Environmental Resources Management

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25 July 2002
Reference: 143.66

Massachusetts Department of Environmental Protection
Northeast Regional Office
Bureau of Waste Site Cleanup
205 Lowell Street
Wilmington, MA 01887

Re: Release Abatement Measure Six-Month Status Report
In Situ Chemical Oxidation Pilot Study
Former Raytheon Facility
430 Boston Post Road
Wayland, Massachusetts (the "Site")
RTN 3-13574, Permit No. 133939

Dear Sir or Madam:

On behalf of Raytheon Company (Raytheon), Environmental Resources Management (ERM) is submitting this Release Abatement Measure (RAM) 6-Month Status Report for the above-referenced Site. This RAM Status Report was prepared in accordance with the requirements of 310 CMR 40.0445 of the Massachusetts Contingency Plan (MCP). The original RAM Transmittal Form BWSC-106 is included as Appendix A.

BACKGROUND

ERM prepared a RAM Plan, dated 11 September 2001, that was submitted to the Department of Environmental Protection (DEP or Department) on 12 September 2001. The RAM Plan presented plans for a pilot study in two areas involving in-situ chemical oxidation (ISCO) of chlorinated hydrocarbons (primarily trichloroethene (TCE)) in groundwater. The purpose of the RAM was to evaluate the ability to reduce the concentrations of chlorinated volatile organic compounds (CVOCs) in groundwater using ISCO. The two pilot study areas were designed to evaluate two delivery methods for introducing oxidants to the subsurface (i.e., pressurized injection and passive injection) and two permanganate concentrations (2% and 4%). Figure 1 presents a Site locus map. Figure 2 presents a Site plan.

The pilot studies consisted of the following tasks:

- Install monitoring wells
- Conduct bench-scale oxidant demand tests
- Establish baseline hydrogeochemistry
- Apply reagent
- Post-injection groundwater monitoring

ERM submitted a RAM 120-Day Status Report on, dated 31 January 2002 describing the tasks completed through December 2001. A summary of pilot study activities is presented in Table 1. A brief summary of the RAM 120-Day Status Report is presented below.

A total of 16 monitoring wells were installed to conduct a detailed evaluation of hydrogeology within the pilot study areas and provide a detailed well network to evaluate the effectiveness of the pilots. A summary of monitoring well construction data within the pilot study areas is presented in Table 2. Figure 3 presents the layout of the pilot study areas.

A bench-scale oxidant demand test was performed to evaluate the soil oxidant demand (SOD) for the aquifer to ensure that an adequate amount of oxidant was injected to facilitate destruction of the contaminants within the pilot study areas while minimizing the amount of residual permanganate remaining after completion of the pilot studies. The seven-day permanganate SOD fell in the range of 0.033 to 0.068 g/kg of wet soil, which translates to a required range of 0.09 to 0.18 pounds of permanganate per cubic yard of soil (assuming a soil density of 100 pounds per cubic foot and 30% porosity). The mass of permanganate injected during the pilot studies was determined by combining the oxidant demands for native soil (i.e., SOD) and the calculated mass of CVOCs within the pilot study area.

Hydrogeochemical baseline conditions were established for groundwater flow and quality within the pilot test areas prior to conducting the oxidant injections. From 27 to 29 August 2001, ERM conducted a comprehensive groundwater monitoring round at the Site, including the 33 existing and 15 newly installed wells. Groundwater elevation and geochemical field parameters (pH, conductivity, temperature, oxidation-reduction potential and dissolved oxygen) were measured during sample collection (Tables 3 and 4). Groundwater samples were collected from all wells for analysis of CVOCs (Table 5, Appendix B) and from

selected pilot study wells for analysis of manganese, chromium and fluoride.

On 6 and 7 October 2001, ERM provided oversight during the injection of sodium permanganate, potassium permanganate and sodium fluoride (tracer) at the Site. Approximately 2,500 gallons of 2% potassium permanganate along with a 50 mg/L of sodium fluoride tracer were injected at a rate of 250 gallons per hour using the pneumatic fracturing and liquid atomized injection (PFLAI) method approximately 55 feet north-northeast of the MW-33 well cluster (Figure 3). Approximately 250 gallons of 4% sodium permanganate followed by 120 gallons of potable water were injected into MW-43S via the gravity feed injection technique at a rate of 25 gallons per hour.

Sixteen post-injection field parameter monitoring rounds were conducted over a three-month period through December 2001. These monitoring rounds included measurements of groundwater elevations and field parameters and collection of groundwater samples for analysis of fluoride in the MW-33 pilot study area and CVOCs. For additional detail on work completed through December 2001, refer the previously submitted RAM 120-Day Status Report, dated 31 January 2002.

The remainder of this RAM Status Report is formatted consistent with the requirements of Massachusetts Contingency Plan (MCP), 310 CMR 40.0445 (2).

A) STATUS OF RESPONSE OPERATIONS

Post-Injection Groundwater Monitoring – January through June 2002

Five monitoring rounds were conducted between January and June 2002. The monitoring rounds included measurements of groundwater elevations and field parameters, and collection of groundwater samples for analysis of CVOCs by EPA Method 8021C. Groundwater samples were collected from select wells for analysis of dissolved chromium and manganese, and total permanganate. Low flow sampling technique was used to collect groundwater samples. A summary of each monitoring round is presented below:

- 15 January 2002: groundwater samples were collected from the MW-33 pilot study area for CVOCs, dissolved chromium and

manganese. Field parameters were measured at the MW-43 pilot study area (excluding MW-101, MW-102, MW-103) but groundwater samples were not collected because visible concentrations of sodium permanganate were present in two wells.

- 18 February 2002: groundwater samples were collected from MW-43 pilot study area for CVOCs.
- 11 April 2002: groundwater samples were collected from all wells in the MW-43 pilot study area for CVOCs.
- 21 May 2002: field parameters were measure in the MW-43 pilot study area to evaluate the continued presence of permanganate in MW-43S and MW-104.
- 6 June 2002: groundwater samples were collected from MW-43 pilot study area for CVOCs.

Permanganate samples were collected from MW-43S and MW-104 during February and April 2002 to obtain a quantitative measurement of permanganate concentration reduction in addition to visual observations of water color. In February, MW-43S contained an average of 0.17 mg/mL, which decreased to 0.12 mg/mL in April. For MW-104 the average concentration of permanganate was 0.24 mg/mL in February, as compared to 0.05 mg/mL in April.

Tables 3 through 5 present the monitoring results. Table 3 in Appendix B presents monitoring results for all wells at the Site. Laboratory analytical reports are presented in Appendix C.

Groundwater Elevation Data

Groundwater elevations at the Site are consistent with historical data (Appendix B, Table 1; Figure 4). Since January 2002, groundwater elevations have increased in both pilot study areas, most likely due to precipitation after an extended dry period (Table 3, Figure 5).

Field Observations and Field Parameter Data

Monitoring of the MW-33 pilot study area was discontinued after the January 2002 round, due to the absence of observable permanganate in wells in this portion of the Site. Field parameters in the MW-33 pilot

study area wells during January 2002 were generally consistent with baseline values, further suggesting that permanganate has been expended in this area.

Visual observations and field parameter data for the MW-43 pilot study area suggest that permanganate concentrations have decreased significantly since injection. In particular, as of June 2002, MW-104 appears to be free of permanganate. Low levels of permanganate continue to be observed in MW-43S, the injection well.

CVOC Data

TCE concentrations in the MW-33 pilot study area measured during January 2002 were similar to those detected during December 2001. CVOC concentration data are presented in Table 5A and Figure 6A. Six wells located within the MW-33 pilot study area (MW-111, MW-112, MW-113, MW-114, MW-115 and MW-116) exhibited an average concentration decrease of 67% since the baseline monitoring round (August 2001). These wells are located immediately downgradient of the permanganate injection area (i.e., radius of influence) and were not directly affected by the injection (i.e., there has been no visual or field parameter evidence to suggest that permanganate is or has been present in these wells). Therefore, it is likely that treated groundwater from within the permanganate radius of influence has migrated down gradient and mixed with untreated groundwater in the vicinity of these wells, resulting in a reduction of CVOC concentrations.

Two wells (MW-33S and MW-110) exhibited little or no concentration change since the baseline round. Four wells (MW-107, MW-108, MW-109 and MW-33M) exhibited slight increases in TCE concentrations. These increases in TCE concentration may be attributable to oxidation of organic matter in the subsurface, releasing sorbed phase TCE into solution.

Three rounds of CVOC data were collected from the MW-43 pilot study area since December 2001. TCE concentrations have decreased by an average of 84% in three of four shallow overburden wells (MW-43S, MW-104 and MW-106) located in the MW-43 pilot study area. Permanganate has been observed in MW-43S through the June 2002 monitoring round and in MW-104 through the May field parameter monitoring round. MW-106 is located southwest of the injection well (MW-43S). A slight rebound in TCE concentrations was observed in MW-

43S and MW-104 during the June monitoring round, which is likely due to the migration of TCE into the treatment area from upgradient. No TCE was detected above method detection limits in the deep overburden well, MW-43D, either prior to or following oxidant injection. TCE concentrations have increased in the upgradient well (MW-105).

Comprehensive Groundwater Monitoring Round

On 4 March 2002, ERM conducted a comprehensive groundwater monitoring round. Groundwater elevation and field parameters were measured in 34 monitoring wells on Site. Groundwater samples were collected from these wells using polyethylene-based passive diffusion bag samplers for laboratory analysis of CVOCs by EPA Method 8021C. On 18 February 2002, diffusion bags were installed in each well at approximately the center of the well screen. The deionized water in the bags was allowed to equilibrate with the aquifer for two weeks. Prior to removing the bags from each well, groundwater elevations were measured. After the bags were removed, a down-hole field parameter meter was used to measure in situ field parameters. Groundwater elevation, field parameter and CVOC analytical data are presented in Appendix B and Figure 4.

Split Sampling with DEP

On 1 March 2002, ERM collaborated with Larry Immerman of the DEP to collect split groundwater samples from the following wells: MW-TP-3, MW-32, MW-44S and MW-43D. Split sampling results are presented in the following table.

Sample ID	**MW-TP-3**		**MW-32**		**MW-44S**		**MW-43D**	
Sampling Date	**1-Mar-02**		**1-Mar-02**		**1-Mar-02**		**1-Mar-02**	
Sampled By	**ERM**	**DEP**	**ERM**	**DEP**	**ERM**	**DEP**	**ERM**	**DEP**
VOCs (µg/l)								
Tetrachloroethene	2.2	3.4	<0.50	ND	2.6	Trace	<0.50	ND
Trichloroethene	16	21	<0.50	ND	13	1.7	<0.50	Trace
cis-1,2 Dichloroethene	18	15	<0.50	ND	<0.50	2.4	<0.50	ND
1,1,1-Trichloroethane	<0.50	ND	<0.50	ND	0.63	ND	<0.50	ND

Notes:
ND = Compound not detected above laboratory method detection limit.

Summary

The following observations have been made with respect to the results of the pilot study.

1. The discrepancy in the persistence of permanganate at MW-33 pilot study area (i.e., one month) compared to MW-43 pilot study area (i.e., at least eight months) is mostly like due to the difference in permanganate concentrations (i.e., 2% versus 4%).

2. The MW-33 pilot study area exhibited an average decrease in TCE concentrations of 67% in wells located immediately downgradient of the injection area. However, slight increases in TCE concentrations were observed in other wells in this area and are potentially attributed to the oxidation of organic matter with the aquifer material, resulting in liberation of previously sorbed CVOCs.

3. The MW-43 pilot study area exhibited an average decrease in TCE concentrations of 84% in three wells either directly affected by the oxidant injection or located generally downgradient of the injection area. An upgradient well exhibited an increase in TCE concentration following the oxidant injection.

B) NEW SITE INFORMATION

New Site information obtained as part of the ISCO pilot studies is discussed above in Section A.

C) MANAGEMENT OF REMEDIATION WASTE, REMEDIAL WASTEWATER AND/OR REMEDIAL ADDITIVES

No Remediation Waste or Remediation Wastewater was generated as part of RAM activities. No Remedial Additives were injected during the period of time covered by this report.

D) REMEDIAL SYSTEM MONITORING DATA

Data associated with monitoring the ISCO pilot studies are discussed above in Section A. The data is also presented in the attached tables.

E) OTHER INFORMATION

Further performance groundwater sampling may be conducted to further monitor the effectiveness of the technology.

F) LSP OPINION

The LSP opinion is provided in Section J of BWSC-106 (Appendix A).

If the Department requires additional information or clarification, please contact either of the undersigned at (617) 267-8377.

Sincerely,

John C. Drobinski, P.G., LSP
Principal-in-Charge

R. Joseph Fiacco, Jr., P.G.
Project Manager

Enclosures:

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Appendices:	Appendix A: RAM Transmittal Form BWSC-106	
	Appendix B: Comprehensive Groundwater Monitoring Round Data	
	Appendix C: Laboratory Analytical Reports	

cc: Mr. Edwin Madera, Environmental Restoration Program, Raytheon Company, 1001 Boston Post Rd., MS-1-2-1567, Marlborough, MA 01752-3789

Public Repository (Primary Location), Wayland Public Library, Louise Brown, 5 Concord Road, Wayland, MA 01778

Public Repository (Secondary Location), Board of Health, Wayland Town Hall, 41 Cochituate Road, Wayland, MA 01778

Karen Stromberg, PIP Coordinator, MA Department of Environmental Protection, Northeast Regional Office, 205A Lowell Street, Wilmington, MA 01887

PIP Mailing List

Tables

Table 1
Chronology of RAM Activities
Raytheon Company
Wayland, Massachusetts

Date	Activity	Wells	Parameters
27-Aug-01	Groundwater Monitoring	All Wells in MW-33 Pilot StudyArea All Wells in MW-43 Pilot Study Area and MW-43D MW-101, MW-102, MW-103	Field Parameters, Flouride, Diss. Mn & Cr, VOCs (MW-43D VOCs only)
5-Oct-01	Groundwater Monitoring	All Wells in MW-33 Pilot StudyArea All Wells in MW-43 Pilot Study Area	Field Parameters
6-Oct-01, 7-Oct-01	Oxidant Injection	Injection Well (MW-33 Pilot Study Area) MW-43S	-
8-Oct-01	Groundwater Monitoring	All Wells in MW-33 Pilot StudyArea All Wells in MW-43 Pilot Study Area	Field Parameters, Fluoride-MW-107 through MW-110
10-Oct-01	Groundwater Monitoring	All Wells is MW-33 Pilot Study Area except MW-33M	Field Parameters
12-Oct-01	Groundwater Monitoring	MW-33S, MW-111, MW-112, MW-113, MW-114, MW-115, MW-116	Field Parameters, Fluoride-MW-113
14-Oct-01	Groundwater Monitoring	MW-33S, MW-111, MW-112, MW-113, MW-114, MW-115, MW-116	Field Parameters, Fluoride-MW-111, MW-112, MW-114, MW-115, MW-116
16-Oct-01	Groundwater Monitoring	All Wells in MW-33 Pilot StudyArea All Wells in MW-43 Pilot Study Area	Field Parameters, Fluoride-MW-107 through MW-110
18-Oct-01	Groundwater Monitoring	MW-33S, MW-111, MW-112, MW-113, MW-114, MW-115, MW-116	Field Parameters
20-Oct-01	Groundwater Monitoring	MW-33S, MW-111, MW-112, MW-113, MW-114, MW-115, MW-116	Field Parameters
22-Oct-01	Groundwater Monitoring	All Wells in MW-33 Pilot StudyArea All Wells in MW-43 Pilot Study Area	Field Parameters
24-Oct-01	Groundwater Monitoring	MW-33S, MW-111, MW-112, MW-113, MW-114, MW-115, MW-116	Field Parameters, Fluoride-MW-111 through MW-116
26-Oct-01	Groundwater Monitoring	MW-33S, MW-111, MW-112, MW-113, MW-114, MW-115, MW-116	Field Parameters
28-Oct-01	Groundwater Monitoring	MW-33S, MW-111, MW-112, MW-113, MW-114, MW-115, MW-116	Field Parameters
30-Oct-01	Groundwater Monitoring	All Wells in MW-33 Pilot StudyArea All Wells in MW-43 Pilot Study Area	Field Parameters
1-Nov-01	Groundwater Monitoring	MW-33S, MW-111, MW-112, MW-113, MW-114, MW-115, MW-116	Field Parameters
5-Nov-01	Groundwater Monitoring	All Wells in MW-33 Pilot StudyArea All Wells in MW-43 Pilot Study Area	Field Parameters, Fluoride-MW-33 Pilot Study Area
12-Nov-01	Groundwater Monitoring	All Wells is MW-33 Pilot Study Area	Field Parameters, Fluoride, VOCs
10-Dec-01	Groundwater Monitoring	All Wells in MW-33 Pilot StudyArea All Wells in MW-43 Pilot Study Area and MW-43D	Field Parameters, VOCs Fluoride-MW-33 Area
15-Jan-02	Groundwater Monitoring	All Wells in MW-33 Pilot StudyArea	Field Parameters, VOCs, Diss. Mn & Cr
		All Wells in MW-43 Pilot Study Area and MW-43D	Field Parameters
18-Feb-02	Groundwater Monitoring	All Wells in MW-43 Pilot Study Area and MW-43D	Field Parameters, VOCs, (Permanganate-MW-43S and MW-104)
14-Mar-02	Groundwater Monitoring	MW-102	Field Parameters, VOCs
11-Apr-02	Groundwater Monitoring	All Wells in MW-43 Pilot Study Area and MW-43D MW-101, MW-102, MW-103	Field Parameters, VOCs, (Permanganate-MW-43S and MW-104)
21-May-02	Groundwater Monitoring	All Wells in MW-43 Pilot Study Area	Field Parameters
6-Jun-02	Groundwater Monitoring	All Wells in MW-43 Pilot Study Area and MW-43D MW-101, MW-102, MW-103	Field Parameters, VOCs

Notes:

Fluoride Samples only taken at MW-33 Pilot Study Area

Field Parameters = Depth to Water, Conductivity, Oxygen Reduction Potential, Dissolved Oxygen, Temperature, Color

All Wells in MW-33 Pilot Study Area = MW-33S, MW-33M, MW-107, MW-108, MW-109, MW-110,W-111, MW-112, MW-113, MW-114, MW-115, MW-116

All Wells in MW-43 Pilot Study Area = MW-43S, MW-104, MW-105, MW-106

Table 2
Monitoring Well Construction Summary
ISCO Pilot Study Wells
Raytheon Company
Wayland, Massachusetts

Well Designation	Date Installed	Ground Surface Elevation (feet ASL)	Screen Length (feet)	Total Well Depth (feet)	Screened Interval		Screened Material
					Bottom Elevation (feet ASL)	Top Elevation (feet ASL)	
MW-33S	14-May-98	133.91	5	30	103.91	108.91	Silt
MW-33M	13-May-98	133.91	5	50	83.91	88.91	Sand & Silt
MW-43S	2-Nov-98	134.37	5	20	114.37	119.37	Sand & Silt
MW-43D	24-Mar-00	134.55	5	55	79.55	84.55	Till
MW-101	25-Aug-01	134.37	10	30	104.37	114.37	Sand & Silt
MW-102	25-Aug-01	134.27	10	30	104.27	114.27	Sand & Silt
MW-103	25-Aug-01	134.28	10	30	104.28	114.28	Sand & Silt
MW-104	25-Aug-01	134.37	10	20	114.37	124.37	Sand
MW-105	25-Aug-01	134.74	10	20	114.74	124.74	Sand & Silt
MW-106	25-Aug-01	135.02	10	20	115.02	125.02	Sand & Silt
MW-107	25-Aug-01	135.01	10	35	100.01	110.01	Sand
MW-108	25-Aug-01	135.01	10	25	110.01	120.01	Sand & Silt
MW-109	25-Aug-01	134.55	10	35	99.55	109.55	Sand & Silt
MW-110	25-Aug-01	134.52	10	25	109.52	119.52	Sand & Silt
MW-111	25-Aug-01	134.27	10	35	99.27	109.27	Sand
MW-112	25-Aug-01	134.27	10	25	109.27	119.27	Sand & Silt
MW-113	25-Aug-01	134.26	10	35	99.26	109.26	Sand
MW-114	25-Aug-01	134.29	10	25	109.29	119.29	Sand & Silt
MW-115	25-Aug-01	134.25	10	35	99.25	109.25	Sand
MW-116	25-Aug-01	134.25	10	25	109.25	119.25	Sand & Silt

Notes:
ASL = Above Mean Sea Level

Table 3
Groundwater Elevation Data
Raytheon Company
Wayland, Massachusetts

Well ID	Depth to Water (Feet Below Ground Surface)																						
	(Baseline)																						
	5-Oct-01	8-Oct-01	10-Oct-01	12-Oct-01	14-Oct-01	16-Oct-01	18-Oct-01	20-Oct-01	22-Oct-01	24-Oct-01	26-Oct-01	28-Oct-01	30-Oct-01	1-Nov-01	5-Nov-01	12-Nov-01	10-Dec-01	15-Jan-02	18-Feb-02	14-Mar-02	11-Apr-02	21-May-02	06-Jun-02
MW-43 Pilot Study Area																							
MW-101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19.3	-	18.6
MW-102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	19.8	19.0	-	18.4
MW-103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17.5	-	16.9
MW-104	*16.0*	16.0	-	-	-	16.3	-	-	16.5	-	-	-	16.6	-	16.7	-	17.1	16.9	-	-	15.3	15.1	14.9
MW-105	*16.1*	16.2	-	-	-	16.4	-	-	16.4	-	-	-	16.7	-	16.7	-	17.2	17.0	16.5	-	15.6	15.5	15.3
MW-106	*16.6*	16.7	-	-	-	16.8	-	-	16.9	-	-	-	17.1	-	-	-	17.5	17.5	17.1	-	16.2	15.9	15.8
MW-43S	*16.2*	15.9	-	-	-	16.1	-	-	16.2	-	-	-	16.4	-	16.5	-	16.9	16.8	16.2	-	15.2	15.1	14.9
MW-43D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18.4	17.7	17.4	-	16.6	-	16.4
MW-33 Pilot Study Area																							
MW-107	*20.0*	19.9	20.1	-	-	20.1	-	-	20.2	-	-	-	20.2	-	20.0	20.4	20.6	20.0	-	-	-	-	-
MW-108	*20.3*	20.1	20.2	-	-	20.4	-	-	20.5	-	-	-	20.6	-	20.6	20.8	20.9	20.4	-	-	-	-	-
MW-109	*19.7*	20.3	-	-	-	19.9	-	-	20.0	-	-	-	20.1	-	20.1	20.2	20.5	19.8	-	-	-	-	-
MW-110	*19.8*	19.5	-	-	-	19.8	-	-	19.9	-	-	-	20.1	-	20.2	20.3	20.4	19.9	-	-	-	-	-
MW-111	*19.5*	19.4	19.5	19.5	19.6	19.7	19.7	19.7	19.8	19.8	19.8	19.9	19.9	19.9	20.0	20.0	20.2	19.7	-	-	-	-	-
MW-112	*19.3*	19.1	19.2	19.3	19.3	19.4	19.5	19.5	19.5	19.6	19.6	19.6	19.6	19.7	19.7	19.8	20.0	19.5	-	-	-	-	-
MW-113	*19.3*	19.2	19.3	19.3	19.5	19.5	19.5	19.5	19.5	19.6	19.6	19.7	19.7	19.7	19.7	19.8	20.0	19.5	-	-	-	-	-
MW-114	*19.2*	19.1	19.2	19.2	19.3	19.3	19.4	19.4	19.5	19.5	19.5	19.6	19.6	19.6	19.6	19.7	19.9	19.4	-	-	-	-	-
MW-115	-	19.3	19.3	19.4	19.4	19.5	19.6	19.6	19.6	19.7	19.7	19.7	19.7	19.8	19.8	19.9	20.0	19.5	-	-	-	-	-
MW-116	*19.5*	19.4	19.5	19.5	19.5	19.6	19.7	19.7	19.7	19.8	19.8	19.9	19.9	19.9	19.9	20.0	20.2	-	-	-	-	-	-
MW-33S	*19.3*	19.2	19.3	19.3	19.4	19.4	19.5	19.5	19.5	19.6	19.6	19.7	19.7	19.7	19.8	19.8	20.0	19.5	-	-	-	-	-
MW-33M	*20.2*	19.8	-	-	-	19.8	-	-	19.8	-	-	-	19.9	-	19.8	19.9	19.9	19.1	-	-	-	-	-

Notes:
- = Not Measured
Baseline depth to water for MW-43D was measured on 8/27/01.

