

## **APPENDIX B**

### **MONITORING WELL INSTALLATION AND DEVELOPMENT LOGS**

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**APPENDIX B**  
**MONITORING WELL INSTALLATION AND DEVELOPMENT LOGS**

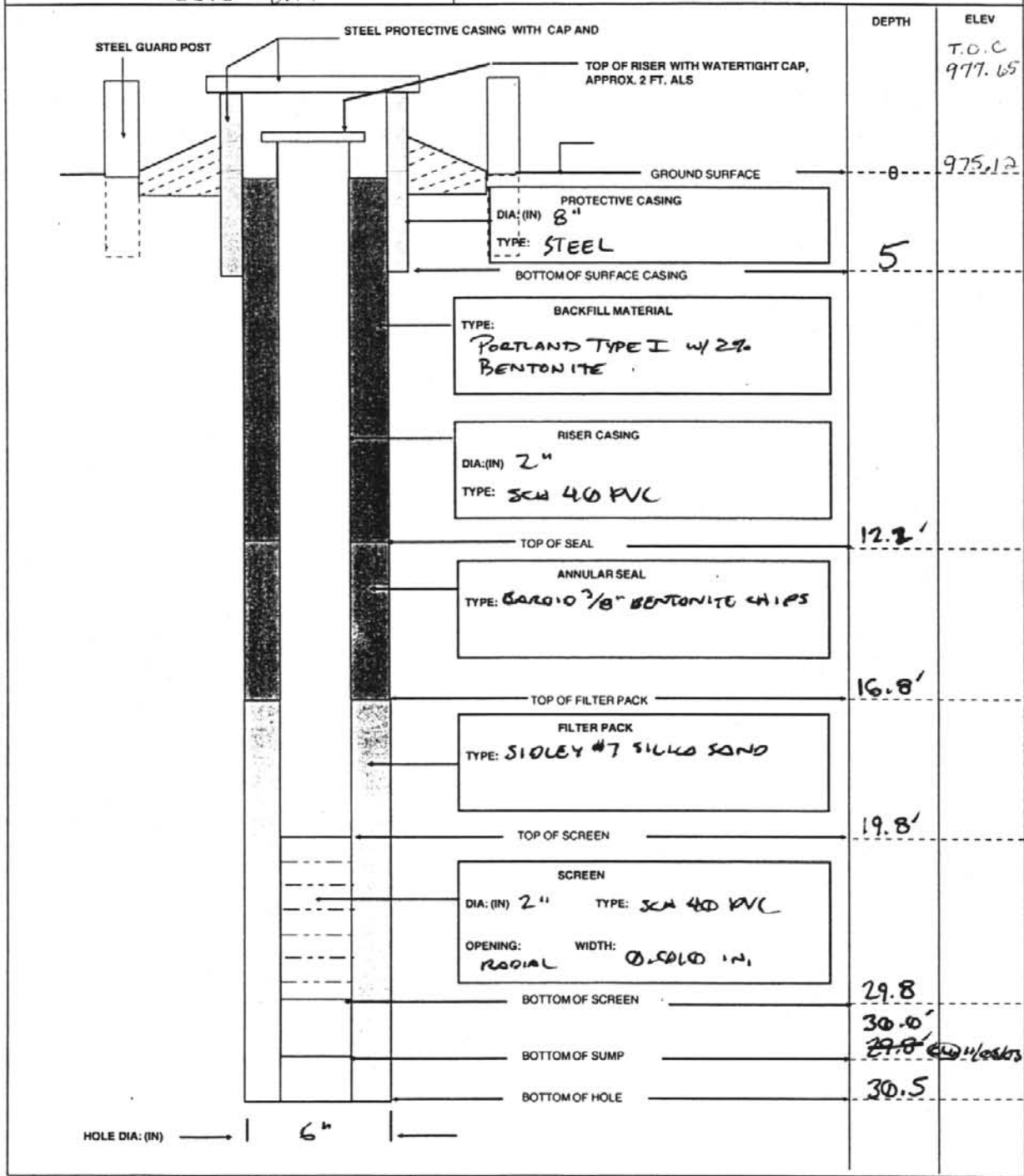
RQLmw012 .....	B-5
RQLmw013 .....	B-14
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RQLmw016 .....	B-40
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**MONITORING WELL**

**PROJECT NAME: Erie Burning Grounds Phase II**      **DELIVERY ORDER NO: CY10**

<b>WELL NUMBER:</b> 20mm φ12	<b>BEGIN:</b> 11/05/03	<b>END:</b> 11/00/03
<b>COORDINATES:</b> N: 506551.95 E: 2376558.19	<b>REFERENCE POINT:</b> Top of casing <b>ELEVATION:</b> 977.65 MSL	



<b>HTRW DRILLING LOG</b>		DISTRICT: <b>Louisville</b>		HOLE NUMBER <b>RQL MW-012</b>	
1. COMPANY NAME: <b>SAIC</b>		2. DRILL SUBCONTRACTOR: <b>FRONTZ DRILLING</b>		DATE: <b>105</b>	
3. PROJECT: <b>Eric Burning Grounds Phase II Ramsdell Quarry Landfill</b>		4. LOCATION: <b>Eric Burning Grounds Ramsdell Quarry Landfill</b>			
5. NAME OF DRILLER: <b>Lip Hamilton</b>		6. MANUFACTURERS DESIGNATION OF DRILL: <b>CME 75</b>			
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT <b>CME 750</b>		8. HOLE LOCATION: <b>East of Ramsdell Quarry (975.12 ground)</b>			
		9. SURFACE ELEVATION: <b>977.05' amsl (top PVC)</b>			
		10. DATE STARTED: <b>11/05/03</b>		11. DATE COMPLETED: <b>11/06/03</b>	
12. OVERBURDEN THICKNESS <b>2.8'</b>		15. DEPTH GROUNDWATER ENCOUNTERED: <b>12'</b>			
13. DEPTH DRILLED INTO ROCK <b>20.7'</b>		18. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED:			
14. TOTAL DEPTH OF HOLE <b>29.5</b>		17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY):			
18. GEOTECHNICAL SAMPLES		DISTURBED		UNDISTURBED	
19. TOTAL NUMBER OF CORE BOXES <b>3</b>		20. SAMPLES FOR CHEMICAL ANALYSIS <b>N/A</b>		21. TOTAL CORE RECOVERY %	
22. DISPOSITION OF HOLE		23. SIGNATURE OF INSPECTOR <b>[Signature]</b>		24. SCALE: <b>NA</b>	
25. LOCATION SKETCH/COMMENTS <b>RA 8/12/04</b> <b>N: 566551.95 (top PVC)</b> <b>E: 2376558.19</b>		26. LOCATION SKETCH/COMMENTS <b>Ramsdell RD</b> <b>Quarry</b> <b>RQL MW-012</b>			

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RAMSDEN QUARRY LANDFILL HTRW DRILLING LOG						HOLE NUMBER MW-012
PROJECT: Eric Burning Grounds Phase II I.			INSPECTOR: CHARLES L. KUNADE		SHEET 2 OF 5	
ELEV. (A)	DEPTH (B) (ft)	DESCRIPTION OF MATERIALS (C)	HEADSPACE SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	0	ML SILT, MOIST, STIFF, BROWN (10YR 4/3)				3/4/4/4 5/8 0'-2' 1.1' / 2'
	1					
	2					6/50 0.4 5/8 2'-4' 0.8' / 2'
	3	ML SILT, RECRISTALLIZED / MOTTLED LT. GRAY (5Y 7/1) MATTEN, YELLOWISH BROWN (10YR 5/8) COATINGS, ALSO MIN STAIN				BEGIN 8" ROTARY BIT/ AIR ROTARY, JET TEMPORARY PVC 8" CASING
	3	SANDSTONE, WEATHERED, FINE GRAIN, YELLOWISH-BROWN (10YR 5/8)				
	4					
	5	SAME AS ABOVE				
	6					
	7	SAME AS ABOVE				
	8	INTERBEDDED FRACTURES w/ IRON STAINING				
	9	FRACTURE w/ Fe + Mn TIGHT (T1) FRACTURE Frac. w/ sand = some OBLIQUE frac.		RSL MW 012 BOX #1 ↓		START: 0944 FINISH: 0950 FULL DEPTH (FD) = 12.5' RUN LENGTH = 4.5' RECOVERY = 4.3' REC'D = 46.5%
	10					RUN #1

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Ramsdell Quarry Landfill HTRW DRILLING LOG						HOLE NUMBER MW-012
PROJECT: Eric Burning Grounds Phase 1 I.			INSPECTOR CHARLES L. KLINGER		SHEET 3 OF 5	
ELEV. (A)	DEPTH (B) (Ft)	DESCRIPTION OF MATERIALS (C)	HEADSPACE SCREENING RESULTS	GEO TECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	10	→ FRACTURE				RUN #1 8' TO 12.5' CORRECTED DEPTH PER TAGGING HOLE
		☐ FRACTURE w/ STAINING (Fe, Mn)				
	11	→ FRACTURE				
	12	← BOX BRAKE TIGHT GRANO				<div style="border: 1px solid black; padding: 5px;">           @ 11/05/03            RUN # 2            START: 0956            STOP: 0958 1005            PD = 1005            RECOVERY = 9.6'            FULL DEPTH = 22.5'            RUN LENGTH = 10'            RQD = 44.8%         </div>
	13	FRACTURE ZONE, WET, N 0.5' BETWEEN FRACTURES ROCK IS STILL FINE GRAINED SANDSTONE, WEATHERED, LIGHT YELLOWISH GRAY (Z.54 6/4)		CORE BOX #2 12.5'-22.5'		
	14	FRACURES, SAME AS ABOVE				
		TI. FRAC.				
		TI. FRAC.				
	15	FRACURES, SAME AS ABOVE				
		TI. FRAC.				
	16	TI. FRAC.				
		TI. FRAC.				
		TI. FRAC.				
		☐ FRACTURE				
	17	FRACURES				
	18	LESS IRON STAINING/WEATHERING TI. FRAC. COLEM GRASSING TO LT. BROWNISH-GRAY TI. FRAC. (Z.54 6/2) TI. FRAC.				
	19	TI. FRAC. IRON STAINING SANDSTONE COMPETENT FE STAINS NOW ONLY 1 mm ON EITHER SIDE HAILING FRACTURES				
	20	FRACURES, STAINING, SLIGHT WEATHERING				





1/1  
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RAMSEY QUARRY LANDFILL HTRW DRILLING LOG						HOLE NUMBER MW-012
PROJECT: <u>One Burning Grounds Phase II</u>				INSPECTOR <u>Charles L. Kunka</u>		SHEET <u>5</u> OF <u>5</u>
ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	HEADSPACE SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	30					
	31					
	32					
	33					
	34					
	35					
	36					
	37					
	38					
	39					
	40					

REAMED TO 30.5' BGS

Let  
11/05/03

MONITORING WELL INSTALLATION LOG

PROJECT NAME: Ramsden Quarry Landfill @ 11/05/03  
Erie Burning Grounds Phase II DELIVERY ORDER: CY10

MONITORING WELL ID: RQL MW-012

INSTALLATION START: DATE: 11/05/03 TIME: 7:31φ

INSTALLATION FINISH: DATE: 11/05/03 TIME: 6:41φ

ANNULAR SPACE MATERIALS INVENTORY:

GRANULAR FILTER PACK: TYPE: SIDLEY #7 QUANTITY: 250 LBS  
BENTONITE SEAL: TYPE: BARGO 3/8" CHIPS QUANTITY: 500 LBS  
GROUT: PORTLAND TYPE: I 1/2" BENTONITE QUANTITY: 1φφ

DESCRIPTION OF WELL SCREEN:

SLOT SIZE (inches): 0.010 SLOT CONFIGURATION: RADIAL  
TOTAL OPEN AREA PER FOOT OF SCREEN: \_\_\_\_\_  
OUTSIDE DIAMETER: 2 3/8" NOMINAL INSIDE DIAMETER: 2"  
SCHEDULE/THICKNESS: SCH 40 COMPOSITION: PVC  
MANUFACTURER: Environmental Manufacturing Inc.

TYPE OF MATERIAL BETWEEN BOTTOM OF BORING AND SCREEN:

DESCRIPTION OF WELL CASING:

OUTSIDE DIAMETER: 2 3/8" NOMINAL INSIDE DIAMETER: 2"  
SCHEDULE/THICKNESS: SCH 40 COMPOSITION: PVC  
MANUFACTURER: Environmental Manufacturing Inc.

