	n Elu	Date: 2 i o	Print)				

HTRW DRILLING LOG ONDAN' NAME RVAPP K NAME OF DRILLER TECH KEEN									DET	NCT				-			, 						E MA	001% 50	Ĺ		
											2. DR	at size	CONT	ACTOR											द्धाः	SHEET	
I PROJECT			Rν	A1	PP	14					<u> </u>		Ť	4. 100/	MON		1	a. a	el	10	Λ			<u> </u>	OF		
1 NAME OF	CHALLER		<u>-\'</u>	= C		V	e e	~	•		-, -		\dashv	6. MAN	UFAC	WERS!							· · · · · · · · · · · · · · · · · · ·	۸	_		 -
* SIZES AND AND SAMPU	TYPES O	F CHL	LINI				<u> </u>							8. HOLE	Loca	TION					54 25						
•						,					9. SURFACE ELEVATION																
-													4	IO. DA	E ST	ATED				- T			PLETE				
12. OVERBUR	KOEN THE	CKMK	ss								<u>.</u>	*5	7			O			TEUED		11.	<u>- 1</u>	<u>></u> -	- OX	*		
D. DEPTH DI	RELLET) D	ITO RO	ocr.						·				_			WATER					DRILL	G COM	PLETE)		·	
14. TOTAL D					·			· .			 	·.	\dashv														
IS GEOTECH							<u> </u>) /		UNDISTUR				17. OTHER WATER LE													
10. SAMPLES				Vele		1	<u>ر</u> ۷			METALS UNDISTUR				OTHER		19. TOTA											
· · · · · · · · · · · · · · · · · · ·				. 1 343		\pm	ı	/			·/	5	Nin	ं दिए	ves	OTHER (SPECIFY) 23. SIGNATURE OF PHE					ER (#P	ICB 1)	<u> </u>	ECOVE	AL COR RY	•	
22, DISPOSITION OF HOLE BACKPELED								MONE	TORDIC	WELL	+	OTHER	(SPEC)	PY)	23. 3	ONATE		WEPEC.			2						
LOCATIO	on sk	ETC	H/CC	MM	ENTS	1		,									-		SCA	LE:						,	
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	•••••												••••	}			•••••	•••••									
PROJECT QVADP								ئـــــــ			<u>. </u>	<u> </u>			HOL.			·	•	<u>. </u>	<u>. </u>						
	PROJECT RVAPP 14															.1		N		b-0							
ENG FO	FORM 5056-R, AUG 94																				(1	cono,	nent	CEC	.W-I	$\Xi(G)$	

	RW	DRILLING LOG	(CONTINUATIO				HOLE NUMBER
ROJECT	RUA	AP 14	INSPECTOR SIL	shraw '	Tan	nkini,c	
ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO. (4)	ANALYTICAL SAMPLENO. (8	BLOW COUNT REMOVES	REMARKS
	0,0	top soil	0.5	15		1.3	
	=	sand soi ML					
	│, ∃	silt 50% clay 101					
	E'	10 YR 4/4 ML sand 40% silt 50% clay 10! Sandy 8ilt					
	=	U				1	
	2 =		0.9			. 0	
			\	·		1.8	
	=	10110 5/1	-				·
	g E	Silt 70%					Fé Os enix
	目	Clay 25%, Sand 51 grey viens	·				Feozpain at 2,9'
		Sand 51					<u> </u>
	ノヨ	other viens	0,7			2.0	
	4 3	10 YR 4/6 ML					
	\exists	sandy riff wet		. •			
	E	Sandy sitt wet sand cto!, wet.					
	7 =	10488/4 ML	_			, ,	
	\exists	maist ML					
	43	maist Silt F5/ Sand 10/	0,9	*			ner siltat
	Ĭ	day 151	1	()			6.5
	=	0		٠			
	ユヨ			· .			
	=						·
	\exists						
	8 =	7 lo	0.4			20	
	Ĭ	4.5 MR 3/2 CL	`				
	目	cley to 1.			·		of A
	q =	5:14 40%					
	· =	with Some sand		<i>:</i>			
	目	. 1					•
	10 7	0.44.4		· ,	·		
OJECT	X X	WAAP 14	10=1	0'		HOLEN	CANSD-060

											
Location ID: CNWSE	- 061	<u>- So</u>	Field	l Sampling I	Report		Ravenna Army Ammunition Plant Characterization of 14 RVAAP AOCs				
Date:	24										
	,		Sai	mpling Informa	ation						
Source	Gro	ındwater / Product	,	Surface Wa	ter /	Soils Sediments / Sludge					
Method	Bailer		Sam	ole Bottle	$\langle a_i a_i \rangle$	Scoop		Trowel	I		
		Bacon Bomb			Bowl		Hand A	Auger			
			/		Push Probe		Plastic	Liner			
Type/Construction	,		,	/		Mattocks		Ges	Probe	X	
Miscellaneous	Well Purg Yes - No	ing Form									
Sample Collection: 1000 hrs		Sample Type: Co				Location:	Plotted o	n Map (Ş	taked in Field))	
Sample Depth: FT ((below surfac			of increments taken: - Each Day - Each	Location		Estimate	a - Mea	isured - Surve	;yeu	
Field Parameters (at time of sample)		Anal	ytical	Parameters		Ot	her Par	ameters			
PID / FID Readings:		VOC		TPH GRO		Corrosivity					
Background:	ppm	SVOC	1	TPH DRO		Reactivity Sulfide/Cy					
0.0		Explosives	V	Chromium +6		Ignitability					
Sample: (). ()	ppm	Propellants		Nitrate							
Water Level	FT	TAL Metals	V		·		QA San	ıples			
Temperature	°C	Pesticides/PCBs				MS/MSD	Yes / No	0	N.	Α	
Sp. Conductance;	uMHOs	Cyanides				Duplicate ID			NA		
рН	units	TOC				Equipment Ripse ID			NA		
Turbidity	N.T.Ü.	Grain Size				Trip Blank ID			NA		
10 VR 416 moist 2 50f SIN 75%, Sound 10%,	Sample C	e Description VO Odex The ANOC	φ(o stain's	Split Sample Name: Agency/Con Address:	ID:	Sample				
Soil sample description should inc Munsell Color Odor Stainin Water sample description should i Color Odor Sheen Turbio	ng Texture include:				Aided: MS/MSD - Duplicate - Same as Above - As		Field Blan	iks			
Logged By: _ Challetin (ah kmi'	(Please Print)				wed by: FUC	EUS		(Please	Print)	
Signature: 1 12		or a			Sign	nature:	_الم	Date	21195	>	

HTRW DRILLING L	OG	DISTRICT	Lvwsb-0							
I COMPANY NAME MV		1. OREL SUBCON	TRACTOR ASST		<u> </u>	SHEET SHEETS				
L PRIJECT RVAPY	14			11.						
NAME OF DROLLER	1 Keen		MANUFACTURERS DESIGNATION OF DREL 54 LT							
* SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT			8. HOLE LOCATION			,				
			9. SURFACE ELEVATIO	PN .						
			IO. DATE STARTED	o- 04	II. DATE COMPLETED	.04				
12. OVERBURDEN THICKNESS		Annets	13. DEPTH GROUNDW		<u> </u>					
13. DEPTH DRILLED INTO ROCK		· · · · · · · · · · · · · · · · · · ·	16. DEPTH TO WATER	AND ELAPSED TIME APTE	CORPLETED					
14. TOTAL DEPTH OF HOLE	10/		17. OTHER WATER LE	VEL NEABURENENTS (SPEC	arvi					
IS DEOTECHNICAL SAMPLES	DISTURBED	U UNDISTUR	BED 19. TOTA	L NUMBER OF CORE BOXE	5					
10. SAMPLES FOR CHEMICAL ANALYSIS	Svoc .	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21: YOTAL CORE				
22, DISPOSITION OF HOUS	BACKFELED	MONTTORDIG WELL	OURS (BRECAN)	D. SIGNATURE OF DISPE	CTOR					
LOCATION SKETCH/COMMENT	rs .	·		SCALE:	·					
	· · · · · · · ·									
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				/						
	LMM.D	6 *								
			·····\		***************************************)				
		, ¹⁸⁷ .A.,								
PROJECT RVAAP	14				HOLE NO.	-061				
ENG FORM 5056-R, AUG 94			*			nent: CECW-EG)				