Table 3
Groundwater Elevation Data
Raytheon Company
Wayland, Massachusetts

Well ID	Measuring Pt. Elevation (feet ASL)	Groundwater Elevation (Feet ASL)																					
		(Baseline) 5-Oct-01	8-Oct-01	10-Oct-01	12-Oct-01	14-Oct-01	16-Oct-01	18-Oct-01	20-Oct-01	22-Oct-01	24-Oct-01	26-Oct-01	28-Oct-01	30-Oct-01	1-Nov-01	5-Nov-01	12-Nov-01	10-Dec-01	15-Jan-02	16-Feb-02	14-Mar-02	11-Apr-02	21-May-02	6-Jun-02
MW-43 Pilot Study Area																								
MW-101	134.1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	114.7	-	115.5
MW-102	134.2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	114.4	115.2	-	115.9
MW-103	133.9	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	116.4	-	117.0
MW-104	133.8	*117.8*	117.8	-	-	-	117.5	-	-	117.3	-	-	-	117.1	-	117.0	-	116.6	116.9	-	-	118.5	118.7	118.9
MW-105	134.3	*118.2*	118.1	-	-	-	117.9	-	-	117.9	-	-	-	117.6	-	117.6	-	117.1	117.3	117.8	-	118.7	118.8	119.0
MW-106	134.5	*117.9*	117.8	-	-	-	117.7	-	-	117.5	-	-	-	117.4	-	-	-	116.9	117.0	117.4	-	118.3	118.6	118.7
MW-43S	133.8	*117.7*	117.9	-	-	-	117.8	-	-	117.6	-	-	-	117.5	-	117.3	-	116.9	117.1	117.6	-	118.6	118.7	118.9
MW-43D	134.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	116.2	116.9	117.1	-	117.9	-	118.1
MW-33 Pilot Study Area																								
MW-107	134.9	*114.9*	115.0	114.8	-	-	114.8	-	-	114.7	-	-	-	114.6	-	-	114.5	114.3	114.9	-	-	-	-	-
MW-108	134.9	*114.7*	114.9	114.7	-	-	114.5	-	-	114.4	-	-	-	114.3	-	-	114.2	114.0	114.5	-	-	-	-	-
MW-109	134.3	*114.6*	114.1	-	-	-	114.4	-	-	114.3	-	-	-	114.2	-	-	114.1	113.8	114.6	-	-	-	-	-
MW-110	134.3	*114.5*	114.7	-	-	-	114.5	-	-	114.3	-	-	-	114.2	-	-	114.0	113.9	114.4	-	-	-	-	-
MW-111	134.1	*114.6*	114.7	114.6	114.6	114.5	114.5	114.4	114.4	114.3	114.3	114.3	114.2	114.2	114.2	114.1	114.1	113.9	114.4	-	-	-	-	-
MW-112	133.9	*114.6*	114.8	114.7	114.7	114.6	114.5	114.5	114.4	114.4	114.3	114.3	114.3	114.3	114.2	114.2	114.1	113.9	114.4	-	-	-	-	-
MW-113	133.8	*114.5*	114.6	114.5	114.5	114.4	114.3	114.3	114.3	114.3	114.2	114.2	114.1	114.1	114.1	114.1	114.0	113.8	114.3	-	-	-	-	-
MW-114	133.7	*114.5*	114.6	114.5	114.5	114.4	114.4	114.3	114.3	114.2	114.2	114.2	114.1	114.1	114.1	114.1	114.0	113.8	114.3	-	-	-	-	-
MW-115	133.8	-	114.5	114.5	114.4	114.4	114.3	114.3	114.2	114.2	114.2	114.1	114.1	114.1	114.1	114.0	113.9	113.8	114.3	-	-	-	-	-
MW-116	134.0	*114.5*	114.6	114.5	114.5	114.5	114.3	114.3	114.3	114.2	114.1	114.2	114.1	114.1	114.0	114.0	113.9	113.8	-	-	-	-	-	-
MW-33S	133.8	*114.5*	114.6	114.5	114.5	114.4	114.4	114.3	114.3	114.2	114.2	114.2	114.1	114.1	114.1	114.0	114.0	113.8	114.3	-	-	-	-	-
MW-33M	133.6	*113.4*	113.8	-	-	-	113.8	-	-	113.8	-	-	-	113.7	-	-	113.7	113.6	114.5	-	-	-	-	-

Notes:
- = Not Measured
Baseline groundwater elevation for MW-43D was measured on 8/27/01.

Table 4
Groundwater Field Parameter Data
Raytheon Company
Wayland, Massachusetts

Well ID	Oxidation Reduction Potential (ORP) (mV)																						
	(Baseline) 5-Oct-01	8-Oct-01	10-Oct-01	12-Oct-01	14-Oct-01	16-Oct-01	18-Oct-01	20-Oct-01	22-Oct-01	24-Oct-01	26-Oct-01	28-Oct-01	30-Oct-01	1-Nov-01	5-Nov-01	12-Nov-01	10-Dec-01	15-Jan-02	18-Feb-02	14-Mar-02	11-Apr-02	21-May-02	6-Jun-02
MW-43 Pilot Study Area																							
MW-101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	522	-	519
MW-102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	108	483	-	443
MW-103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	461	-	428
MW-104	*266*	337	-	-	-	538	-	-	655	-	-	-	653	-	638	-	646	629	580	-	595	554	432
MW-105	*289*	485	-	-	-	470	-	-	309	-	-	-	298	-	564	-	497	508	520	-	427	284	412
MW-106	*285*	396	-	-	-	433	-	-	286	-	-	-	268	-	500	-	257	584	457	-	423	509	22
MW-43S	*252*	404	-	-	-	542	-	-	643	-	-	-	596	-	599	-	591	562	550	-	564	599	601
MW-43D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	397	294	92.4	-	472	-	-126
MW-33 Pilot Study Area																							
MW-107	*154*	535	210	-	-	46	-	-	8	-	-	-	14	-	6	-65	-71	-29	-	-	-	-	-
MW-108	*81*	635	287	-	-	268	-	-	461	-	-	-	472	-	455	366	251	328	-	-	-	-	-
MW-109	*369*	415	-	-	-	380	-	-	334	-	-	-	199	-	239	165	203	240	-	-	-	-	-
MW-110	*237*	500	-	-	-	441	-	-	645	-	-	-	618	-	561	559	207	437	-	-	-	-	-
MW-111	*287*	224	285	245	209	262	245	185	340	367	269	231	263	338	221	190	175	323	-	-	-	-	-
MW-112	*271*	222	262	221	195	238	278	206	370	384	269	275	344	364	264	293	198	306	-	-	-	-	-
MW-113	*289*	224	261	212	200	237	234	169	277	339	215	204	227	313	176	83	96	27	-	-	-	-	-
MW-114	*268*	217	237	180	176	200	231	171	340	364	268	258	313	375	264	287	203	313	-	-	-	-	-
MW-115	*271*	240	190	172	176	158	213	132	244	304	225	177	205	320	197	284	65	22	-	-	-	-	-
MW-116	*255*	237	217	146	153	131	251	179	331	376	286	285	315	412	300	260	211	277	-	-	-	-	-
MW-33S	*181*	233	91	101	111	55	183	231	269	349	270	261	263	439	301	296	223	375	-	-	-	-	-
MW-33M	*242*	245	-	-	-	106	-	-	309	-	-	-	279	-	280	-33	-133	236	-	-	-	-	-

Notes:
- = Not Measured

Table 4
Groundwater Field Parameter Data
Raytheon Company
Wayland, Massachusetts

Well ID	Conductivity (mS/cm)																					
	(Baseline) 5-Oct-01	8-Oct-01	10-Oct-01	12-Oct-01	14-Oct-01	16-Oct-01	18-Oct-01	20-Oct-01	22-Oct-01	24-Oct-01	26-Oct-01	28-Oct-01	30-Oct-01	1-Nov-01	5-Nov-01	12-Nov-01	10-Dec-01	15-Jan-02	18-Feb-02	11-Apr-02	21-May-02	6-Jun-02
MW-43 Pilot Study Area																						
MW-101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	320	-	392
MW-102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,289	-	1,389
MW-103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1,674	-	1,777
MW-104	*1,721*	1,573	-	-	-	2,759	-	-	2,812	-	-	-	2,265	-	2,155	-	1,603	2,398	1,340	1,505	403	308
MW-105	*1,387*	1,245	-	-	-	1,420	-	-	1,266	-	-	-	1,144	-	1,140	-	1,192	1,587	1,069	1,201	1,329	1,417
MW-106	*753*	700	-	-	-	946	-	-	978	-	-	-	952	-	900	-	1,078	672	1,236	1,022	642	558
MW-43S	*1,107*	397	-	-	-	5,348	-	-	2,945	-	-	-	1,746	-	1,644	-	1,172	805	1,090	1,066	2,296	4,276
MW-43D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	412	386	370	385	-	222
MW-33 Pilot Study Area																						
MW-107	*807*	785	937	-	-	917	-	-	841	-	-	-	850	-	848	797	789	677	-	-	-	-
MW-108	*219*	91	206	-	-	233	-	-	216	-	-	-	241	-	285	370	453	558	-	-	-	-
MW-109	*428*	916	-	-	-	400	-	-	384	-	-	-	390	-	412	373	407	484	-	-	-	-
MW-110	*70*	2,728	-	-	-	265	-	-	129	-	-	-	94	-	83	74	75	95	-	-	-	-
MW-111	*276*	213	252	248	239	221	206	196	205	208	198	186	197	193	195	180	179	154	-	-	-	-
MW-112	*140*	426	135	119	106	105	97	102	103	105	98	93	100	103	103	100	91	123	-	-	-	-
MW-113	*342*	278	370	365	342	336	309	301	321	330	307	287	305	311	310	288	290	255	-	-	-	-
MW-114	*109*	245	117	100	97	95	93	101	97	102	92	82	87	91	85	93	92	113	-	-	-	-
MW-115	*325*	265	341	334	320	311	271	283	299	301	283	272	290	290	293	284	297	269	-	-	-	-
MW-116	*149*	152	177	186	155	149	128	136	140	138	127	118	124	120	124	115	114	138	-	-	-	-
MW-33S	*65*	76	90	130	79	76	70	67	76	77	74	69	74	73	73	70	76	410	-	-	-	-
MW-33M	*271*	242	-	-	-	297	-	-	277	-	-	-	264	-	263	255	237	296	-	-	-	-

Notes:
- = Not Measured

Table 4
Groundwater Field Parameter Data
Raytheon Company
Wayland, Massachusetts

Well ID	Dissolved Oxygen (mg/L)																						
	(Baseline) 5-Oct-01	8-Oct-01	10-Oct-01	12-Oct-01	14-Oct-01	16-Oct-01	18-Oct-01	20-Oct-01	22-Oct-01	24-Oct-01	26-Oct-01	28-Oct-01	30-Oct-01	1-Nov-01	5-Nov-01	12-Nov-01	10-Dec-01	15-Jan-02	18-Feb-02	14-Mar-02	11-Apr-02	21-May-02	6-Jun-02
MW-43 Pilot Study Area																							
MW-101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.4	-	1.5
MW-102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	0.3	-	0.5
MW-103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.6	-	6.5
MW-104	*9.3*	9.0	-	-	-	3.6	-	-	6.6	-	-	-	11.9	-	17.1	-	8.4	6.7	9.0	-	8.1	7.8	8.3
MW-105	*8.4*	7.2	-	-	-	2.7	-	-	2.1	-	-	-	6.7	-	12.2	-	5.9	6.8	7.5	-	8.7	4.3	4.8
MW-106	*8.2*	9.6	-	-	-	6.8	-	-	7.1	-	-	-	10.0	-	12.0	-	7.7	8.0	8.8	-	8.1	6.6	8.0
MW-43S	*8.2*	8.3	-	-	-	8.0	-	-	7.0	-	-	-	7.8	-	12.3	-	9.1	6.6	8.9	-	8.9	7.4	6.9
MW-43D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2.7	2.5	2.1	-	2.3	-	0.1
MW-33 Pilot Study Area																							
MW-107	*5.6*	7.4	2.7	-	-	3.5	-	-	0.9	-	-	-	2.3	-	6.2	0.3	0.3	0.3	-	-	-	-	-
MW-108	*6.5*	7.6	2.0	-	-	4.1	-	-	5.2	-	-	-	4.0	-	4.1	1.0	0.6	1.3	-	-	-	-	-
MW-109	*4.2*	6.2	-	-	-	5.8	-	-	0.9	-	-	-	1.6	-	1.9	0.2	0.2	0.2	-	-	-	-	-
MW-110	*8.8*	6.2	-	-	-	3.1	-	-	3.0	-	-	-	3.8	-	4.0	3.9	4.4	6.1	-	-	-	-	-
MW-111	*5.2*	7.3	2.8	2.7	1.6	2.8	2.7	2.7	2.3	1.5	3.0	1.4	1.9	1.8	1.8	0.6	0.2	0.3	-	-	-	-	-
MW-112	*6.6*	8.6	6.2	5.6	5.5	5.5	5.9	6.2	5.2	4.8	6.4	5.3	5.1	4.7	5.3	4.3	4.1	3.9	-	-	-	-	-
MW-113	*6.2*	6.8	1.5	2.7	1.0	1.3	1.4	3.6	1.3	1.0	1.2	1.3	1.3	1.3	1.5	0.3	0.3	0.3	-	-	-	-	-
MW-114	*7.4*	8.0	5.1	4.6	3.9	4.2	3.5	5.1	3.2	3.3	3.9	4.2	4.2	4.1	4.1	3.0	2.6	2.5	-	-	-	-	-
MW-115	*2.0*	6.2	1.6	1.4	1.4	1.0	1.5	3.4	1.1	0.9	1.2	1.5	1.9	2.1	1.5	0.3	0.2	0.3	-	-	-	-	-
MW-116	*6.6*	7.3	2.4	4.5	3.8	3.1	4.1	5.2	3.5	3.7	4.3	4.2	4.8	4.5	4.9	3.8	3.7	3.3	-	-	-	-	-
MW-33S	*9.4*	5.8	4.0	4.4	4.3	4.9	4.6	5.0	5.1	4.0	4.1	4.3	4.7	4.3	4.4	3.8	4.1	5.7	-	-	-	-	-
MW-33M	*8.0*	5.6	-	-	-	2.1	-	-	3.0	-	-	-	1.8	-	1.8	0.4	0.2	8.3	-	-	-	-	-

Notes:
- = Not Measured

Table 4
Groundwater Field Parameter Data
Raytheon Company
Wayland, Massachusetts

Well ID	pH																						
	(Baseline)																						
	5-Oct-01	8-Oct-01	10-Oct-01	12-Oct-01	14-Oct-01	16-Oct-01	18-Oct-01	20-Oct-01	22-Oct-01	24-Oct-01	26-Oct-01	28-Oct-01	30-Oct-01	1-Nov-01	5-Nov-01	12-Nov-01	10-Dec-01	15-Jan-02	18-Feb-02	14-Mar-02	11-Apr-02	21-May-02	6-Jun-02
MW-43 Pilot Study Area																							
MW-101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.0	-	6.2
MW-102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	6.7	6.6	-	6.5
MW-103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.0	-	7.0
MW-104	*7.9*	7.8	-	-	-	6.9	-	-	6.8	-	-	-	7.2	-	7.3	-	7.3	7.9	7.6	-	7.5	7.0	7.4
MW-105	*7.0*	7.9	-	-	-	7.1	-	-	7.0	-	-	-	7.3	-	7.3	-	7.1	7.7	7.2	-	7.2	6.9	7.0
MW-106	*7.7*	8.1	-	-	-	7.2	-	-	7.1	-	-	-	7.3	-	7.4	-	7.7	8.0	7.4	-	7.4	7.2	7.3
MW-43S	*7.4*	7.9	-	-	-	7.5	-	-	7.3	-	-	-	7.7	-	7.7	-	7.9	7.9	7.7	-	7.2	6.8	6.4
MW-43D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	7.8	8.0	7.8	-	7.8	-	6.9
MW-33 Pilot Study Area																							
MW-107	*6.0*	6.3	6.3	-	-	6.6	-	-	6.3	-	-	-	6.6	-	6.6	6.7	6.9	7.1	-	-	-	-	-
MW-108	*6.5*	6.9	6.3	-	-	6.1	-	-	6.3	-	-	-	6.0	-	6.1	5.7	5.8	6.4	-	-	-	-	-
MW-109	*6.5*	11.4	-	-	-	9.8	-	-	8.4	-	-	-	8.7	-	8.1	9.3	8.7	9.2	-	-	-	-	-
MW-110	*7.4*	9.8	-	-	-	6.7	-		5.8	-	-	-	6.2	-	6.1	6.0	5.9	6.2	-	-	-	-	-
MW-111	*6.5*	6.7	6.1	5.8	6.1	5.9	6.0	6.2	5.5	5.5	6.1	6.1	6.2	5.9	6.0	6.0	6.2	6.5	-	-	-	-	-
MW-112	*6.1*	6.5	6.5	6.2	6.4	6.2	6.1	6.1	5.6	5.6	6.2	6.2	6.1	5.9	6.0	5.9	5.9	6.6	-	-	-	-	-
MW-113	*6.3*	7.2	6.5	6.5	6.7	6.6	6.7	6.8	6.4	6.4	6.7	6.9	6.8	6.9	6.7	6.9	7.0	7.7	-	-	-	-	-
MW-114	*6.5*	7.2	5.9	6.1	6.1	6.1	6.3	6.3	5.5	5.7	6.1	6.2	6.0	6.0	6.0	5.9	6.0	6.6	-	-	-	-	-
MW-115	*6.6*	6.8	6.0	6.2	6.4	6.5	6.6	7.3	6.3	6.1	6.5	6.6	6.5	6.6	6.6	6.6	7.0	7.7	-	-	-	-	-
MW-116	*6.7*	7.5	5.6	6.2	6.0	6.0	6.1	6.4	5.6	5.4	5.9	6.0	5.9	6.0	6.0	5.8	5.8	6.6	-	-	-	-	-
MW-33S	*6.1*	8.0	6.0	7.3	6.8	5.9	5.9	5.8	5.7	5.6	6.3	5.9	5.6	6.2	5.8	5.6	5.8	6.0	-	-	-	-	-
MW-33M	*6.5*	6.6	-	-	-	6.8	-	-	6.5	-	-	-	7.0	-	7.2	7.5	7.8	8.5	-	-	-	-	-

Notes:
- = Not Measured

Table 4
Groundwater Field Parameter Data
Raytheon Company
Wayland, Massachusetts

Well ID	Temperature (°C)																						
	(Baseline) 5-Oct-01	8-Oct-01	10-Oct-01	12-Oct-01	14-Oct-01	16-Oct-01	18-Oct-01	20-Oct-01	22-Oct-01	24-Oct-01	26-Oct-01	28-Oct-01	30-Oct-01	1-Nov-01	5-Nov-01	12-Nov-01	10-Dec-01	15-Jan-02	18-Feb-02	14-Mar-02	11-Apr-02	21-May-02	6-Jun-02
MW-43 Pilot Study Area																							
MW-101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	14.7	-	17.1
MW-102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.7	13.9	-	18.0
MW-103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12.9	-	16.6
MW-104	*16.4*	11.3	-	-	-	17.3	-	-	15.3	-	-	-	12.3	-	12.8	-	10.7	9.0	10.5	-	12.4	11.9	12.8
MW-105	*16.0*	12.2	-	-	-	17.0	-	-	15.4	-	-	-	13.1	-	12.8	-	11.1	8.8	8.6	-	12.7	15.8	15.3
MW-106	*17.7*	11.3	-	-	-	16.5	-	-	16.8	-	-	-	13.7	-	12.3	-	11.6	8.8	10.4	-	13.5	13.7	13.8
MW-43S	*16.3*	14.1	-	-	-	16.6	-	-	15.3	-	-	-	14.0	-	13.3	-	11.6	11.1	11.1	-	11.5	11.9	12.9
MW-43D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9.8	7.3	8.5	-	12.1	-	14.4
MW-33 Pilot Study Area																							
MW-107	*17.9*	12.1	17.7	-	-	17.9	-	-	17.2	-	-	-	15.1	-	13.8	14.1	13.5	11.8	-	-	-	-	-
MW-108	*17.3*	12.5	17.9	-	-	17.4	-	-	18.0	-	-	-	15.9	-	14.4	14.5	14.5	12.4	-	-	-	-	-
MW-109	*18.4*	13.4	-	-	-	16.3	-	-	15.7	-	-	-	14.5	-	13.4	14.0	13.6	10.3	-	-	-	-	-
MW-110	*16.8*	12.7	-	-	-	17.7	-	-	18.4	-	-	-	14.7	-	12.9	13.9	12.5	6.4	-	-	-	-	-
MW-111	*18.7*	11.2	16.2	17.1	15.3	16.7	14.4	14.0	15.3	16.0	13.6	12.0	13.1	14.2	12.9	12.0	11.5	8.5	-	-	-	-	-
MW-112	*20.1*	11.1	16.5	17.0	15.1	16.4	14.7	13.8	15.0	16.3	13.9	12.7	13.2	14.2	13.1	11.3	11.3	11.0	-	-	-	-	-
MW-113	*19.0*	11.5	17.8	17.2	15.2	16.4	14.7	14.5	15.6	16.8	14.2	11.6	13.3	13.9	12.5	10.3	10.3	6.6	-	-	-	-	-
MW-114	*19.0*	12.1	16.9	17.0	16.1	16.2	15.1	13.9	15.6	16.2	13.7	12.2	13.6	13.7	13.0	11.5	12.1	10.4	-	-	-	-	-
MW-115	*18.1*	10.7	17.0	16.8	15.2	15.9	12.4	14.1	15.5	16.0	13.9	12.3	13.9	13.5	13.0	11.6	11.7	9.1	-	-	-	-	-
MW-116	*18.2*	10.0	17.3	17.8	15.4	15.9	12.9	14.6	16.0	16.4	14.7	12.6	13.9	13.6	13.5	11.9	12.3	9.2	-	-	-	-	-
MW-33S	*14.4*	10.2	16.8	16.6	14.5	15.7	13.9	13.6	15.3	16.7	15.2	12.2	14.1	12.7	12.2	10.9	10.7	6.4	-	-	-	-	-
MW-33M	*16.5*	10.2	-	-	-	16.9	-	-	15.8	-	-	-	13.5	-	12.0	11.4	11.5	10.0	-	-	-	-	-