JOINT DESIGN AND COMPOSITION: THROUSO F/I

CENTRALIZERS DESIGN AND COMPOSITION: NA

DESCRIPTION OF PROTECTIVE CASING: STICK-UP, LOCKING LID

NOMINAL INSIDE DIAMETER: 8" COMPOSITION: STEEL

SPECIAL PROBLEMS ENCOUNTERED DURING WELL CONSTRUCTION AND THEIR RESOLUTION:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Was all well screen and casing material used for construction free of foreign matter (e.g., adhesive tape, labels, soil, grease, etc.)? YES  NO

Was all well screen and casing material used for construction free of unsecured couplings, ruptures, and other physical breakage and/or defects? YES  NO

Is deformation or bending of the installed well screen and casing minimized to the point of allowing the insertion and retrieval of a 1.0-inch bailer throughout the entire length of the completed well? YES  NO

QUANTITY OF APPROVED WATER USED FOR FILTER PACK ENPLACEMENT: φ

RECORDED BY: Chy 11/05/03 QA CHECK BY: U Clay 3/4/04  
(Signature & Date) (Signature & Date)

WELL SERVICE RECORD

PROJECT NAME: Ramsdel Quarry/Phase 2 DELIVERY ORDER NO: CY115

PAGE 1 OF 1

WELL NUMBER AND LOCATION: RQL mw - 012

Development ↓

DATE	TIME	GALLONS REMOVED	TEMP(C)	SPECIFIC CONDUCTIVITY (µMHOS/CM)	pH (Standard Units)	TURBIDITY	TOTAL GALLONS REMOVED	WELL VOLUMES REMOVED	COMMENTS
11/12/03	1318	0	14.2	.211	4.64	999	0	0	Initial Reading
	1326	11	13.4	.562	4.09	109	11	1.0	
	1335	11	13.3	.584	3.97	105	22	2.0	
	1345	11	13.2	.559	3.97	19	33	3.0	
	1355	11	13.0	.529	4.02	3	44	4.0	
	1407	11	13.0	.508	4.07	10	55	5.0	final reading
12/2/03	0900	0	9.4	0.323	4.19	269	0	NA	initial reading
	0904	2.0	10.2	0.409	3.81	342	2.0	NA	
	0910	1.0	10.2	0.425	3.90	335	3.0	NA	
	0915	1.0	10.8	0.443	3.94	280	4.0	NA	temp incr. as sun comes out
	0921	0.5	10.7	0.450	3.94	225	4.5	NA	final reading prior to sampling
	1030	NA	10.0	0.479	3.81	4	NA	NA	final reading

RECORDED BY: [Signature] 11/12/03  
 (Signature and Date)

[Signature] 12/2/03

QA CHECK BY: [Signature] 12/8/03  
 (Signature and Date)

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TASK TEAM ACTIVITY LOG SHEET

PROJECT NAME: Ramsdell Quarry Phase I RI

DELIVERY ORDER NO: CY11

Date (mm/dd/yy): 12/2/03 Su M Tu W Th F Sa PAGE 11 / OF 11

Kelly Lowe

Tom Butler

Narrative (include time and location):

0813 - Arrive @ RQ Lmw 012 & set up for sampling

TD = 32.6' H<sub>2</sub>O = 24.55'

0930 - Pump for ~ 1 hr. Readings are stable.

Sample RQ 0139 collected for full suite analysis.

(Dup & split 0100 / 0103 also collected)

1030 - All sample bottles full - final Horiba readings recorded. H<sub>2</sub>O = 24.5' 'btoc

Daily Weather Conditions: A.M. 25-34°F, partly cloudy

P.M.

Recorded By

*Kelly Lowe*

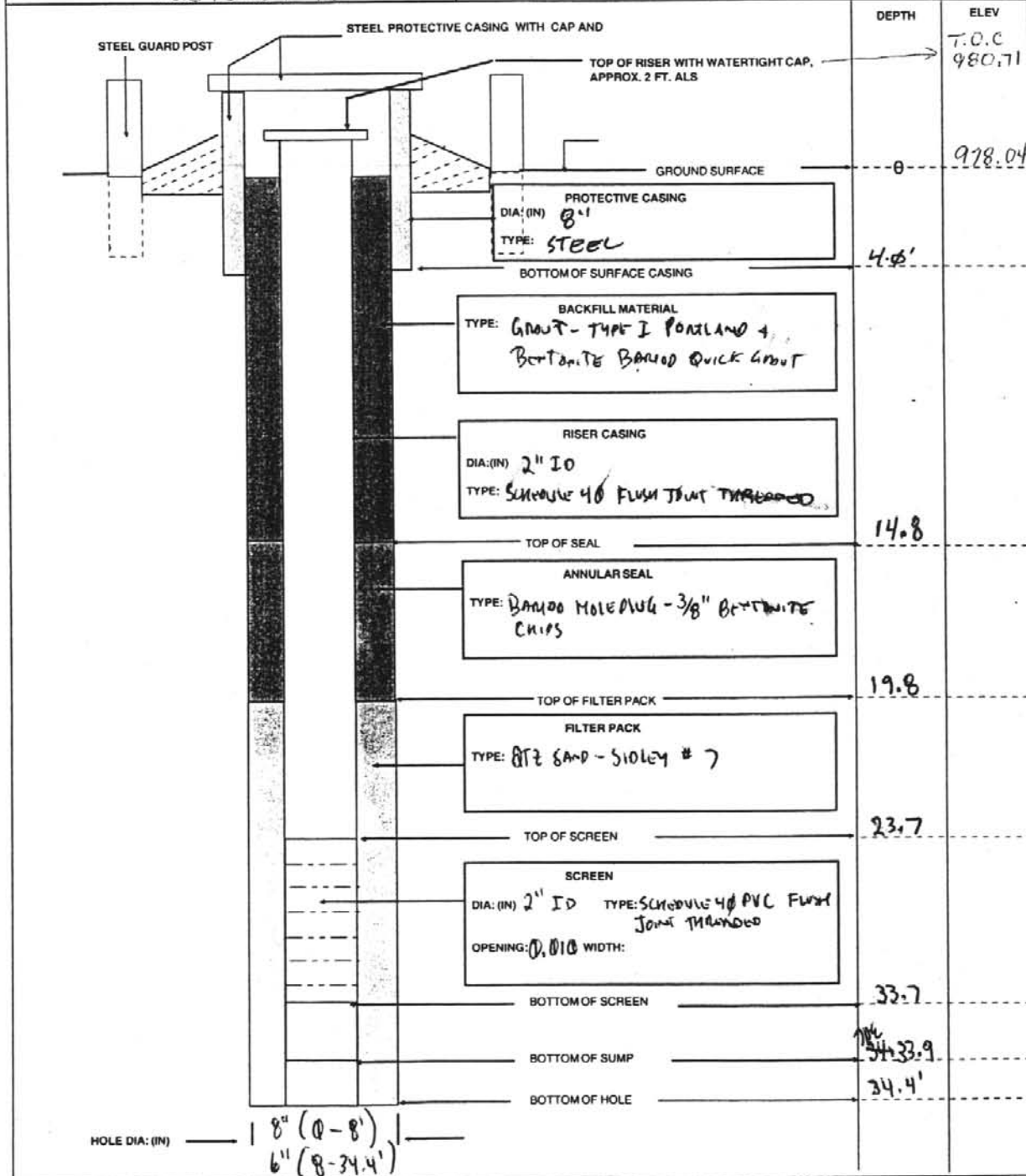
QA Checked By

*Kelly Lowe*

**MONITORING WELL**

PROJECT NAME: Ramsdell Quarry Phase I RI      DELIVERY ORDER NO. CY11

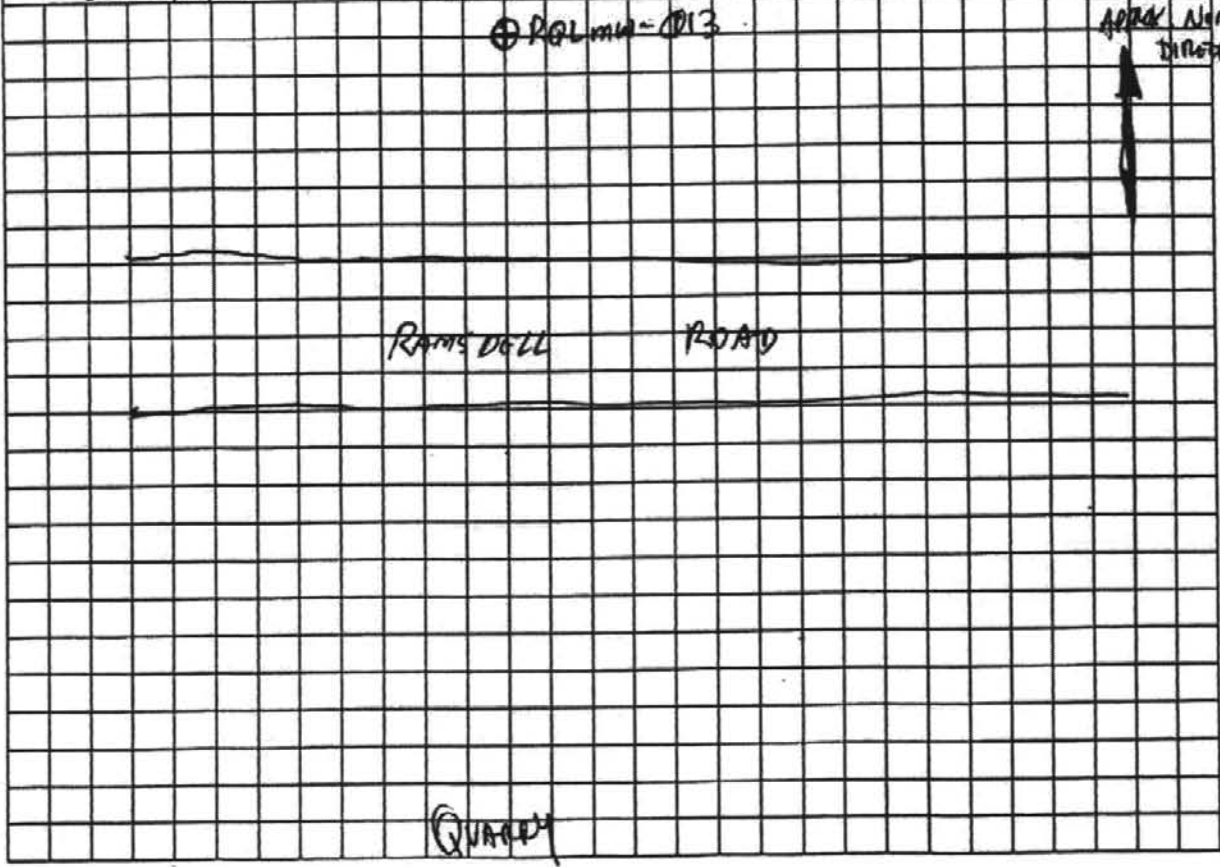
WELL NUMBER: <b>RQLMW-013</b>	BEGIN: <b>11/4/03 0759</b>	END: <b>11/4/03 1109</b>
COORDINATES: N: <b>566928.09</b> E: <b>2376204.93</b>	REFERENCE POINT: <b>Top of casing</b>	ELEVATION: <b>980.71 MSL</b>



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<b>HTRW DRILLING LOG</b>		DISTRICT: Louisville		HOLE NUMBER RQLmd-013	
1. COMPANY NAME: SAIC		2. DRILL SUBCONTRACTOR: FRONTZ DRILLING		SHEET L-5	
3. PROJECT: Ramsdell Quarry Phase I RI			4. LOCATION: Ramsdell Quarry		
5. NAME OF DRILLER: ROB HAMILTON			6. MANUFACTURERS DESIGNATION OF DRILL: CME 75		
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT		8. HOLE LOCATION: NORTH OF RAMSDELL QUARRY			
8" DIAM AIR ROTARY 0-8' GAL 6" DIAM. AIR ROTARY 8-34.4' GAL		918.84 (top ground) ZRA 980.71 (top PVC) 8/12/04			
		9. SURFACE ELEVATION:		10. DATE STARTED: 11/3/03	
				11. DATE COMPLETED: 11/4/03	
12. OVERBURDEN THICKNESS (0.6' of unconsolidated, 1.7' water table rock)		15. DEPTH GROUNDWATER ENCOUNTERED: ~21'			
13. DEPTH DRILLED INTO ROCK 39.4'		16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED:			
14. TOTAL DEPTH OF HOLE 34.4'		17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY):			
18. GEOTECHNICAL SAMPLES None		DISTURBED		UNDISTURBED	
20. SAMPLES FOR CHEMICAL ANALYSIS		VOC		METALS	
NONE		N/A		N/A	
22. DISPOSITION OF HOLE		BACKFILLED		MONITORING WELL	
		X		OTHER (SPECIFY)	
				19. TOTAL NUMBER OF CORE BOXES N/A	
				21. TOTAL CORE RECOVERY %/ft	
				23. SIGNATURE OF INSPECTOR	
				[Signature]	