	RW	DRILLING LOG	(CONTINUATION	N SHEET)			HOLE NUMBER LNW5b-061
PROJECT	RV	AAPIL	INSPECTOR Sh	ahram	Taner	ana	SHEET SHEETS
ELEV. (A)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO.	REQUESTION OF THE PROPERTY OF	
		silt 60% soft clap 30% woist sand 10%	1.1		17	1-8	
		sand silt soft silt 65! mois soud to! Clay 25!	0.8		9t	1.8	# C .
•	2 3 3 IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Clary 35 1.					
	4		1.3	*	20	20	netsilt at
	2 Company	•	1,2		20	2-0	
	8	Stiff, maist Silt 7011 ML Sound 1511			9† 2_0	2.0	
		son of 15%					
PROJECT	F OI	VAAP 14	TD s10	> 1	,	HOLE N	5b-061

Location ID: LNW 5	b - 0	262	Field	l Sampling F	Report			a Army Ammunition zation of 14 RVAAP		
			Sar	mpling Informa	ation		-			
Source	Grou	andwater / Product		Surface Wat		Soil	Sediment	ts / Sludge		
Method	Bailer		Samp	ole Bottle	\mathcal{A}	Scoop		Trowel		
	Pump		Baco	n Bomb		Bowl		Hand Auger		
						Push Probe		Plastic Liner		
Type/Construction	pe/Construction				ł	Mattocks		Gesprobe	. X	
Miscellaneous	scellaneous Well Purging Form Yes - No									
_	Sample Collection: \\D\T\D\rs\\ Sample Type: Collection: \\G\T\D\T\D\T\D\T\D\T\D\T\D\T\D\T\D\T\D\					Location		Map - Staked in Field 1 - Measured - Surv		
Field Parameters (at time of sample)			lytical	Parameters		0	ther Para	meters	/	
PID / FID Readings:		VOC		TPH GRO		Corrosivity				
Background: P, C		SVOC	V	TPH DRO		Reactivity Sulfide/Cy	/anide			
2.5	3	Explosives	/	Chromium +6		Ignitability				
Sample:	ppm	Propellants		Nitrate						
Water Level	FT	TAL Metals	V				QA Sam	ples		
Temperature	°C	Pesticides/PCBs		1		MS/MSD	Yes / No	1	NA	
Sp. Conductance:	uMHOs	Cyanides				Duplicate ID		N.	A	
рН	units	TOC				Equipment Rinse ID		N.		
Turlefdity '	N.T.U.	Grain Size			1	Trip Blank ID		N.	A	
104R 4/8	,	e Description	, SA0 A 10	aining .	Split Sample		Sample			
moich to	θ		Soxt	ed	Agency/Con Address:	npany:				
Soil sample description should in				QA/QC Prov	vided: MS/MSD - Duplicate Same as Above - As		Field Blanks			
Munsell Color Odor Staini	ing Texture	Sorting Plasticity Moi.	sture							
	include•							100		
Water sample description should i	michael			1						
Water sample description should a Color Odor Sheen Turbi										
Color Odor Sheen Turbi	idity	C(Please Print)			Revie	wed by: ERIC	N EUUS	(Plea	se Print)	

HTRW DRILLING LOG	}	DISTRICT		HOLE STABLE LNW56-062					
I CIMPANY NAME		1. DREL SUBCON	TRACTOR AST			SHEET SHEETS			
	14		4. LOCATION	Ŀ	and fi	11:			
· NAME OF DROLLER TEL	14 Keen		6. MANUFACTURERS C	54 LT	\mathcal{T}				
* SIZEN AND TYPEN OF DRELENG AND NAMPLING EQUIPMENT			E. HOLE LOCATION	<u> </u>					
			*. SURFACE ELEVATIO						
			10. DATE STARTED	2004	11. DATE COMPLETED	04			
12. OVERBURDEN THECKNESS		445	15. DEPTH GROUNDW						
13. DEPTH (IRELLED INTO ROCK		·	16, DEPTH TO WATER	DRILLING COMPLETED					
14. TOTAL DEPTH OF HOLE	10'		17. OTHER WATER LET	VEL MEASUREMENTS (SPECI	m				
18 GROTECHNICAL SAMPLES	DISTURBED	U UNDISTUR	86D 19. TOTA	L NUMBER OF CORE BOXES					
10. SAMPLES FOR CHEMICAL ANALYSIS	& voc	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	21 TOTAL CORE			
22, DISPOSITION OF HOLE	BACK/FELED MON	ELOKING MET	OTHER (SPECSTY)	2). SIGNATURE OF CHIPEC					
LOCATION SKETCH/COMMENTS				SCALE:					
Λ		C_{7}	,						
	/ /								
									
		<i>-</i> }-							
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	/								
	12	.							
	NW10 062		K						
		Y	Α						
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					200				
Divorpore									
PROJECT RVAAP	let				HOLE NO. LNWSb-	-062			
ENG FORM 5056-R, AUG 94						nent: CECW-E(i)			

HT	RW	DRILLING LO	OG (OITAUNITNO	N SHEET)			HOLE NUMBER	062
PROJECT	RVA	AP 12+	in	SPECTOR SN	s.Mravv	Tain	و المراسدة		_
ELEV. (A)	DEPTH (b)	DESCRIPTION OF MATE (c)	RIALS	FELD SCREENING RESULTS (4)	GEOTECH SAMPLE OR COREBOXNO. (4)	ANALYTICAL SAMPLE NO.	REMEDY YO	REMARKS (h)	
		Topsoil 10 yr 3/2 " Silt 70% Clay 20% Sand 10%	ed shift	1.3	·		1.8		
	ر السال بالسالسال	Clay 20%, sand 10%	WF	1.6			1.8	FeDz Stai	<i>S</i>
	ر الاللاللال							FeDz Stai	
-	السالين بالسالين	7.5 KR 4/6	M	2.1			2.0		
	المالية المالية	7.5 KR 4/6 Silt 70%, Clay 10%, Sand 20%,	med stiff wet	2-3		W.			
	6	10 YR 4/6 silt 80%, clay 15%, sand 5%.					2-0		
	7	<i>≱</i>	ML						
	8 1	7.54R 3/1 Six 70%	med still moist	21			2.0		
		cong 29 1 sand 70%.	ML						
PROJECT		GAP 14		13 C	0'		HOLE NO	36-062	f

Location ID: LNWSb	-06	3-50	Field	l Sampling I	Report			a Army Ammunition cation of 14 RVAAP		
			Sai	mpling Inform	ation					
Source	Grou	indwater / Product		Surface Wa	ter /	Soi	s / Sludge			
Method	Bailer		Samj	ole Bottle		Scoop		Trowel		
	Pump		Bacc	n Bomb		Bowl		Hand Auger		
						Push Probe		Plastic Liner		
Type/Construction	Cype/Construction					Mattocks		Geopobe	X	
Miscellaneous	Miscellaneous Well Purging Form Yes - No									
Sample Collection: 1115 hrs		T	omposite	- MI - Grab f increments taken:		Location		Map Staked in Field - Measured - Surve		
Sample Depth: 4-6 FT (b	elow surfac	e) Decon: Se		- Each Day - Each	Location					
Field Parameters (at time of sample)		Ana	lytical	Parameters		О	ther Para	meters	/	
PID'/FID Readings:		VOC		TPH GRO		Corrosivity				
Background: O.O 2.6	ppm	SVOC	X	TPH DRO		Reactivity Sulfide/Cy		ļ		
2.6		Explosives	X	Chromium +6		Ignitability				
Sample:	ppm	Propellants		Nitrate						
Water Level	FT	TAL Metals	X			QA Samples				
Temperature	°C	Pesticides/PCBs				MS/MSD	Yes / No	N	NA.	
Sp. Conductance:	uMHOs	Cyanides				Duplicate ID		N/	<u> </u>	
рН	units	TOC				Equipment Rinse ID		N.A		
Turbidity	N.T.U.	Grain Size				Trip Blank ID	_	N/	1	
Soil sample description should incl Munsell Color Odor Stainin Water sample description should in	dude:	Sorting Plasticity Moi	d	ne Fesz Nonplant		• ID:		Field Blanks		
Color Odor Sheen Turbid										
Logged By: Shahnam Signature: Que	701	(Please Print)				ewed by: ERIC nature: SKSh	EUUS	Pleas Date: 21/05	se Print)	