Notes:
- = Not Measured

Table 4
Groundwater Field Parameter Data
Raytheon Company
Wayland, Massachusetts

Well ID	Color																				
	(Baseline) 5-Oct-01	8-Oct-01	10-Oct-01	12-Oct-01	14-Oct-01	16-Oct-01	18-Oct-01	20-Oct-01	22-Oct-01	24-Oct-01	26-Oct-01	28-Oct-01	30-Oct-01	1-Nov-01	5-Nov-01	12-Nov-01	10-Dec-01	15-Jan-02	18-Feb-02	11-Apr-02	21-May-02	6-Jun-02
MW-43 Pilot Study Area																						
MW-101	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Grey	-	Brown/L. Pink
MW-102	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Light Grey	-	Clear
MW-103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Clear
MW-104	Brown	Brown	-	-	-	Dark Pink/Purple	-	-	Dark Pink/Purple	-	-	-	Dark Pink/Purple	-	Dark Pink/Purple	-	Dark Pink/Purple	Dark Pink/Purple	Dark Pink	Pink	Light Pink	Light Brown
MW-105	Brown	Brown	-	-	-	Light Brown	-	-	Light Brown	-	-	-	Brown/Grey	-	Brown/Grey	-	Clear	Light Brown	Clear	Clear	Clear	Clear
MW-106	Brown/Grey	Brown/Grey	-	-	-	Brown	-	-	Brown	-	-	-	Brown/Grey	-	Brown/Grey	-	Clear	Clear	Clear	Clear	Clear	Brown
MW-43S	Clear	DarkPink/Purple	-	-	-	DarkPink/Purple	-	-	Dark Pink/Purple	-	-	-	Dark Pink/Purple	-	Dark Pink/Purple	-	Dark Pink/Purple	Dark Pink	Dark Pink	Pink	Light Pink	Light Pink
MW-43D	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Clear	Brown	Clear	-	-	Clear
MW-33 Pilot Study Area					-																	
MW-107	Brown/Grey	Brown/Grey	Grey	-	-	Brown/Grey	-	-	Grey	-	-	-	Grey	-	Brown/Grey	Clear	Grey	Grey	-	-	-	-
MW-108	Clear	Clear	Clear	-	-	Clear	-	-	Clear	-	-	-	Clear	-	Clear	Clear	Clear	Clear	-	-	-	-
MW-109	Brown	Dark Pink/Purple	-	-	-	Light Pink/Pink	-	-	Dark Tan/Brown	-	-	-	Grey	-	Brown/Grey	Brown/Grey	Brown	Grey	-	-	-	-
MW-110	Brown	Dark Pink/Purple	-	-	-	DarkPink	-	-	Light Pink/Pink	-	-	-	Light Pink	-	Light Pink/Brown	Light Pink	Light Brown	Clear	-	-	-	-
MW-111	Clear	Brown/Grey	Brown	Grey	Clear	Clear	Grey/Brown	Clear	Brown	Brown/Grey	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	-	-	-	-
MW-112	Clear	Brown	Brown	Brown	Brown	Clear	Grey	Clear	Brown	Brown/Grey	Grey	Grey	Grey	Clear	Clear	Clear	Clear	Clear	-	-	-	-
MW-113	Brown	Brown	Brown/Grey	Brown/Grey	Brown	Clear	Grey	Clear	Brown/Grey	Clear	Clear	Clear	Grey	Clear	Brown/Grey	Brown/Grey	Brown	Clear	-	-	-	-
MW-114	Brown	Brown/Grey	Brown/Grey	Clear	Brown	Clear	Clear	Clear	Brown/Grey	Clear	Clear	Brown	Grey	Clear	Brown/Grey	Clear	Clear	Clear	-	-	-	-
MW-115	Brown	Clear	Brown/Grey	Clear	Clear	Clear	Clear	Clear	Brown/Grey	Clear	Clear	Brown	Clear	Clear	Clear	Clear	Clear	Clear	-	-	-	-
MW-116	Clear	Clear	Brown/Grey	Clear	Clear	Clear	Clear	Clear	Brown/Grey	Clear	Clear	Brown	Clear	Clear	Clear	Clear	Clear	Clear	-	-	-	-
MW-33S	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear	-	-	-	-
MW-33M	Clear	Brown/Grey	-	-	-	Clear	-	-	Clear	-	-	-	Clear	-	Clear	Clear	Clear	Clear	-	-	-	-

Notes:
- = Not Measured

Table 5A
Groundwater Quality Data
MW-33 Pilot Study Area
Raytheon Company
Wayland, Massachusetts

Parameter / Sample I.D. / Date Sampled / Comments	Method 1 GW-1 Cleanup Standard (mg/L)	MW-33S 27-Aug-01	MW-33S 05-Nov-01	MW-33S 12-Nov-01	MW-33S 10-Dec-01 low-flow	MW-33S 10-Dec-01 bailer	MW-33S 15-Jan-02	*Pre-Pilot Concentration Range*
Organics								
Volatile Organic Compounds (VOCs) (µg/l)			NA					
Tetrachloroethene	5	-		-	-	-	-	-
Trichloroethene	5	240		380	360	350	260	*170 - 530*
cis-1,2-Dichloroethene	70	-		-	-	-	-	-
1,1,1-Trichloroethane	200	78		120	110	110	75	*40 - 160*
1,1-Dichloroethene	7	-		-	-	-	-	*ND - 2.1*
Inorganics								
Dissolved Metals (mg/L)			NA	NA	NA	NA		*NA*
Chromium (III)	100	-					-	
Manganese	NS	0.01					0.06	
Other Ions								
Fluoride (mg/L)	NS	0.39	-	-	-	-	NA	*NA*
Field Parameters								
pH	NS	6.0	5.8	5.6	5.8	5.8	6.0	*6.0 - 8.2*
Conductivity (mS/cm)	NS	76	73	70	76	85	410	*73 - 110*
Temperature (°C)	NS	13.3	12.2	10.9	10.7	11.8	6.4	*12.1 - 17.8*
Oxidation Reduction Potential (mV)	NS	307	301	296	223	123	375	*103.0 - 306.8*
Dissolved Oxygen (mg/L)	NS	6.5	4.4	3.8	4.1	4.9	5.7	*4.9 - 8.0*
Color	NS	Brown	Clear	Clear	Clear	Clear	Clear	*NA*

Notes:

- = Analytical result below the method detection limit.
NA = Not Analyzed
NS = No Standard
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for well MW-33S on August 27, 2001.
Analytical results are not representative of ambient conditions.

Table 5A
Groundwater Quality Data
MW-33 Pilot Study Area
Raytheon Company
Wayland, Massachusetts

Parameter / Sample I.D. / Date Sampled / Comments	Method 1 GW-1 Cleanup Standard (mg/L)	MW-33M 27-Aug-01	MW-33M 05-Nov-01	MW-33M 12-Nov-01	MW-33M 10-Dec-01	MW-33M 15-Jan-02	*Pre-Pilot Concentration Range*
Organics							
Volatile Organic Compounds (VOCs) (µg/l)			NA				
Tetrachloroethene	5	-		-	-	-	-
Trichloroethene	5	3.1		8.6	9.3	7.2	*ND - 3.1*
cis-1,2-Dichloroethene	70	-		0.97	0.69	-	-
1,1,1-Trichloroethane	200	-		-	-	-	-
1,1-Dichloroethene	7	-		-	-	-	-
Inorganics							
Dissolved Metals (mg/L)			NA	NA	NA		*NA*
Chromium (III)	100	-				-	
Manganese	NS	0.73				0.54	
Other Ions							
Fluoride (mg/L)	NS	0.28	-	-	-	NA	*NA*
Field Parameters							
pH	NS	6.7	7.2	7.5	7.8	8.5	*6.7 - 8.9*
Conductivity (mS/cm)	NS	215	263	237	237	296	*175 - 215*
Temperature (°C)	NS	17.9	12.0	11.4	11.5	10.0	*11.0 - 23.1*
Oxidation Reduction Potential (mV)	NS	188	280	-33	-1,328	236	*10.0 - 187.9*
Dissolved Oxygen (mg/L)	NS	5.0	1.8	0.4	0.2	8.3	*5.0 - 7.2*
Color	NS	Grey	Clear	Clear	Clear	Clear	*NA*

Notes:

- = Analytical result below the method detection limit.
NA = Not Analyzed
NS = No Standard
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for well MW-33S on August 27, 2001.
Analytical results are not representative of ambient conditions.

Table 5A
Groundwater Quality Data
MW-33 Pilot Study Area
Raytheon Company
Wayland, Massachusetts

Parameter / Sample I.D. / Date Sampled / Comments	Method 1 GW-1 Cleanup Standard (mg/L)	MW-107 28-Aug-01	MW-107 08-Oct-01	MW-107 16-Oct-01	MW-107 05-Nov-01	MW-107 13-Nov-01	MW-107 11-Dec-01	MW-107 15-Jan-02
Organics								
Volatile Organic Compounds (VOCs) (µg/l)			NA	NA	NA			
Tetrachloroethene	5	-				-	-	-
Trichloroethene	5	34				65	68	65
cis-1,2-Dichloroethene	70	2.0				3.4	2.6	2.2
1,1,1-Trichloroethane	200	-				-	-	-
1,1-Dichloroethene	7	-				-	-	-
Inorganics								
Dissolved Metals (mg/L)			NA	NA	NA	NA	NA	
Chromium (III)	100	-						-
Manganese	NS	3.3						2.5
Other Ions								
Fluoride (mg/L)	NS	1.6	0.45	-	0.62	0.36	0.73	NA
Field Parameters								
pH	NS	6.8	6.3	6.6	6.6	6.8	6.9	7.1
Conductivity (mS/cm)	NS	592	785	917	848	797	789	677
Temperature (°C)	NS	17.1	12.1	17.9	13.8	14.1	13.5	11.8
Oxidation Reduction Potential (mV)	NS	-438	535	46	6	-65	-71	-29
Dissolved Oxygen (mg/L)	NS	1.0	7.4	3.5	6.2	0.3	0.3	0.3
Color	NS	-	Brown/Grey	Brown/Grey	Brown/Grey	Clear	Grey	Grey

Notes:

- = Analytical result below the method detection limit.
NA = Not Analyzed
NS = No Standard
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for well MW-33S on August 27, 2001.
Analytical results are not representative of ambient conditions.

Table 5A
Groundwater Quality Data
MW-33 Pilot Study Area
Raytheon Company
Wayland, Massachusetts

Parameter / Sample I.D. / Date Sampled / Comments	Method 1 GW-1 Cleanup Standard (mg/L)	MW-108 28-Aug-01	MW-108 08-Oct-01	MW-108 16-Oct-01	MW-108 05-Nov-01	MW-108 13-Nov-01	MW-108 11-Dec-01	MW-108 15-Jan-02
Organics								
Volatile Organic Compounds (VOCs) (µg/l)			NA	NA	NA			
Tetrachloroethene	5	-				-	-	1.4
Trichloroethene	5	1.4				3.7	4.6	8.2
cis-1,2-Dichloroethene	70	-				-	-	-
1,1,1-Trichloroethane	200	-				-	-	-
1,1-Dichloroethene	7	-				-	-	-
Inorganics								
Dissolved Metals (mg/L)			NA	NA	NA	NA	NA	
Chromium (III)	100	-						-
Manganese	NS	1.7						4.4
Other Ions								
Fluoride (mg/L)	NS	-	-	-	-	-	-	NA
Field Parameters								
pH	NS	5.7	6.9	6.1	6.1	5.7	5.8	6.4
Conductivity (mS/cm)	NS	159	91	233	285	370	453	558
Temperature (°C)	NS	17.8	12.5	17.4	14.4	14.5	14.5	12.4
Oxidation Reduction Potential (mV)	NS	100	635	268	455	366	251	328
Dissolved Oxygen (mg/L)	NS	1.1	7.6	4.1	4.1	1.0	0.6	1.3
Color	NS	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Notes:

- = Analytical result below the method detection limit.
NA = Not Analyzed
NS = No Standard
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for well MW-33S on August 27, 2001.
Analytical results are not representative of ambient conditions.

Table 5A
Groundwater Quality Data
MW-33 Pilot Study Area
Raytheon Company
Wayland, Massachusetts

Parameter / Sample I.D. / Date Sampled / Comments	Method 1 GW-1 Cleanup Standard (mg/L)	MW-109 28-Aug-01	MW-109 08-Oct-01	MW-109 16-Oct-01	MW-109 05-Nov-01	MW-109 13-Nov-01	MW-109 11-Dec-01	MW-109 15-Jan-02
Organics								
Volatile Organic Compounds (VOCs) (µg/l)			NA	NA	NA			
Tetrachloroethene	5	-				-	-	-
Trichloroethene	5	18				26	35	36
cis-1,2-Dichloroethene	70	1.6				2.0	2.3	2.8
1,1,1-Trichloroethane	200	-				-	-	-
1,1-Dichloroethene	7	-				-	-	-
Inorganics								
Dissolved Metals (mg/L)			NA	NA	NA	NA	NA	
Chromium (III)	100	-						-
Manganese	NS	1.5						1.5
Other Ions								
Fluoride (mg/L)	NS	0.55	4.4	2.6	2.2	0.45	2.6	NA
Field Parameters								
pH	NS	6.5	11.4	9.8	8.1	9.3	8.7	9.2
Conductivity (mS/cm)	NS	271	916	400	412	373	407	484
Temperature (°C)	NS	17.5	13.4	16.3	13.4	14.0	13.6	10.3
Oxidation Reduction Potential (mV)	NS	-151	415	380	239	165	203	240
Dissolved Oxygen (mg/L)	NS	1.2	6.2	5.8	1.9	0.2	0.2	0.2
Color	NS	-	Purple	Pink	Brown/Grey	Brown/Grey	Brown	Grey

Notes:

- = Analytical result below the method detection limit.
NA = Not Analyzed
NS = No Standard
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for well MW-33S on August 27, 2001.
Analytical results are not representative of ambient conditions.

Table 5A
Groundwater Quality Data
MW-33 Pilot Study Area
Raytheon Company
Wayland, Massachusetts

Parameter / Sample I.D. / Date Sampled / Comments	Method 1 GW-1 Cleanup Standard (mg/L)	MW-110 28-Aug-01	MW-110 08-Oct-01	MW-110 16-Oct-01	MW-110 05-Nov-01	MW-110 13-Nov-01	MW-110 11-Dec-01	MW-110 15-Jan-02
Organics								
Volatile Organic Compounds (VOCs) (µg/l)		-	NA	NA	NA	-	-	-
Tetrachloroethene	5							
Trichloroethene	5							
cis-1,2-Dichloroethene	70							
1,1,1-Trichloroethane	200							
1,1-Dichloroethene	7							
Inorganics								
Dissolved Metals (mg/L)			NA	NA	NA	NA	NA	
Chromium (III)	100	-						-
Manganese	NS	0.24						0.08
Other Ions								
Fluoride (mg/L)	NS	0.32	7.9	2.4	0.66	0.43	0.44	NA
Field Parameters								
pH	NS	5.9	9.8	6.7	6.1	6.0	5.9	6.2
Conductivity (mS/cm)	NS	72	2,728	265	83	74	75	95
Temperature (°C)	NS	16.6	12.7	17.7	12.9	13.9	12.5	6.4
Oxidation Reduction Potential (mV)	NS	110	500	441	561	559	207	437
Dissolved Oxygen (mg/L)	NS	5.0	6.2	3.1	4.0	3.9	4.4	6.1
Color	NS	-	Purple	Pink	Light Pink	Pink/Brown	Brown	Clear

Notes:

- = Analytical result below the method detection limit.
NA = Not Analyzed
NS = No Standard
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for well MW-33S on August 27, 2001.
Analytical results are not representative of ambient conditions.

Table 5A
Groundwater Quality Data
MW-33 Pilot Study Area
Raytheon Company
Wayland, Massachusetts

Parameter / Sample I.D. / Date Sampled / Comments	Method 1 GW-1 Cleanup Standard (mg/L)	MW-111 28-Aug-01	MW-111 14-Oct-01	MW-111 24-Oct-01	MW-111 05-Nov-01	MW-111 13-Nov-01	MW-111 11-Dec-01	MW-111 15-Jan-02
Organics								
Volatile Organic Compounds (VOCs) (µg/l)			NA	NA	NA			
Tetrachloroethene	5	-				-	-	-
Trichloroethene	5	70				9.3	6.6	4.6
cis-1,2-Dichloroethene	70	-				-	-	-
1,1,1-Trichloroethane	200	24				2	-	-
1,1-Dichloroethene	7	0.72				-	-	-
Inorganics								
Dissolved Metals (mg/L)			NA	NA	NA	NA	NA	
Chromium (III)	100	-						-
Manganese	NS	1.1						0.67
Other Ions								
Fluoride (mg/L)	NS	0.48	-	-	-	-	-	NA
Field Parameters								
pH	NS	6.0	6.1	5.5	6.0	6.0	6.2	6.5
Conductivity (mS/cm)	NS	239	239	208	195	180	179	154
Temperature (°C)	NS	16.0	15.3	16.0	12.9	12.0	11.5	8.5
Oxidation Reduction Potential (mV)	NS	-434	209	367	221	190	175	323
Dissolved Oxygen (mg/L)	NS	0.8	1.6	1.5	1.8	0.6	0.2	0.3
Color	NS	-	Brown/Grey	Clear	Clear	Clear	Clear	Clear

Notes:

- = Analytical result below the method detection limit.
NA = Not Analyzed
NS = No Standard
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for well MW-33S on August 27, 2001.
Analytical results are not representative of ambient conditions.

Table 5A
Groundwater Quality Data
MW-33 Pilot Study Area
Raytheon Company
Wayland, Massachusetts

Parameter / Sample I.D. / Date Sampled / Comments	Method 1 GW-1 Cleanup Standard (mg/L)	MW-112 28-Aug-01	MW-112 14-Oct-01	MW-112 24-Oct-01	MW-112 05-Nov-01	MW-112 13-Nov-01	MW-112 11-Dec-01	MW-112 15-Jan-02
Organics								
Volatile Organic Compounds (VOCs) (µg/l)			NA	NA	NA			
Tetrachloroethene	5	-				-	-	4.4
Trichloroethene	5	82				47	37	36
cis-1,2-Dichloroethene	70	-				-	-	-
1,1,1-Trichloroethane	200	29				15	12	10
1,1-Dichloroethene	7	-				-	-	-
Inorganics								
Dissolved Metals (mg/L)			NA	NA	NA	NA	NA	
Chromium (III)	100	-						-
Manganese	NS	0.13						0.04
Other Ions								
Fluoride (mg/L)	NS	-	-	-	-	-	-	NA
Field Parameters								
pH	NS	6.1	6.4	5.6	6.0	5.9	5.9	6.6
Conductivity (mS/cm)	NS	324	106	105	103	100	91	123
Temperature (°C)	NS	16.2	15.1	16.3	13.1	11.3	11.3	11.0
Oxidation Reduction Potential (mV)	NS	161	195	384	264	293	198	306
Dissolved Oxygen (mg/L)	NS	6.2	5.5	4.8	5.3	4.3	4.1	3.9
Color	NS	-	Brown	Clear	Clear	Clear	Clear	Clear

Notes:

- = Analytical result below the method detection limit.
NA = Not Analyzed
NS = No Standard
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for well MW-33S on August 27, 2001.
Analytical results are not representative of ambient conditions.

Table 5A
Groundwater Quality Data
MW-33 Pilot Study Area
Raytheon Company
Wayland, Massachusetts

Parameter / Sample I.D. / Date Sampled / Comments	Method 1 GW-1 Cleanup Standard (mg/L)	MW-113 29-Aug-01	MW-113 12-Oct-01	MW-113 24-Oct-01	MW-113 05-Nov-01	MW-113 12-Nov-01	MW-113 11-Dec-01	DUP-1 11-Dec-01	MW-113 15-Jan-02
Organics									
Volatile Organic Compounds (VOCs) (µg/l)			NA	NA	NA				
Tetrachloroethene	5	-				-	-	-	-
Trichloroethene	5	24				14	14	12	12
cis-1,2-Dichloroethene	70	-				0.9	0.71	-	0.82
1,1,1-Trichloroethane	200	6.5				0.55	-	-	-
1,1-Dichloroethene	7	-				-	-	-	-
Inorganics									
Dissolved Metals (mg/L)			NA	NA	NA	NA	NA	NA	
Chromium (III)	100	-							-
Manganese	NS	1.5							1.7
Other Ions									
Fluoride (mg/L)	NS	-	-	-	-	-	-	-	NA
Field Parameters									
pH	NS	6.1	6.5	6.4	6.7	6.9	7.0	7.0	7.7
Conductivity (mS/cm)	NS	306	365	330	310	288	290	290	255
Temperature (°C)	NS	16.3	17.2	16.8	12.5	10.3	10.3	10.3	6.6
Oxidation Reduction Potential (mV)	NS	-410	212	339	176	83	96	96	27
Dissolved Oxygen (mg/L)	NS	0.4	2.7	1.0	1.5	0.3	0.3	0.3	0.3
Color	NS	-	Brown	Clear	Brown/Grey	Brown/Grey	Brown	Brown	Clear

Notes:

- = Analytical result below the method detection limit.
NA = Not Analyzed
NS = No Standard
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for well MW-33S on August 27, 2001.
Analytical results are not representative of ambient conditions.

Table 5A
Groundwater Quality Data
MW-33 Pilot Study Area
Raytheon Company
Wayland, Massachusetts

Parameter / Sample I.D. / Date Sampled / Comments	Method 1 GW-1 Cleanup Standard (mg/L)	MW-114 28-Sep-01	MW-114 14-Oct-01	MW-114 24-Oct-01	MW-114 05-Nov-01	MW-114 12-Nov-01	MW-114 10-Dec-01	MW-114 15-Jan-02
Organics								
Volatile Organic Compounds (VOCs) (µg/l)			NA	NA	NA			
Tetrachloroethene	5	-				-	-	-
Trichloroethene	5	23				24	14	16
cis-1,2-Dichloroethene	70	-				-	-	-
1,1,1-Trichloroethane	200	5.5				8.4	4.2	4.6
1,1-Dichloroethene	7	-				-	-	-
Inorganics								
Dissolved Metals (mg/L)			NA	NA	NA	NA	NA	
Chromium (III)	100	-						-
Manganese	NS	1.7						0.04
Other Ions								
Fluoride (mg/L)	NS	-	-	-	-	-	-	NA
Field Parameters								
pH	NS	6.7	6.1	5.7	6.0	5.9	6.0	6.6
Conductivity (mS/cm)	NS	139	97	102	85	93	92	113
Temperature (°C)	NS	14.5	16.1	16.2	13.0	11.5	12.1	10.4
Oxidation Reduction Potential (mV)	NS	-197	176	364	264	287	203	313
Dissolved Oxygen (mg/L)	NS	2.1	3.9	3.3	4.1	3.0	2.6	2.5
Color	NS	-	Brown/Grey	Clear	Brown/Grey	Brown/Grey	Clear	Clear

Notes:

- = Analytical result below the method detection limit.
NA = Not Analyzed
NS = No Standard
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for well MW-33S on August 27, 2001.
Analytical results are not representative of ambient conditions.