LOCATION SKETCH/COMMENTS N: 566928.09 (top PVC) SCALE: ~20' = 1"  
ZRA 8/12/04 E: 2376204.93





HTRW DRILLING LOG						HOLE NUMBER
PROJECT: Ramsdell Quarry Phase I RI				INSPECTOR: <i>John D. Ly</i>		RRLmw-013 43
						SHEET 2 OF 5
ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	HEADSPACE SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	0	(FINE) SILT (ML): VERY DARK GRAYISH BROWN (10YR 3/2), MOIST, SLIGHT PLASTICITY, ROOT ZONE = 0.6'				SPLITSPOON 0-2' RFL: 1.3/2 Blows: 4/9/10/19
	1	WEATHERED SANDSTONE: PALE YELLOW (2.5Y 7/3) FINE GRANULAR SAND, GRANULAR SOFT (0.6-1.3)				
	2	ACCUMULATED LOSS LOAM				
	2	SAME AS ABOVE				SPLITSPOON 2-2.3' RFL 4" REUSAL Blows: 50-4"
	3	PALE YELLOW (2.5Y 7/3) SANDSTONE, FINE GRANULAR				SET UP TO ADVANCE w/ AIR ROTARY 8" DIAM.
	4					
	5	- LIGHT GRAY (7/1) AND REDDISH YELLOW (2.5YR 6/6) ROCKS - INTERBEDDED, FE STAINING ON SOME CRIP FACES				
	6					
	7					
	8	FRACTURE ZONE 7.7-8' INTERMEDIATE GRAY (7/1) (MFI)				
	9	SANDSTONE: WHITE (8/1) TO LIGHT GRAY (7/1) FINE GRANULAR, TRACE OF REDDISH YELLOW (7.5YR 6/6) STAIN				8" DIAM ROLLER BIT TO 8' 84L 6" DIAM ROLLER BIT 8-34.4'
	10					



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HTRW DRILLING LOG						HOLE NUMBER
PROJECT: Ramsdell Quarry Phase I RI				INSPECTOR: <i>Todd Ly</i>		<i>K01 MW-013</i>
						SHEET 3 OF 5
ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	HEADSPACE SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
		SAME AS ABOVE				
	11	SANDSTONE: LIGHT GRAY (2.84 71) AND BROWNISH YELLOW (1042 6/6), FINE GRAINED				
	12					
	13					
	14					
		FRACTURE ZONE				
	15	SANDSTONE: GRAY (6/2-5/4) FINE GRAINED, TRACE FE STAINING ON P FACES				
	16					
		FRACTURE ZONE				
	17					
	18					
	19					
	20					

HTRW DRILLING LOG						HOLE NUMBER <i>101 MW-013 45</i>
PROJECT: <i>Ransdell Quarry Phase I RI</i>			INSPECTOR <i>Orville Ly</i>		SHEET <i>4</i> OF <i>5</i>	
ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	HEADSPACE SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	21 <del>12</del>					
	22 <del>12</del>					
	23 <del>12</del>					
	24 <del>14</del>	SAND STONE; STRONG BROWN (7.5% R 5%) w/ DARK BROWN (7.5% R 3%) INTERLACED, FINE GRAINED				
	25 <del>15</del>					
	26 <del>16</del>	SAND STONE; STRONG BROWN (7.5% R 5%) AND GRAY (6% R) FINE GRAINED				
	27 <del>17</del>					
	28 <del>18</del>					- Blown Yield ~ 1/4 gm
	29 <del>19</del>					~ 1/4 - 1/2 gm Blown Yield
	30 <del>20</del>					

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<b>HTRW DRILLING LOG</b>				HOLE NUMBER <b>RAL 013</b>	
PROJECT: <b>Ramsdell Quarry Phase I RI</b>			INSPECTOR: <i>Richard King</i>		SHEET <b>5</b> OF <b>5</b>

ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	HEADSPACE SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	31					
	32					
	33					
	34					- Blown 41620 ~ 1/2 grm
	35	TD = 34.4' BGL				
	36					
	37					
	38					
	39					
	40					

### MONITORING WELL INSTALLATION LOG

PROJECT NAME: Ramsdell Quarry Phase I RI DELIVERY ORDER: CY11

MONITORING WELL ID: RQ1mw - 013

INSTALLATION START: DATE: 11/4/03 <sup>7:05</sup> TIME: 0759

INSTALLATION FINISH: DATE: 11/4/03 TIME: 1109

ANNULAR SPACE MATERIALS INVENTORY:

GRANULAR FILTER PACK: TYPE: 017 Sand - SiO<sub>2</sub> # 7 QUANTITY: 5 - 50lb bags

BENTONITE SEAL: TYPE: Baroid Hole Plug 3/8" Bentonite QUANTITY: 1 - 50lb bag

GROUT: TYPE: Type I Portland Cement + Bentonite QUANTITY: 1.5 - 94lb bags Portland + 9/65 Bentonite

DESCRIPTION OF WELL SCREEN:

SLOT SIZE (inches): 0.010 SLOT CONFIGURATION: HORIZONTAL

TOTAL OPEN AREA PER FOOT OF SCREEN: \_\_\_\_\_

OUTSIDE DIAMETER: 0.2' (2 3/8") NOMINAL INSIDE DIAMETER: 0.17' (2")

SCHEDULE/THICKNESS: SCHEDULE 40 COMPOSITION: PVC

MANUFACTURER: ENVIRONMENTAL MANUFACTURING INC.

TYPE OF MATERIAL BETWEEN BOTTOM OF BORING AND SCREEN: SAND

DESCRIPTION OF WELL CASING:

OUTSIDE DIAMETER: 0.2' (2 3/8") NOMINAL INSIDE DIAMETER: 0.17' (2")

SCHEDULE/THICKNESS: SCHEDULE 40 COMPOSITION: \_\_\_\_\_

MANUFACTURER: ENVIRONMENTAL MANUFACTURING INC.

JOINT DESIGN AND COMPOSITION: FLUSH JOINT THREADED, PVC

CENTRALIZERS DESIGN AND COMPOSITION: NONE

DESCRIPTION OF PROTECTIVE CASING: STICK-UP, LOCKING LID

NOMINAL INSIDE DIAMETER: 8" COMPOSITION: STEEL

SPECIAL PROBLEMS ENCOUNTERED DURING WELL CONSTRUCTION AND THEIR RESOLUTION:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Was all well screen and casing material used for construction free of foreign matter (e.g., adhesive tape, labels, soil, grease, etc.)? YES  NO

Was all well screen and casing material used for construction free of unsecured couplings, ruptures, and other physical breakage and/or defects? YES  NO

Is deformation or bending of the installed well screen and casing minimized to the point of allowing the insertion and retrieval of a 1.0-inch bailer throughout the entire length of the completed well? YES  NO

QUANTITY OF APPROVED WATER USED FOR FILTER PACK ENPLACEMENT: NONE

RECORDED BY: [Signature]  
(Signature & Date)

QA CHECK BY: [Signature] 3/4/04  
(Signature & Date)

PROJECT NAME: Groundwater Quality Investigation

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WELL NUMBER AND LOCATION: RQWmw-013

DATE	TIME	GALLONS REMOVED	TEMP(C)	SPECIFIC CONDUCTIVITY (µMHOS/CM)	pH (Standard Units)	TURBIDITY	TOTAL GALLONS REMOVED	WELL VOLUMES REMOVED	COMMENTS
11/12/03	0750	0	12.5	0.520	3.87	999	0	0	initial reading
	0843	15	12.5	0.425	4.40	44	15	1.3	
	0857	8	12.5	0.429	4.44	6	23	2	
	0906	12	12.5	0.431	4.40	10	35	3	
	0918	11	12.5	0.427	4.45	10	46	4	
	0930	12	12.6	0.431	4.40	10	58	5	final reading
12/2/03	1209	0.33	8.8	0.429	3.90	96	0.33	NA	initial reading
	1244		9.6	0.466	3.53	242	0.66		
	1249		9.4	0.471	3.73	47	1.0		
	1254		9.5	0.474	3.74	13	1.33		
	1259		9.8	0.476	3.97	3	1.66		final reading before screening
	1307		9.4	0.469	3.59	10	NA		final reading

Development ↑

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RECORDED BY: Kelly [Signature] 11/12/03  
(Signature and Date)

QA CHECK BY: [Signature] 11/12/03  
(Signature and Date)

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# TASK TEAM ACTIVITY LOG SHEET

PROJECT NAME: Ramsdell Quarry Phase I RI

DELIVERY ORDER NO: CY11

Date (mm/dd/yy): 12/2/03 Su M **Tu** W Th F Sa PAGE 1 OF 1

Kelly Lowe

Tom Butler

Narrative (include time and location):

1157 - arrive @ RQ MW 13. Set up for sampling.

H<sub>2</sub>O @ 24.0' ID = 36.4'

1239 - Pump started, initial readings recorded.

1341 - Sample RQ 14' collected for soil suite analysis.

1357 - Final Horiba readings recorded.

Daily Weather Conditions: A.M. -

P.M. 30°F, cloudy

Recorded By

*Kelly Lowe*

QA Checked By

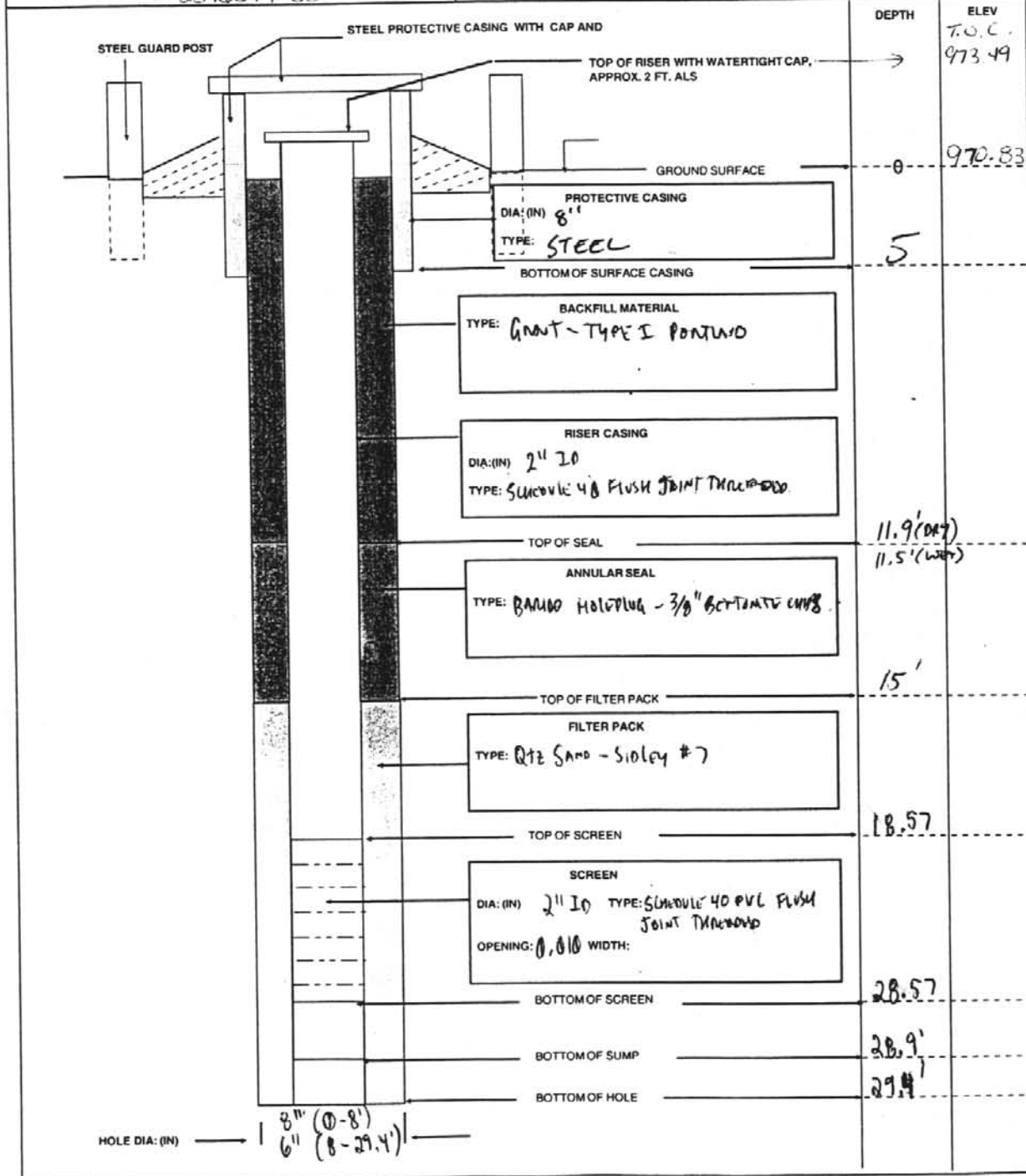
*Kelly Lowe*

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**MONITORING WELL**

**PROJECT NAME: Ramsdell Quarry Phase I RI    DELIVERY ORDER NO: CY11**

WELL NUMBER: <i>RQLmw-014</i>	BEGIN: 1548 11/4/03	END: 11/4/03 1726
COORDINATES: N: 566941.29 E: 2376519.38	REFERENCE POINT: Top of casing	ELEVATION: 973.49 MSL