HTRW DRILLING LO	G	DISTRICT		•		LAWSH-23				
I COMPANY NAME		1. DREL SUSCON	TRACTOR AS	7		SHEET SHEETS				
PRIVEIT	14		4. LOCATION	land	d fill					
SAME OF DRILLER	14 Leen		4. MANUFACTURE	RS DESIGNATION OF DREL						
* SIZEN AND TYPES OF (IRELING) AND SAADUNG COUPMENT			E. HOLE LOCATION	•						
			*. SURFACE ELEV/	ATION	5,	7				
			10. DATE STARTE	اه نې	II. DATE COMPLETED	- 11-10-04				
12. OVERBURDEN THICKNESS		***	15. DEPTH GROUN	DWATER ENCOUNTELED						
13. DEPTH DRELETS INTO ROCK			IS. DEPTH TO WA	TEX AND ELAPSED TIME AFTE	R DRELLING COMPLETED					
14. TOTAL DEPTH OF HOLE	10'		17. OTHER WATER	LEVEL MEASUREMENTS (SPE	CIPY)					
18 GEOTECHNICAL SAMPLES	DISTURBED	UNDISTUR		OTAL NUMBER OF CORE BOXE	3					
10. SAMPLES FOR CHEMICAL ANALYSIS			OTHER (SPECIFY)		OTHER (SPECIFY)	II. TOTAL CORE				
22, DISPOSITION OF HOUS	BACKFELED MC	NETORING WELL	OTHER (SPECSTY)	23. SIGNATURE OF DISPE						
LOCATION SKETCH/COMMENTS	•			SCALE:		·				
			,							
	\)							
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	عمر ويرس		, /* /	\						
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Director of the control of the contr										
PROJECT WAAP LY					HOLENO.	-063				
ENG FORM 5056-R, AUG 94	\					nent: CECW-E(i)				

HT	RW	DRILLIN	IG LOG	(00	OITAUNITM	N SHEET)			F	HOLE NUMBER	(3)
PROJECT	RVA	AP 14		INSP	ECTOR 1	ahram	Tan	اللازمرزي		SHEET SHEE	_
ELEV.	DEPTH (b)	DESCRIPTI	ION OF MATERIALS (c)		FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR COREBOX NO.	ANALYTICAL SAMPLE NO.	RECONTROCT		REMARKS (h)	\exists
-		woist,	4 med sti with 85% 1, sand 51	``	1.5			1.6			
	ساساسا				2.2			1. G			
•	رم الللاللللللل										
	4				2.6		*	2-0			
				-				20	FeD at a	12 Stain 4+8-1	
	目	104R 414 574 90 Y, 6400 187.	945	1	۱, ۴						
	7 1	124 R 4/ 5:11 70; Clay 18 is	16 stiff moist silv and 20%		1.7			0.2			
		- Rel	fulal—								
PROJECT	_	VAAP 1	24	<u> </u>	D = '	101	,	HOLEN	o. V Sb-	-063	f

(Proponent: CECW-EG)

1115 LNWSb-063

4-6

Location ID:	0-06	s4-50	Field	l Sampling I	Report				Ammunition			
Date: 10-0	4											
	<u> </u>		Sai	npling Inform								
Source		indwater / Product		Surface Wa	ter /			T				
Method	Method Bailer Pump					Scoop		Trowel		ļ		
Pump				n Bomb		Bowl		Hand A	uger			
						Push Probe		Plastic				
Type/Construction						Mattocks		Ges	Probe	X		
Miscellaneous	Well Purg Yes - No	ing Form	/	7153								
Sample Collection: 245 hrs Sample Depth: 24 FT	-	Sample Type: Con If te) Decon: Ded	MI, # o	- MI - Grab f increments taken: - Each Day - Each		Location			taked in Field sured - Surv			
Field Parameters (at time of sample)		Anal	ytical	Parameters		0	ther Para	meters				
PID / FID Readings:		VOC		TPH GRO		Corrosivity						
Background:	O ppm	SVOC	X	TPH DRO		Reactivity Sulfide/Cy	/anide					
2:		Explosives	X	Chromium +6		Ignitability						
Sample:	ppm	Propellants		Nitrate								
Water Level	FT	TAL Metals	X				QA Sam	ples				
Temperature	°c	Pesticides/PCBs				MS/MSD Yes / No			Œ	A)		
Sp. Conductance:	uMHOs	Cyanides				Duplicate ID	LNWSb	-064	- OUP NA	1		
рН	units	TOC				Equipment Rinse ID			(N/	<u> </u>		
Tarbidity	N.T.U.	Grain Size				Trip Blank ID			(N)	9		
Soil sample description should in Munsell Color Odor Stains Water sample description should Color Odor Sheen Turbs	Sorting Plasticity Moise	od Se De	y clay	Agency/Com Address: Last		CERRL- LOJSVI UZHERLY HOZU Z - Trip Blanks -	-ek-1 We 478					
Logged By: Shama		(Please Print)		· · · · · · · · · · · · · · · · · · ·	Revie	wed by: Elic	FUIS		(Pleas	e Print)		
Signature:		· ·			Ci.m	nature: Als	1 4	Date	2110	5		

....ja

HTRW DRILLING LO	DISTRICT				:	C	HOLE SING				
I CHARAM NAME		1. DREL SUBC	ONTRACTOR	AS	T			SHEET S	HEET'S		
PRIJECT RVA	99		4. LOCATE	ON .	land f	· 11 ·		!			
	dreer		6 MANUF	ACTURERS C	ESIGNATION OF DR		54 L	T	·		
SIZES AND TYPES OF (IRLLING) AND SAAPUNG EQUIPMENT			8. HOLE LOCATION								
			9. SURFAC	e elevatio	N			 			
			IO. DATE:		_ 2	11.0/	ATE COMPLETED	~ / .			
2. OVERBURDEN THICKNESS		-45			O CY		-10-	13			
3. DEPTH DRELED BYTO ROCK			14. DEPTH	TO WATER	AND BLAPSED TIME	AFTER DRILL	NG COMPLETED	· · · · ·			
TOTAL DEPTH OF HOLE			17. OTHER	WATER LEV	EL MEASUREMENT	(SPECIFY)			-		
GEOTECHNICAL SAMPLES	DISTURBED	U UNDET	VINISD	19. TOTAL	L NUMBER OF CORE	BOXES	•				
9. SAMPLES FOR CHEMICAL ANALYSIS	SAMPLES FOR CHEMICAL ANALYSIS S VOC				OTHER (SPECIF)	n 01	HER (SPECIFY)	21. TOTAL	CORE		
2, DISPOSITION OF HOLE	DISPOSITION OF HOLE BACKFELED				23. SIGNATURE OF	DISPECTOR		AECOVER			
							<u> </u>				
OCATION SKETCH/COMMENTS					SCA	LE:					
		7									
		\ \									
A.		\	<u> </u>								
1					!!		<u> </u>				
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ROJECT I A			······································				ENO.	- 1	A .		
RVAAP [2 NG FORM 5056-R, AUG 94	Τ				.1	101	WSb	- 060 ent: CEC			

НТ	RW	DRILLING LOG	(CONTINUATIO	N SHEET)			HOLE NUMBER
PROJECT		VAAP 14	INSPECTOR S N	ghram "	ravi	erina	SHEET SHEETS
ELEV.	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (4)	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO.	BLOW COUNT	REMARKS
	000	7.5 VR 4/8 middle	1.6			1-3	
	,	silt 701 mass clay 251; sand 51;		·			·
	ا ا ا	SIL 75% med	2.8		*	1-8	
		Silt 75% med clay 20% stiff					
	3 111111						
	4 =		24			2.0	
	5						
	6		1.6			20	
	1111111						
		silt with maist	ia				
<i>;</i>		somedan	1.3	/		2.8	
y.	9 111111						
)0		<i>y</i>				
PROJECT	r R	VAAP KY	TOSI	01	_	HOLEN	9:5b-064

(Proponent: CECW-EG)

1245 LNWSB-064

2,4

DWP

Location ID: LNW 5k	0-065	5-50	Field	l Sampling F	Report			a Army Ammunition I zation of 14 RVAAP A			
Date:											
			Sa	npling Informa	ation						
Source		indwater / Product		Surface Wa	ter /		s/Sedimen				
Method	Bailer		Samı	ole Bottle	\mathcal{A}	Scoop		Trowel			
	Pump		Baco	n Bomb		Bowl		Hand Auger			
					Push Probe		Plastic Liner				
Type/Construction	truction				Mattocks		Geopsobe	X			
Miscellaneous	Well Purg Yes - No	ing Form	/								
Sample Collection: \\ \\ \frac{1}{5} hrs		Sample Type: Co.		- MI - Grab f increments taken:		Location		Map Staked in Field d - Measured - Surve	eved		
Sample Depth: 1 - FT (below surfac			Each Day - Each	Location		Dominaco	a Moderna Sarto	,, ca		
Field Parameters (at time of sample)		Anal	ytical	Parameters		О	ther Para	meters			
PID / FID Readings:		voc		TPH GRO		Corrosivity					
Background:) ppm	SVOC	X	TPH DRO		Reactivity Sulfide/Cy	anide				
2.7		Explosives	X	Chromium +6		Ignitability					
Sample:	ppm	Propellants		Nitrate							
Water Level	FT	TAL Metals	\times				QA Sam	ples			
Temperature	°C	Pesticides/PCBs				MS/MSD	Yes / No	N.	A		
Sp. Conductance:	uMHOs	Cyanides				Duplicate ID		NA			
рН	units	TOC				Equipment Pinse ID		NA			
Turbidity	N.T.U.	Grain Size				Trip Blank ID		NA			
10 yr 3/3, moist , se	Sample NO O	e Description do(, No S d , Low fl d 20 1	tai ast	101	Split Sample Name: Agency/Con Address:	e ID:	Sample				
Soil sample description should in	,		vided; MS/MSD - Duplicate Same as Above - As		Field Blanks						
Munsell Color Odor Staini		Sorting Plasticity Mois	ture		- 2						
Water sample description should i											
Color Odor Sheen Turbic			1								
Logged By: Annan	- 11 -	Revie	ewed by: $=$ $=$ \approx $<$	FW	S (Please	Print)					
Signature:			nature:	<u> </u>	Date: 21109	5_					
-3		77					· · · · · · · · · · · · · · · · · · ·				

