

APPENDIX B

MANUAL WATER LEVEL MEASUREMENTS

**FINAL REPORT
GROUNDWATER INVESTIGATION
RAMSDELL QUARRY LANDFILL
RAVENNA ARMY AMMUNITION PLANT**

Table B-1. Manual Water Level Readings from Existing Wells at Ramsdell Quarry, June 1989 through December 1997*

Date	MW-1		MW-2		MW-3		MW-4		MW-5	
	Depth	Elev.	Depth	Elev.	Depth	Elev.	Depth	Elev.	Depth	Elev.
6-5-89	25.00	961.22	–	–	15.97	960.50	26.00	966.06	22.09	955.67
12-14-89	26.00	960.22	–	–	17.25	958.92	26.34	965.72	24.93	952.83
6-21-90	25.00	961.22	–	–	15.00	961.17	29.58	962.48	23.43	954.33
12-06-90	22.75	963.47	–	–	12.42	963.75	27.34	964.72	21.26	956.50
6-20-91	24.08	962.14	–	–	15.00	961.17	28.25	963.81	22.76	955.00
2-27-92	29.92	956.30	28.58	956.47	24.08	952.09	34.42	957.64	29.09	948.67
6-25-92	29.67	956.55	29.00	956.05	22.67	953.50	33.08	958.98	27.84	949.92
10-1-92	28.58	957.64	27.67	957.38	20.00	956.17	32.34	959.72	26.26	951.50
2-25-93	26.42	959.80	23.92	961.13	16.08	960.09	30.58	961.48	24.59	953.17
7-15-93	26.00	960.22	25.33	959.72	16.25	959.92	30.50	961.56	24.76	953.00
2-21-94	28.50	957.72	26.90	958.15	20.50	955.67	32.20	959.86	25.51	952.25
7-28-94	27.80	958.42	27.20	957.85	17.70	958.47	31.50	960.56	26.01	951.75
12-22-90	29.33	956.89	27.08	957.97	21.50	954.67	34.00	958.06	27.59	950.17
6-28-95	28.42	957.80	25.75	959.30	20.00	956.17	33.42	958.64	26.51	951.25
8-30-95	–		25.58	959.47	25.92	950.25	–	–	26.68	951.08
12-14-95	29.25	956.97	25.67	959.38	20.08	956.09	34.33	957.73	27.01	950.75
6-20-96	25.33	960.89	31.50	953.55	15.00	961.17	35.08	956.98	26.43	951.33
8-8-96	–		–	–	18.42	957.75	31.17	960.89	25.09	952.67
9-5-96	–		–	–	19.08	957.09	32.00	960.06	26.01	951.75
12-19-96	23.33	962.89	29.50	955.55	13.08	963.09	30.08	961.98	23.43	954.33
2-6-97	25.97	960.30	–	–	16.50	959.67	35.00	957.06	24.01	953.75
6-29-97	23.23	962.89	33.50	951.55	16.42	959.75	35.33	956.73	27.18	950.58
10-7-97	27.75	958.47	26.75	958.30	18.84	957.33	31.84	960.22	21.92	955.84
12-11-97	32.60	953.62	27.50	957.55	21.70	954.47	29.50	962.56	26.61	951.15

*All depths are feet below top of casing. All elevations are in feet above mean sea level.

Table B-2. Manual Water Level Readings at Ramsdell Quarry, September 1998 through July 1999