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<b>HTRW DRILLING LOG</b>		DISTRICT: <b>Louisville</b>		HOLE NUMBER <b>R0Low-014</b>	
1. COMPANY NAME: <b>SAIC</b>		2. DRILL SUBCONTRACTOR: <b>FROST &amp; DRILLING</b>		1 SHEET <b>2 OF 5</b>	
3. PROJECT: <b>Ramsdell Quarry Phase I RI</b>			4. LOCATION: <b>Ramsdell Quarry</b>		
5. NAME OF DRILLER: <b>Rob Hamilton</b>		8. MANUFACTURERS DESIGNATION OF DRILL: <b>CME 75</b>			
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: <b>8" DIAM. AIR ROTARY</b> <b>6" DIAM. AIR ROTARY</b>		8. HOLE LOCATION: <b>NORTH OF RAMSDPELL ROAD, NORTH EAST OF QUARRY</b>			
		9. SURFACE ELEVATION: <b>973.49</b> (973.85 ground) (top PVC) <b>8/12/04</b>			
		10. DATE STARTED: <b>11/4/03</b>		11. DATE COMPLETED: <b>11/4/03</b>	
12. OVERBURDEN THICKNESS: <b>2.9'</b>		15. DEPTH GROUNDWATER ENCOUNTERED: <b>22'</b>			
13. DEPTH DRILLED INTO ROCK: <b>16.5'</b>		16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED:			
14. TOTAL DEPTH OF HOLE: <b>29.4'</b>		17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY):			
18. GEOTECHNICAL SAMPLES		DISTURBED		UNDISTURBED	
19. TOTAL NUMBER OF CORE BOXES		20. SAMPLES FOR CHEMICAL ANALYSIS		21. TOTAL CORE RECOVERY %	
		VOC		METALS	
		OTHER (SPECIFY)		OTHER (SPECIFY)	
22. DISPOSITION OF HOLE		SACFILLED		MONITORING WELL	
		OTHER (SPECIFY)		23. SIGNATURE OF INSPECTOR	
LOCATION SKETCH/COMMENTS: <b>N: 566941.29 (top PVC)</b> SCALE: <b>NA</b> <b>E: 2376519.38</b> <b>8/12/04</b>					



HTRW DRILLING LOG						HOLE NUMBER
PROJECT: Ramsdell Quarry Phase I RI				INSPECTOR: <i>David W. Ealy</i>		RQLmw-014 53
						SHEET 2 OF 5
ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	HEADSPACE SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
		(CLAY) SILT (ML): VERY DARK GRAYISH BROWN (10YR 3/2) MOIST, SOFT, ROOT ZONE, MALL GRAVEL				SPLIT SPOON 0-2' REC: 1.3 BLOWS: WT/1/4/6
	1	(0-0.8) CLAY SILT (ML): BROWN (10YR 5/3) SOFT, MOIST TO SAT. SS GRAVEL (0.8-1.3')				
		ACCUMULATED LOST CORE				
	2	CLAY SILT (ML): SAME AS ABOVE (2.0-2.4')				SPLIT SPOON 2-2.9" REC: 0.9 BLOWS: 26/56-5"
		WEATHERED SS: VERY PALE BROWN (10YR 8/3) INTERBEDDED W/ BROWNISH YELLOW (10YR 6/6) CRUMBLY, SOFT, FINE GRAINED				
	3	SLATE: BROWNISH YELLOW (10YR 6/6) WITH MINOR VERY PALE BROWN (10YR 8/3) INTERBEDS, SLIGHTLY WEATHERED, FINE GRAINED, SOME FR STAINING CH. A FALTS				SWITCHING TO 8" DIAM. AIR ROTARY
	4					
	5					
	6					
	7					
	8					
	9					6" DIAM. AIR ROTARY 8- ' BGL
	10					

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HTRW DRILLING LOG						HOLE NUMBER
PROJECT: Ramsdell Quarry Phase I RI			INSPECTOR: <i>John W. Cox</i>		RQ1114-014	
						SHEET 3 OF 5
ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	HEADSPACE SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
		SAA				
	11	SANDSTONE; INTERBEDDED VERY PALE BROWN (10YR 7/3) AND YELLOWISH BROWN (10YR 5/4) FINE GRAINED, SFT (IMP. - BRACKEN BY H2O)				
	12					
	13	SANDSTONE; YELLOWISH BROWN (10YR 5/4) w/ INTERBEDDINGS OF DARK BROWN (10YR 3/3) FINE GRAINED				
	14	SANDSTONE; GRAY (6/1) FINE GRAINED				FAST PENETRATION - FASTER THAN ABOVE
	15	SANDSTONE; BROWN (7.5YR 4/4) FINE GRAINED				
	16					
	17	SANDSTONE; BROWN (7.5YR 4/4) INTERBEDDED w/ DARK YELLOWISH BROWN (10YR 4/6) AND TRAIL OF GRAY (6/1)				
	18					
	19					
	20					



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MONITORING WELL INSTALLATION LOG

PROJECT NAME: Ramsdell Quarry Phase I RI DELIVERY ORDER: CY11

MONITORING WELL ID: RQLMW-014
INSTALLATION START: DATE: 11/4/03 TIME: 1548
INSTALLATION FINISH: DATE: 11/4/03 TIME: 1720

ANNULAR SPACE MATERIALS INVENTORY:
GRANULAR FILTER PACK: TYPE: #7 SAND-SIDLEY #7 QUANTITY: 6.5-50 lb BAGS
BENTONITE SEAL: TYPE: BM100-Hite Plus 3/8" BENTONITE QUANTITY: 1-50 lb BAG
GROUT: TYPE: TYPE I PORTLAND + BENTONITE QUANTITY: 1-94 lb BAG + 6 lbs Bentonite

DESCRIPTION OF WELL SCREEN:
SLOT SIZE (inches): 0.010 SLOT CONFIGURATION: Horizontal
TOTAL OPEN AREA PER FOOT OF SCREEN:
OUTSIDE DIAMETER: 0.2' (2 3/8") NOMINAL INSIDE DIAMETER: 0.17' (2")
SCHEDULE/THICKNESS: Schedule 40 COMPOSITION: PVC
MANUFACTURER: ENVIRONMENTAL MANUFACTURING INC.

TYPE OF MATERIAL BETWEEN BOTTOM OF BORING AND SCREEN: SAND

DESCRIPTION OF WELL CASING:
OUTSIDE DIAMETER: 0.2' (2 3/8") NOMINAL INSIDE DIAMETER: 0.17' (2")
SCHEDULE/THICKNESS: Schedule 40 COMPOSITION: PVC
MANUFACTURER: ENVIRONMENTAL MANUFACTURING INC.

JOINT DESIGN AND COMPOSITION: THREADED FLUSH JOINT

CENTRALIZERS DESIGN AND COMPOSITION: NONE

DESCRIPTION OF PROTECTIVE CASING: STICK-UP LOCKING LID
NOMINAL INSIDE DIAMETER: 8" COMPOSITION: STEEL

SPECIAL PROBLEMS ENCOUNTERED DURING WELL CONSTRUCTION AND THEIR RESOLUTION:

Was all well screen and casing material used for construction free of foreign matter (e.g., adhesive tape, labels, soil, grease, etc.)? YES [X] NO [ ]

Was all well screen and casing material used for construction free of unsecured couplings, ruptures, and other physical breakage and/or defects? YES [X] NO [ ]

Is deformation or bending of the installed well screen and casing minimized to the point of allowing the insertion and retrieval of a 1.0-inch bailer throughout the entire length of the completed well? YES [X] NO [ ]

QUANTITY OF APPROVED WATER USED FOR FILTER PACK ENPLACEMENT: NONE

RECORDED BY: [Signature] QA CHECK BY: [Signature] 3/1/04
(Signature & Date) (Signature & Date)

14

TASK TEAM ACTIVITY LOG SHEET

PROJECT NAME: Ramsdell Quarry Phase I RI

DELIVERY ORDER NO: CY11

Date (mm/dd/yy): 11/12/03

Su M Tu (W) Th F Sa

PAGE 1 OF 1

Tom Butler  
Kelly Lowe

Narrative (include time and location):

0800 - Setup on RQL mm - 114 for well development

0815 - begin development and record initial readings.

0910 - complete well development and record final readings

11/12/03

12/2/03 114φ - Arrive @ RQL mm 114 & set up for sampling

H<sub>2</sub>O = 18.65' TD = 31.45'

1200 - Take initial readings

1215 - Begin Sampling (RQL 114) + MSMSD

1305 micropurge sampling complete

H<sub>2</sub>O = 18.65'

Daily Weather Conditions: (A.M.) foggy, overcast, humid 57° F

P.M.

Recorded By T. Butler

QA Checked By Kelly Lowe

WELL NUMBER AND LOCATION: RQL mw - 014

DATE	TIME	GALLONS REMOVED	TEMP(C)	SPECIFIC CONDUCTIVITY (µMHOS/CM)	pH (Standard Units)	TURBIDITY	TOTAL GALLONS REMOVED	WELL VOLUMES REMOVED	COMMENTS
11/12/03	0815	0	12.6	.351	5.60	999	0	0	Initial Reading
	0820	12	12.6	.421	5.78	999	12	1	
	0835	24	12.6	.466	5.85	262	24	2	
	0845	12	12.5	.455	5.71	20	36	3	
	0900	12	12.6	.458	5.69	5	48	4	
	0910	12	12.6	.455	5.86	1	60	5	Final Reading
12/2/03	1200	0	9.0	.257	5.94	999	0	NA	Initial reading before micropurge sampling
12/2/03	1205	1.0	10.7	.255	6.22	470	1.0	NA	
	1210	1.0	10.8	.265	6.32	315	2.0	NA	Final reading before micropurge sampling
	1215	1.0	10.9	.276	6.38	255	3.0	NA	
	1245	5.0	10.1	.319	6.44	0	8.0	NA	Final reading

Development ↑

B-30

RECORDED BY: T. Brown 12 NOV 03  
(Signature and Date)

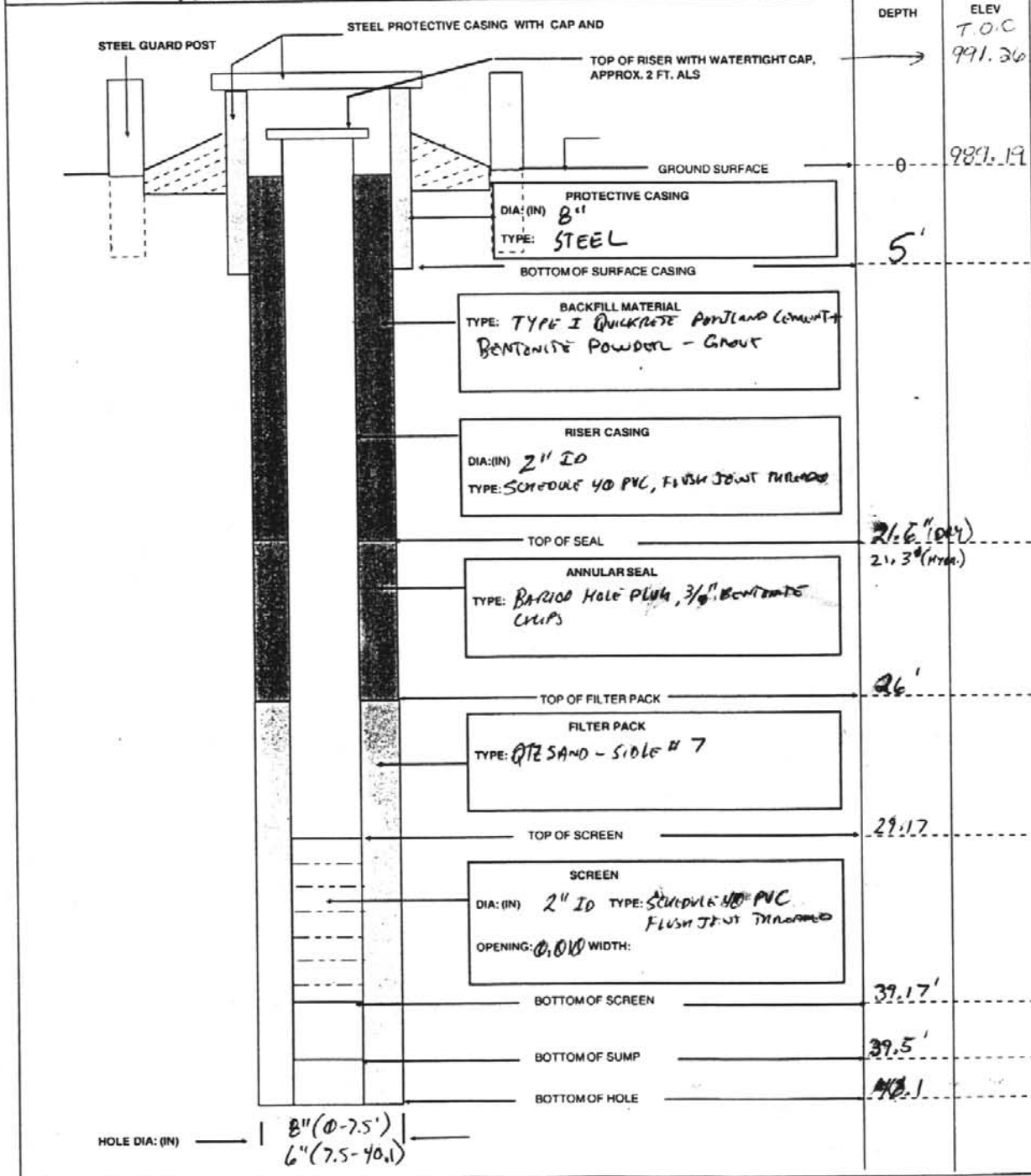
QA CHECK BY: [Signature] 12/15/03  
(Signature and Date)