HTRW DRILLING LO	Sha	ahram Terheringa (MSb-06									
I CHARAM NAME		1. DRELL SUBCO	NTRACTOR A SA						SHEET		
I PRIVELT	·		4. LUCATR	3N		La	nel	RiN			
NAME OF DRELET	\zeen		6. MANUF	CTURES	DESIGNATION		1/2	<u> </u>	1 1		
SIZEN AND TYPES OF DRELLING AND SAMPLING SOUPMENT			8. HOLE LOCATION								
			V. SURFAC	e elevati	on				·	· · · · · · · · · · · · · · · · · · ·	
			IO. DATES				II. DAT	E COMPLETES	~/		
12. OVERBURDEN THICKNESS					ATER ENCOU		1 1/	~10-	_,3~	·	
13. DEPTH DRELLED DOTO ROCK			16. DEPTH	TO WATE	AND ELAPSE	D TIME APTI	ER DRILLING	COMPLETED		·	
14. TOTAL DEPTH OF HOLE	/		14. DEPTH TO WATER AND ELAPSED TIME AFTER DRELING COMPLETED 17. OTHER WATER LEVEL MEASUREMENTS (EPSCEY)								
IS GEOTECHNICAL SAMPLES	DISTURBED	U UNDETT	/RJSED	19. TOT.	AL NUMBER OF	CORE BOX	E S	<u> </u>	· · · · ·		
10. SAMPLES FOR CHEMICAL ANALYSIS	ए voc	METALS	OTHER (SPI	iCIFY)	OTHER (PECETY	0170	EN (SPECIEY)	21. 101	AL CORE	
22, DISPOSITION OF HOLE	BACKFELED MC	NATIONANA WIRLL	SACOLO		D. SIGNAT	JEST OF DAY	ECTOR		RECOV	ERY %	
					1			<u> </u>			
LOCATION SKETCH/COMMENTS					8	SCALE:					
Α		为									
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LNWsb-	065	<u> </u>									
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			\			<u></u>					
PROJECT RVAAP	1/-			·····		· · ·	HOLE	NO.			
ENG FORM 5056-R, AUG 94	17					,t	LNV	Vsh-		D CW-E(i)	

HT	RW	DRILLING LOG	(C	ONTINUATION	N SHEET)				HOLE NUMBER CNWSB-065
PROJECT	RW	tap (Ly	INS	SPECTOR S	hama	m T	a heri	~: à	SHEET SHEETS
ELEV. (a)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)		FIELD SCREENING RESULTS (4)	GEOTECH SAMPLE OR CORE BOX NO. (4)	ANALYTICAL SAMPLE NO.	BLOW COUNT		REMARKS
	₽ 9=	Top soil		21			1,6		·
		10 yr 3/6 Soft weist		`					
	ΛΞ	70% Silt			-				
		29 %. Sand					:		
		70% Silt 20% Sand 10% Clay ML	_			Sin	1.6		
	2-			2.+		1	J		
	=								
	ر ا	10/R 3/3 Saft			·				
-	' .∃	TO! Sill moist	`						
		20% sand m	_						
	숙릨	19% claro		23			0.6		
	Ţ								
	_ =								
	5	the 1/2 2101	<u></u>	·					
	=	doi cilt and	.						
	6	den & sand 101 104R 4/3 5= ft 51/4 with some		1,6			0.6		
		10YR 4/3 50h							-
,	目	silt with some							
	유를	Mr.	-						,
	킄								
Ī	8	Anny							
		Toyk 3/1 miles	-	1.0					
	目	silt with maish	-					.* x	
	9 =	Some clary							
					÷				
	[0]								
PROJECT	- L	VAAP 14	<u></u> ,	10 = 1	0/	<u> </u>	HOLE	10.	- 06:5
NO FO	, \	VETER A. I		・ハノート	· / ·		LON	いりか	ーシャン

Location ID: LNW1b	- 06 +	6 - SO	Field	l Sampling l	Report				Ammunition lof 14 RVAAP A			
		····	Sai	mpling Inform	ation							
Source	Grou	indwater / Product	77.55	Surface Wa		Soil	Sedimen	ts / Slu	lge			
Method	Bailer		Samj	ole Bottle	\mathcal{A}	Scoop		Trow	el			
	Pump		Bacc	n Bomb		Bowl		Hand	Auger			
						Push Probe	c Liner					
Type/Construction					l I	Mattocks George				X		
Miscellaneous	Well Purg Yes - No	ing Form										
Sample Collection: 1415 hrs	3	Sample Type: Co	mposite	- MI - Grab)	Location			Staked in Field easured - Surve	av sad		
Sample Depth: 4 6 FT	(below surfac	ce) Decon: Dec		- Each Day - Each			Estimate	d - M	asarea - Surve	.you		
Field Parameters (at time of sample)		Anal	lytical	Parameters		О	ther Para	meter	s /			
PID / FID Readings:		VOC		TPH GRO		Corrosivity						
Background: Or O) ppm	SVOC	X	TPH DRO		Reactivity Sulfide/Cy						
2.5	3	Explosives	X	Chromium +6		Ignitability						
Sample:	ppm	Propellants		Nitrate								
Water Level	FT	TAL Metals	X			QA Samples						
Temperature	°C	Pesticides/PCBs				MS/MSD	Yes / No		N.	A		
Sp. Conductance:	uMHOs	Cyanides				Duplicate ID			NA	L .		
рН 🗸	units	TOC				Equipment Rinse ID			NA			
Turbidity	N.T.U.	Grain Size				Trip Blank ID			NA			
Soil sample description should in Munsell Color Odor Staini Water sample description should Color Odor Sheen Turbi	ng Texture	sexted	Split Sample Name: Agency/Con Address: QA/QC Prov Parameters:	ipany: ided: MS/MSD - Daplicate		- Field Bl	mks					
Logged By: Shall	Ja hus	(Please Print)				- 2 - 1	- EW		1 -1	e Print)		
Signature:	NAMES OF TAXABLE PARTY.				Sign	nature:	^	Da	te: 2/1/09	'		

HTRW DRILLING	LOG	DISTRICT	· · · · · · · · · · · · · · · · · · ·			HOLE MANGHER LNIVSID -066					
1 COMPANY NAME	LM.	1. DREL SUBCO	TRACTOR AS			SHEET SHEETS					
L PROJECT			1. LOCATION	d fill							
NAME OF ORDLER	d keen		6. MANUFACTURERS C	DESIGNATION OF DRELL	54	LT					
* SIZEN AND TYPES OF DRELING AND NAMPLING EQUIPMENT			8. HOLE LOCATION								
			. SURFACE ELEVATIO	N.							
			HO DATE STARTED	اہ۔ہد	II. DATE COMPLETED	~ D (~					
12. OVERBURDEN THECKNESS			15. DEPTH OROUNDWA								
13. DEPTH DRELED INTO ROCK			14. DEPTH TO WATER AND BLAPSED TIME AFTER DRELLING COMPLETED								
H. TOTAL DEPTH OF HOLE	10/		17. OTHER WATER LEVIE, MEASUREMENTS (SPECIFY)								
IE GEOTECHNICAL SAMPLES	DISTURBED	UNDISTU	USED 19. TOTAL	L NUMBER OF CORE BOX	is .						
10. SAMPLES FOR CHEMICAL ANALYSIS	S' voc	METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER (SPECIFY)	11. TOTAL CORE					
22, DISPOSITION OF HOLE	BACKFELLED	MONETORING WELL	OTHER (SPECIFY)	2). SIGNATURE OF DISP	ECTOR .						
LOCATION SKETCH/COMMEN	NTS			SCALE:							
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				5							
PROJECT RVA	1P 124				HOLENO.	o 66					
ENG FORM 5056-R, AUG 9						ent: CECW-EG)					