Station	Date	Reference Elevation ^a	Depth to Water (feet)	Water Level Elevation ^b
RQLMW-001	09/18/1998	986.13	29.17	956.96
RQLMW-002	09/18/1998	981.90	25.58	956.32
RQLMW-003	09/18/1998	974.54	21.44	953.10
RQLMW-004	09/18/1998	991.80	33.34	958.46
RQLMW-005	09/18/1998	977.38	23.50	953.88
RQLMW-006	09/18/1998	995.39	35.54	959.85
RQLMW-007	09/18/1998	965.91	8.67	957.24
RQLMW-008	09/18/1998	966.08	8.92	957.16
RQLMW-009	09/18/1998	964.58	7.98	956.60
RQLMW-010	09/18/1998	982.14	27.24	954.90
RQLMW-011	09/18/1998	976.57	23.65	952.92
Staff Gauge	09/18/1998	955.69/961.66 ^c	1.25 (AGS) ^d	956.94
RQLMW-001	10/19/1998	986.13	30.24	955.89
RQLMW-002	10/19/1998	981.90	26.51	955.39
RQLMW-003	10/19/1998	974.54	22.22	952.32
RQLMW-004	10/19/1998	991.80	34.33	957.47
RQLMW-005	10/19/1998	977.38	24.38	953.00
RQLMW-006	10/19/1998	995.39	36.52	958.87
RQLMW-007	10/19/1998	965.91	9.49	956.42
RQLMW-008	10/19/1998	966.08	9.49	956.59
RQLMW-009	10/19/1998	964.58	8.51	956.07
RQLMW-010	10/19/1998	982.14	28.21	953.93
RQLMW-011	10/19/1998	976.57	24.40	952.17
Staff Gauge	10/19/1998	955.69/961.66 ^c	1.20 (AGS) ^d	956.89
RQLMW-001	11/13/1998	986.13	30.50	955.63
RQLMW-002	11/13/1998	981.90	29.71	952.19
RQLMW-003	11/13/1998	974.54	22.34	952.20
RQLMW-004	11/13/1998	991.80	34.63	957.17
RQLMW-005	11/13/1998	977.38	24.59	952.79
RQLMW-006	11/13/1998	995.39	36.85	958.54
RQLMW-007	11/13/1998	965.91	9.82	956.09
RQLMW-008	11/13/1998	966.08	9.78	956.30
RQLMW-009	11/13/1998	964.58	8.14	956.44
RQLMW-010	11/13/1998	982.14	28.47	953.67
RQLMW-011	11/13/1998	976.57	24.57	952.00
Staff Gauge	11/13/1998	955.69/961.66 ^c	0.025 (AGS) ^d	955.72
RQLMW-001	12/11/1998	986.13	31.09	955.04
RQLMW-002	12/11/1998	981.90	27.31	954.59
RQLMW-003	12/11/1998	974.54	22.82	951.72
RQLMW-004	12/11/1998	991.80	35.27	956.53
RQLMW-005	12/11/1998	977.38	25.12	952.26
RQLMW-006	12/11/1998	995.39	37.52	957.87
RQLMW-007	12/11/1998	965.91	10.37	955.54
RQLMW-008	12/11/1998	966.08	10.54	955.54
RQLMW-009	12/11/1998	964.58	9.75	954.83
RQLMW-010	12/11/1998	982.14	29.07	953.07
RQLMW-011	12/11/1998	976.57	25.07	951.50
Staff Gauge	12/11/1998	955.69/961.66 ^c	dry (0.00) ^d	N/A
RQLMW-001	01/01/1999	986.13	30.51	955.62

Table B-2 (continued)

Station	Date	Reference Elevation ^a	Depth to Water (feet)	Water Level Elevation ^b
RQLMW-002	01/01/1999	981.90	26.71	955.19
RQLMW-003	01/01/1999	974.54	21.86	952.68
RQLMW-004	01/01/1999	991.80	34.75	957.05
RQLMW-005	01/01/1999	977.38	24.00	953.38
RQLMW-006	01/01/1999	995.39	37.40	957.99
RQLMW-007	01/01/1999	965.91	8.37	957.54
RQLMW-008	01/01/1999	966.08	8.17	957.91
RQLMW-009	01/01/1999	964.58	6.39	958.19
RQLMW-010	01/01/1999	982.14	27.87	954.27
RQLMW-011	01/01/1999	976.57	24.09	952.48
Staff Gauge	01/01/1999	955.69/961.66 ^c	(0.5 ft snow) ^d	N/A
RQLMW-001	02/12/1999	986.13	29.31	956.82
RQLMW-002	02/12/1999	981.90	25.34	956.56
RQLMW-003	02/12/1999	974.54	19.12	955.42
RQLMW-004	02/12/1999	991.80	33.44	958.36
RQLMW-005	02/12/1999	977.38	22.63	954.75
RQLMW-006	02/12/1999	995.39	36.35	959.04
RQLMW-007	02/12/1999	965.91	6.69	959.22
RQLMW-008	02/12/1999	966.08	6.66	959.42
RQLMW-009	02/12/1999	964.58	5.2	959.38
RQLMW-010	02/12/1999	982.14	26.42	955.72
RQLMW-011	02/12/1999	976.57	22.73	953.84
Staff Gauge	02/12/1999	955.69/961.66 ^c	3.15(AGS) ^d	958.84
RQLMW-001	03/22/1999	986.13	28.79	957.34
RQLMW-002	03/22/1999	981.90	24.70	957.20
RQLMW-003	03/22/1999	974.54	18.00	956.54
RQLMW-004	03/22/1999	991.80	32.97	958.83
RQLMW-005	03/22/1999	977.38	22.11	955.27
RQLMW-006	03/22/1999	995.39	35.75	959.64
RQLMW-007	03/22/1999	965.91	6.91	959.00
RQLMW-008	03/22/1999	966.08	6.85	959.23
RQLMW-009	03/22/1999	964.58	5.55	959.03
RQLMW-010	03/22/1999	982.14	25.93	956.21
RQLMW-011	03/22/1999	976.57	22.02	954.55
Staff Gauge	03/22/1999	955.69/961.66 ^c	3.00 (AGS) ^d	958.69
RQLMW-001	04/10/1999	986.13	29.02	957.11
RQLMW-002	04/10/1999	981.90	25.09	956.81
RQLMW-003	04/10/1999	974.54	18.73	955.81
RQLMW-004	04/10/1999	991.80	33.38	958.42
RQLMW-005	04/10/1999	977.38	22.33	955.05
RQLMW-006	04/10/1999	995.39	36.02	959.37
RQLMW-007	04/10/1999	965.91	6.81	959.10
RQLMW-008	04/10/1999	966.08	6.63	959.45
RQLMW-009	04/10/1999	964.58	5.30	959.28
RQLMW-010	04/10/1999	982.14	26.23	955.91
RQLMW-011	04/10/1999	976.57	22.45	954.12
Staff Gauge	04/10/1999	955.69/961.66 ^c	2.75 (AGS) ^d	958.44
RQLMW-001	05/21/1999	986.13	28.43	957.70
RQLMW-002	05/21/1999	981.90	24.57	957.33