**MONITORING WELL**

**PROJECT NAME: Ramsdell Quarry Phase I RI      DELIVERY ORDER NO. CY11**

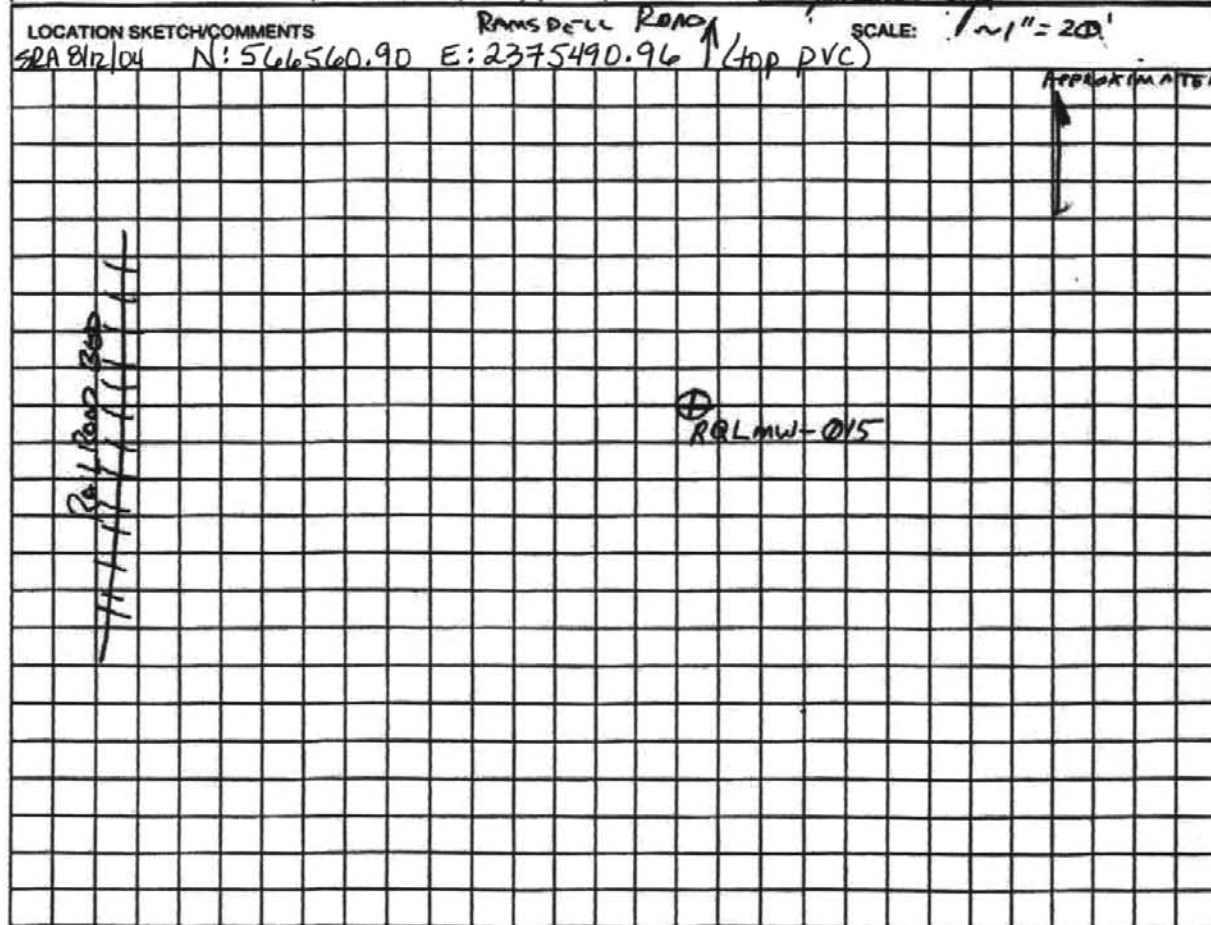
**WELL NUMBER:** *RQLmw-127 015*      **BEGIN:** *11/3/03 @ 945*      **END:** *11/4/03 1140*

**COORDINATES:** N: *560560.90*      **REFERENCE POINT:** *Top of casing*      **ELEVATION:** *991.26 MSL*  
 E: *2375490.90*





<b>HTRW DRILLING LOG</b>		DISTRICT: <b>Louisville</b>		HOLE NUMBER <b>RQLMW-015</b>	
1. COMPANY NAME: <b>SAIC</b>		2. DRILL SUBCONTRACTOR: <b>FRONT Z DRILLING</b>		SHEET <b>1 of 5</b>	
3. PROJECT: <b>Ramsdell Quarry Phase I RI</b>			4. LOCATION: <b>Ramsdell Quarry</b>		
5. NAME OF DRILLER: <b>ROB HAMILTON</b>			6. MANUFACTURERS DESIGNATION OF DRILL: <b>CME 75</b>		
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT: <b>HY DIAMOND CORING 2 3/4" (0.4-40') 8" DIAM ROLLER BIT (0-7.5') 6" DIAM ROLLER BIT (7.5-40')</b>		8. HOLE LOCATION: <b>WEST SIDE OF RAMSDELL QUARRY LAME FILL 994.9 (GROUND)</b>			
		9. SURFACE ELEVATION: <b>991.26 (TOP PVC) SRA 8/12/04</b>			
		10. DATE STARTED: <b>11/2/03</b>		11. DATE COMPLETED: <b>11/3/03</b>	
12. OVERBURDEN THICKNESS: <b>0.4'</b>		15. DEPTH GROUNDWATER ENCOUNTERED:			
13. DEPTH DRILLED INTO ROCK: <b>40'</b>		16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED:			
14. TOTAL DEPTH OF HOLE: <b>40'</b>		17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY):			
18. GEOTECHNICAL SAMPLES		DISTURBED		UNDISTURBED	
19. TOTAL NUMBER OF CORE BOXES: <b>4</b>		20. SAMPLES FOR CHEMICAL ANALYSIS:			
NAME		VOC		METALS	
NONE		N/A		N/A	
22. DISPOSITION OF HOLE		BACKFILLED		MONITORING WELL	
				X	
21. TOTAL CORE RECOVERY %		OTHER (SPECIFY)		OTHER (SPECIFY)	
		N/A		N/A	
23. SIGNATURE OF INSPECTOR:		<i>Rob Hamilton</i>			





HTRW DRILLING LOG						HOLE NUMBER RQLMW- $\phi$ 15 <sup>33</sup>
PROJECT: Ramsdell Quarry Phase I RI			INSPECTOR <i>David H. Galy</i>		SHEET 2 OF 5	
ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	HEADSPACE SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO (F)	REMARKS (G)
	1	GRASS CLAYEY SILT (ML); DARK GRAYISH BROWN (2.5Y 4/2), MOIST TO SATURATED, SLIGHT PLASTICITY (0-0.4)				BEGIN w/ 8" DIAM. AIR LIFT BIT - RAIN BIT - LOW LITHOLOGY FROM ROCK CHIPS
	2					
	3					
	4					
	5					
	6					
	7					
	8					
	9	SANDSTONE: PALE YELLOW (2.5Y 7/3) TAN FINE STAINED HORIZONTAL LINES, FINE FINE FE STAIN GRAYISH FINE FINE ZONE FINE ZONE		↑ CORE BOX #1		BEGIN DRILLING @ 8.5' START: 1042 RUN #1 STOP: 1057 RUN: 4' RQD=0.09 PD: 12.5 REC: 3.5 CD: 12.4 GAIN/LOSS: <del>7.7</del> -0.4



HTRW DRILLING LOG						HOLE NUMBER	
PROJECT: Ramsdell Quarry Phase I RI			INSPECTOR: <i>Joel B. Galy</i>		HOLE NUMBER: <i>RQ11W-134-25</i>		
						SHEET 4 OF 5	
ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	HEADSPACE SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)	
	21	fract, Fe stain fract, Fe stain Box Break		↑ CORE BOX # 2 ↓			
	22	SANDSTONE: GRAY (6/11) FINE GRained fract, ti ti fract, Fe stain					
	23	ti fract 70% ti fract					
	24	ti fract ti fract					
	25	ti fract					
	26	fract zone Fe stain, very pale Brown (104/273) ss w/ gray (6/11) fract, Fe stain SANDSTONE: Brown (104/273) with some interbeds of gray (6/11) ss, fine grained fract zone Fe stain fract @ 26' ti fract					
	27	fract fract ACCUMULATED LOST CORE					RUN # 4 PD=27.5 START 1333 CO=27.4 STOP 1335 RRD @.5 RUN 1' REC @.8 LOSS @.3
	28	70% fract zone 27.8 fract, ti fract fract zone			↑ CORE BOX # 3 ↓		PD 37.5 RUN # 5 CO 37.5 RRD @.29 REC 10.1 11-3-03 0730 START 1342 DTW 28.15' STOP 1406 BGL EN RUN 10' OPEN GAIN @.1 CONSOLE
	29	fract, ti ti fract ti fract Box Break fract, Fe stain fract					
	30						

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209E  
RQ1 MW 125-714

HTRW DRILLING LOG				HOLE NUMBER		
PROJECT: Ramsdell Quarry Phase I RI			INSPECTOR	SHEET 5 OF 5		
ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	HEADSPACE SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
		Fract Fract		↑ Core Box # 3		
		Fract, Shaly parting Fract				
	31	ti Fract ti Fract Gray ss. (SM-6/4) fine shaly parting, Fract shaly parting 30° from horizontal - micaceous bedding				
	32	ti Fract ti Fract ti Fract ti Fract				
	33	ti Fract ti Fract ti Fract ti Fract ti Fract				
	34	ti Fract ti Fract ti Fract ti Fract				
	35	ti Fract ti Fract ti Fract Fract Fract zone				
	36	ti Fract				
	37	ti Fract ti Fract ti Fract ti Fract ti Fract				
	38	ti Fract ti Fract ti Fract 2 ti Fract ti Fract				
	39	ti Fract ti Fract ti Fract		↑ Core Box # 4		
	40	ti Fract ti Fract ti Fract				
		Conglomerate - Fine to small Qtz gravel				Run # 6 Start 1529 Stop 1532 Run 2.5' PD 40' CD 40' RQD 0.68 REC 2.6

MONITORING WELL INSTALLATION LOG

PROJECT NAME: Ramsdell Quarry Phase I RI DELIVERY ORDER: CY11

MONITORING WELL ID: ROLmw-100-104 015

INSTALLATION START: DATE: 11/3/03 TIME: 0945

INSTALLATION FINISH: DATE: 11/3/03 TIME: 1140

ANNULAR SPACE MATERIALS INVENTORY:

GRANULAR FILTER PACK: TYPE: QUARTZ SIOLEY #7 QUANTITY: 4.5-50lb BAGS

BENTONITE SEAL: TYPE: PARIOD HOLE PLUG 3/8" BENTONITE CHIPS QUANTITY: 1-50lb BAG

GROUT: TYPE: TYPE I PORTLAND CEMENT + BENTONITE POWDER QUANTITY: 2-94lb BAGS OF PORTLAND + 12lbs of BENTONITE

DESCRIPTION OF WELL SCREEN:

SLOT SIZE (inches): 0.010 SLOT CONFIGURATION: HORIZONTAL

TOTAL OPEN AREA PER FOOT OF SCREEN: \_\_\_\_\_

OUTSIDE DIAMETER: 0.2' (~2 3/8") NOMINAL INSIDE DIAMETER: 0.17' (2")

SCHEDULE/THICKNESS: SCHEDULE 40 COMPOSITION: PVC

MANUFACTURER: ENVIRONMENTAL MANUFACTURING, INC.