Table 5A
Groundwater Quality Data
MW-33 Pilot Study Area
Raytheon Company
Wayland, Massachusetts

Parameter / Sample I.D. / Date Sampled / Comments	Method 1 GW-1 Cleanup Standard (mg/L)	MW-115 29-Aug-01	MW-115 14-Oct-01	MW-115 24-Oct-01	MW-115 05-Nov-01	MW-115 12-Nov-01	MW-115 10-Dec-01	MW-115 15-Jan-02
Organics								
Volatile Organic Compounds (VOCs) (µg/l)			NA	NA	NA			
Tetrachloroethene	5	-				-	-	-
Trichloroethene	5	81				60	41	22
cis-1,2-Dichloroethene	70	-				-	-	-
1,1,1-Trichloroethane	200	24				17	10	3.8
1,1-Dichloroethene	7	-				-	-	-
Inorganics								
Dissolved Metals (mg/L)			NA	NA	NA	NA	NA	
Chromium (III)	100	-						-
Manganese	NS	1.7						1.7
Other Ions								
Fluoride (mg/L)	NS	-	-	-	-	-	-	NA
Field Parameters								
pH	NS	6.3	6.4	6.1	6.6	6.6	7.0	7.7
Conductivity (mS/cm)	NS	315	320	301	293	284	297	269
Temperature (°C)	NS	16.4	15.2	16.0	13.0	11.6	11.7	9.1
Oxidation Reduction Potential (mV)	NS	-480	176	304	197	284	65	22
Dissolved Oxygen (mg/L)	NS	1.5	1.4	0.9	1.5	0.3	0.2	0.3
Color	NS	-	Clear	Clear	Clear	Clear	Clear	Clear

Notes:

- = Analytical result below the method detection limit.
NA = Not Analyzed
NS = No Standard
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for well MW-33S on August 27, 2001.
Analytical results are not representative of ambient conditions.

Table 5A
Groundwater Quality Data
MW-33 Pilot Study Area
Raytheon Company
Wayland, Massachusetts

Parameter / Sample I.D. / Date Sampled / Comments	Method 1 GW-1 Cleanup Standard (mg/L)	MW-116 28-Aug-01	MW-116 14-Oct-01	MW-116 24-Oct-01	MW-116 05-Nov-01	MW-116 12-Nov-01	DUP-1 12-Nov-01	MW-116 10-Dec-01	MW-116 15-Jan-02	DUP-1 15-Jan-02
Organics										
Volatile Organic Compounds (VOCs) (µg/l)			NA	NA	NA					
Tetrachloroethene	5	-				-	-	-	-	-
Trichloroethene	5	180				130	120	81	59	74
cis-1,2-Dichloroethene	70	-				-	-	-	-	-
1,1,1-Trichloroethane	200	64				44	39	26	19	23
1,1-Dichloroethene	7	-				-	-	-	-	-
Inorganics										
Dissolved Metals (mg/L)			NA	NA	NA	NA	NA	NA		
Chromium (III)	100	-							-	-
Manganese	NS	0.41							0.06	0.06
Other Ions										
Fluoride (mg/L)	NS	-	-	-	-	-	-	0.29	NA	NA
Field Parameters										
pH	NS	5.8	6.0	5.4	6.0	5.8	5.8	5.8	6.6	6.6
Conductivity (mS/cm)	NS	122	155	138	124	115	115	114	138	138
Temperature (°C)	NS	17.4	15.4	16.4	13.5	11.9	11.9	12.3	9.2	9.2
Oxidation Reduction Potential (mV)	NS	58	153	376	300	260	260	211	277	277
Dissolved Oxygen (mg/L)	NS	2.9	3.8	3.7	4.9	3.8	3.8	3.7	3.3	3.3
Color	NS	-	Clear	Clear	Clear	Clear	Clear	Clear	Clear	Clear

Notes:

- = Analytical result below the method detection limit.
NA = Not Analyzed
NS = No Standard
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for well MW-33S on August 27, 2001.
Analytical results are not representative of ambient conditions.

Table 5B
Groundwater Quality Data
MW-43 Pilot Study Area
Raytheon Company
Wayland, Massachusetts

Parameter / Sample I.D. / Date Sampled / Comments	Method 1 GW-1 Cleanup Standard	MW-43S 27-Aug-01	MW-43S 12-Dec-01	MW-43S 18-Feb-02	MW-43S 11-Apr-02	MW-43S 06-Jun-02	*Pre-Pilot Concentration Range*
Organics							
Volatile Organic Compounds (VOCs) (µg/l)			-	-	-		
Tetrachloroethene	5	5.8				2.4	*ND - 7.4*
Trichloroethene	5	290				2.7	*170 - 600*
cis-1,2-Dichloroethene	70	-				-	*ND - 9.6*
1,1,1 Trichloroethane	200	-				-	-
Bromoform	5	-				17	-
Trichlorofluoromethane	NS	-				-	-
Inorganics							
Dissolved Metals (mg/L)			NA	NA	NA	NA	*NA*
Chromium (III)	0.1	0.01					
Manganese	NS	-					
Other Ions							
Fluoride (mg/L)	NS	1.2	NA	NA	NA	NA	*NA*
Field Parameters							
pH	NS	7.3	7.9	7.7	7.2	6.4	*7.2 - 8.5*
Conductivity (mS/cm)	NS	965	1,172	1,090	1,066	4,276	*599 - 1,076*
Temperature (°C)	NS	15.9	11.6	11.1	11.5	12.9	*13.1 - 21.5*
Oxidation Reduction Potential (mV)	NS	308	591	550	564	601	*109.4 - 307.7*
Dissolved Oxygen (mg/L)	NS	8.8	9.1	8.9	8.9	6.9	*6.7 - 9.0*
Color	NS	Brown	Purple	Dark Pink	Pink	Light Pink	*NA*

Notes:

- = Analytical result below the method detection limit.
NA = Not Analyzed
NS = No Standard
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for well MW-43S on August 27, 2001. Analytical results are not

Table 5B
Groundwater Quality Data
MW-43 Pilot Study Area
Raytheon Company
Wayland, Massachusetts

Parameter / Sample I.D. / Date Sampled / Comments	Method 1 GW-1 Cleanup Standard	MW-43D 27-Aug-01	MW-43D 12-Dec-01	MW-43D 18-Feb-02	MW-43D 11-Apr-02	MW-43D 06-Jun-02	*Pre-Pilot Concentration Range*
Organics							
Volatile Organic Compounds (VOCs) (µg/l)		-	-	-	-	-	
Tetrachloroethene	5						*ND - 0.78*
Trichloroethene	5						-
cis-1,2-Dichloroethene	70						-
1,1,1 Trichloroethane	200						-
Bromoform	5						-
Trichlorofluoromethane	NS						-
Inorganics							
Dissolved Metals (mg/L)		NA	NA	NA	NA	NA	*NA*
Chromium (III)	0.1						
Manganese	NS						
Other Ions							
Fluoride (mg/L)	NS	NA	NA	NA	NA	NA	*NA*
Field Parameters							
pH	NS	*7.7*	7.8	7.8	7.8	6.9	*7.3 - 8.0*
Conductivity (mS/cm)	NS	353	292	370	385	222	*268 - 353*
Temperature (°C)	NS	18.1	9.8	8.5	12.1	14.4	*8.6 - 18.1*
Oxidation Reduction Potential (mV)	NS	283	397	92	472	-126	*119.7 - 283.4*
Dissolved Oxygen (mg/L)	NS	5.5	2.7	2.1	2.3	0.1	*4.4 - 6.6*
Color	NS	Brown/Grey	Clear	Clear	Clear	Clear	*NA*

Notes:

- = Analytical result below the method detection limit.
NA = Not Analyzed
NS = No Standard
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for well MW-43S on August 27, 2001. Analytical results are not

Table 5B
Groundwater Quality Data
MW-43 Pilot Study Area
Raytheon Company
Wayland, Massachusetts

Parameter / Sample I.D. / Date Sampled / Comments	Method 1 GW-1 Cleanup Standard	MW-101 28-Aug-01	MW-101 11-Apr-02	MW-101 06-Jun-02	MW-102 27-Aug-01	MW-102 11-Apr-02	MW-102 06-Jun-02	MW-103 27-Aug-01	MW-103 11-Apr-02	DUP-1 11-Apr-02	MW-103 6-Jun-02
Organics											
Volatile Organic Compounds (VOCs) (µg/l)											
Tetrachloroethene	5	-	1	0.81	-	-	-	0.65	0.59	0.73	-
Trichloroethene	5	2.3	20	2.3	500	570	670	5.9	6.2	7.3	4.4
cis-1,2-Dichloroethene	70	-	-	-	-	-	11	-	-	-	-
1,1,1 Trichloroethane	200	-	4.8	4.8	-	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane	NS	-	-	-	-	-	-	-	-	-	-
Inorganics											
Dissolved Metals (mg/L)			NA	NA		NA	NA		NA	NA	NA
Chromium (III)	0.1	0.02			-			-			
Manganese	NS	0.16			0.69			0.60			
Other Ions											
Fluoride (mg/L)	NS	0.2	NA	NA	-	NA	NA	-	NA	NA	NA
Field Parameters											
pH	NS	6.7	6.0	6.2	6.7	6.6	6.5	6.8	7.0	7.0	7.0
Conductivity (mS/cm)	NS	341	320	392	1,254	1,016	1,387	1,861	1,674	1,674	1,777
Temperature (°C)	NS	17.5	14.7	17.1	17.8	13.9	18.0	17.0	12.9	12.9	16.6
Oxidation Reduction Potential (mV)	NS	-238	522	519	-28	483	443	-78	461	461	428
Dissolved Oxygen (mg/L)	NS	4.6	0.4	1.5	4.7	0.3	0.5	7.1	6.6	6.6	6.5
Color	NS	Clear	Light Grey	Light Brown	Clear	Light Grey	Clear	Clear	Clear	Clear	Clear

Notes:

- = Analytical result below the method detection limit.
NA = Not Analyzed
NS = No Standard
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step
drawdown tests for well MW-43S on August
27, 2001. Analytical results are not

Table 5B
Groundwater Quality Data
MW-43 Pilot Study Area
Raytheon Company
Wayland, Massachusetts

Parameter / Sample I.D. / Date Sampled / Comments	Method 1 GW-1 Cleanup Standard	MW-104 27-Aug-01	MW-104 12-Dec-01	MW-104 18-Feb-02	MW-104 11-Apr-02	MW-104 06-Jun-02
Organics						
Volatile Organic Compounds (VOCs) (µg/l)				-	-	
Tetrachloroethene	5	-	-			1.3
Trichloroethene	5	290	-			37
cis-1,2-Dichloroethene	70	-	-			-
1,1,1 Trichloroethane	200	-	-			-
Bromoform	5	-	34			-
Trichlorofluoromethane	NS	-	-			-
Inorganics						
Dissolved Metals (mg/L)			NA	NA	NA	NA
Chromium (III)	0.1	-				
Manganese	NS	0.58				
Other Ions						
Fluoride (mg/L)	NS	0.43	NA	NA	NA	NA
Field Parameters						
pH	NS	7.0	7.3	7.6	7.5	7.4
Conductivity (mS/cm)	NS	1,226	1,603	1,340	1,505	308
Temperature (°C)	NS	17.6	10.7	10.5	12.4	12.8
Oxidation Reduction Potential (mV)	NS	-71	646	580	595	432
Dissolved Oxygen (mg/L)	NS	8.9	8.4	9.0	8.1	8.3
Color	NS	Clear	Dark Pink	Dark Pink	Pink	Light Brown

Notes:

- = Analytical result below the method detection limit.
NA = Not Analyzed
NS = No Standard
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for well MW-43S on August 27, 2001. Analytical results are not

Table 5B
Groundwater Quality Data
MW-43 Pilot Study Area
Raytheon Company
Wayland, Massachusetts

Parameter / Sample I.D. / Date Sampled / Comments	Method 1 GW-1 Cleanup Standard	MW-105 27-Aug-01	DUP-1 27-Aug-01	MW-105 12-Dec-01	MW-105 18-Feb-02	MW-105 11-Apr-02	MW-105 06-Jun-02
Organics							
Volatile Organic Compounds (VOCs) (µg/l)							
Tetrachloroethene	5	1.8	1.8	-	2.5	2.8	-
Trichloroethene	5	60	66	82	140	140	170
cis-1,2-Dichloroethene	70	12	12	1.6	4.0	3.9	-
1,1,1 Trichloroethane	200	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-
Trichlorofluoromethane	NS	-	-	-	-	1.7	-
Inorganics							
Dissolved Metals (mg/L)				NA	NA	NA	NA
Chromium (III)	0.1	-	-				
Manganese	NS	0.76	0.82				
Other Ions							
Fluoride (mg/L)	NS	0.73	0.76	NA	NA	NA	NA
Field Parameters							
pH	NS	7.2	7.2	7.1	7.2	7.2	7.0
Conductivity (mS/cm)	NS	1,278	1,278	1,192	1,069	1,201	1,417
Temperature (°C)	NS	17.5	17.5	11.1	8.6	12.7	15.3
Oxidation Reduction Potential (mV)	NS	-517	-517	497	520	427	412
Dissolved Oxygen (mg/L)	NS	5.2	5.2	5.9	7.5	8.7	4.8
Color	NS	Clear	Clear	Clear	Clear	Grey/Brown	Clear

Notes:

- = Analytical result below the method detection limit.
NA = Not Analyzed
NS = No Standard
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for well MW-43S on August 27, 2001. Analytical results are not

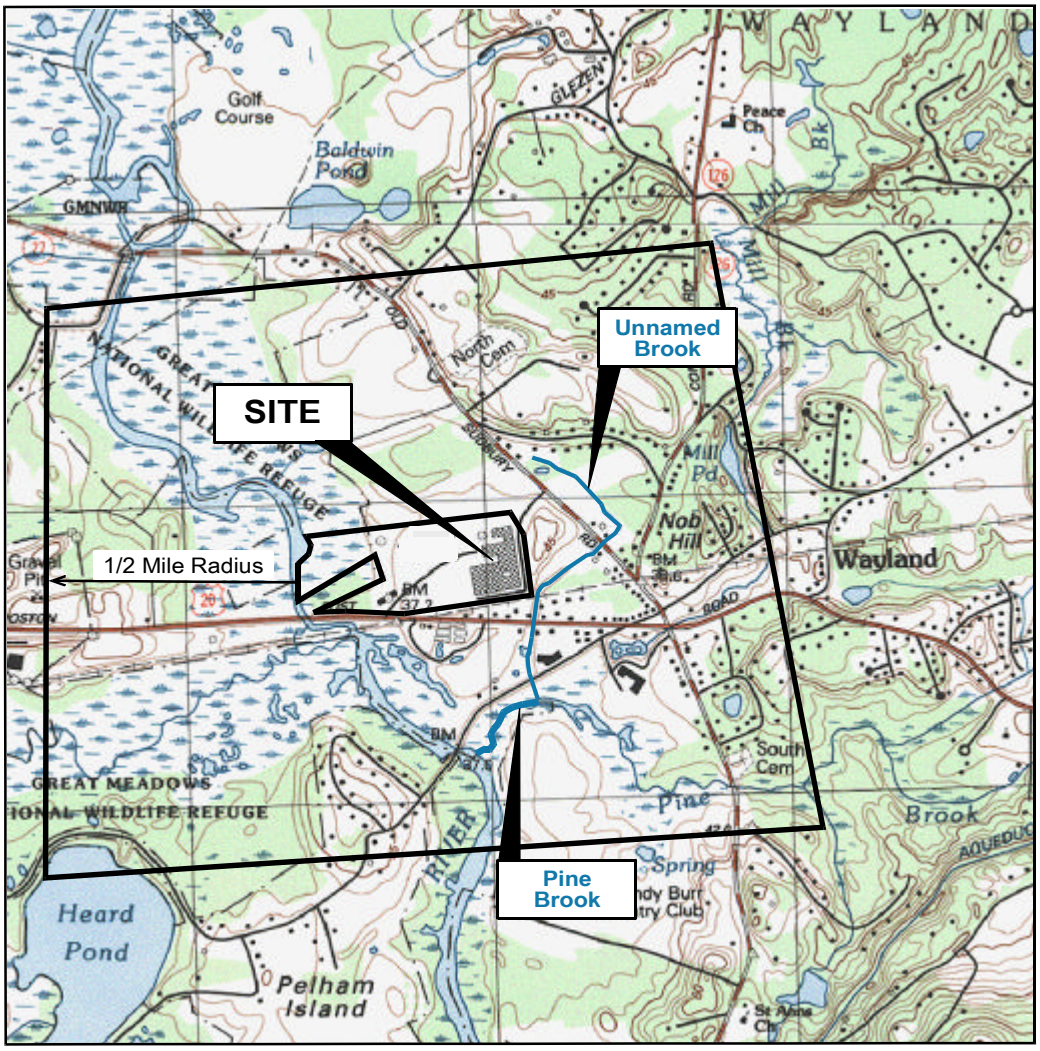
Table 5B
Groundwater Quality Data
MW-43 Pilot Study Area
Raytheon Company
Wayland, Massachusetts

Parameter / Sample I.D. / Date Sampled / Comments	Method 1 GW-1 Cleanup Standard	MW-106 27-Aug-01	MW-106 12-Dec-01	MW-106 18-Feb-02	MW-106 11-Apr-02	MW-106 06-Jun-02	DUP-1 06-Jun-02
Organics							
Volatile Organic Compounds (VOCs) (µg/l)							
Tetrachloroethene	5	3.3	-	-	-	-	1.9
Trichloroethene	5	160	120	100	96	69	79
cis-1,2-Dichloroethene	70	-	-	-	-	-	-
1,1,1 Trichloroethane	200	-	-	-	-	-	-
Bromoform	5	-	-	-	-	-	-
Trichlorofluoromethane	NS	-	-	-	-	-	-
Inorganics							
Dissolved Metals (mg/L)			NA	NA	NA	NA	NA
Chromium (III)	0.1	-					
Manganese	NS	0.52					
Other Ions							
Fluoride (mg/L)	NS	0.3	NA	NA	NA	NA	NA
Field Parameters							
pH	NS	7.3	7.2	7.4	7.4	7.3	7.3
Conductivity (mS/cm)	NS	949	1,078	1,236	1,022	558	558
Temperature (°C)	NS	18.1	11.6	10.4	13.5	13.8	13.8
Oxidation Reduction Potential (mV)	NS	-37	257	457	423	22	22
Dissolved Oxygen (mg/L)	NS	8.5	7.7	8.8	8.1	8.0	8.0
Color	NS	Clear	Clear	Clear	Clear	Brown	Brown

Notes:

- = Analytical result below the method detection limit.
NA = Not Analyzed
NS = No Standard
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for well MW-43S on August 27, 2001. Analytical results are not

Figures



Scale 1:25,000

0.5 km 0 500 m

0.5 mi 0 1,000 ft

N

ENVIRONMENTAL RESOURCES MANAGEMENT

399 Boylston Street, Boston, Massachusetts 02116 (617) 267-8377

CLIENT NAME: Raytheon	DRAWN BY: VZ	DATE: 12/17/01
FILE NAME: Locus Map	SCALE: 1:25,000	PROJ: 143.60

Raytheon Company
430 Boston Post Road Wayland, Massachusetts

Site Locus Map

FIGURE NO.: 1

PRINCIPAL-IN-CHARGE: JD

PROJECT MANAGER: JMcT

N

SCALE

140 ft 0 70 ft 140 ft

LEGEND

MW-34 ⊕	Monitoring Well
MW-1 ▲	Microwell

ENVIRONMENTAL RESOURCES MANAGEMENT

399 Boylston Street, Boston, Massachusetts 02116 (617) 267-8377

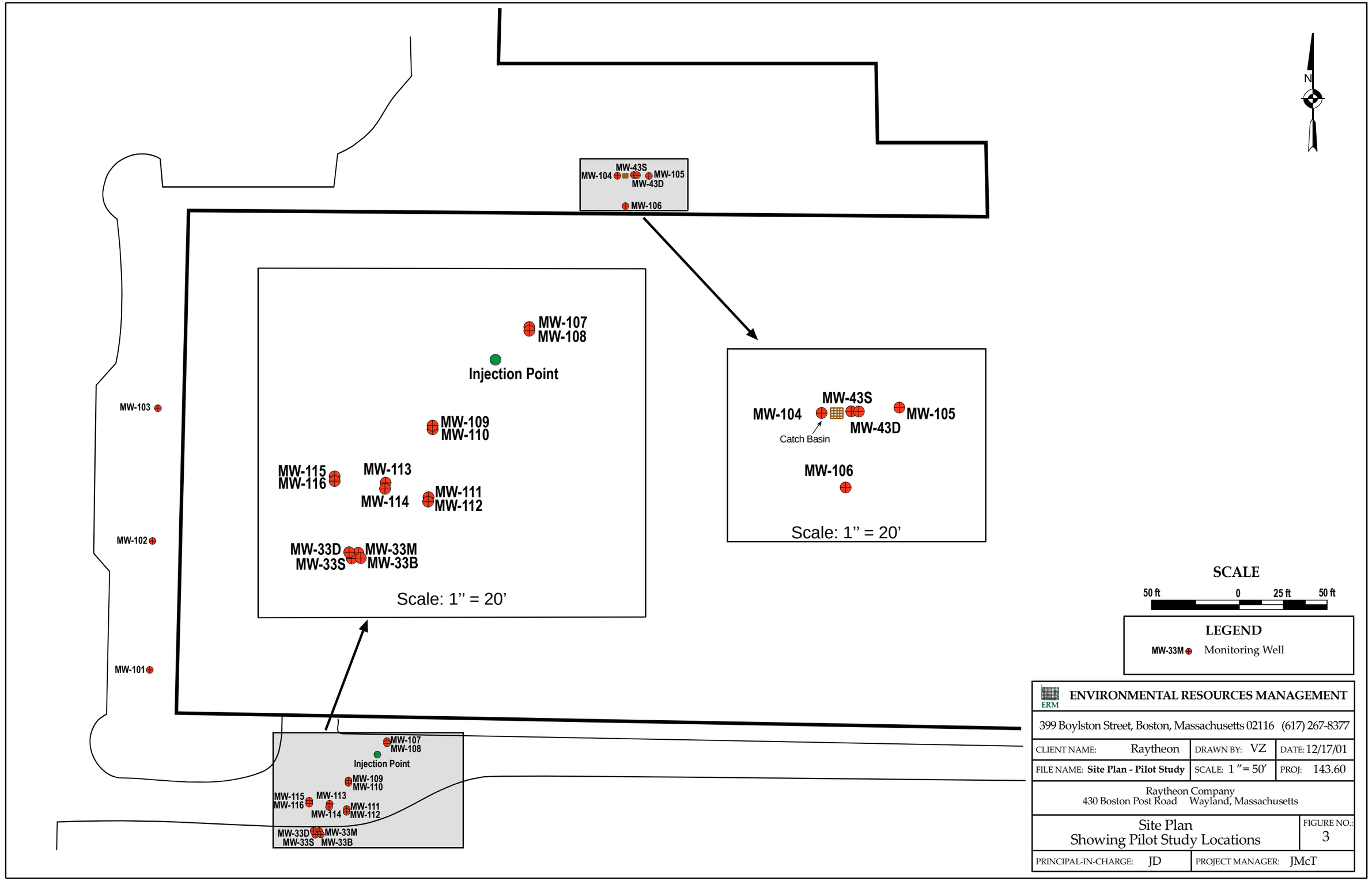
CLIENT NAME:	Raytheon	DRAWN BY: VZ	DATE: 12/17/01
FILE NAME:	Fig 1 Site Plan	SCALE: 1" = 140'	PROJ: 143.60