НТ	RW	DRILLING LOG	(CONTINUATIO	N SHEET)			LIVISTO - 066
PROJECT	RVA	1AP 14	INSPECTOR Shah	T war	a Nec	inia	SHEET SHEETS OF
ELEV.	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR COREBOX NO.	AVALYTICAL SAMPLE NO.	Reconstruction	REMARKS (h)
	0.0	rtop soil	- 1.0			0.5	
		107R4/4			ŀ		
	1, =	siltysand					
		60% sand, 30% silt, wet					
		Safet	-				
	2	Sake	1,9			0.5	
	3					.]	<u>}</u>
	=				1		
	3						
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	し、目				1		
	4 3		2.3		N	0.5	
		•					
	5=						
	▎▔▋	•					<u> </u>
	目	10YR 4/3 Stiff					
	6	moist silt60% sand 30%	1.7			20	
	E	sand 30:/,	. \ ' ' ' '				·
		clay 10 %					<u> </u>
	7 =	0					· •
	=	2.5 YR S/1 Still	1			19 E. B.	≽.
		moist silt	1.6				
		with some clar				220	
	=		0	,			
	a 🗐	1 = 10 = 1 · M	_				
		25 4 5/1 Jak		÷		***************************************	Ē
	=	clay 29%	<i>t</i>			718	
PROJECT		· · · · ·		<u></u>		HOLENO	_
, 1100501	· K	VAAP 12	1=07	ノ '		INN	isb-066

(Proponent: CECW-EG)

1415 LNWSB -066

4-6

Location ID: L/W St	2-06	7-50	Field	l Sampling F	Report				y Ammunition of 14 RVAAP	
Date: 11-10-9		· · · · · · · · · · · · · · · · · · ·	Sai	mpling Informa	ation					
Source	Grou	andwater / Product	1	Surface Wa		Soi	ls / Sødimen	ts / Slu	dge	
Method	Bailer		Sam	ole Bottle	\mathcal{A}	Scoop		Trow		
	Pump	Bacon Bomb				Bowl		Hand Auger		
						Push Probe		Plast	c Liner	
Type/Construction		<i>f</i>				Mattocks		Cre	of sobe	X
Miscellaneous	Well Purg Yes - No	Cell Purging Form					.	1		
Sample Collection: 13 40 hrs Sample Depth: 6-8 FT	Location	Location	Plotted or Estimate	Map d - M	Staked in Field easured - Surve	eyed				
Field Parameters (at time of sample)		Ana	lytical	Parameters		О	ther Para	mete	rs	
PID'/ FID Readings:		VOC		TPH GRO		Corrosivity				
Background: O.O	ppm	SVOC	X	TPH DRO		Reactivity Sulfide/Cyanide				
2.4	-	Explosives	X	Chromium +6		Ignitability				
Sample:	ppm	Propellants		Nitrate						
Water Level	FT	TAL Metals	X				QA Sam	ples		
Temperature	°C	Pesticides/PCBs				MS/MSD	Yes / No		N	A
Sp. Conductance:	uMHOs	Cyanides		, -		Duplicate ID			N.A	
рН	units	TOC				Equipment Prinse ID			NA	
Tyrbidity	N.T.Ü.	Grain Size				Prip Blank ID			NA	
No oder, No Staining two diff color loya 4/6 wet, well sorted, Man plastic silt 90/					QA/QC Prov	Spin		Field BI	anks,	
Soil sample description should include: Munsell Color Odor Staining Texture Sorting Plasticity Moisture Water sample description should include: Color Odor Sheen Turbidity					- I a micros	Saint as Adore				
سر د خ	ogged By: Shallan Tahir Ruia (Please Print)					wed by:	4 EL		(Please	_
gnature:					Sign	nature:	<u>h</u>	Da	te: 2100	2

HTRW DRILLING LO	G	DISTRUCT		•		CNWSD-067				
I CHMPANT NAME	L;\\\	1. DRILL SUBCO	MTRUCTOR T			SHEET SHEETS				
PROJECT	AP 1c+		LAUVIANA	and Ri	N					
NAME OF DRELET	IAP 14 ed ke	en		DESIGNATION OF DRELL	500					
SIZES AND TYPES OF DRULING AND SAMPLING EQUIPMENT			E HOLE LOGATION							
			* SURFACE ELEVATION	n.	· · · · · · · · · · · · · · · · · · ·					
			IO. DATE STARTED	-04	11. DATE COMPLETED	- 94				
12. OVERBURDEN THECKNESS	:	4-45	13. DEPTH GROUNDW		1 (5-1)					
13. DEPTH DRELLED INTO ROCK		:	16. DEPTH TO WATER	AND BLAISED TIME AFTE	R DRILLING COMPLETED					
14. TOTAL DEPTH OF HOLE	10'		17, OTHER WATER LEVEL MEASUREMENTS (SPECIFY)							
IS GEOTECHNICAL SAMPLES	DISTURBED	U UNDSTU	RBED 19 TOTA	L NUMBER OF CORE BOXE	3	· · · · · · · · · · · · · · · · · · ·				
10. SAMPLES FOR CHEMICAL ANALYSIS	5 voc	METALS	OTHER (SPECIFY)	OTHER (SPECETY)	OTHER EFFECTIVE	11. TOTAL CORE				
22, DISPOSITION OF HOLE	BACKFELED	MONTORING WELL	Civi(Nos ives	D. SIGNATURE OF PIEPS	Стов					
LOCATION SKETCH/COMMENTS				SCALE:		· · · · · · · · · · · · · · · · · · ·				
				SCALE:						
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					C/V·V·3	767				
PROJECT Q (A A A					HOLE NO					
PROJECT RVAAP	14				HOLE NO	-067				
ENG FORM 5056-R, AUG 94					(Propor	nent: CECW-EG)				

HT	ITRW DRILLING LOG (CONTINUATION SHEET)										
PROJECT	RVA	AP 14	INS	SPECTOR SNA	vam (ranes	1/2/1/2	SHEE	56-067 T SHEETS		
ELEV.	DEPTH (b)	DESCRIPTION OF MATERIA (c)		FIELD SCREENING RESULTS (4)	GEOTECH SAMPLE OR COREBOXNO.	ANALYTICAL SAMPLE NO.*	BLOW-BOUNT ROBER	REMARI (h)			
-		TEP Soil 10 yr 3/6, med 5 moist sith For sound 151, cla	414 01, 01,	1.5			1.8				
	السالسال السالسالسال			1.3			√,8	·			
-	3 THE	10x1R 4/6 we 85% 31 lt 15% clay	t	1-2			2-0	veryn silk a 3.2	net L		
/t				2.4		X	20				
	∃	gers xR 5/1 very met so silt viensen	for elloy	1.3				silkat	7.2		
		5, VF 90 1, Clay 10 ?					20				
PROJECT	= R	VAAP 14		1) = (1	0'		HOLE N	0. wsh-0	57		

(Proponent: CECW-EG)

1340 LNWSb-067

Location ID: LNW 57	2- 01	18-10	l Sampling l	Report			a Army Ammunition zation of 14 RVAAP A		
Date: 11-10-01					<u> </u>				
	,		Sa	mpling Inform	ation				
Source	Grou	undwater / Product		Surface Wa	ter /	Soi	ls/Sedimen	ts / Sludge	
Method	Bailer		Sam	ple Bottle		Scoop		Trowel	
	Pump		Bacc	n Bomb		Bowl		Hand Auger	
					10.00	Push Probe		Plastic Liner	
Type/Construction				\mathcal{L}		Mattocks		Geoffobe	X
Miscellaneous	Well Purging Form es - No								
Sample Collection: 445hrs	Sample Type: Con If		Location		Mao - Staked in Field I - Measured - Surve				
Sample Depth: 2 _ 4 FT (below surfac	e) Decon: Dec	icated>	- Each Day - Each	Location				
Field Parameters (at time of sample)							ther Para	meters	
PID / FID Readings: 0	,O	voc		TPH GRO		Corrosivity			
Background: 2	ß ppm	SVOC	X	TPH DRO		Reactivity Sulfide/Cy	vanide		
		Explosives	X	Chromium +6		Ignitability	_		
Sample:	ppffi	Propellants		Nitrate					
Water Level	FT	TAL Metals	X				QA Sam	ples	
Temperature	°C	Pesticides/PCBs				MS/MSD	Yes / No	N	A
Sp. Conductance:	uMHOs	Cyanides				Duplicate ID		NA	1
рН	units	TOC				Equipment Binse ID		NA	
Turbidity	N.T.U,	Grain Size				Trip Blank ID	:	NA	k
104R 3/4	Sample	e Description			Split Sample	ID ;	Sample		/
No Odox	3 VC	Enivirel ?	g No	n plantic	Agency/Com Address:	pany:			
wet, so	v~d	The Son	Me.	2114	10000000				
		QA/QC Prov Parameters:	ided: MS/MSD - Duplicate Same as Above - As		Field Blanks				
Soil sample description should inc	clude:								
Munsell Color Odor Stainir	ng Texture	Sorting Plasticity Moist	ture						
Water sample description should it	nclude:			į					
Color Odor Sheen Turbio	dity			<u> </u>	(egala)				
Logged By: Shahrav	Tal	ÛV€ ~ (Please Print)			Revie	wed by: FLICE	=1415	(Please	: Print)
Signature:		Sign	nature:	h	Date:	<u>></u>			