TYPE OF MATERIAL BETWEEN BOTTOM OF BORING AND SCREEN:

DESCRIPTION OF WELL CASING:

OUTSIDE DIAMETER: 0.2' (~2 3/8") NOMINAL INSIDE DIAMETER: 0.17' (2")

SCHEDULE/THICKNESS: SCHEDULE 40 COMPOSITION: PVC

MANUFACTURER: ENVIRONMENTAL MANUFACTURING, INC.

JOINT DESIGN AND COMPOSITION: FLUSH JOINT THREADED

CENTRALIZERS DESIGN AND COMPOSITION: NONE

DESCRIPTION OF PROTECTIVE CASING: STICK-UP, LOCKING LID

NOMINAL INSIDE DIAMETER: 8" COMPOSITION: STEEL

SPECIAL PROBLEMS ENCOUNTERED DURING WELL CONSTRUCTION AND THEIR RESOLUTION:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Was all well screen and casing material used for construction free of foreign matter (e.g., adhesive tape, labels, soil, grease, etc.)? YES  NO [ ]

Was all well screen and casing material used for construction free of unsecured couplings, ruptures, and other physical breakage and/or defects? YES  NO [ ]

Is deformation or bending of the installed well screen and casing minimized to the point of allowing the insertion and retrieval of a 1.0-inch bailer throughout the entire length of the completed well? YES  NO [ ]

QUANTITY OF APPROVED WATER USED FOR FILTER PACK ENPLACEMENT: NONE

RECORDED BY: Todd D. Gray 11/3/03 QA CHECK BY: M. Clump 3/2/04  
(Signature & Date) (Signature & Date)

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### TASK TEAM ACTIVITY LOG SHEET

PROJECT NAME: Ramsdell Quarry Phase I RI

DELIVERY ORDER NO: CY11

Date (mm/dd/yy): 12/3/03

Su M Tu **W** Th F Sa

PAGE 1 OF 1

Kelly Lowe

Kelly Lowe  
Tom Butler

Narrative (include time and location):

1014 - Arrive @ RQ Lmw  $\phi 15$  & set up for sampling

TD = 41.95' H<sub>2</sub>O = 3 $\phi$ .8'

1031 - Start pump.

1054 - Unable to hold stable water level and purge  
40 mL/min. Will return w/ pump to pump dry  
(will pump w/ QED & bail w/ bailer)

1224 - Well is pumped/bailed dry after 15 gals.  
Will allow for recharge & return w/  
bailer to sample

12/04/03 0930 - Arrive @ RQ Lmw  $\phi 15$ , set up to sample with  
bailer. H<sub>2</sub>O = 3 $\phi$ .6'

0945 - Sample RQ  $\phi 142$  collected for full suite  
analysis. Horiba readings recorded.

Daily Weather Conditions: **A.M.** 3 $\phi$ °F, sunny

P.M. -

Recorded By Kelly

QA Checked By M. Clout

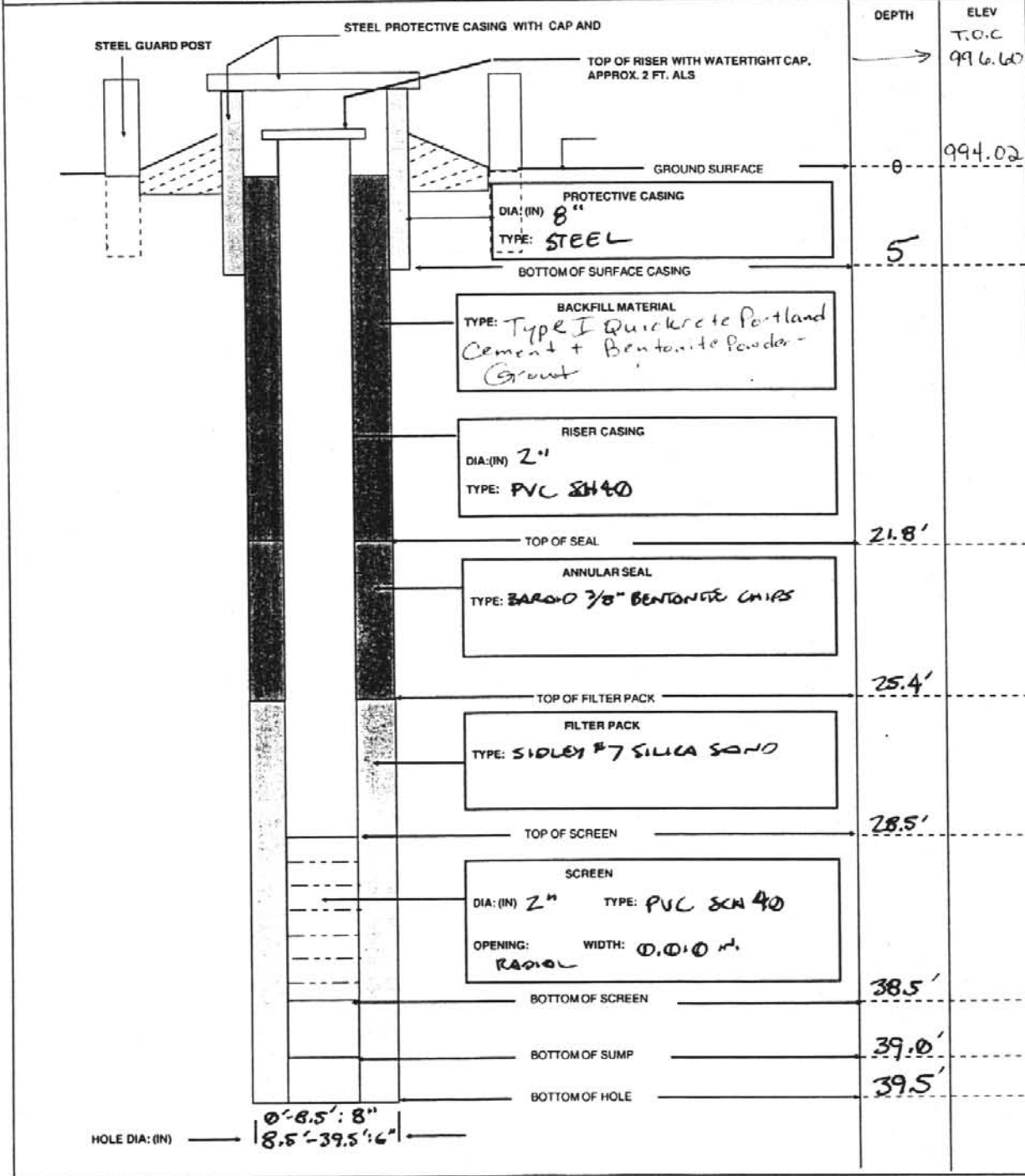


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**MONITORING WELL**

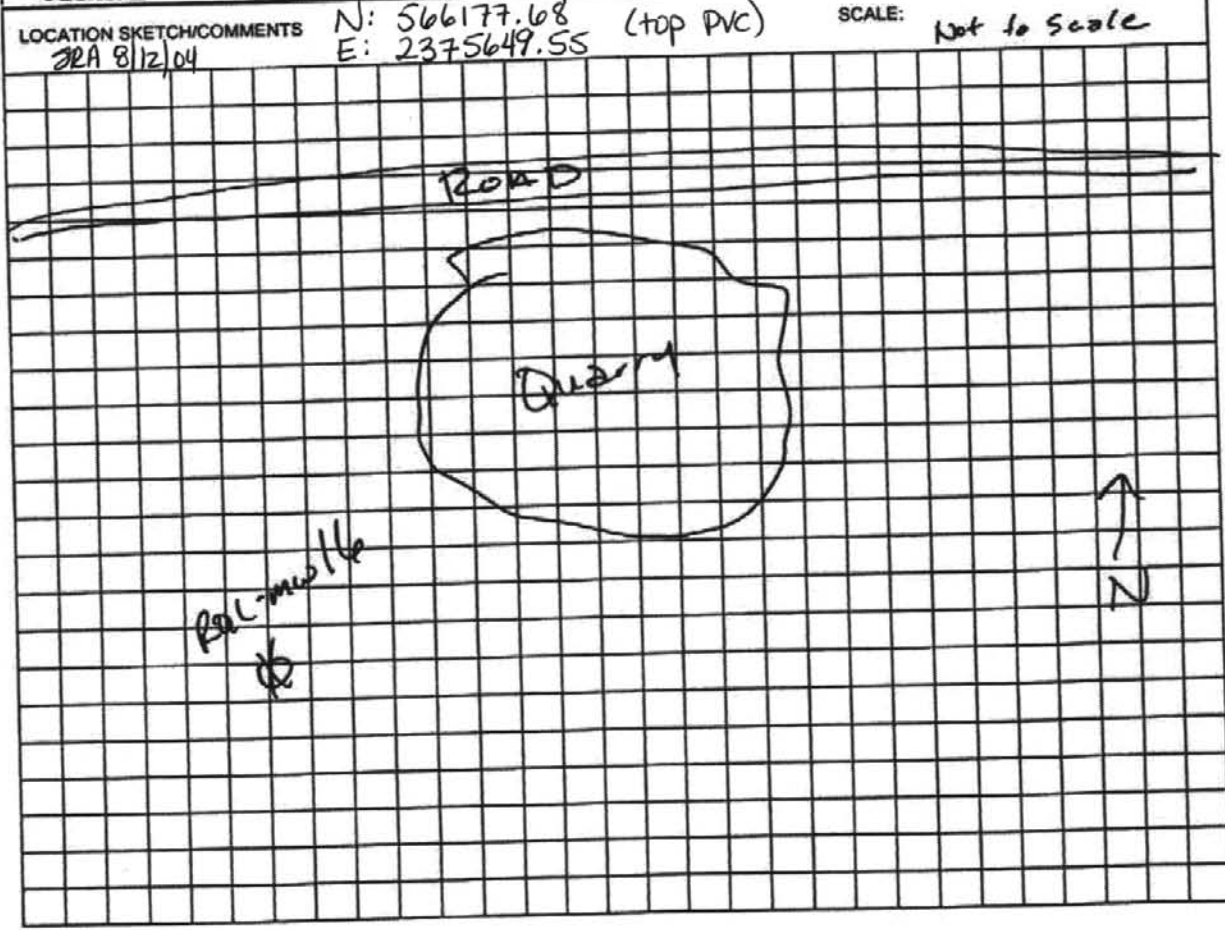
PROJECT NAME: Erie Burning Ground Phase II  
 DELIVERY ORDER NO: CY10

WELL NUMBER: RQL MW-016	BEGIN: 11/03/03	END: 11/4/03
COORDINATES: N: 564177.68 E: 2375649.55	REFERENCE POINT: Top of Casing	ELEVATION: 996.60MSL





<b>HTRW DRILLING LOG</b>		DISTRICT: <b>Louisville</b>		HOLE NUMBER <b>RQL MW 016</b>
1. COMPANY NAME: <b>SAIC</b>		2. DRILL SUBCONTRACTOR: <b>Frontier Drilling</b>		SHEET <b>1 of 5</b>
3. PROJECT: <b>Erie Burning Grounds Phase 1 I, Ramsdell Quarry Landfill</b>		4. LOCATION: <b>Erie Burning Grounds Ramsdell Quarry Landfill</b>		
5. NAME OF DRILLER: <b>Jeremy Leckrone</b>		6. MANUFACTURERS DESIGNATION OF DRILL: <b>CME 750</b>		
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT <b>4 1/2" ID HSA, 2" SPLIT SCREEN 8" ROTARY/ROLLER BIT, 6" ROUGH BIT</b>		8. HOLE LOCATION: <b>SW of Ramsdell Quarry LF (SPA 8/12/04)</b>		
		9. SURFACE ELEVATION: <b>996.60 (top PVC) SPA 8/12/04</b>		
		10. DATE STARTED: <b>11/08/03</b>		
		11. DATE COMPLETED: <b>11/4/03</b>		
12. OVERBURDEN THICKNESS <b>2.5'</b>		15. DEPTH GROUNDWATER ENCOUNTERED:		
13. DEPTH DRILLED INTO ROCK <b>37' OF ROCK (39.5' BGS)</b>		16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED:		
14. TOTAL DEPTH OF HOLE <b>39.5' BGS</b>		17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY):		
18. GEOTECHNICAL SAMPLES		19. TOTAL NUMBER OF CORE BOXES		20. TOTAL CORE RECOVERY %
20. SAMPLES FOR CHEMICAL ANALYSIS		DISTURBED	UNDISTURBED	
		VOC	METALS	OTHER (SPECIFY)
21. DEPOSITION OF HOLE		SHIPPED	MONITORING WELL	OTHER (SPECIFY)
<b>VEER HOLE</b>			<b>RQL MW 016</b>	
22. SIGNATURE OF INSPECTOR				



RAMPART QUARRY LANDFILL HTRW DRILLING LOG						HOLE NUMBER MW-016
PROJECT: <u>Fort Rucker Grounds Phase I</u>			INSPECTOR: <u>Charles L. Klingler</u>		SHEET 2 OF 5	
ELEV. (A)	DEPTH (B) (ft)	DESCRIPTION OF MATERIALS (C)	HEADSPACE SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	0	ML Silt, wet, dk. grayish brown (2.5 y 4/2), many roots, low plasticity, soft				1/2 1/1 8/5 0'-2'
	1	ML silt with fine sand, moist, low plasticity, massive yellowish brown (10YR 5/8) and light olive gray (5Y 6/2) stiff				1.3 1/2'
	2					10/5/2 3/5 2'-4'
	3	SANDSTONE BEDROCK, yellowish-gray (5Y 8/1) weathered, fine grain				
	4	weathered fractured zone				
	5	fracture/weathered zone				
	6	competent rock sandstone, fine grained pale brown (10YR 6/3)				
	7	color changed to li. gray (10YR 7/2)				
	8	SAME AS ABOVE				
	9					
	10	SAME AS ABOVE				

8" ROLLER BIT  
 6" ROLLER BIT  
 CORRECTED, DRIVEN  
 DOWN TO 8.5'  
 WITH 8" BIT, 6"  
 STARTS AT 8.5' BGS.