Raytheon Company
430 Boston Post Road Wayland, Massachusetts

Site Plan

FIGURE NO.: 2

PRINCIPAL-IN-CHARGE: JD | PROJECT MANAGER: JMcT



SCALE

50 ft 0 25 ft 50 ft

LEGEND

MW-33M ⊕ Monitoring Well

ENVIRONMENTAL RESOURCES MANAGEMENT

399 Boylston Street, Boston, Massachusetts 02116 (617) 267-8377

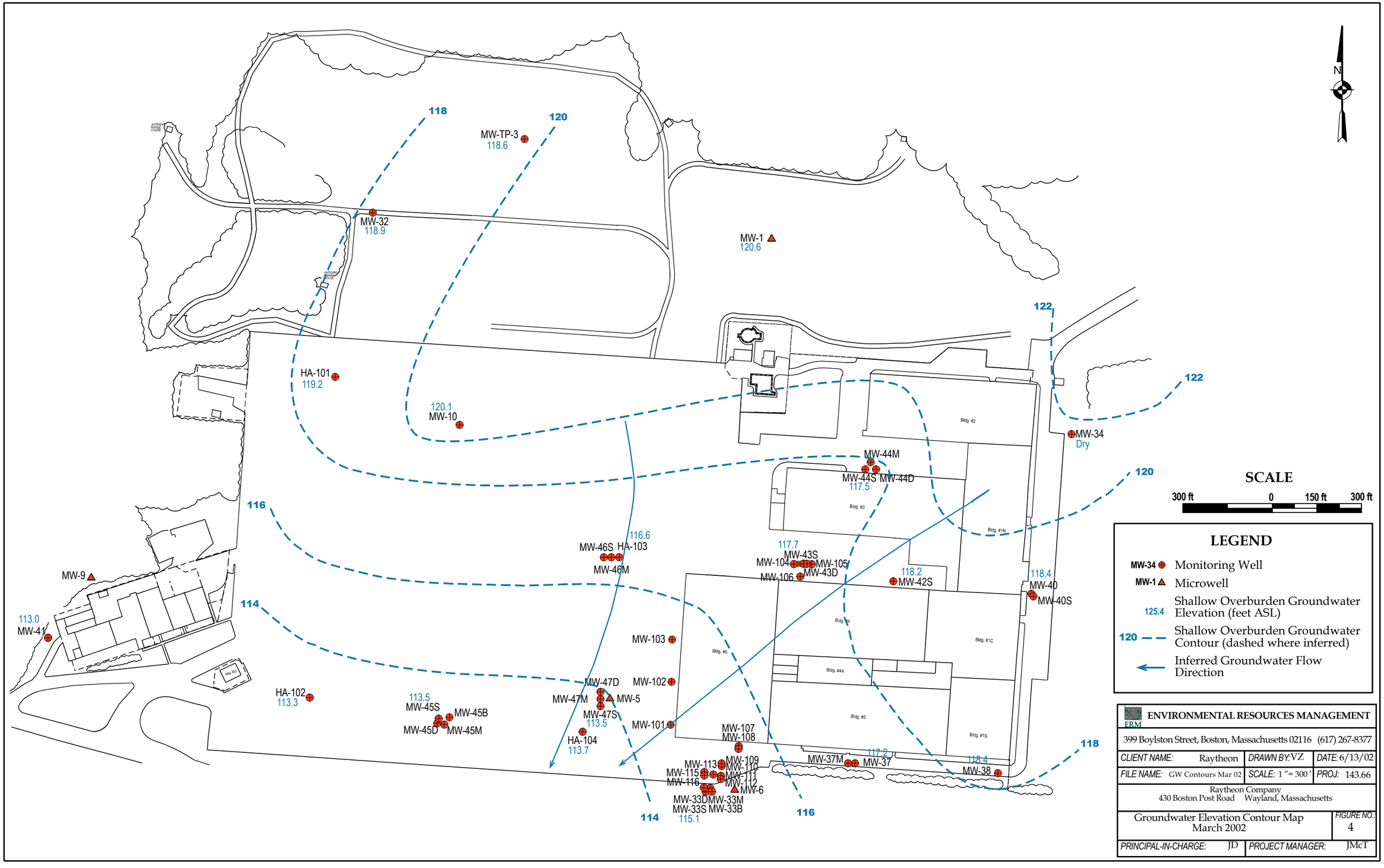
CLIENT NAME: Raytheon	DRAWN BY: VZ	DATE: 12/17/01
FILE NAME: **Site Plan - Pilot Study**	SCALE: 1 ″= 50′	PROJ: 143.60

Raytheon Company
430 Boston Post Road Wayland, Massachusetts

Site Plan
Showing Pilot Study Locations

FIGURE NO.: 3

PRINCIPAL-IN-CHARGE: JD | PROJECT MANAGER: JMcT



SCALE

300 ft 0 150 ft 300 ft

LEGEND

- MW-34 ⊕ Monitoring Well
- MW-1 ▲ Microwell
- 125.4 Shallow Overburden Groundwater Elevation (feet ASL)
- 120 — — Shallow Overburden Groundwater Contour (dashed where inferred)
- ← Inferred Groundwater Flow Direction

ENVIRONMENTAL RESOURCES MANAGEMENT

399 Boylston Street, Boston, Massachusetts 02116 (617) 267-8377

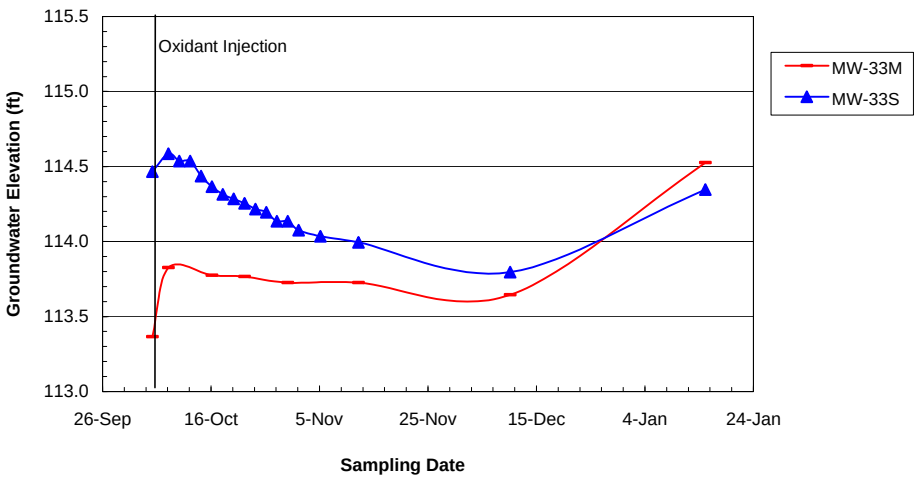
CLIENT NAME: Raytheon	DRAWN BY: VZ	DATE: 6/13/02	
FILE NAME: GW Contours Mar 02	SCALE: 1 "= 300 '	PROJ: 143.66	

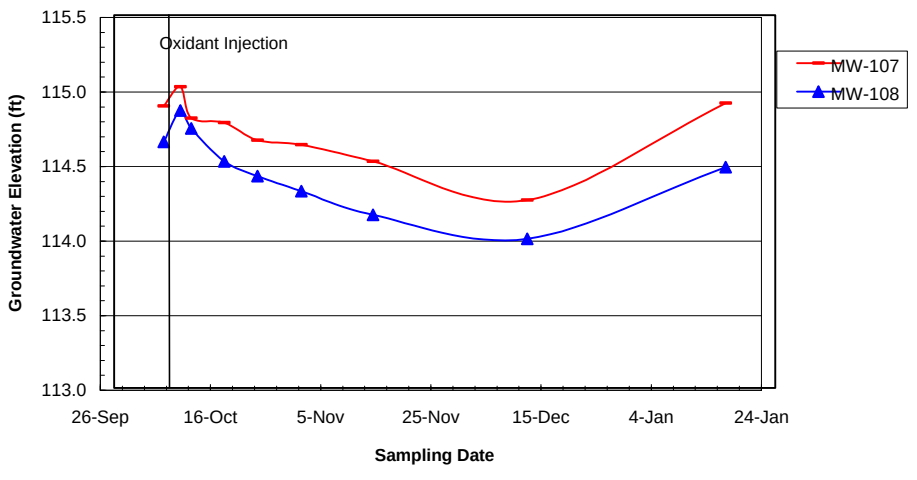
Raytheon Company
430 Boston Post Road Wayland, Massachusetts

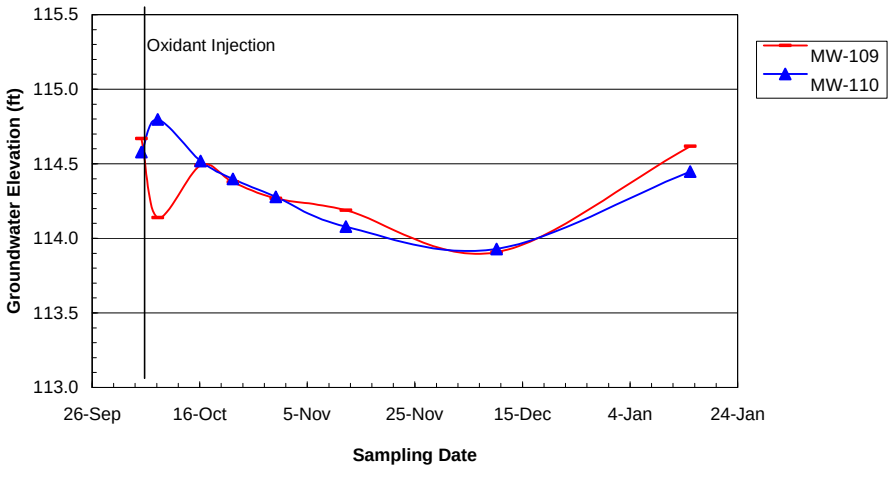
Groundwater Elevation Contour Map
March 2002

FIGURE NO.: 4

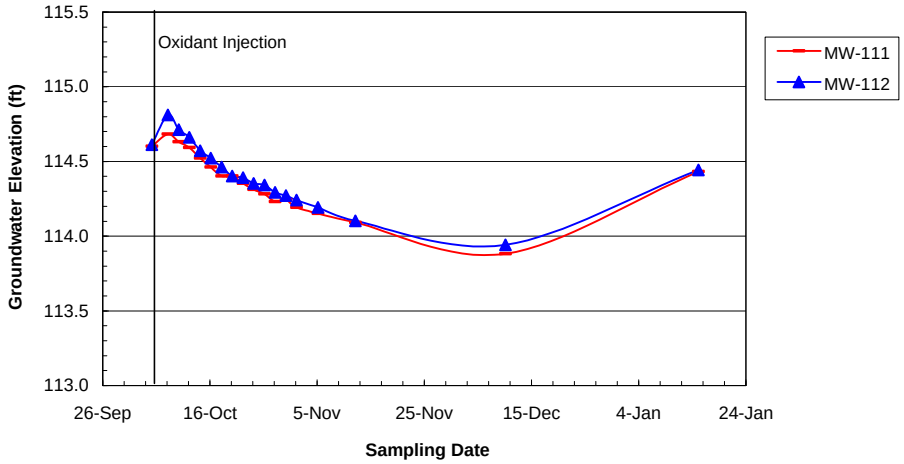
PRINCIPAL-IN-CHARGE: JD | PROJECT MANAGER: JMcT

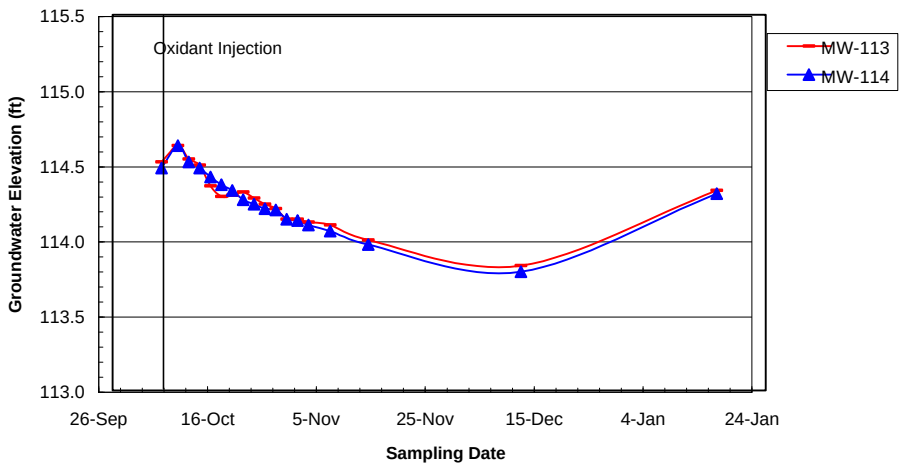


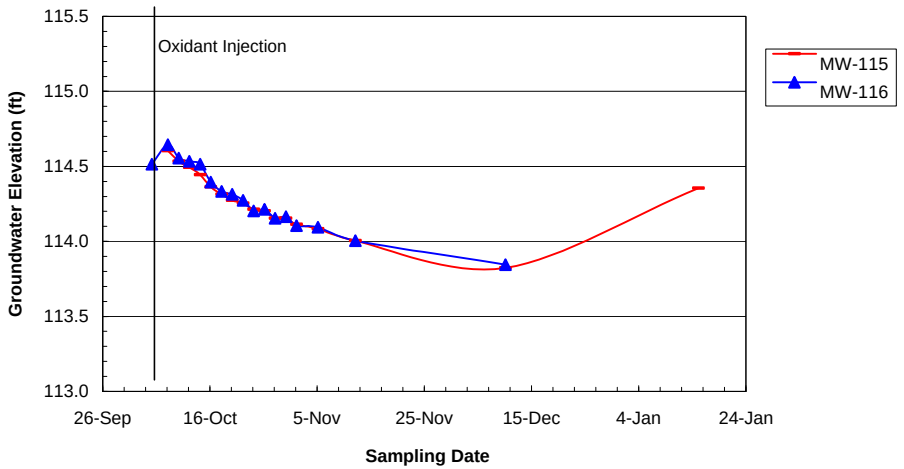




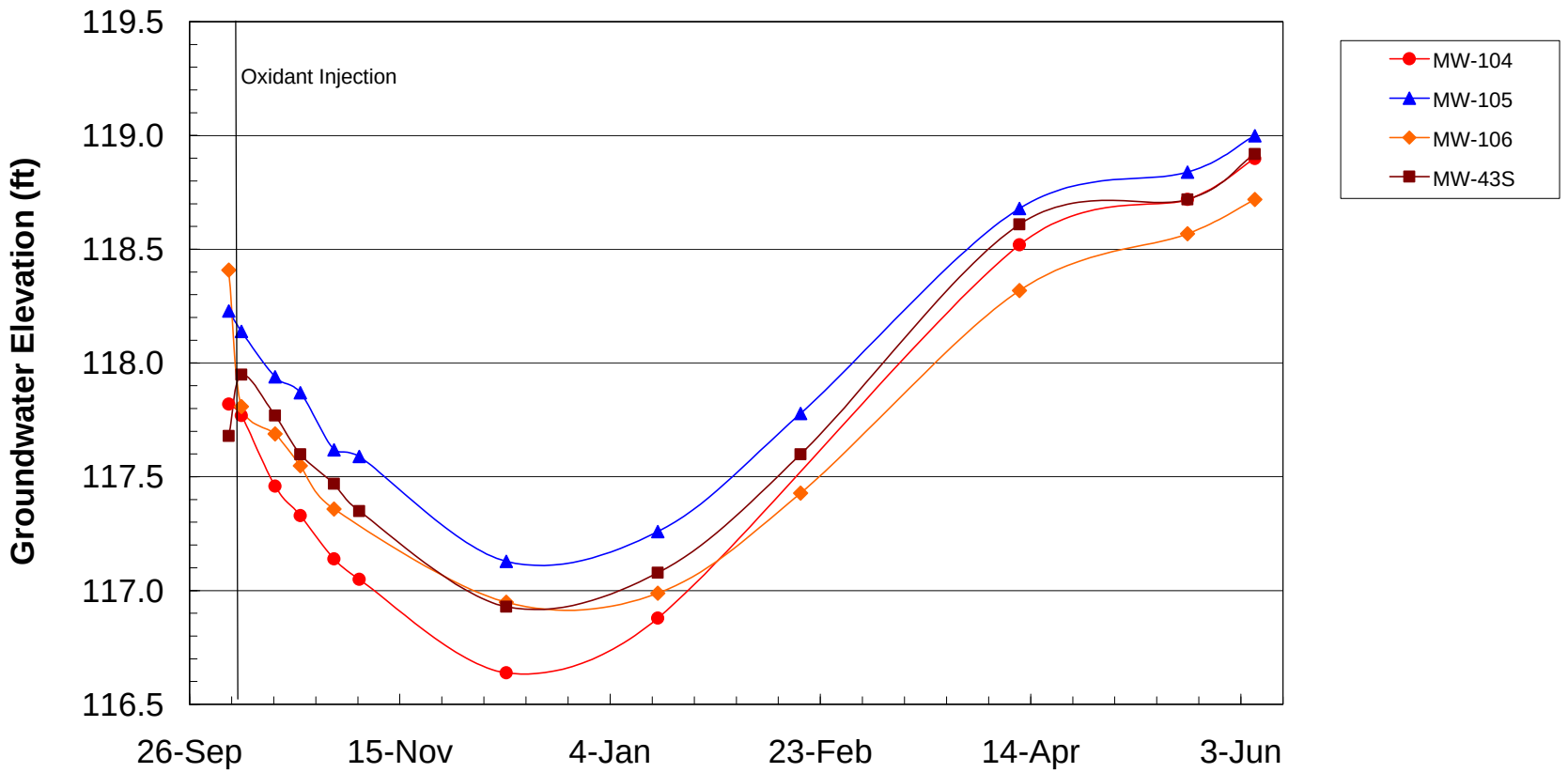
ENVIRONMENTAL RESOURCES MANAGEMENT		
399 Boylston Street, Boston, Massachusetts 02116 (617) 267-8377		
CLIENT NAME: Raytheon	FILE NAME: GW Elev Trends	PROJ: 143.66
430 Boston Post Road Wayland, MA		
Groundwater Elevation Trends		FIGURE NO. 5
PRINCIPAL-IN-CHARGE: JD	PROJECT MANAGER: JMcT	



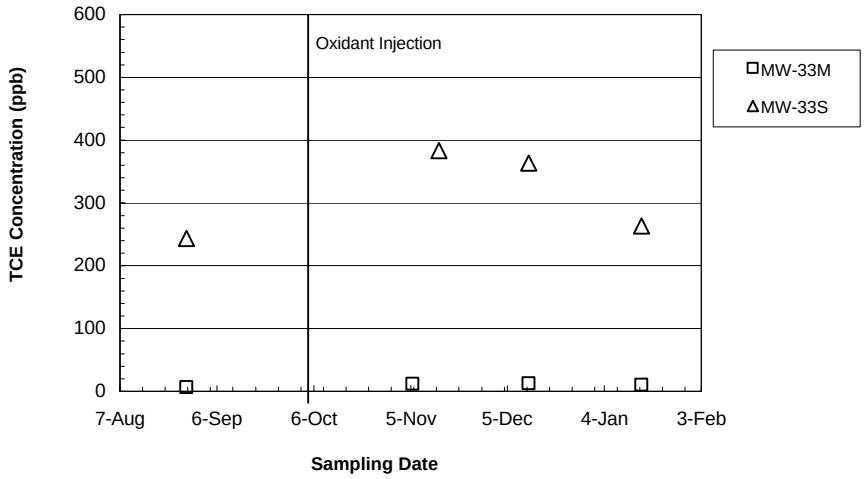


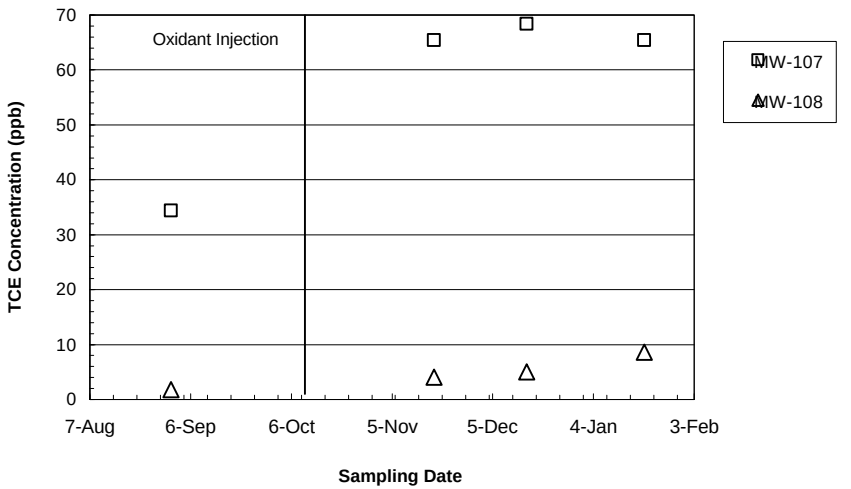


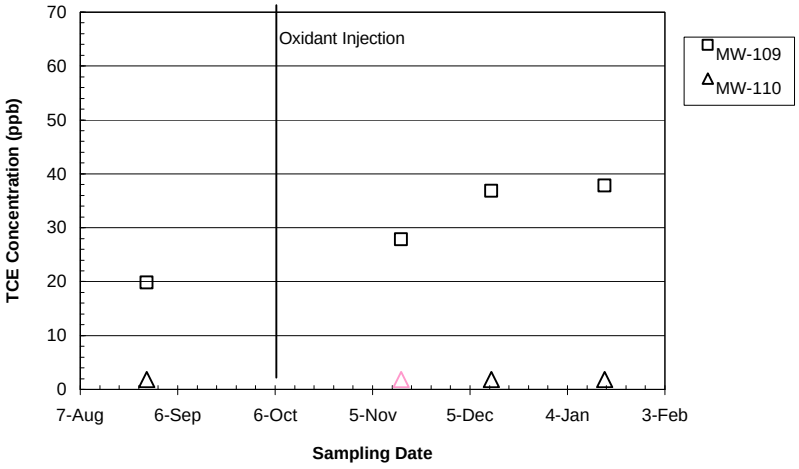
ENVIRONMENTAL RESOURCES MANAGEMENT		
399 Boylston Street, Boston, Massachusetts 02116 (617) 267-8377		
CLIENT NAME: Raytheon	FILE NAME: GW Elev Trends	PROJ: 143.66
430 Boston Post Road Wayland, MA		
Groundwater Elevation Trends		FIGURE NO. 5
PRINCIPAL-IN-CHARGE: JD	PROJECT MANAGER: JMcT	



ENVIRONMENTAL RESOURCES MANAGEMENT		
399 Boylston Street, Boston, Massachusetts 02116 (617) 267-8377		
CLIENT NAME: Raytheon	FILE NAME: GW Elev Trends	PROJ: 143.66
430 Boston Post Road Wayland, MA		
Groundwater Elevation Trends		FIGURE NO. 5
PRINCIPAL-IN-CHARGE: JD	PROJECT MANAGER: JMcT	