HTRW DRILLING LO	G	DISTRICT			Colivsb-068		
I COMPANY NAME	^^	1. DREL SUBCO	ONTRACTOR A POT			SHEET SHEETS	
PRIVELT RILA	APIL		4. LOCATION	land hi	:11	(4)	
NAME OF DROLER	d heer		4. MANUFACTURERS	DESIGNATION OF DRAL	54 L	<u> </u>	
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			IO. DATE STARTED	· · · · · · · · · · · · · · · · · · ·	II. DATE COMPLETED		
12. OVERBURLIEN THACKINGSS			11-10	-04	11-10-	04	
	······			ATER ENCOUNTELED			
13. DEPTH DRELLED INTO ROCK		·	16. DEPTH TO WATER	AND ELAPSED TIME APTE	R DRELLING COMPLETED		
14. TOTAL DEPTH OF HOLE		17. OTHER WATER LE	VEL MEASUREMENTS (SPEC	⊒ 11			
IS GEOTECHNICAL SAMPLES	DISTURBED	UNDISTR	URBED 19. TOTA	L NUMBER OF CORE BOXE	5		
10. SAMPLES FOR CHEMICAL ANALYSIS	5 voc	NŒTALS	OTHER (SPECTY)	OTHER (SPECIFY)	OTHER GPECETY	II. TOTAL CORE	
22, DISPOSITION OF HOLE	BACKFELED M	DISTORDING WELL	OTHER (SPECEN)	2). SIGNATURE OF BUSPE	STORE TO STORE THE STORE T	4	
LOCATION SKETCH/COMMENTS	<u> </u>			SCALE:			
		 					
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DRATEGE							
PROJECT RVAAPIG	•				HOLENO.	-068	
ENG FORM 5056-R, AUG 94				.*		ent: CECW-E(i)	

HT	RW	DRILLING LOG	(CONTINUATIO	N SHEET)			HOLE NUMBER
PROJECT	Ri	1AAP 14	INSPECTOR SVAVA	avy Stal	الاهلازي	~~~~	SHEET SHEETS
ELEV.	DEPTH (c)	DESCRIPTION OF MATERIALS	FIELD SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO.	REMENS	REMARKS (h)
	20	10/R 3/3 wet Sand with Some silt				0.5	
	2 3	104R3/4 wet sound sound with somesill	7.3		*	0.5	
-	olumbininininininininininininininininininin		1,3			1.5	
	6		1,9			20	
		10 yr 4/6 wet Silt with some Clay 2.5 yr 5/1 wet Silt with Sopt	2.0			Z.O	
PROJECT	10 =	0./////				HOLEN	<u> </u>
		RVAAP 14 5	1 0=10	· '		LNV	vsb-068

(Proponent: CECW-EG)

1445 LNWsb-068

						· · · · · · · · · · · · · · · · · · ·					
Location ID:	b-01	69-50	Field	Sampling R	leport		Ravenn Characteri	Ravenna Army Ammunition Plant Characterization of 14 RVAAP AOCs			
Date: 11-10 -	04										
Sampling Information											
Source	Grou	indwater / Product		Surface Wat	er 🟒	Soil	s /Sedimen	ts / Sluc	lge		
Method	Bailer		Samp	le Bottle	/	Scoop		Trow	el		
	Pump		Bacor	n Bomb		Bowl		Hand	Auger		
						Push Probe		Plasti	c Liner		
Type/Construction						Mattocks		Geo	probe	X	
Miscellaneous	Well Purg Yes - No	ing Form							·		
Sample Collection: 1515 hrs	3	Sample Type: Co	mposite	- MI - Grab f increments taken:		Location	Plotted on	Map -	Staked in Field easured - Surve	eved	
Sample Depth: 2-4 FT	(below surfac			Each Day - Each	Location		2011111111			,	
Field Parameters (at time of sample)		Anal	lytical	Parameters		O	ther Para	meter	s		
PID'/FID Readings:		VOC		TPH GRO		Corrosivity					
Background: O. C) ppm	SVOC	X	TPH DRO		Reactivity Sulfide/Cyanide					
2,4	5	Explosives	X	Chromium +6		Ignitability					
Sample:	ppm	Propellants		Nitrate						,	
Water Level	FT	TAL Metals	X			QA Samples					
Temperature	°C	Pesticides/PCBs				MS/MSD	Yes / No		N.	A	
Sp. Conductance:	uMHOs	Cyanides				Duplicate ID			NA		
pH	units	TOC				Equipment Rinse ID			NA	_	
Furbidity	N.T.U.	Grain Size			1	Trip Blank ID			NA		
- loyR 2	Sampl	e Description	<u>پر</u>		Split Sample		Sample				
No stai	pring	, wet	Sal	+	Name: Agency/Con	ipany:			/_ :		
- WWW DI	ant	, will ge	rhe	4	Address:			/			
5117	5/,						- /				
sand m	01,					vided: MS/MSD - Duplicate		- Field Bi	anks		
Clary	15/				Parameters:	Same as Above - As	Listed				
O											
Soil sample description should in	clude:										
Munsell Color Odor Stain	ing Texture	Sorting Plasticity Mois	sture		1						
Water sample description should	include:										
			*								
Color Odor Sheen Turb	idity				/					SECURIOR STATE	
		(Please Print)			Revie	ewed by: FRC	EULS	>	(Please	e Print)	

HTRW DRILLING LO	HTRW DRILLING LOG					NUSD-069
I COMPANY NAME	^	3. DRELL SUBC	ONTRACTOR A 5	1		SHEET SHEETS
RVAA	P 14		4. LOCATION	Land Fi	V	
NAME OF DRALER TEL	Veen		4. MANUFACTURERS	DESIGNATION OF DRELL	541	T
SIZEN AND TYPES OF DRELING AND NAMEDING EQUIPMENT			8. HOLE LOCATION			
			1. SURFACE ELEVATION	ON		
			10. DATE STARTED	10 00	11. DATE COMPLETED	Q(·
12. OVERBURDEN THICKINESS		***		ATER ENCOUNTELED	1 11-10	
3. DEPTH DRELED INTO ROCK	·		IS. DEPTH TO WATER	LAND BLAPSED TING AFTE	R DRELLING COMPLETED	
4. TOTAL DEPTH OF HOLE		17. OTHER WATER LE	VE. MEASUREMENTS (SPE	CIFY)	·	
# GEOTECHNICAL SAMPLES	DISTURBED	UNDET	URBED 19 TOTA	AL NUMBER OF CORE BOXE	2	
10. SAMPLES FOR CHEMICAL ANALYSIS		METALS	OTHER (SPECIFY)	OTHER (SPECIFY)	OTHER EFFECTIVE	II. TOTAL CORE
22, (HISPOSITION OF HOLE	BACKFELED MON	STORDIG WELL	OLYGO (SHECTA)	23. SIGNATURE OF DISP	action 1	
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LOCATION SKETCH/COMMENTS				. SCALE:		
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RUAAP I	4				HOLENO. LNWSb	-089
ENG FORM 5056-R, AUG 94	1					ent: CECW-E(i)

HT	RW	DRILLING LOG	(CONTINUATION				WSD -069
PROJECT	R	VAAP	INSPECTOR SWAY	rount	ZNEV	insa	SHEET SHEETS
ELEV. (A)	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (4)	GEOTECH SAMPLE OR CORE BOX NO. (4)	ANALYTICAL SAMPLE NO. (8	BLOW COUNT	REMARKS (h)
	<i>90</i> ∃	708 307	1.6			0.5	
		10 yr 4/6				* / -	
	, 11	vet, soft					
	, ==						
	Ξ					•	
	2		25			2.5	
		104R 4/4 wet	-				
		Silt IF; Soft	7				
	Y =	Son Aloi					
•		104R 4/4 wet 8ilt 75% Saft Soud 10% Clay 15%		:			
	43		~ a			20	
	Ε΄		0.9				
	目			· •			
	5=						
	且	10 yr 4/6 net. 80th sound 60 / Silt 30 / Clay 10 /					
	, =	wer, sorr				20	
	6	Silt 30 1	1-6				
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	\exists		e e				
	6 =	104R 4/4	1.8			2.0	
	\exists	wet , soft					
	E	5111 75%				·	2.3
	EP	clay 5%		·			
	₹	coyr 4/6 met	-				
	10 =	Soft sound with					
OJECT	<u>R</u> 1	VAAP 124	1207	P'		HOLE N	10. 5b-069