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RQL

Ramsdell Quarry Landfill HTRW DRILLING LOG						HOLE NUMBER
PROJECT: <del>Fire Training Grounds Phase I.</del> Landfills				INSPECTOR: Charles L. Kinyard		AW-016
ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	HEADSPACE SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	10	SAME AS ABOVE: COMPLETE FINE GRANULAR SANDSTONS, LK. GRAY				
	11					
	12	COLOR CHANGES TO YELLOWISH-BROWN (10YR 6/6)				
	13	SAME AS ABOVE				
	14					
	15	REACTIVE ZONE IRON STAINING				
	16	SAME AS ABOVE				
	17					
	18	COLOR CHANGES TO LIGHT BROWNISH GRAY (10YR 6/2)				
	19	LT. GRAY (10YR 7/2) AND SOFTER				
	20					

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Ransden Quarry Landfill HTRW DRILLING LOG					HOLE NUMBER <u>MD-016</u>	
PROJECT: <u>Erie Burning Grounds Phase II</u>			INSPECTOR: <u>Charles L. Kivimaki</u>		SHEET <u>4</u> OF <u>5</u>	
ELEV. (A)	DEPTH (B) (ft)	DESCRIPTION OF MATERIALS (C)	HEADSPACE SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	20					
	21	SAME AS ABOVE (SAA)				
	22	SAA				
	23					
	24	COLOR CHANGE TO DK. GRAY (N 4/10) V. HARD FRACTURE ZONE SHOW STAINING AND STAINERS OF COMPETENT SANDSTONE (i.e. INTERBEDDED LENS)				
	25					
	26	COMPETENT, FINE GRAINED, LT. GRAY SANDSTONE				
	27	SAME AS ABOVE				
	28	SAA				
	29					
	30	FRACTURE ZONE				

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RAMSDEN QUARRY LANDFILL HTRW DRILLING LOG						HOLE NUMBER
PROJECT: Erie Burning Grounds Phase-II Phase I				INSPECTOR: CHARLES L. KIRKLEY		SHEET 5 OF 5
ELEV. (A)	DEPTH (B) (FT)	DESCRIPTION OF MATERIALS (C)	HEADSPACE SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
	30	INTERLOCKED FLOCCULE AND COMPACT SILTY CLAY, FINE GRAINED SANDSTONE				
	31					
	32	COMPACT SANDSTONE, FINE GRAINED, SILTY CLAY (N7/0)				
	33					
	34	SAME AS ABOVE				
	35					
	36	FRAGILE ZONE				
	37					
	38	SOME CLAY CHIPS LIGHT OLIVE (NOT CLAY SILT)				
	39					
	40	END OF BORING @ 39.5' B.C.S. FROM 3.5' TO 39.5' IS 6" BOREHOLE IN ROCK				

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### MONITORING WELL INSTALLATION LOG

PROJECT NAME: Ramsden Quarry Landfill ~~Erie Burning Grounds Phase II I.~~ DELIVERY ORDER: CY10

MONITORING WELL ID: RQL MW-016

INSTALLATION START: DATE: 11/03/03 TIME: 1600

INSTALLATION FINISH: DATE: 11/04/03 TIME: 1505

#### ANNULAR SPACE MATERIALS INVENTORY:

GRANULAR FILTER PACK: TYPE: SIDLEY #7 SILICA SAND QUANTITY: 250 LBS  
 BENTONITE SEAL: TYPE: 801010 3/8" CHIPS QUANTITY: 50 LBS  
 GROUT: PORTLAND TYPE: I + BENTONITE QUANTITY: 150 LBS

#### DESCRIPTION OF WELL SCREEN:

SLOT SIZE (inches): 0.010 SLOT CONFIGURATION: RADIAL  
 TOTAL OPEN AREA PER FOOT OF SCREEN: \_\_\_\_\_  
 OUTSIDE DIAMETER: 2 3/8" NOMINAL INSIDE DIAMETER: 2"  
 SCHEDULE/THICKNESS: SCH 40 COMPOSITION: PVC  
 MANUFACTURER: Environmental Manufacturing Inc.

#### TYPE OF MATERIAL BETWEEN BOTTOM OF BORING AND SCREEN:

#### DESCRIPTION OF WELL CASING:

OUTSIDE DIAMETER: 2 3/8" NOMINAL INSIDE DIAMETER: 2"  
 SCHEDULE/THICKNESS: SCH 40 COMPOSITION: PVC  
 MANUFACTURER: Environmental Manufacturing Inc.

JOINT DESIGN AND COMPOSITION: THREADED F/8

CENTRALIZERS DESIGN AND COMPOSITION: NA

DESCRIPTION OF PROTECTIVE CASING: STICK-UP, LOCKING LID

NOMINAL INSIDE DIAMETER: 8" COMPOSITION: STEEL

#### SPECIAL PROBLEMS ENCOUNTERED DURING WELL CONSTRUCTION AND THEIR RESOLUTION:

Was all well screen and casing material used for construction free of foreign matter (e.g., adhesive tape, labels, soil, grease, etc.)? YES  NO

Was all well screen and casing material used for construction free of unsecured couplings, ruptures, and other physical breakage and/or defects? YES  NO

Is deformation or bending of the installed well screen and casing minimized to the point of allowing the insertion and retrieval of a 1.0-inch bailer throughout the entire length of the completed well? YES  NO

QUANTITY OF APPROVED WATER USED FOR FILTER PACK ENPLACEMENT: 0

RECORDED BY: M. Dough 11/04/03 QA CHECK BY: M. Dough 3/1/04  
 (Signature & Date) (Signature & Date)

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TASK TEAM ACTIVITY LOG SHEET

PROJECT NAME: Ramsdell Quarry Phase I RI

DELIVERY ORDER NO: CY11

Date (mm/dd/yy): 12/30/03

Su M Tu W Th F Sa

PAGE 2 OF 2

Kelly Lowe  
Tom Butler

Narrative (include time and location):

- (11/19/03) φ84φ - Bail well for remaining 2 gals.
- φ845 - Final readings & sample collected
- 12/31/03 φ745 - Arrive @ R01mwφ16 & set up for sampling  
H<sub>2</sub>O @ = 35.φ1' TD @ = 41.62'.
- φ9φ1 - Unable to micropurge. Controller set at slowest setting  
& water level is still drawn down, not getting  
much volume out < 4φml.
- φ933 - Well pumped dry to top of pump - will return  
w/ bailer to purge remaining well water
- 1φ45 - Well dry after total of 8 gals. Will  
allow for recharge & will return to sample  
with bailer.
- 12/4/03 φ9φφ - Arrive @ R01mwφ16. Will collect sample w/ bailer
- φ915 - Sample R0φ143 collected for full suite analysis
- Final Horiba readings recorded, H<sub>2</sub>O @ 34.9'

Daily Weather Conditions: (A.M.) 25°F, partly cloudy

P.M.

Recorded By Kelly Lowe

QA Checked By M. Chopin

PROJECT NAME: Ramsdell Quarry

PAGE 1 OF 1

WELL NUMBER AND LOCATION: R201mw #16

DATE	TIME	GALLONS REMOVED	TEMP(C)	SPECIFIC CONDUCTIVITY (µMHOS/CM)	pH (Standard Units)	TURBIDITY	TOTAL GALLONS REMOVED	WELL VOLUMES REMOVED	COMMENTS
11/13/03	0939	0	9.9	1.74	6.17	999	0	0	initial reading
	1005	7	10.4	1.62	6.44	999	7	1	
11/17/03	0915	7	11.0	1.93	6.63	22	14	2	
11/19/03	0845	6	11.9	1.90	6.50	72	20	3	final reading (FCO
									allows for producing wells to be developed only to 3 volumes removed)
<del>Keel 15 11/18/03</del>									
									temperature affected by weather on diff. days
12/04/03	0920	NA	9.5	2.22	5.86	10	NA	NA	final readings

development

B-48

RECORDED BY: Keel 15 11/13/03  
(Signature and Date)

QA CHECK BY: M. Clark 11/10/04  
(Signature and Date)

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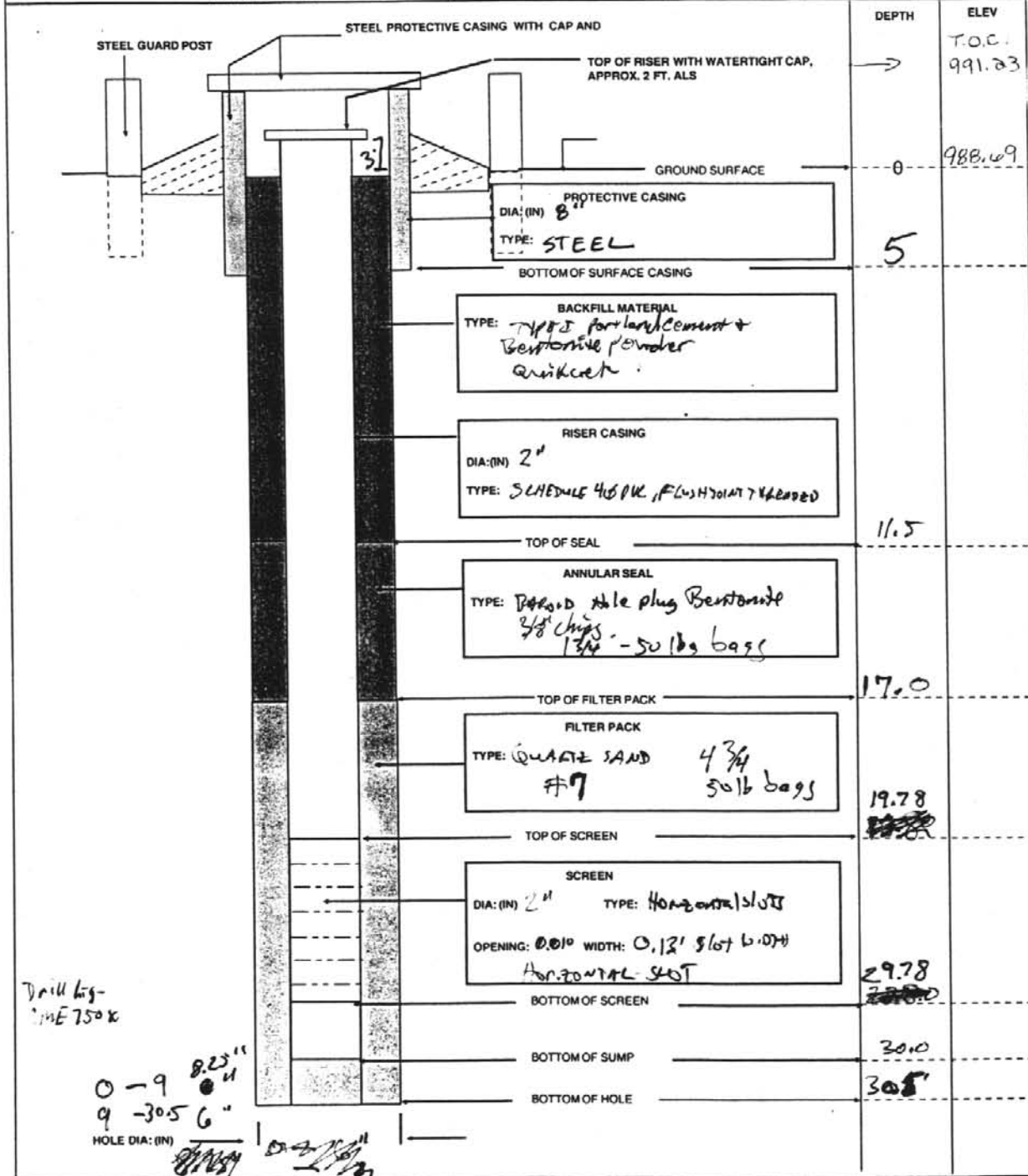
89