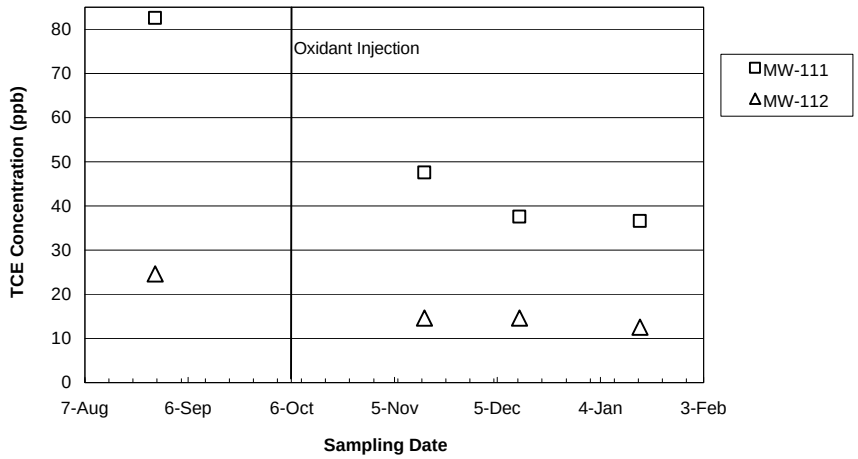


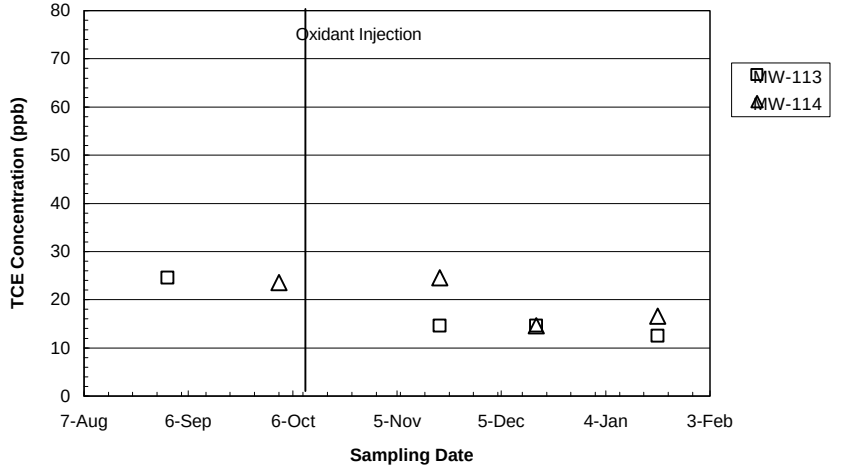


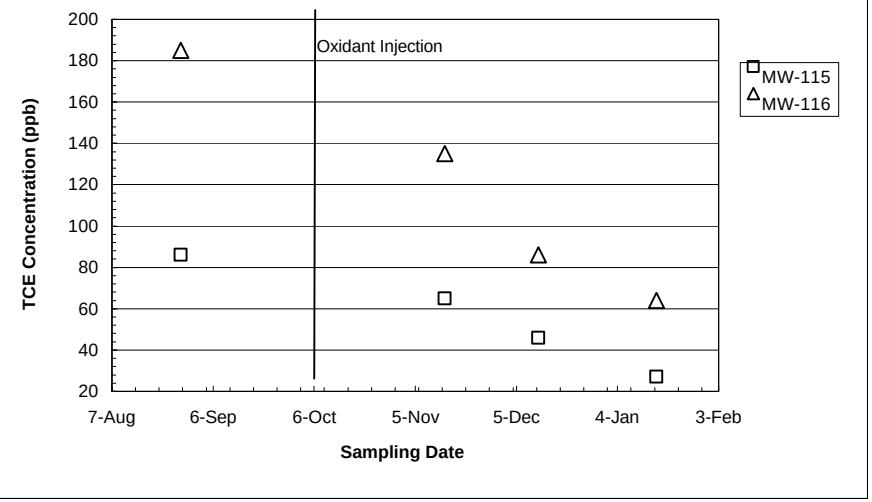
Legend for Data Point Colors

- High Oxidant Concentration
- Moderate Oxidant Concentration
- Low Oxidant Concentration
- No Observable Oxidant

ENVIRONMENTAL RESOURCES MANAGEMENT		
399 Boylston Street, Boston, Massachusetts 02116 (617) 267-8377		
CLIENT NAME: Raytheon	FILE NAME: TCE Conc Trends	PROJ: 143.66
430 Boston Post Road Wayland, MA		
TCE Concentration Trends		FIGURE NO. 6
PRINCIPAL-IN-CHARGE: JD	PROJECT MANAGER: JMcT	



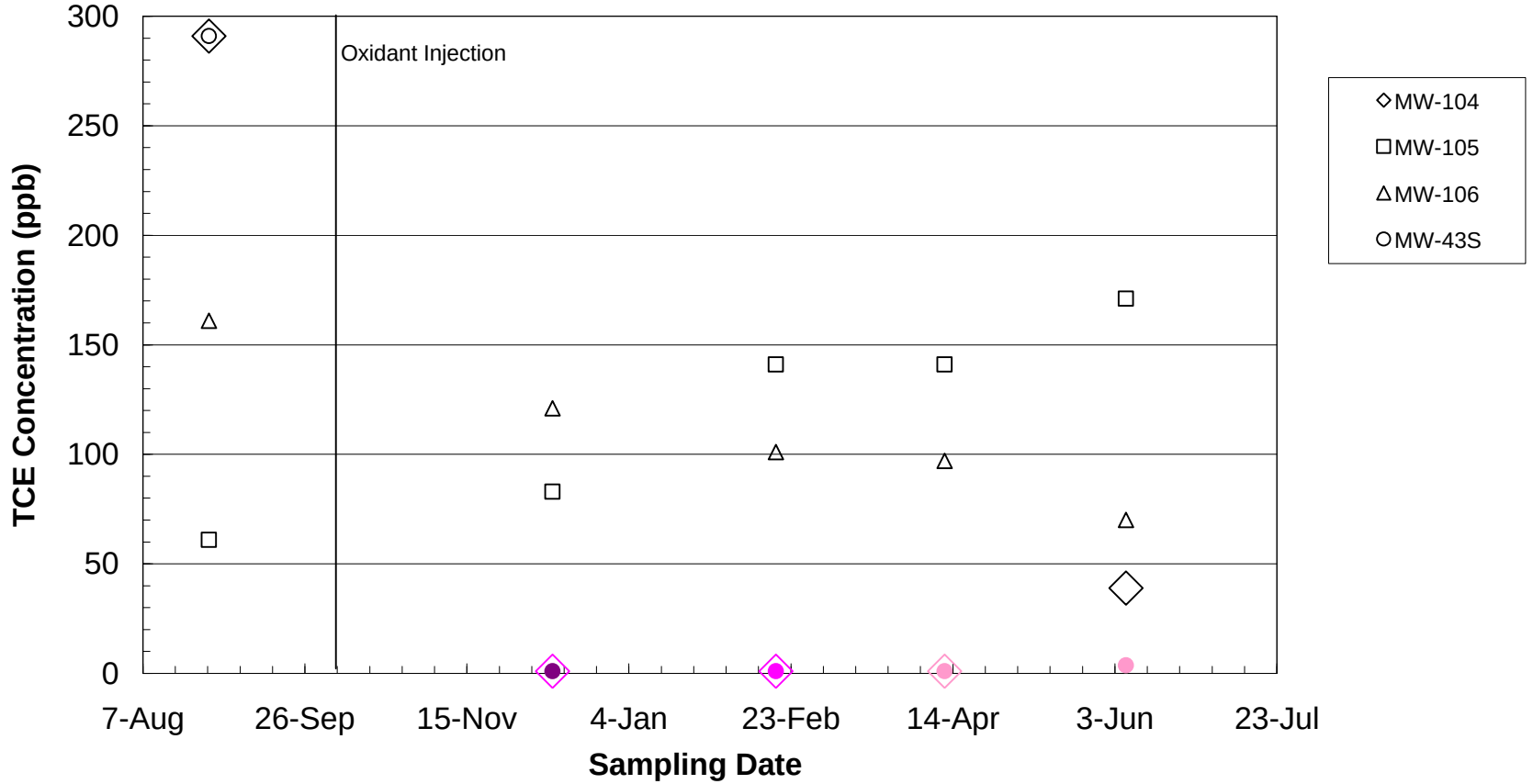




Legend for Data Point Colors

- High Oxidant Concentration
- Moderate Oxidant Concentration
- Low Oxidant Concentration
- No Observable Oxidant

ENVIRONMENTAL RESOURCES MANAGEMENT		
399 Boylston Street, Boston, Massachusetts 02116 (617) 267-8377		
CLIENT NAME: Raytheon	FILE NAME: TCE Conc Trends	PROJ: 143.66
430 Boston Post Road Wayland, MA		
TCE Concentration Trends		FIGURE NO. 6
PRINCIPAL-IN-CHARGE: JD	PROJECT MANAGER: JMcT	



Legend for Data Point Colors

- High Oxidant Concentration
- Moderate Oxidant Concentration
- Low Oxidant Concentration
- No Observable Oxidant

ENVIRONMENTAL RESOURCES MANAGEMENT		
399 Boylston Street, Boston, Massachusetts 02116 (617) 267-8377		
CLIENT NAME: Raytheon	FILE NAME: TCE Conc Trends	PROJ: 143.66
430 Boston Post Road Wayland, MA		
TCE Concentration Trends		FIGURE NO. 6
PRINCIPAL-IN-CHARGE: JD	PROJECT MANAGER: JMcT	

Appendix A
RAM Transmittal Form BWSC-106

Massachusetts Department of Environmental Protection **BWSC-106**
Bureau of Waste Site Cleanup

RELEASE & UTILITY-RELATED ABATEMENT MEASURE (RAM & URAM) TRANSMITTAL FORM

Pursuant to 310 CMR 40.0444 - 0446 and 310 CMR 40.0462 - 0465 (Subpart D)

Release Tracking Number: 3 - 13574

A. SITE LOCATION:

Site Name: Former Raytheon Facility

Street: 430 Boston Post Road Location Aid: Route 20

City/Town: Wayland ZIP Code: 01778-0000

☑ Check here if a Tier Classification Submittal has been provided to DEP for this Release Tracking Number.

Related Release Tracking Numbers That This RAM or URAM Addresses: _____

B. THIS FORM IS BEING USED TO: (check all that apply)

☐ Submit a **RAM Plan** (complete Sections A, B, C, D, E, F, J, K, L and M).

☐ Check here if this RAM Plan is an update or modification of a previously approved written RAM Plan. Date Submitted: _____

☑ Submit a **RAM Status Report** (complete Sections A, B, C, E, J, K, L and M).

☐ Submit a **RAM Completion Statement** (complete Sections A, B, C, D, E, G, J, K, L and M).

☐ Confirm or Provide **URAM Notification** (complete Sections A, B, H, K, L and M).

☐ Submit a **URAM Status Report** (complete Sections A, B, C, E, J, K, L and M).

☐ Submit a **URAM Completion Statement** (complete Sections A, B, C, D, E, I, J, K, L and M).

You must attach all supporting documentation required for each use of form indicated, including copies of any Legal Notices and Notices to Public Officials required by 310 CMR 40.1400.

C. SITE CONDITIONS:

☑ Check here if the source of the Release or Threat of Release is known.

If yes, check all sources that apply: ☐ UST ☐ Pipe/Hose/Line ☐ AST ☐ Drums ☐ Transformer ☐ Boat

☐ Tanker Truck ☐ Vehicle ☑ Other Specify: Former manhole

Identify Media and Receptors Affected: (check all that apply) ☐ Air ☑ Groundwater ☐ Surface Water ☐ Sediments ☐ Soil

☐ Wetlands ☐ Storm Drain ☐ Paved Surface ☐ Private Well ☐ Public Water Supply ☑ Zone 2 ☐ Residence

☐ School ☐ Unknown ☐ Other Specify: _____

Identify Release and/or Threat of Release Conditions at Site: (check all that apply)

☐ 2 and 72 Hour Reporting Condition(s) ☑ 120 Day Reporting Condition(s) ☐ Other Condition(s)

Describe: Groundwater concentrations above applicable reportable concentrations

RAMs may be conducted concurrently with an IRA only with written DEP approval
URAMs may not be conducted if any 2 or 72 Hour conditions exist at the site.

Identify Oils and Hazardous Materials Released: (check all that apply) ☐ Oils ☑ Chlorinated Solvents ☐ Heavy Metals

☐ Others Specify: _____

D. DESCRIPTION OF RESPONSE ACTIONS: (check all that apply)

☐ Assessment and/or Monitoring Only

☐ Excavation of Contaminated Soils

☐ Re-use, Recycling or Treatment

○ On Site ○ Off Site Est. Vol.: _____ cubic yards

Describe: _____

☐ Store ○ On Site ○ Off Site Est. Vol.: _____ cubic yards

☐ Deployment of Absorbant or Containment Materials

☐ Temporary Covers or Caps

☐ Bioremediation

☐ Soil Vapor Extraction

☐ Structure Venting System

☐ Product or NAPL Recovery

SECTION D IS CONTINUED ON THE NEXT PAGE.

RELEASE & UTILITY-RELATED ABATEMENT MEASURE (RAM & URAM) TRANSMITTAL FORM

Pursuant to 310 CMR 40.0444 - 0446 and 310 CMR 40.0462 - 0465 (Subpart D)

Release Tracking Number: 3 - 13574

D. DESCRIPTION OF RESPONSE ACTIONS (continued):

☐ Landfill ◯ Cover ◯ Disposal Est. Vol.: _____ cubic yards

☐ Removal of Drums, Tanks or Containers

Describe: _____

☐ Removal of Other Contaminated Media

Specify Type and Volume: _____

☐ Other Response Actions Describe: _____

☐ Groundwater Treatment Systems

☐ Air Sparging

☐ Temporary Water Supplies

☐ Temporary Evacuation or Relocation of Residents

☐ Fencing and Sign Posting

See 310 CMR 40.0442 for limitations on the scope and type of RAMs.
See 310 CMR 40.0464 for performance standards for URAMs.

☐ Check here if this RAM or URAM involves the use of Innovative Technologies. DEP is interested in using this information to aid in creating an Innovative Technologies Clearinghouse.

Describe Technologies: _____

E. TRANSPORT OF REMEDIATION WASTE:

(if Remediation Waste has been sent to an off-site facility, answer the following questions)

Name of Facility: N/A

Town and State: N/A

Quantity of Remediation Waste Transported to Date: N/A

F. RAM PLAN:

☐ Check here if this RAM Plan received previous oral approval from DEP as a continuation of a Limited Removal Action (LRA).

Date of Oral Approval: _____

☐ If a RAM Compliance Fee is required, check here to certify that the fee has been submitted. You **MUST** attach a photocopy of the payment. See 310 CMR 40.0444(2) to learn when a fee is not required.

☐ Check here if the RAM Plan is proposed for a Transition Site. If this is the case, you may need to attach an LSP Evaluation Opinion prior to undertaking the RAM, if not previously provided. See 310 CMR 40.0600 for further information about Transition Sites.

G. RAM COMPLETION STATEMENT:

☐ If a RAM Compliance Fee is required in connection with submission of the RAM Completion Statement, check here to certify that the fee has been submitted. You **MUST** attach a photocopy of the payment. You owe this fee when submitting a RAM Completion Statement if you received oral approval of a RAM that continued an LRA, and have NOT previously submitted a RAM Plan and accompanying fee.

If any Remediation Waste will be stored, treated, managed, recycled or reused at the site following submission of the RAM Completion Statement, you must submit a Phase IV Remedy Implementation Plan, along with the appropriate transmittal form, as an attachment to the RAM Completion Statement.

H. URAM NOTIFICATION:

Identify Location Type: (check all that apply) ☐ Public Right of Way ☐ Utility Easement ☐ Private Property

Identify Utility Type: (check all that apply) ☐ Sanitary/Combined Sewerage ☐ Water ☐ Drainage ☐ Natural Gas

☐ Telephone ☐ Steam Lines ☐ Telecommunications ☐ Electric ☐ Other Specify: _____

☐ Check here if you provided DEP with previous oral notification of this URAM. Date of Oral Notice: _____

☐ Check here if the property owner was NOT contacted prior to initiation of the URAM. If this is the case, you must attach an explanation of why the owner was not contacted, including the date and time when contact ultimately occurred.

☐ Check here if this URAM will occur in connection with the construction of new public utilities. If this is the case, document the nature and extent of encountered contamination, the scope and expense of necessary mitigation and the benefits amd limitations of project alternatives.

With the exception stated below, the person undertaking the URAM must provide the name and license number of an LSP engaged or employed in connection with the URAM:

LSP Name: _____ LSP License Number: _____

LSP information is not required if the URAM is limited to the excavation and/or handling of not more than 100 cubic yards of soil contaminated by Oil, or not more than 20 cubic yards of soil contaminated either by a Hazardous Material or a mixture of a Hazardous Material and Oil.

Massachusetts Department of Environmental Protection **BWSC-106**
Bureau of Waste Site Cleanup

RELEASE & UTILITY-RELATED ABATEMENT MEASURE (RAM & URAM) TRANSMITTAL FORM

Pursuant to 310 CMR 40.0444 - 0446 and 310 CMR 40.0462 - 0465 (Subpart D)

Release Tracking Number: 3 - 13574

I. URAM COMPLETION STATEMENT:

☐ Check here if this URAM was limited to the excavation and/or handling of not more than 100 cubic yards of soil contaminated by Oil, or not more than 20 cubic yards of soil contaminated by either a Hazardous Material or a mixture of a Hazardous Material and Oil.

If any Remediation Waste will be stored, treated, managed, recycled or reused at the site following submission of the URAM Completion Statement, you must submit either a Release Abatement Measure (RAM) Plan or a Phase IV Remedy Implementation Plan, along with the appropriate transmittal form, as an attachment to the URAM Completion Statement

J. LSP OPINION:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and (iii) the provisions of 309 CMR 4.03(5), to the best of my knowledge, information and belief,

> *if Section B of this form indicates that a **Release Abatement Measure Plan** is being submitted*, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) complies(y) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> *if Section B of this form indicates that a **Release Abatement Measure Status Report** or a **Utility-Related Abatement Measure Status Report** is being submitted*, the response action(s) that is (are) the subject of this submittal (i) is (are) being implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) complies(y) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> *if Section B of this form indicates that a **Release Abatement Measure Completion Statement** or a **Utility-Related Abatement Measure Completion Statement** is being submitted*, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) complies(y) with the identified provisions of all orders, permits, and approvals identified in this submittal;

I am aware that significant penalties may result, including, but not limited to possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

☐ Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.

LSP Name: John C. Drobinski LSP #: 2196 Stamp:

Telephone: 617-267-8377 Ext.: 7850

FAX: (optional) 617-267-6447

Signature:

Date: 25 July 2002

COMMONWEALTH OF MASSACHUSETTS
JOHN C. DROBINSKI
No. 2196
REGISTERED
LICENSED SITE PROFESSIONAL

An LSP Opinion is not required for a Utility-Related Abatement Measure Notification.

An LSP Opinion is not required for a URAM Completion Statement if the URAM is limited to the excavation and/or handling of not more than 100 cubic yards of soil contaminated by Oil, or not more than 20 cubic yards of soil contaminated either by Hazardous Material or a mixture of Hazardous Material and Oil.

K. PERSON UNDERTAKING RAM OR URAM:

Name of Organization: Raytheon Systems Company

Name of Contact: Ronald C. Slager Title: Manager, Env. Rest. Program

Street: 1001 Boston Post Road, MS 1-2-1567

City/Town: Marlborough State: MA ZIP Code: 01752-3789

Telephone: 508-490-1707 Ext.: FAX: 508-490-1744

☐ Check here if there has been a change in person undertaking the RAM or URAM.

Massachusetts Department of Environmental Protection **BWSC-106**

Bureau of Waste Site Cleanup

RELEASE & UTILITY-RELATED ABATEMENT MEASURE (RAM & URAM) TRANSMITTAL FORM

Pursuant to 310 CMR 40.0444 - 0446 and 310 CMR 40.0462 - 0465 (Subpart D)

Release Tracking Number: 3 - 13574

L. RELATIONSHIP TO SITE OF PERSON UNDERTAKING RAM or URAM: (check one)

[✓] RP or PRP Specify: ( ) Owner ( ) Operator ( ) Generator ( ) Transporter Other RP or PRP: Former Operator

[ ] Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

[ ] Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

[ ] Any Other Person Undertaking a RAM or URAM Specify Relationship: _____

M. CERTIFICATION OF PERSON UNDERTAKING RAM OR URAM:

I, Ronald C. Slager, attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

By: Ronald C. Slager Jr Title: Manager, Env. Rest. Program
(signature)

For: Ronald C. Slager Date: 25 July 2002
(print name of person or entity recorded in Section K)

Enter address of person providing certification, if different from address recorded in Section

Street _____

City/Town: _____ State: _____ ZIP Code: _____

Telephone: _____ Ext.: _____ FAX: (optional) _____

YOU MUST COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.