(Proponent: CECW-EG)

1515 LNWSD-069

2-4

Location ID:	b - 071)	Field	Field Sampling Report Ravenna Army Ammunition Plant Characterization of 14 RVAAP AOCs							
			Sa	mpling Informa	ation						
Source	Gro	undwater / Product	X	Surface Wat	ter /	Soi	ls / Sedime	nts / Sludge			
Method	Bailer		Sam	iple Bottle	\mathcal{X}	Scoop		Trowel			
	Pump		Bac	on Bomb	$\mathbb{Z}[$	Bowl		Hand Auger			
			PE SA			Push Probe		Plastic Liner			
Type/Construction		/				Mattocks					
Miscellaneous	Well Purg Yes - No	ing Form			Constitution of the consti						
Sample Collection: hrs	s	Sample Type: Co			200.200.200.000	Location		n Map - Staked in Fie			
Sample Depth: FT ((below surface			of increments taken: - Each Day - Each			Estimate	ed - Measured - Si	urveyea		
Field Parameters (at time of sample)		Anal	lytical	l Parameters		О	ther Para	ameters			
PID / FID Readings:	/_!	VOC		TPH GRO		Corrosivity					
Background:	ppm	SVOC		TPH DRO	/ !	Reactivity Sulfide/Cy	/anide				
		Explosives		Chromium +6		Ignitability					
Sample:	ppm	Propellants		Nitrate							
Water Level	FT	TAL Metals	/				QA Sam	aples			
Temperature	℃	Pesticides/PCBs				MS/MSD	Yes / No	0	NA		
Sp. Conductance:	uMHOs	Cyanides				Duplicate ID			NA		
рН	units	TOC	<u> </u>		<u> </u>	Equipment Rinse ID			NA		
Turbidity	N.T.U.	Grain Size				Trip Blank ID			NA		
NO SAMPLE Soil sample description should inc Munsell Color Odor Stainin		Split Sample ID: Name: Agency/Company: Address: QA/QC Provided: MS/MSD - Duplicate - Trip Blanks - Field Blanks Parameters: Same as Above - As Listed									
		Sorting Plasticity Moisi	ture								
Water sample description should it											
Color Odor Sheen Turbio	,						, , ,	7.1			
Logged By: Sue Bal. Signature: Do	es les	(Please Print)			Reviev Sign	wed by: Kaiz ad nature: K.D. Wa	k wa adia	<u> dla</u>	lease Print)		

ITRW DRILLING LO	G	DISTRUCT			3	LNWSb-070		
CIMPANT NAME		1. DREAL SUBCO	AST		SHEET SHEETS			
PRIVEIT			4. LOCATION	WE				
WINE OF DROLLER TEL	Leen		6. MANUFACTURER	LOVA S				
SZEN AND TYPE: OF DRILLING			8. HOLE LOCATION					
			SURFACE ELEVAT	TION		·		
			10. DATE STARTED		II. DATE COMPLETED	9-04		
OVERBURDEN THICKNESS	*****		VATER ENCOUNTERED	11/2	7 - 4			
DEPTH DRELED INTO ROCK		16. DEPTH TO WATE	ER AND ELAPSED TIME A	TER DRELING COMPLETED				
TOTAL DEPTH OF HOLE			17. OTHER WATER I	LÄVEL MEASUREMENTS (PECFY)			
GEOTECHNICAL SAMPLES	DISTURGED	U VNOST	/RBED 19. TO	TAL NUMBER OF CORE BO	DEES .			
SAMPLES FOR CHEMICAL ANALYSIS	Svoc	METALS	OTHER (SPECIFY)		OTHER GRECEPY)	31. TOTAL CORE		
(HISPOSITION OF HOLE	BACKFELED	MONTORING WELL	CVU(ACSTV)		SPECTOR	AECOVERY S		
OCATION SKETCH/COMMENTS				SCAL	E:			
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ROJECT					HOLE NO.			

HT	RW	DRILLING LOG	(CONTINUATION					HOLE NU	MBER 0-0-TO
PROJECT	RV	AAP 14	INSPECTOR , Sha	hram "	Tan	یرز ۱۷٪	· 6/\	SHEET	SHEETS
ELEV.	DEPTH (b)	DESCRIPTION OF MATERIALS (c)	FIELD SCREENING RESULTS (d)	GEOTECH SAMPLE OR CORE BOX NO.	ANALYTICAL SAMPLE NO.	BLOW COUNT		REMARKS (h)	
	ڻ ا ا	TOP Soil	0.4		ų	1,2		(************************************	E
		loya 4/4 mai	•						E
	, =	8ilf 70% soft				·			E
	\exists	sand ro! MI							E
		clerg 101,				:			F
	ļ	CHH Sac							E
	,	sandy silt	0.6			1.2			F
		saray silt	·			,			F
	_ =	10 VR 7/10 100 152							E
	3	10 yr 3/6, moist							E
•	=	sand 80% solt		:					E
	=	SIV 15'/.				1,4			E
	9 3	clay 5%,	0.6	. "					E
	目	0 11 2 1	_	. <u>-</u>					E
	_ =	10 MR 4/4 Sola	- .						E
	万日	moist , silt 60/	·						E
	=	Soud 40%						÷	E
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PROJECT	R	AVALAP	_11			HOLE	iO	,-FC	一
	1 /	and a factorial and a factoria			.2	CW	wsb	0-04-C	

Location ID: ATA 5 b Date: 08 Nov	001	-50_	l Sampling R	Report			my Ammunition Plant on of 14 RVAAP AOCs	
Date: 08 Nov	04							
			Saı	mpling Informa	ation			
Source	Grou	undwater / Product		Surface Wat	ter ,	Soil	S / Sediments / S	ludge
Method	Bailer	/_	Samp	ple Bottle	\mathcal{A}	Scoop	Tre	owel
	Pump		Baco	n Bomb	$Z oxed{oxed}$	Bowl	Ha	nd Auger
						Push Probe	Pla	stic Liner
Type/Construction	ype/Construction					Mattocks		
Miscellaneous	Well Purg Yes - No	ing Form			ie .			
Sample Collection: 1200 hrs		Sample Type: Con	mposite	-M 30	1/8/04 5	Location	Plotted on Mar	- Staked in Field
Sample Depth: 1-3 FT ((below surfac	te) Decon: Ded		of increments taken: - Each Day Each			Estimated -	Measured - Surveyed
Field Parameters (at time of sample) Analytical Parameters				Parameters		0	ther Parame	ters
PID / FID Readings:		VOC		TPH GRO		Corrosivity		
Background:	ppm	SVOC		TPH DRO		Reactivity Sulfide/Cy	vanide	
<u> </u>	0	Explosives		Chromium +6		Ignitability		
Sample: 9.0	2 ppm	Propellants		Nitrate				
Water Level	FT	TAL Metals					QA Samples	
Temperature	°c	Pesticides/PCBs				MS/MSD	Yes / No	NA
Sp. Conductance:	uMHOs	Cyanides				Duplicate ID		NA
рН	units	TOC				Equipment Rinse ID		NA
Turbidity	N.T.U.	Grain Size				Trip Blank ID		NA
Soil sample description should include: Munsell Color Odor Staining Texture Sorting Plasticity Moisture Water sample description should include: Color Odor Sheen Turbidity					Address: QA/QC Pro			Blanks
Logged By: Michael	Jame	(Please Print)			Revie	wed by:	EUS	(Please Print)
Signature: Michael Manuel Are (Please Print)						nature: Skil		Date: 2/2/05