**MONITORING WELL**

PROJECT NAME: Erie Burning Grounds Phase II DELIVERY ORDER NO: CY10

WELL NUMBER: *RALmo-017* BEGIN: *11-10-03* END: *11-11-03*

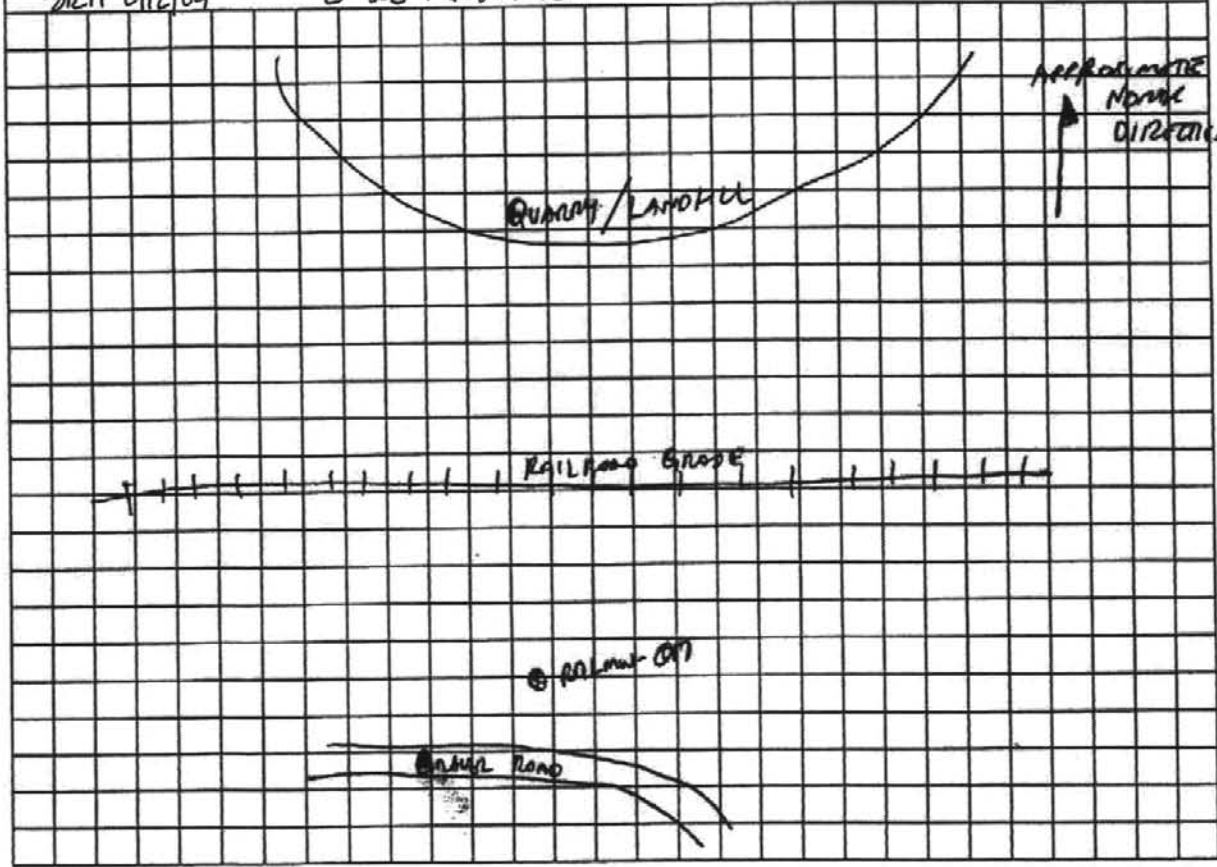
COORDINATES: N: *565931.38* E: *2376124.18* REFERENCE POINT: *Top of casing* ELEVATION: *991.23* MSL



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<b>HTRW DRILLING LOG</b>		DISTRICT: <b>Louisville</b>		HOLE NUMBER <b>R02Lmw-017</b>	
1. COMPANY NAME: <b>SAIC</b>		2. DRILL SUBCONTRACTOR: <b>Frontz.</b>		SHEET <b>L-5</b>	
3. PROJECT: <b>RANDOLL QUARRY PHASE I RE Erie Burning Grounds Phase II</b>			4. LOCATION: <b>RANDOLL QUARRY Erie Burning Grounds</b>		
5. NAME OF DRILLER: <b>JEREMY LECKRONE</b>			6. MANUFACTURERS DESIGNATION OF DRILL: <b>CME 750</b>		
7. SIZES AND TYPES OF DRILLING AND SAMPLING EQUIPMENT		8. HOLE LOCATION: <b>SOUTH OF QUARRY</b>			
4 1/4" ID HSA, 2" SPLITSPON, 8" ROTARY/ROLLER BIT 6" ROLLER BIT		9. SURFACE ELEVATION: <b>991.23' AMSL (TOP PVC) 988.109' AMSL (GROUND)</b>			
		10. DATE STARTED: <b>11/5/03</b>		11. DATE COMPLETED: <b>11/11/03</b>	
12. OVERBURDEN THICKNESS: <b>2' φ</b>		15. DEPTH GROUNDWATER ENCOUNTERED: <b>25' bgs</b>			
13. DEPTH DRILLED INTO ROCK: <b>28.5'</b>		16. DEPTH TO WATER AND ELAPSED TIME AFTER DRILLING COMPLETED:			
14. TOTAL DEPTH OF HOLE: <b>30.5'</b>		17. OTHER WATER LEVEL MEASUREMENTS (SPECIFY):			
18. GEOTECHNICAL SAMPLES		DISTURBED		UNDISTURBED	
19. TOTAL NUMBER OF CORE BOXES: <b>2</b>		20. SAMPLES FOR CHEMICAL ANALYSIS		21. TOTAL CORE RECOVERY %	
		VOC		METALS	
		OTHER (SPECIFY):		OTHER (SPECIFY):	
22. DISPOSITION OF HOLE		BAGGED		MONITORED WELL	
		X		OTHER (SPECIFY):	
				23. SIGNATURE OF INSPECTOR: <b>A. Clout</b>	

LOCATION SKETCH/COMMENTS  
**SOLA 8/12/04**  
**N: 565931.38 (top PVC)**  
**E: 2376124.18**  
 SCALE: **1" = 200'**







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HTRW DRILLING LOG						HOLE NUMBER
PROJECT: RAMSDALE Quarry Phase I Site Burning Grounds Phase II		INSPECTOR: Todd D. Cox / Matthew Munnich		SHEET 4 OF 5		RALmd-017
ELEV (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	HEADSPACE SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
		(19.3-20.6) <sup>fractured L 2" sandstone</sup>				
	21	ACCUMULATED LOST CONE				
	22					
	23	5Y 6/1 Light olive gray fine to medium sandstone, slightly friable fracture every 2 inches		core box #3		run # 3 start 1348 stop 1410 PD 1/A run CD
	24	Light gray fine sandstone (5Y 6/1) weathering along to gray interbeds	NA	core box #2	NA	REC 100% 1.5' RAD
	25	Grayish orange (10YR 7/4) fine to med. sandstone, some	NA			- 1410 problem w/ rig switching down Ramp #4
	26	Light gray, grayish orange (10YR 7/4) fine to med. sandstone. transition staining on core	NA	core box #2 fracture	NA	start 1055 stop 1100 AC 100% 1' RAD
	27					Run #6 start 1100 finish 1110 Recovery 4.5'/5.0' RAD 75%
	28	grades to pale yellowish brown (10YR 4/2)				
	29					
	30	grades to Lt olive gray (5Y 6/1) w/ dk gray interbeds				

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RAMSDALE Quarry Phase I HTRW DRILLING LOG						HOLE NUMBER
PROJECT: Eric Burning Grounds Phase I				INSPECTOR: [Signature]		AAL 017
						SHEET 5 OF 5
ELEV. (A)	DEPTH (B)	DESCRIPTION OF MATERIALS (C)	HEADSPACE SCREENING RESULTS	GEOTECH SAMPLE OR CORE BOX	ANALYTICAL SAMPLE NO. (F)	REMARKS (G)
		no core	NA			30.3' end of casing 30.5'
	31					
	32					Finishing hole at 1507
	33					EOB @ 30.5' 1507 on 11/10/03 well installed to on 11/10/03.
	34					
	35					
	36					
	37					
	38					
	39					
	40					

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MONITORING WELL INSTALLATION LOG

PROJECT NAME: Ramsdell Quarry Phase I  
Erie Burning Grounds Phase II DELIVERY ORDER: 0Y10

MONITORING WELL ID: RQLmW - 017  
INSTALLATION START: DATE: 11/10/03 TIME: 12:45  
INSTALLATION FINISH: DATE: 11/11/03 TIME: 0445

Drill Rig → CME 200X  
Drill v. - Fraze

ANNULAR SPACE MATERIALS INVENTORY:  
GRANULAR FILTER PACK: TYPE: Quartz Sand #7 QUANTITY: \_\_\_\_\_  
BENTONITE SEAL: TYPE: Baroid 3/4" chips QUANTITY: \_\_\_\_\_  
GROUT: Portland TYPE: I + Bentonite QUANTITY: 50 lbs.

DESCRIPTION OF WELL SCREEN:  
SLOT SIZE (inches): 0.010 SLOT CONFIGURATION: Horizontal  
TOTAL OPEN AREA PER FOOT OF SCREEN: \_\_\_\_\_  
OUTSIDE DIAMETER: 0.2' (2 3/8") NOMINAL INSIDE DIAMETER: 0.17' (2")  
SCHEDULE/THICKNESS: SCSD 40 COMPOSITION: PVC  
MANUFACTURER: ENVIRONMENTAL MANUFACTURING INTL.

TYPE OF MATERIAL BETWEEN BOTTOM OF BORING AND SCREEN:  
DESCRIPTION OF WELL CASING:  
OUTSIDE DIAMETER: 0.2' (2 3/8") NOMINAL INSIDE DIAMETER: 0.17' 2"  
SCHEDULE/THICKNESS: SCSD 40 COMPOSITION: PVC  
MANUFACTURER: ENVIRONMENTAL MANUFACTURING, INC.

JOINT DESIGN AND COMPOSITION: FLUSH JOINT Threaded PVC

CENTRALIZERS DESIGN AND COMPOSITION: NA

DESCRIPTION OF PROTECTIVE CASING: STICK-UP, LOCKING CAP  
NOMINAL INSIDE DIAMETER: 8" COMPOSITION: STEEL

SPECIAL PROBLEMS ENCOUNTERED DURING WELL CONSTRUCTION AND THEIR RESOLUTION:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Was all well screen and casing material used for construction free of foreign matter (e.g., adhesive tape, labels, soil, grease, etc.)? YES  NO

Was all well screen and casing material used for construction free of unsecured couplings, ruptures, and other physical breakage and/or defects? YES  NO

Is deformation or bending of the installed well screen and casing minimized to the point of allowing the insertion and retrieval of a 1.0-inch bailer throughout the entire length of the completed well? YES  NO

QUANTITY OF APPROVED WATER USED FOR FILTER PACK ENPLACEMENT: NONE

RECORDED BY: \_\_\_\_\_ QA CHECK BY: \_\_\_\_\_  
(Signature & Date) (Signature & Date)



TASK TEAM ACTIVITY LOG SHEET

PROJECT NAME: Ramsdell Quarry Phase I RI

DELIVERY ORDER NO: CY11

Date (mm/dd/yy): 12/1/03 Su (M) Tu W Th F Sa PAGE 2 OF 2

M. Clough  
T. Butler

Narrative (include time and location):

See page 49 (use wrong section for development)

1120 - At ROL mw  $\phi 17$  to bail well prior to sampling

1121 -  $H_2O = 29.39'$  BTOC

Temp = 9.6

pH = 6.27

Cond = 4.675

Turb = 83

1500 - Return to sample  $H_2O = 29.78'$

1553 - well is dry after ~1.5' gals.

12/2/03  $\phi 757$  - Return to collect remainder of sample volume.  $H_2O @ 29.81'$  btoC

Daily Weather Conditions: A.M. P. Cloudy P.M.

Recorded By [Signature] QA Checked By [Signature]