Appendix B
Comprehensive Groundwater Monitoring Round Data

Table 1
Summary of Groundwater Gauging Data
Raytheon Company
Wayland, Massachusetts

Well Designation	Measuring Point	Depth to Water (feet from measuring point)							
		27-May-98	17-18 Nov 98	28-29 July 99	14-Sep-99	5-Apr-00	10-Jul-00	27-29 Aug 01	4-Mar-02[+]
MW-1	Steel Microwell	7.9	-	-	-	8.2	-	-	12.4
MW-2	Steel Microwell	12.5	-	-	-	-	-	-	-
MW-5	Steel Microwell	-	17.9	-	-	-	-	-	-
MW-6	Steel Microwell	15.7	18.4	-	-	-	-	-	-
MW-9	Steel Microwell	4.7	-	-	-	-	-	-	-
MW-10	PVC	6.8	10.1	10.9	-	7.4	-	10.3	10.7
MW-32	PVC	2.5	4.8	6.9	-	2.1	-	6.6	5.6
MW-33S*	PVC	17.1	18.7	18.9	19.6	16.4	16.6	18.3	18.7
MW-33M*	PVC	18.7	17.7	19.7	19.5	16.9	18.3	19.1	18.8
MW-33D	PVC	-	-	20.1	19.4	16.9	18.3	18.3	18.7
MW-33B	PVC	-	-	-	-	17.0	18.7	19.2	18.8
MW-34	PVC	5.6	11.4	14.3	-	10.8	-	13.9	dry
MW-35	PVC	12.8	-	-	-	-	-	-	-
MW-36	PVC	14.2	-	-	-	-	-	-	-
MW-37	PVC	13.9	16.2	17.5	-	15.3	15.4	17.1	17.2
MW-37M	PVC	-	17.9	19.8	-	16.6	17.7	18.5	18.2
MW-38	PVC	13.9	15.3	16.5	-	14.7	-	16.2	16.1
MW-39	PVC	13.8	15.5	-	-	-	-	-	-
MW-40	PVC	13.7	15.5	16.5	-	15.1	-	16.6	16.5
MW-40S	PVC	13.6	15.5	16.4	-	15.0	-	16.0	16.5
MW-41	PVC	11.8	14.4	15.3	-	12.4	-	15.1	14.5
MW-42S	PVC	-	14.4	13.7	-	14.8	-	14.8	16.3
MW-43S	PVC	-	14.6	15.5	16.4	14.5	14.4	14.8	16.1
MW-43D	PVC	-	-	-	-	15.7	16.5	17.4	17.4
MW-44S	PVC	-	16.2	17.5	-	15.5	-	16.7	17.2
MW-44M	PVC	-	16.2	17.4	-	15.5	-	16.8	16.8
MW-44D	PVC	-	16.3	17.5	-	15.4	-	16.9	16.9
MW-45S	PVC	-	18.2	19.2	19.5	16.2	17.4	18.6	18.6
MW-45M	PVC	-	18.3	19.4	19.7	15.4	17.6	18.9	18.8
MW-45D	PVC	-	-	18.8	18.1	13.4	16.6	17.5	17.3
MW-45B	PVC	-	-	-	-	15.3	17.4	17.9	17.2
MW-46S	PVC	-	14.7	16.1	-	13.9	14.3	15.4	15.9
MW-46M	PVC	-	17.0	17.9	-	15.5	16.5	17.0	17.4
MW-47S	PVC	-	17.7	18.9	19.5	16.0	16.7	18.3	18.5
MW-47M	PVC	-	17.2	18.0	18.1	15.3	16.5	17.7	17.3
MW-47D	PVC	-	17.2	18.3	18.2	15.6	17.0	17.8	17.4
MW-TP-3	PVC	9.1	10.9	13.2	-	8.2	-	12.6	12.5
BW-1	PVC	16.2	-	-	-	-	-	-	-
BW-2	PVC	16.0	-	-	-	-	-	-	-
BW-3	PVC	15.4	-	-	-	-	-	-	-
HA-101	PVC	-	8.1	9.3	-	5.2	-	8.8	8.1
HA-102	PVC	-	14.4	15.3	-	12.4	13.8	15.0	14.6
HA-103	PVC	-	14.9	16.1	-	14.1	14.4	15.5	16.0
HA-104	PVC	14.8	17.9	-	-	16.1	16.9	18.5	18.6
MW-101	PVC	-	-	-	-	-	-	20.2	-
MW-102	PVC	-	-	-	-	-	-	20.0	-
MW-103	PVC	-	-	-	-	-	-	17.1	-
MW-104	PVC	-	-	-	-	-	-	15.3	-
MW-105	PVC	-	-	-	-	-	-	15.5	-
MW-106	PVC	-	-	-	-	-	-	16.1	-
MW-107	PVC	-	-	-	-	-	-	19.2	-
MW-108	PVC	-	-	-	-	-	-	19.5	-
MW-109	PVC	-	-	-	-	-	-	19.0	-
MW-110	PVC	-	-	-	-	-	-	19.0	-
MW-111	PVC	-	-	-	-	-	-	18.8	-
MW-112	PVC	-	-	-	-	-	-	18.6	-
MW-113	PVC	-	-	-	-	-	-	18.8	-
MW-114	PVC	-	-	-	-	-	-	19.1	-
MW-115	PVC	-	-	-	-	-	-	-**	-
MW-116	PVC	-	-	-	-	-	-	18.8	-

Notes:

- = Not measured

* Wells MW-33S & MW-33M were constructed with steel protective standpipes, which were removed between the first and second monitoring rounds and replaced with

**Water level not measured due to obstruction at the well cap.

[+] MW-1 DTW was measured on 19 February, 2002

Table 1
Summary of Groundwater Gauging Data
Raytheon Company
Wayland, Massachusetts

Well Designation	Measuring Pt. Elevation (feet ASL)	Groundwater Elevation (feet ASL)							
		27-May-98	17-18 Nov 98	28-29 July 99	14-Sep-99	5-Apr-00	10-Jul-00	27-29 Aug 01	4-Mar-02[+]
MW-1	133.0	125.1	-	-	-	124.8	-	-	120.6
MW-2	136.3	123.8	-	-	-	-	-	-	-
MW-5	132.3	-	114.5	-	-	-	-	-	-
MW-6	134.4	118.7	116.0	-	-	-	-	-	-
MW-9	120.9	116.2	-	-	-	-	-	-	-
MW-10	130.9	124.0	120.8	120.0	-	123.5	-	120.6	120.1
MW-32	124.4	121.9	119.6	117.5	-	122.3	-	117.9	118.9
MW-33S*	133.8	116.7	115.1	114.9	114.2	117.4	117.2	115.5	115.1
MW-33M*	133.6	114.9	115.9	113.9	114.1	116.7	115.3	114.5	114.8
MW-33D	133.8	-	-	-	-	116.9	115.5	115.5	115.1
MW-33B	133.9	-	-	-	-	116.9	115.2	114.7	115.1
MW-34	136.7	131.2	125.4	122.5	-	125.9	-	122.8	dry
MW-35	132.8	120.0	-	-	-	-	-	-	-
MW-36	132.5	118.3	-	-	-	-	-	-	-
MW-37	134.4	120.5	118.2	116.9	-	119.1	119.0	117.3	117.2
MW-37M	134.4	-	116.5	114.6	-	117.8	116.7	115.9	116.2
MW-38	134.5	120.5	119.2	117.9	-	119.7	-	118.3	118.4
MW-39	134.9	121.1	119.4	-	-	-	-	-	-
MW-40	134.9	121.2	119.4	118.4	-	119.8	-	118.3	118.4
MW-40S	134.9	121.2	119.4	118.4	-	119.8	-	118.9	118.4
MW-41	127.4	115.6	113.0	112.1	-	115.0	-	112.3	113.0
MW-42S	134.4	-	120.0	120.7	-	119.7	-	119.7	118.2
MW-43S	133.8	-	119.2	118.3	117.4	119.3	119.4	119.1	117.7
MW-43D	134.6	-	-	-	-	118.8	118.1	117.2	117.2
MW-44S	134.7	-	118.5	117.2	-	119.2	-	118.0	117.5
MW-44M	134.6	-	118.4	117.2	-	119.1	-	117.8	117.8
MW-44D	134.7	-	118.3	117.1	-	119.3	-	117.7	117.7
MW-45S	132.1	-	113.9	112.9	112.5	115.8	114.7	113.4	113.5
MW-45M	132.3	-	114.0	113.0	112.6	117.0	114.7	113.4	113.6
MW-45D	132.6	-	-	-	-	119.2	116.0	115.1	115.3
MW-45B	132.3	-	-	-	-	116.9	114.9	114.4	115.0
MW-46S	132.5	-	117.7	116.4	-	118.5	118.2	117.1	116.6
MW-46M	132.5	-	115.6	114.7	-	117.0	116.1	115.5	115.2
MW-47S	132.0	-	114.3	113.1	112.5	116.0	115.3	113.7	113.5
MW-47M	131.3	-	114.1	113.3	113.2	116.0	114.8	113.6	114.0
MW-47D	132.3	-	115.1	114.0	114.1	116.7	115.3	114.5	114.9
MW-TP-3	131.2	122.1	120.3	118.0	-	122.9	-	118.5	118.6
BW-1	135.6	119.4	-	-	-	-	-	-	-
BW-2	134.9	118.9	-	-	-	-	-	-	-
BW-3	135.6	120.2	-	-	-	-	-	-	-
HA-101	127.3	-	119.2	117.9	-	122.1	-	118.5	119.2
HA-102	127.9	-	113.5	112.6	-	115.5	114.1	112.9	113.3
HA-103	132.5	-	117.6	116.4	-	118.5	118.2	117.0	116.6
HA-104	132.3	117.5	114.4	-	-	116.2	115.4	113.9	113.7
MW-101	134.1	-	-	-	-	-	-	113.9	-
MW-102	134.2	-	-	-	-	-	-	114.2	-
MW-103	133.9	-	-	-	-	-	-	116.9	-
MW-104	133.8	-	-	-	-	-	-	118.4	-
MW-105	134.3	-	-	-	-	-	-	118.8	-
MW-106	134.5	-	-	-	-	-	-	118.4	-
MW-107	134.9	-	-	-	-	-	-	115.7	-
MW-108	134.9	-	-	-	-	-	-	115.5	-
MW-109	134.3	-	-	-	-	-	-	115.3	-
MW-110	134.3	-	-	-	-	-	-	115.3	-
MW-111	134.1	-	-	-	-	-	-	115.3	-
MW-112	133.9	-	-	-	-	-	-	115.3	-
MW-113	133.8	-	-	-	-	-	-	115.0	-
MW-114	133.7							114.6	
MW-115	133.8	-	-	-	-	-	-	-	-
MW-116	134.0	-	-	-	-	-	-	115.2	-

Notes:

- = Not measured

ASL = Above Mean Sea Level

* Wells MW-33S & MW-33M were constructed with steel protective standpipes, which were removed between the first and second monitoring rounds and replaced with flush-mounted roadboxes.

**Water level not measured due to obstruction at the well cap.

[+] MW-1 DTW was measured on 19 February, 2002

Table 2
Groundwater Field Parameter Measurements
Raytheon Company
Wayland, Massachusetts

Well ID	pH						
	18/19-Nov-98	28/29-July-99	14/15-Sep-99	5/6-Apr-00	10-Jul-00	27/28/29-Aug-01	4-Mar-02
MW-10	7.3	6.2	-	6.6	-	6.6	6.7
MW-32	6.9	6.6	-	7.4	-	6.4	6.5
MW-33S	8.2	6.7	7.7	6.3	6.0	6.0	6.5
MW-33M	8.9	7.0	7.1	7.5	7.2	6.7	6.8
MW-33D	-	-	6.7	6.9	7.0	6.8	6.2
MW-33B	-	-	-	7.9	-	7.4	7.4
MW-34	8.8	7.0	-	7.1	-	7.3	-
MW-37	7.3	7.0	-	6.7	6.0	6.5	7.3
MW-37M	7.0	6.9	-	7.7	6.9	6.9	7.3
MW-38	7.8	6.9	-	6.4	-	6.2	7.3
MW-39	7.3	-	-	-	-	-	-
MW-40	6.9	6.7	-	6.6	-	6.4	7.2
MW-40S	6.5	6.3	-	6.9	-	6.4	7.0
MW-41	7.2	6.6	-	6.9	-	6.6	7.4
MW-42S	7.7	7.3	-	6.9	-	7.0	7.2
MW-43S	7.2	7.2	8.5	7.2	7.3	7.3	7.5
MW-43D	-	-	-	8.0	7.3	7.7	-
MW-44S	7.4	6.1	-	7.0	-	7.9	6.7
MW-44M	7.7	7.0	-	7.2	-	6.8	7.3
MW-44D	7.7	6.7	-	8.0	-	7.6	7.6
MW-45S	9.9	7.4	8.3	8.3	9.1	7.9	7.9
MW-45M	9.0	6.6	7.3	6.2	6.3	6.1	8.0
MW-45D	-	-	12.3	11.3	11.9	11.8	12.3
MW-45B	-	-	-	8.3	-	8.6	7.1
MW-46S	7.4	6.1	-	6.9	6.8	6.6	7.3
MW-46M	6.9	5.3	-	6.7	6.6	-	6.9
MW-47S	7.5	5.6	6.9	8.6	6.7	6.0	6.4
MW-47M	6.9	5.8	6.5	6.7	7.3	6.3	6.3
MW-47D	7.1	6.1	7.5	7.1	6.7	6.5	6.8
MW-TP-3	7.1	6.5	-	6.6	-	5.9	6.0
MW-101	-	-	-	-	-	6.7	-
MW-102	-	-	-	-	-	6.7	-
MW-103	-	-	-	-	-	6.8	-
MW-104	-	-	-	-	-	7.0	-
MW-105	-	-	-	-	-	7.2	-
MW-106	-	-	-	-	-	7.3	-
MW-107	-	-	-	-	-	6.8	-
MW-108	-	-	-	-	-	5.7	-
MW-109	-	-	-	-	-	6.5	-
MW-110	-	-	-	-	-	5.9	-
MW-111	-	-	-	-	-	6.0	-
MW-112	-	-	-	-	-	6.1	-
MW-113	-	-	-	-	-	6.1	-
MW-114	-	-	-	-	-	6.7	-
MW-115	-	-	-	-	-	6.3	-
MW-116	-	-	-	-	-	5.8	-
HA-101	6.6	6.0	-	6.8	-	6.7	6.9
HA-102	7.5	6.2	-	7.2	6.7	6.8	6.8
HA-103	7.4	5.7	-	7.0	7.0	6.7	7.3
HA-104	7.3	-	-	7.1	6.6	6.6	6.9

Notes:
- = Not Measured

Table 2
Groundwater Field Parameter Measurements
Raytheon Company
Wayland, Massachusetts

Well ID	Conductivity (mS/cm)						
	18/19-Nov-98	28/29-July-99	14/15-Sep-99	5/6-Apr-00	10-Jul-00	27/28/29-Aug-01	4-Mar-02
MW-10	535	484	-	788	-	725	618
MW-32	70	830	-	72	-	73	205
MW-33S	74	110	109	104	73	76	120
MW-33M	191	213	205	175	197	215	331
MW-33D	-	-	264	274	261	262	234
MW-33B	-	-	-	251	-	300	301
MW-34	90	92	-	108	-	546	-
MW-37	360	448	-	593	279	696	1,220
MW-37M	247	351	-	266	275	397	363
MW-38	429	472	-	2,119	-	566	802
MW-39	275	-	-	-	-	-	-
MW-40	199	275	-	434	-	211	618
MW-40S	938	1,028	-	1,075	-	818	1,002
MW-41	427	567	-	336	-	675	628
MW-42S	537	526	-	487	-	676	818
MW-43S	1,076	730	688	599	752	965	223
MW-43D	-	-	-	268	311	353	-
MW-44S	287	340	-	446	-	312	570
MW-44M	221	280	-	221	-	280	317
MW-44D	231	346	-	281	-	320	401
MW-45S	392	361	418	334	313	385	398
MW-45M	401	302	310	307	264	219	436
MW-45D	-	-	3,060	2,524	1,790	1,983	3,474
MW-45B	-	-	-	526	-	362	1,897
MW-46S	554	753	-	1,200	1,307	1,061	988
MW-46M	1,477	188	-	1,445	1,739	-	1,791
MW-47S	209	260	250	263	181	272	270
MW-47M	388	565	547	470	346	1,751	581
MW-47D	272	314	335	265	306	472	377
MW-TP-3	131	158	-	147	-	166	163
MW-101	-	-	-	-	-	341	-
MW-102	-	-	-	-	-	1,254	-
MW-103	-	-	-	-	-	1,861	-
MW-104	-	-	-	-	-	1,429	-
MW-105	-	-	-	-	-	1,493	-
MW-106	-	-	-	-	-	1,094	-
MW-107	-	-	-	-	-	697	-
MW-108	-	-	-	-	-	185	-
MW-109	-	-	-	-	-	316	-
MW-110	-	-	-	-	-	86	-
MW-111	-	-	-	-	-	289	-
MW-112	-	-	-	-	-	388	-
MW-113	-	-	-	-	-	367	-
MW-114	-	-	-	-	-	174	-
MW-115	-	-	-	-	-	379	-
MW-116	-	-	-	-	-	142	-
HA-101	441	430	-	774	-	624	572
HA-102	323	403	-	407	424	675	598
HA-103	525	597	-	1,042	714	1,162	1,228
HA-104	922	-	-	608	1,015	396	849

Notes:
µS/cm = microsiemens/cm
- = Not Measured

Table 2
Groundwater Field Parameter Measurements
Raytheon Company
Wayland, Massachusetts

Well ID	Temperature (°C)						
	18/19-Nov-98	28/29-July-99	14/15-Sep-99	5/6-Apr-00	10-Jul-00	27/28/29-Aug-01	4-Mar-02
MW-10	17.4	21.5	-	10.6	-	22.3	13.1
MW-32	13.4	18.7	-	7.2	-	16.6	6.3
MW-33S	12.5	17.8	17.8	12.1	16.6	13.3	12.1
MW-33M	12.9	20.8	23.1	11.0	17.7	17.9	13.0
MW-33D	-	-	19.1	13.0	16.6	17.3	13.3
MW-33B	-	-	-	10.3	-	16.6	13.1
MW-34	11.5	18.4	-	8.2	-	18.7	-
MW-37	13.6	16.9	-	11.7	14.5	16.2	12.7
MW-37M	12.7	27.8	-	11.3	15.5	15.7	12.6
MW-38	15.0	17.8	-	10.5	-	18.5	12.5
MW-39	11.3	-	-	-	-	-	-
MW-40	13.5	16.2	-	11.5	-	14.8	12.5
MW-40S	12.7	16.9	-	12.1	-	15.8	13.0
MW-41	13.8	17.9	-	8.0	-	17.9	10.5
MW-42S	14.0	19.6	-	10.0	-	16.5	12.0
MW-43S	13.1	21.5	18.5	10.3	14.2	15.9	11.6
MW-43D	-	-	-	8.6	16.8	18.1	-
MW-44S	11.0	17.2	-	10.6	-	14.1	12.5
MW-44M	9.0	15.4	-	10.4	-	17.7	11.2
MW-44D	6.9	17.4	-	9.9	-	15.4	10.6
MW-45S	12.6	23.1	15.1	11.4	19.3	16.7	13.3
MW-45M	12.7	21.0	15.0	11.6	18.9	15.6	13.0
MW-45D	-	-	18.4	10.9	17.4	19.2	13.1
MW-45B	-	-	-	8.2	-	20.4	13.1
MW-46S	14.7	18.8	-	11.2	15.7	17.2	14.4
MW-46M	12.4	22.1	-	10.8	19.7	-	13.6
MW-47S	13.6	28.0	16.3	13.6	16.0		14.6
MW-47M	12.3	26.8	17.2	11.8	20.4	19.3	13.8
MW-47D	13.5	20.1	17.6	13.8	16.9	17.0	13.5
MW-TP-3	12.3	19.5	-	6.5	-	16.6	9.0
MW-101	-	-	-	-	-	17.5	-
MW-102	-	-	-	-	-	17.8	-
MW-103	-	-	-	-	-	17.0	-
MW-104	-	-		-		17.6	-
MW-105	-	-	-	-	-	17.5	-
MW-106	-	-	-	-	-	18.1	-
MW-107	-	-	-	-	-	17.1	-
MW-108	-	-	-	-	-	17.8	-
MW-109	-	-	-	-	-	17.5	-
MW-110	-	-	-	-	-	16.6	-
MW-111	-	-	-	-	-	16.0	-
MW-112	-	-	-	-	-	16.2	-
MW-113	-	-	-	-	-	16.3	-
MW-114	-	-	-	-	-	14.5	-
MW-115	-	-	-	-	-	16.4	-
MW-116	-	-	-	-	-	17.4	-
HA-101	17.3	22.4	-	11.4	-	21.8	14.5
HA-102	14.7	17.5	-	12.1	19.4	22.7	14.6
HA-103	15.8	20.8	-	11.3	16.6	16.8	14.4
HA-104	14.3	-	-	11.9	21.5	15.1	14.0

Notes:
- = Not Measured

Table 2
Groundwater Field Parameter Measurements
Raytheon Company
Wayland, Massachusetts

Well ID	Oxidation Reduction Potential (ORP) (mV)						
	18/19-Nov-98	28/29-July-99	14/15-Sep-99	5/6-Apr-00	10-Jul-00	27/28/29-Aug-01	4-Mar-02
MW-10	-21	43	-	166	-	-27	-19
MW-32	144	42	-	206	-	300	146
MW-33S	131	103	-	197	113	307	106
MW-33M	47	91	-	69	10	188	31
MW-33D	-	-	-	-22	-67	-10	47
MW-33B	-	-	-	-19	-	169	48
MW-34	177	132	-	233	-	214	-
MW-37	-	100	-	137	158	315	90
MW-37M	46	140	-	213	126	250	89
MW-38	122	135	-	218	-	377	126
MW-39	138	-	-	-	-	-	-
MW-40	212	156	-	211	-	355	135
MW-40S	236	174	-	198	-	370	143
MW-41	163	78	-	229	-	56	224
MW-42S	181	100	-	204	-	306	150
MW-43S	181	-	-	238	109	308	84
MW-43D	-	-	-	227	-	283	-
MW-44S	-13	186	-	212	-	296	199
MW-44M	-69	151	-	72	-	82	-25
MW-44D	117	173	-	208	-	294	-10
MW-45S	214	-9	182	139	34	394	51
MW-45M	185	114	202	289	-7	385	13
MW-45D	-	-	-	-5	-100	82	-170
MW-45B	-	-	-	37	-	256	71
MW-46S	170	118	-	142	38	390	161
MW-46M	25	159	-	71	-22	-	166
MW-47S	172	164	189	218	109	379	183
MW-47M	27	72	150	80	38	301	87
MW-47D	43	45	124	189	44	357	116
MW-TP-3	100	140	-	216	-	360	240
MW-101	-	-	-	-	-	-238	-
MW-102	-	-	-	-	-	-28	-
MW-103	-	-	-	-	-	-78	-
MW-104	-	-	-	-	-	-71	-
MW-105	-	-	-	-	-	-517	-
MW-106	-	-	-	-	-	-37	-
MW-107	-	-	-	-	-	-438	-
MW-108	-	-	-	-	-	100	-
MW-109	-	-	-	-	-	-151	-
MW-110	-	-	-	-	-	110	-
MW-111	-	-	-	-	-	-434	-
MW-112	-	-	-	-	-	161	-
MW-113	-	-	-	-	-	-410	-
MW-114	-	-	-	-	-	-197	-
MW-115	-	-	-	-	-	-480	-
MW-116	-	-	-	-	-	58	-
HA-101	-39	70	-	1	-	-42	-104
HA-102	221	90	-	199	107	259	3
HA-103	31	164	-	240	65	351	163
HA-104	244	-	-	212	102	364	117

Notes:
mV = millivolts
- = Not Measured

Table 2
Groundwater Field Parameter Measurements
Raytheon Company
Wayland, Massachusetts

Well ID	Dissolved Oxygen (mg/L)				
	18/19-Nov-98	5/6-Apr-00	10-Jul-00	27/28/29-Aug-01	4-Mar-02
MW-10	2.3	6.6	-	4.7	0.8
MW-32	6.5	11.9	-	7.6	5.6
MW-33S	6.6	8.0	4.9	6.5	3.2
MW-33M	7.2	-	5.2	5.0	0.7
MW-33D	-	3.8	2.6	3.2	0.7
MW-33B	-	-	-	2.5	0.5
MW-34	10.1	10.7	-	11.4	-
MW-37	5.3	7.9	6.4	7.3	5.6
MW-37M	2.1	3.8	3.2	1.8	0.9
MW-38	5.5	8.6	-	7.1	7.3
MW-39	10.2	-	-	-	-
MW-40	4.7	6.7	-	7.1	2.3
MW-40S	4.1	5.0	-	5.3	1.5
MW-41	7.5	9.9	-	5.1	2.9
MW-42S	7.2	9.0	-	9.5	8.4
MW-43S	6.7	9.0	6.9	8.8	6.4
MW-43D	-	6.6	4.4	5.5	-
MW-44S	7.5	8.0	-	10.5	1.6*
MW-44M	4.6	3.8	-	1.8	1.2
MW-44D	8.3	5.2	-	5.5	0.5
MW-45S	8.4	10.0	9.4	9.1	7.3
MW-45M	6.0	-	1.5	3.5	0.7
MW-45D	-	5.1	9.0	5.9	0.3
MW-45B	-	-	-	4.5	0.7
MW-46S	8.1	8.2	9.0	11.0	7.4
MW-46M	37.7	6.6	4.0	-	0.6
MW-47S	3.1	3.4	3.9	4.7	0.4
MW-47M	4.3	-	2.8	7.6	0.5
MW-47D	4.8	-	2.3	2.3	0.8
MW-TP-3	4.3	7.1	-	4.4	1.4*
MW-101	-	-	-	4.6	-
MW-102	-	-	-	4.7	-
MW-103	-	-	-	7.1	-
MW-104	-	-	-	8.9	-
MW-105	-	-	-	5.2	-
MW-106	-	-	-	8.5	-
MW-107	-	-	-	1.0	-
MW-108	-	-	-	1.1	-
MW-109	-	-	-	1.2	-
MW-110	-	-	-	5.0	-
MW-111	-	-	-	0.8	-
MW-112	-	-	-	6.2	-
MW-113	-	-	-	0.4	-
MW-114	-	-	-	2.1	-
MW-115	-	-	-	1.5	-
MW-116	-	-	-	2.9	-
HA-101	2.2	5.0	-	3.5	0.2
HA-102	7.6	7.8	8.8	8.9	4.1
HA-103	8.8	8.5	9.9	11.4	8.5
HA-104	9.1	9.9	9.3	11.8	3.7

Notes:
mg/L = milligrams per liter
- = Not Measured
* Possible instrument error due to air bubble under DO membrane

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-32 27-May-98 Bailer	MW-32 18-Nov-98 Bailer	MW-32 28-Jul-99 Bailer	MW-32* 6-Apr-00 Bailer	MW-32* 29-Aug-01 Bailer	MW-32 1-Mar-02 Diffusion Bag
Organics							
Volatile Organic Compounds (VOCs) (µg/l)		-	-	-	-	-	-
Tetrachloroethene							
Trichloroethene							
cis-1,2-Dichloroethene							
trans-1,2-Dichloroethene							
Vinyl Chloride							
1,1,1-Trichloroethane							
1,1-Dichloroethane							
1,1-Dichloroethene							
Chloroform							
1,1,2,2-Tetrachloroethane							
Trichlorofluoromethane							
1,2,3-Trichlorobenzene							
1,2-Dichlorobenzene							
1,3-Dichlorobenzene							
1,4-Dichlorobenzene							
Chlorobenzene							
Isopropylbenzene							
sec-Butylbenzene							
1,3,5-Trimethylbenzene							
1,2,4-Trimethylbenzene							
Naphthalene							
Benzene							
Toluene							
Ethylbenzene							
Xylenes							

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.
- = Analytical result below the method detection limit.
NA = Not Analyzed
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-33S 27-May-98 Bailer	MW-33S 20-Nov-98 Bailer	MW-33S 20-Nov-98 DUP-ERM Bailer	MW-33S* 29-Jul-99 Bailer	MW-33S* 14-Sep-99 Bailer	MW-33S* 5-Apr-00 Bailer	MW-33S* 10-Jul-00 Bailer	MW-33S* 11-Jul-00 STEP 1300	MW-33S* 11-Jul-00 STEP 1315
Organics										
Volatile Organic Compounds (VOCs) (µg/l)										
Tetrachloroethene		-	-	-	-	-	-	-	-	-
Trichloroethene		530	210	220	240	260	390	170	180	220
cis-1,2-Dichloroethene		-	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethene		-	-	-	-	-	-	-	-	-
Vinyl Chloride		-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane		160	69	71	80	77	110	40	55	64
1,1-Dichloroethane		-	-	-	-	-	-	-	-	-
1,1-Dichloroethene		-	2.1	2.0	-	-	-	-	-	-
Chloroform		-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane		-	-	-	-	-	-	-	-	-
Trichlorofluoromethane		-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene		-	-	-	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene		-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene		-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene		-	-	-	-	-	-	-	-	-
Chlorobenzene		-	-	-	-	-	-	-	-	-
Isopropylbenzene		-	-	-	NA	NA	NA	NA	NA	NA
sec-Butylbenzene		-	-	-	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene		-	-	-	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene		-	-	-	NA	NA	NA	NA	NA	NA
Naphthalene		-	-	-	NA	NA	NA	NA	NA	NA
Benzene		-	-	-	NA	NA	NA	NA	NA	NA
Toluene		-	-	-	NA	NA	NA	NA	NA	NA
Ethylbenzene		-	-	-	NA	NA	NA	NA	NA	NA
Xylenes		-	-	-	NA	NA	NA	NA	NA	NA

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient conditions.