Location ID: ATASE Date: O8 Nov.	Location ID: ATA55-002-50 Field Sampling Report Ravenna Army Ammunition Plant Characterization of 14 RVAAP AOCs										
Sampling Information											
Source	Grou	ndwater / Product		Surface Wat	er	Soils/Sediments / Sludge					
Method	Bailer		Samp	ile Bottle		Scoop		Trowel			
·	Pump		Baco	n Bomb		Bowl		Hand Auger	X		
						Push Probe		Plastic Liner	义		
Type/Construction				1 / / /		Mattocks					
Miscellaneous	Well Furg	ing Form	راا								
Sample Collection: 230 hrs Sample Type: Composite - (MI) - Grab If MI, # of increments taken: Sample Depth: 3-5 FT (below surface) Decon: Dedicated - Each Day Each Location Location: Plotted on Map Staked in Field Estimated - Measured Surveyed								eld) nveyed			
Field Parameters (at time of sample)		Anal	lytical	Parameters		0	ther Para	meters			
PID / FID Readings:		VOC		TPH GRO		Corrosivity					
Background:	ppm	svoc		TPH DRO		Reactivity Sulfide/Cyanide					
0	9	Explosives		Chromium +6		Ignitability					
Sample:	O ppm	Propellants		Nitrate							
Water Level	FΤ	TAL Metals				QA Sam	ples				
Temperature	°C	Pesticides/PCBs				MS/MSD	Yes / No		NA		
Sp. Conductance:	uMHOs	Cyanides				Duplicate ID			NA		
рН	units	тос				Equipment Rinse ID			NA		
F urbidity	N.T.U.	Grain Size				Trip Blank ID			NA		
Soil sample description should include: Munsell Color Odor Staining Texture Sorting Plasticity Moisture Water sample description should include: Color Odor Sheen Turbidity					Split Sample Split Sample Split Sample Split Sample Name: Agency/Company: Address: QA/QC Provided: MS/MSD Duplicate - Trip Blanks - Field Blanks Parameters: Same as Above - As Listed						
Logged By: Micha	e/5a	mykar (Please Print)			Revie	ewed by: FRL E	eus		Please Print)		
Signature: Muchan H						mature: <u>2</u>	<u></u>	Date:	o <u>5</u>		



Appendix B

Rare Species

General

RAVENNA TRAINING AND LOGISTICS SITE (RTLS) RAVENNA ARMY AMMUNITION PLANT (RVAAP)

RARE SPECIES LIST 9 May 2005

I. Species confirmed to be on the RTLS/RVAAP property by biological inventories and confirmed sightings.

A. State Endangered

- 1. American bittern, *Botaurus lentiginosus* (migrant)
- 2. Northern harrier, Circus cyaneus
- 3. Yellow-bellied Sapsucker, Sphyrapicus varius
- 4. Golden-winged warbler, Vermivora chrysoptera
- 5. Osprey, *Pandion haliaetus* (migrant)
- 6. Trumpeter swan, Cygnus buccinator (migrant)
- 7. Mountain Brook Lamprey, Ichthyomyzon greeleyi
- 8. Graceful Underwing, Catocala gracilis
- 9. Ovate Spikerush, Eleocharis ovata (Blunt spike-rush)
- 10. Tufted Moisture-loving Moss, Philonotis fontana var. caespitosa
- 11. Bobcat, Felis rufus

B. State Threatened

- 1. Barn owl, Tyto alba
- 2. Dark-eyed junco, *Junco hyemalis* (migrant)
- 3. Hermit thrush, Catharus guttatus (migrant)
- 4. Least bittern, Ixobrychus exilis
- 5. Lest flycatcher, Empidonax minimus
- 6. Psilotreta indecisa (caddisfly)
- 7. Simple willow-herb, *Epilobium strictum*
- 8. Woodland Horsetail, Equisetum sylvaticum

C. State Potentially Threatened Plants

- 1. Pale sedge, Carex pallescens
- 2. Gray Birch, Betula populifolia
- 3. Butternut, Juglans cinerea
- 4. Northern rose azalea, Rhododendron nudiflorum var. roseum
- 5. Hobblebush, Viburnum alnifolium
- 6. Long Beech Fern, Phegopteris connectilis
- 7. Straw sedge, Carex straminea
- 8. Water avens, Geum rivale
- 9. Tall St. John's wort, Hypercium majus
- 10. Swamp oats, Sphenopholis pensylvanica
- 11. Shinning ladies'-tresses, Spiranthes lucida
- 12. Arbor Vitae, Thuja occidentalis
- 13. American Chestnut, Castanea dentata

D. State Species of Concern

- 1. Pygmy shrew, Sorex hovi
- 2. Star-nosed mole, Condylura cristata
- 3. Woodland jumping mouse, Napaeozapus insignis
- 4. Sharp-shinned hawk, Accipiter striatus
- 5. Marsh wren, Cistothorus palustris

- 6. Henslow's sparrow, Ammodramus henslowii
- 7. Cerulean warbler, Dendroica cerulea
- 8. Prothonotary warbler, Protonotaria citrea
- 9. Bobolink, Dolichonyx oryzivorus
- 10. Northern bobwhite, Colinus virginianus
- 11. Common moorhen, Gallinula chloropus
- 12. Great egret, Casmerodius albus
- 13. Sora, Porzana carolina
- 14. Virginia Rail, Rallus limicola
- 15. Creek heelsplitter, Lasmigona compressa
- 16. Eastern box turtle, Terrapene carolina
- 17. Four-toed Salamander, Hemidactylium scutatum
- 18. *Stenonema ithica* (mayfly)
- 19. *Apamea mixta* (moth)
- 20. Brachylomia algens (moth)

E. State Special Interest

- 1. Canada warbler, Wilsonia canadensis
- 2. Little blue heron, Egretta caerula
- 3. Magnolia warbler, Dendroica magnolia
- 4. Northern waterthrush, Seiurus noveboracensis
- 5. Winter wren, *Troglodytes troglodytes*
- 6. Back-throated blue warbler, Dendroica caerulescens
- 7. Brown creeper, Certhia americana
- 8. Mourning warbler, Oporornis philadelphia
- 9. Pine siskin, Carduelis pinus
- 10. Purple finch, Carpodacus purpureus
- 11. Red-breasted nuthatch, Sitta canadensis
- 12. Golden-crowned kinglet, Regulus satrapa
- 13. Blackburnian warbler, *Dendroica fusca*
- 14. Blue grosbeak, Guiraca caerulea
- 15. Common snipe, Gallinago gallinago
- 16. American wigeon, Anas americana
- 17. Gadwall, Anas strepera
- 18. Green-winged teal, *Anas crecca*
- 19. Northern shoveler, Anas clypeata
- 20. Redhead duck, Aythya americana
- 21. Ruddy duck, Oxyura jamaicensis
- 23. Pohlia elongata var. elongata (No Common Name, Bryophyte)

F. Rare Plant Communities/Significant Natural Areas

1. The area known as the northern woods contains Beech-sugar maple forest, oak-maple swamp forest, mixed swamp forest, oak-maple-tulip forest, oak-hickory forest, mixed floodplain forest, and successional woods, floating-leaved marsh, submergent marsh, emergent marsh, cat-tail marsh, sedge-grass meadow, mixed shrub swamp, buttonbush swamp, shrub bog, wet fields, ponds, and disturbed wetlands. This area is approximately 1,500 acres and includes a Pin Oak-Swamp White Oak-Red Maple-(Northern Pin Oak) Flatwoods Forest. This community is ranked as a G2 community. This means that it is "imperiled globally because rarity (6 to 20 occurrences or few remaining individuals) or because of some factor(s) making it very vulnerable to extinction throughout its range." According to Dr. Barbara Andreas, who did the RTLS plant communities inventory, the best examples of this community in NE Ohio are at RTLS. This area also contains good examples of Beech-Maple Forests (G4?).

- 2. The Wadsworth Glenn contains the following communities Hemlock-White Pine-Northern Hardwood Forest (G3/G4), oak-hickory forest, mixed floodplain forest, floating-leaved marsh, submergent marsh, emergent marsh, cat-tail marsh, and ponds. This area is approximately 90 acres.
- 3. The Group 3 woods is approximately 700 acres and contains mixed swamp forest, beech-sugar maple forest, oak-maple-tuliptree forest, red maple woods, successional woods, cat-tail marsh, and disturbed habitats.
- 4. The B&O Wye Road area contains Sphagnum thicket, oak-maple swamp forest, mixed swamp forest, dry fields, buttonbush swamp, wet meadows, cat-tail marsh, a pond, and seeps. This area consists of approximately 145 acres and is on the southeastern perimeter in Portage County on the Portage and Trumbull County line.
- 5. The South Patrol Road swamp forest is about 120 acres and contains mixed swamp forest, oakmaple swamp forest, beech-maple forest, buttonbush swamp, and open swamps.

G. Other Biological Items of Interest

- 1. Turkey Vulture Roosts Turkey Vultures roost and breed throughout the RVAAP, primarily on and around earth covered magazine headwalls and abandoned buildings.
- 2. Great Blue Heron Up to three heron rookeries have been identified at the RVAAP in a given year. The rookeries are normally small and are abandoned for better areas from time to time.

NOTE: There are currently NO FEDERALLY listed species or critical habitat on the RTLS/RVAAP property.