B-2 (continued)

Station	Date	Reference Elevation^a	Depth to Water (feet)	Water Level Elevation^b
RQLMW-003	05/21/1999	974.57	19.44	955.10
RQLMW-004	05/21/1999	991.80	32.81	958.99
RQLMW-005	05/21/1999	977.38	22.02	955.36
RQLMW-006	05/21/1999	995.39	35.40	959.99
RQLMW-007	05/21/1999	965.91	7.35	958.56
RQLMW-008	05/21/1999	966.08	7.33	958.75
RQLMW-009	05/21/1999	964.58	5.99	958.59
RQLMW-010	05/21/1999	982.14	25.89	956.25
RQLMW-011	05/21/1999	976.57	22.03	954.54
Staff Gauge	05/21/1999	955.69/961.66 ^c	2.80 (AGS) ^d	958.49
RQLMW-001	06/22/1999	986.13	29.14	956.99
RQLMW-002	06/22/1999	981.90	25.50	956.40
RQLMW-003	06/22/1999	974.54	21.00	953.54
RQLMW-004	06/22/1999	991.80	33.52	958.28
RQLMW-005	06/22/1999	977.38	23.20	954.18
RQLMW-006	06/22/1999	995.39	35.87	959.52
RQLMW-007	06/22/1999	965.91	8.55	957.36
RQLMW-008	06/22/1999	966.08	8.62	957.46
RQLMW-009	06/22/1999	964.58	7.79	956.79
RQLMW-010	06/22/1999	982.14	26.96	955.18
RQLMW-011	06/22/1999	976.57	23.18	953.39
Staff Gauge	06/22/1999	955.69/961.66 ^c	1.42 (AGS) ^d	957.11
RQLMW-001	07/15/1999	986.13	30.00	956.13
RQLMW-002	07/15/1999	981.90	26.36	955.54
RQLMW-003	07/15/1999	974.54	21.91	952.63
RQLMW-004	07/15/1999	991.80	34.34	957.46
RQLMW-005	07/15/1999	977.38	24.26	953.12
RQLMW-006	07/15/1999	995.39	36.51	958.88
RQLMW-007	07/15/1999	965.91	9.60	956.31
RQLMW-008	07/15/1999	966.08	9.72	956.36
RQLMW-009	07/15/1999	964.58	9.53	955.05
RQLMW-010	07/15/1999	982.14	28.17	953.97
RQLMW-011	07/15/1999	976.57	24.18	952.39
Staff Gauge	07/15/1999	955.69/961.66 ^c	DRY (AGS) ^d	N/A

^aReference elevations top of inner (riser) casing (feet above mean sea level).

^bElevation in feet above mean sea level.

^cReference elevations for the quarry pond staff gauge are 955.69 for ground surface and 961.66 for the top of the transducer stilling well. Ground surface elevation is a calculated value relative to the surveyed elevation of the top of the stilling well.

^dVisual reading of staff gauge in feet above ground surface.

N/A = Not applicable.