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. Date Sampled Comments Sampling Method	MW-33S* 11-Jul-00 STEP 1330	MW-33S* 27-Aug-01 Bailer	MW-33S* 12-Nov-01 Low Flow	MW-33S* 10-Dec-01 Low Flow	MW-33S 15-Jan-02 Low Flow	MW-33S 04-Mar-02 Diffusion Bag
Organics							
Volatile Organic Compounds (VOCs) (µg/l)							
Tetrachloroethene		-	-	-	-	-	-
Trichloroethene		190	240	380	350	260	560
cis-1,2-Dichloroethene		-	-	-	-	-	-
trans-1,2-Dichloroethene		-	-	-	-	-	-
Vinyl Chloride		-	-	-	-	-	-
1,1,1-Trichloroethane		51	78	120	110	75	170
1,1-Dichloroethane		-	-	-	-	-	-
1,1-Dichloroethene		-	-	-	-	-	-
Chloroform		-	-	-	-	-	-
1,1,2,2-Tetrachloroethane		-	-	-	-	-	-
Trichlorofluoromethane		-	-	-	-	-	-
1,2,3-Trichlorobenzene		NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene		-	-	-	-	-	-
1,3-Dichlorobenzene		-	-	-	-	-	-
1,4-Dichlorobenzene		-	-	-	-	-	-
Chlorobenzene		-	-	-	-	-	-
Isopropylbenzene		NA	NA	NA	NA	NA	NA
sec-Butylbenzene		NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene		NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene		NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA
Benzene		NA	NA	NA	NA	NA	NA
Toluene		NA	NA	NA	NA	NA	NA
Ethylbenzene		NA	NA	NA	NA	NA	NA
Xylenes		NA	NA	NA	NA	NA	NA

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient conditions.

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-33M 27-May-98 Bailer	MW-33M 20-Nov-98 Waterra	MW-33M 29-Jul-99 Waterra	MW-33M* 14-Sep-99 Waterra	MW-33M* 5-Apr-00 Waterra	MW-33M* 10-Jul-00 Waterra	MW-33M* 27-Aug-01 Waterra	MW-33M* 5-Nov-01 Low Flow	MW-33M* 10-Dec-01 Low Flow	MW-33M 15-Jan-02 Low Flow	MW-33M 04-Mar-02 Diffusion Bag
Organics												
Volatile Organic Compounds (VOCs) (µg/l)			-	-								
Tetrachloroethene		-			-	-	-	-	-	-	-	-
Trichloroethene		1.4			1.8	1.5	1.8	3.1	8.6	9.3	7.2	9.8
cis-1,2-Dichloroethene		-			-	-	-	-	1.0	0.7	-	0.90
trans-1,2-Dichloroethene		-			-	-	-	-	-	-	-	-
Vinyl Chloride		-			-	-	-	-	-	-	-	-
1,1,1-Trichloroethane		-			-	-	-	-	-	-	-	-
1,1-Dichloroethane		-			-	-	-	-	-	-	-	-
1,1-Dichloroethene		-			-	-	-	-	-	-	-	-
Chloroform		-			-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane		-			-	-	-	-	-	-	-	-
Trichlorofluoromethane		-			-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene		-			NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene		-			-	-	-	-	-	-	-	-
1,3-Dichlorobenzene		-			-	-	-	-	-	-	-	-
1,4-Dichlorobenzene		-			-	-	-	-	-	-	-	-
Chlorobenzene		-			-	-	-	-	-	-	-	-
Isopropylbenzene		-			NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene		-			NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene		-			NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene		-			NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene		-			NA	NA	NA	NA	NA	NA	NA	NA
Benzene		-			NA	NA	NA	NA	NA	NA	NA	NA
Toluene		-			NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene		-			NA	NA	NA	NA	NA	NA	NA	NA
Xylenes		-			NA	NA	NA	NA	NA	NA	NA	NA

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-33D* 19-Aug-99 Bailer	MW-33D* 14-Sep-99 Bailer	MW-33D* 5-Apr-00 Bailer	MW-33D* 10-Jul-00 Bailer	MW-33D* 27-Aug-01 Bailer	MW-33D 4-Mar-02 Diffusion Bag
Organics							
Volatile Organic Compounds (VOCs) (µg/l)			-	-	-	-	-
Tetrachloroethene		-					
Trichloroethene		7.2					
cis-1,2-Dichloroethene		-					
trans-1,2-Dichloroethene		-					
Vinyl Chloride		-					
1,1,1-Trichloroethane		-					
1,1-Dichloroethane		-					
1,1-Dichloroethene		-					
Chloroform		-					
1,1,2,2-Tetrachloroethane		-					
Trichlorofluoromethane		-					
1,2,3-Trichlorobenzene		NA					
1,2-Dichlorobenzene		-					
1,3-Dichlorobenzene		-					
1,4-Dichlorobenzene		-					
Chlorobenzene		-					
Isopropylbenzene		NA					
sec-Butylbenzene		NA					
1,3,5-Trimethylbenzene		NA					
1,2,4-Trimethylbenzene		NA					
Naphthalene		NA					
Benzene		NA					
Toluene		NA					
Ethylbenzene		NA					
Xylenes		NA					

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-33B* 5-Apr-00 Waterra	MW-33B* 19-Jul-00 Waterra	MW-33B* 27-Aug-01 Waterra	MW-33B 4-Mar-02 Diffusion Bag
Organics					
Volatile Organic Compounds (VOCs) (µg/l)		-	-	-	-
Tetrachloroethene					
Trichloroethene					
cis-1,2-Dichloroethene					
trans-1,2-Dichloroethene					
Vinyl Chloride					
1,1,1-Trichloroethane					
1,1-Dichloroethane					
1,1-Dichloroethene					
Chloroform					
1,1,2,2-Tetrachloroethane					
Trichlorofluoromethane					
1,2,3-Trichlorobenzene					
1,2-Dichlorobenzene					
1,3-Dichlorobenzene					
1,4-Dichlorobenzene					
Chlorobenzene					
Isopropylbenzene					
sec-Butylbenzene					
1,3,5-Trimethylbenzene					
1,2,4-Trimethylbenzene					
Naphthalene					
Benzene					
Toluene					
Ethylbenzene					
Xylenes					

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-34 27-May-98 Bailer	MW-34 18-Nov-98 Bailer	MW-34 29-Jul-99 Bailer	MW-34* 6-Apr-00 Bailer	MW-34* 28-Aug-01 Bailer	MW-34 11-Apr-02 Bailer
Organics							
Volatile Organic Compounds (VOCs) (µg/l)		-	-	-	-	-	-
Tetrachloroethene							
Trichloroethene							
cis-1,2-Dichloroethene							
trans-1,2-Dichloroethene							
Vinyl Chloride							
1,1,1-Trichloroethane							
1,1-Dichloroethane							
1,1-Dichloroethene							
Chloroform							
1,1,2,2-Tetrachloroethane							
Trichlorofluoromethane							
1,2,3-Trichlorobenzene							
1,2-Dichlorobenzene							
1,3-Dichlorobenzene							
1,4-Dichlorobenzene							
Chlorobenzene							
Isopropylbenzene							
sec-Butylbenzene							
1,3,5-Trimethylbenzene							
1,2,4-Trimethylbenzene							
Naphthalene							
Benzene							
Toluene							
Ethylbenzene							
Xylenes							

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-37 27-May-98 Bailer	MW-37 17-Nov-98 Waterra	MW-37* 29-Jul-99 Bailer	MW-37* 5-Apr-00 Bailer	MW-37* 10-Jul-00 Bailer	MW-37* 28-Aug-01 Bailer	MW-37 4-Mar-02 Diffusion Bag
Organics								
Volatile Organic Compounds (VOCs) (µg/l)		-						
Tetrachloroethene			-	1.4	1.6	-	1.1	5.4
Trichloroethene			5.5	6.8	11	1.0	5.2	46
cis-1,2-Dichloroethene			-	-	-	-	-	-
trans-1,2-Dichloroethene			-	-	-	-	-	-
Vinyl Chloride			-	-	-	-	-	-
1,1,1-Trichloroethane			-	-	-	-	-	-
1,1-Dichloroethane			-	-	-	-	-	-
1,1-Dichloroethene			-	-	-	-	-	-
Chloroform			-	-	-	-	-	-
1,1,2,2-Tetrachloroethane			-	-	-	-	-	-
Trichlorofluoromethane			-	-	-	-	-	-
1,2,3-Trichlorobenzene			-	NA	NA	NA	NA	NA
1,2-Dichlorobenzene			-	-	-	-	-	-
1,3-Dichlorobenzene			-	-	-	-	-	-
1,4-Dichlorobenzene			-	-	-	-	-	-
Chlorobenzene			-	-	-	-	-	-
Isopropylbenzene			-	NA	NA	NA	NA	NA
sec-Butylbenzene			-	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene			-	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene			-	NA	NA	NA	NA	NA
Naphthalene			-	NA	NA	NA	NA	NA
Benzene			-	NA	NA	NA	NA	NA
Toluene			-	NA	NA	NA	NA	NA
Ethylbenzene			-	NA	NA	NA	NA	NA
Xylenes			-	NA	NA	NA	NA	NA

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-37M 17-Nov-98 Bailer	MW-37M 29-Jul-99 Bailer	MW-37M 29-Jul-99 DUP-ERM Bailer	MW-37M* 5-Apr-00 Waterra	MW-37M* 10-Jul-00 Waterra	MW-37M* 28-Aug-01 Waterra	MW-37M 4-Mar-02 Diffusion Bag
Organics								
Volatile Organic Compounds (VOCs) (µg/l)		-	-	-		-		
Tetrachloroethene					-		-	-
Trichloroethene					1.3		0.65	1.4
cis-1,2-Dichloroethene					-		-	-
trans-1,2-Dichloroethene					-		-	-
Vinyl Chloride					-		-	-
1,1,1-Trichloroethane					-		-	-
1,1-Dichloroethane					-		-	-
1,1-Dichloroethene					-		-	-
Chloroform					-		-	-
1,1,2,2-Tetrachloroethane					-		-	-
Trichlorofluoromethane					-		-	-
1,2,3-Trichlorobenzene					NA		NA	NA
1,2-Dichlorobenzene					-		-	-
1,3-Dichlorobenzene					-		-	-
1,4-Dichlorobenzene					-		-	-
Chlorobenzene					-		-	-
Isopropylbenzene					NA		NA	NA
sec-Butylbenzene					NA		NA	NA
1,3,5-Trimethylbenzene					NA		NA	NA
1,2,4-Trimethylbenzene					NA		NA	NA
Naphthalene					NA		NA	NA
Benzene					NA		NA	NA
Toluene					NA		NA	NA
Ethylbenzene					NA		NA	NA
Xylenes					NA		NA	NA

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-38 27-May-98 Bailer	MW-38 17-Nov-98 Bailer	MW-38* 29-Jul-99 Bailer	MW-38* 5-Apr-00 Bailer	MW-38* 28-Aug-01 Bailer	MW-38 4-Mar-02 Diffusion Bag
Organics							
Volatile Organic Compounds (VOCs) (µg/l)		-			-		
Tetrachloroethene			-	-		0.78	-
Trichloroethene			1.9	2.2		2.1	1.6
cis-1,2-Dichloroethene			-	-		-	-
trans-1,2-Dichloroethene			-	-		-	-
Vinyl Chloride			-	-		-	-
1,1,1-Trichloroethane			-	-		-	-
1,1-Dichloroethane			-	-		-	-
1,1-Dichloroethene			-	-		-	-
Chloroform			-	-		-	-
1,1,2,2-Tetrachloroethane			-	-		-	-
Trichlorofluoromethane			-	-		-	-
1,2,3-Trichlorobenzene			-	NA		NA	NA
1,2-Dichlorobenzene			-	-		-	-
1,3-Dichlorobenzene			-	-		-	-
1,4-Dichlorobenzene			-	-		-	-
Chlorobenzene			-	-		-	-
Isopropylbenzene			-	NA		NA	NA
sec-Butylbenzene			-	NA		NA	NA
1,3,5-Trimethylbenzene			-	NA		NA	NA
1,2,4-Trimethylbenzene			-	NA		NA	NA
Naphthalene			-	NA		NA	NA
Benzene			-	NA		NA	NA
Toluene			-	NA		NA	NA
Ethylbenzene			-	NA		NA	NA
Xylenes			-	NA		NA	NA

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-40 27-May-98 Bailer	MW-40 18-Nov-98 Bailer	MW-40 29-Jul-99 Bailer	MW-40* 5-Apr-00 Bailer	MW-40* 28-Aug-01 Bailer	MW-40 4-Mar-02 Diffusion Bag	MW-40 4-Mar-02 DUP-2 Diffusion Bag
Organics								
Volatile Organic Compounds (VOCs) (µg/l)								
Tetrachloroethene		1.8	-	1.7	3.3	3.3	2.8	2.7
Trichloroethene		5.5	3.3	-	12	10	13	13
cis-1,2-Dichloroethene		-	-	-	-	-	-	-
trans-1,2-Dichloroethene		-	-	-	-	-	-	-
Vinyl Chloride		-	-	-	-	-	-	-
1,1,1-Trichloroethane		-	-	-	-	-	-	-
1,1-Dichloroethane		-	-	-	-	-	-	-
1,1-Dichloroethene		-	-	-	-	-	-	-
Chloroform		-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane		-	-	-	-	-	-	-
Trichlorofluoromethane		-	-	-	-	-	-	-
1,2,3-Trichlorobenzene		-	-	-	NA	NA	NA	NA
1,2-Dichlorobenzene		-	-	-	-	-	-	-
1,3-Dichlorobenzene		-	-	-	-	-	-	-
1,4-Dichlorobenzene		-	-	-	-	-	-	-
Chlorobenzene		-	-	-	-	-	-	-
Isopropylbenzene		-	-	-	NA	NA	NA	NA
sec-Butylbenzene		-	-	-	NA	NA	NA	NA
1,3,5-Trimethylbenzene		-	-	-	NA	NA	NA	NA
1,2,4-Trimethylbenzene		-	-	-	NA	NA	NA	NA
Naphthalene		-	-	-	NA	NA	NA	NA
Benzene		-	-	-	NA	NA	NA	NA
Toluene		-	-	-	NA	NA	NA	NA
Ethylbenzene		-	-	-	NA	NA	NA	NA
Xylenes		-	-	-	NA	NA	NA	NA

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Sample I.D.	MW-40S	MW-40S	MW-40S	MW-40S*	MW-40S*	MW-40S*	MW-40S
Date Sampled	27-May-98	18-Nov-98	18-Nov-98	29-Jul-99	5-Apr-00	28-Aug-01	4-Mar-02
Comments			DUP-ERM				
Parameter / Sampling Method	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	Diffusion Bag
Organics							
Volatile Organic Compounds (VOCs) (µg/l)							
Tetrachloroethene	1.8	2.9	2.8	-	1.8	1.7	1.0
Trichloroethene	12	16	16	8.6	16	14	5.6
cis-1,2-Dichloroethene	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	-	-	-	-	-	-	-
Vinyl Chloride	-	-	-	-	-	-	-
1,1,1-Trichloroethane	-	-	-	-	-	-	-
1,1-Dichloroethane	-	-	-	-	-	-	-
1,1-Dichloroethene	-	-	-	-	-	-	-
Chloroform	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	-	-	-	-	-	-	-
Trichlorofluoromethane	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	-	-	-	NA	NA	NA	NA
1,2-Dichlorobenzene	-	-	-	-	-	-	-
1,3-Dichlorobenzene	-	-	-	-	-	-	-
1,4-Dichlorobenzene	-	-	-	-	-	-	-
Chlorobenzene	-	-	-	-	-	-	-
Isopropylbenzene	-	-	-	NA	NA	NA	NA
sec-Butylbenzene	-	-	-	NA	NA	NA	NA
1,3,5-Trimethylbenzene	-	-	-	NA	NA	NA	NA
1,2,4-Trimethylbenzene	-	-	-	NA	NA	NA	NA
Naphthalene	-	-	-	NA	NA	NA	NA
Benzene	-	-	-	NA	NA	NA	NA
Toluene	-	-	-	NA	NA	NA	NA
Ethylbenzene	-	-	-	NA	NA	NA	NA
Xylenes	-	-	-	NA	NA	NA	NA

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.
- = Analytical result below the method detection limit.
NA = Not Analyzed
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M.
Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-41 27-May-98 Bailer	MW-41 17-Nov-98 Bailer	MW-41 28-Jul-99 Bailer	MW-41* 6-Apr-00 Bailer	MW-41 12-Oct-00	MW-41* 28-Aug-01 Bailer	MW-41 4-Mar-02 Diffusion Bag
Organics								
Volatile Organic Compounds (VOCs) (µg/l)		-		-	-			
Tetrachloroethene			-			0.7	0.71	-
Trichloroethene			3.2			6	5.8	3.5
cis-1,2-Dichloroethene			-			0.5	-	-
trans-1,2-Dichloroethene			-			-	-	-
Vinyl Chloride			-			-	-	-
1,1,1-Trichloroethane			-			-	-	-
1,1-Dichloroethane			-			-	-	-
1,1-Dichloroethene			-			-	-	-
Chloroform			-			-	-	-
1,1,2,2-Tetrachloroethane			-			-	-	-
Trichlorofluoromethane			-			0.8	-	-
1,2,3-Trichlorobenzene			-			-	NA	-
1,2-Dichlorobenzene			-			-	-	-
1,3-Dichlorobenzene			-			-	-	-
1,4-Dichlorobenzene			-			-	-	-
Chlorobenzene			-			-	-	-
Isopropylbenzene			-			-	NA	-
sec-Butylbenzene			-			-	NA	-
1,3,5-Trimethylbenzene			-			-	NA	-
1,2,4-Trimethylbenzene			-			-	NA	-
Naphthalene			-			-	NA	-
Benzene			-			-	NA	-
Toluene			-			-	NA	-
Ethylbenzene			-			-	NA	-
Xylenes			-			-	NA	-

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-42S 17-Nov-98 Bailer	MW-42S* 29-Jul-99 Bailer	MW-42S* 5-Apr-00 Bailer	MW-42S* 27-Aug-01 Bailer	MW-42S 4-Mar-02 Diffusion Bag
Organics						
Volatile Organic Compounds (VOCs) (µg/l)						
Tetrachloroethene		4.9	-	1.0	1.3	-
Trichloroethene		14	2.9	3.3	4.0	0.78
cis-1,2-Dichloroethene		-	-	-	-	-
trans-1,2-Dichloroethene		-	-	-	-	-
Vinyl Chloride		-	-	-	-	-
1,1,1-Trichloroethane		-	-	-	-	-
1,1-Dichloroethane		-	-	-	-	-
1,1-Dichloroethene		-	-	-	-	-
Chloroform		-	-	-	-	-
1,1,2,2-Tetrachloroethane		-	-	-	-	-
Trichlorofluoromethane		-	5.8	-	-	-
1,2,3-Trichlorobenzene		-	NA	NA	NA	NA
1,2-Dichlorobenzene		-	-	-	-	-
1,3-Dichlorobenzene		-	-	-	-	-
1,4-Dichlorobenzene		-	-	-	-	-
Chlorobenzene		-	-	-	-	-
Isopropylbenzene		-	NA	NA	NA	NA
sec-Butylbenzene		-	NA	NA	NA	NA
1,3,5-Trimethylbenzene		-	NA	NA	NA	NA
1,2,4-Trimethylbenzene		-	NA	NA	NA	NA
Naphthalene		-	NA	NA	NA	NA
Benzene		-	NA	NA	NA	NA
Toluene		-	NA	NA	NA	NA
Ethylbenzene		-	NA	NA	NA	NA
Xylenes		-	NA	NA	NA	NA

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Sample I.D.	MW-43S	MW-43S*	MW-43S*	MW-43S*	MW-43S*	MW-43S*	MW-43S*	MW-43S*	MW-43S*	MW-43S*	MW-43S	MW-43S	MW-43S	MW-43S	MW-43S
Date Sampled	17-Nov-98	29-Jul-99	29-Jul-99	14-Sep-99	5-Apr-00	6-Apr-00	11-Jul-00	11-Jul-00	11-Jul-00	27-Aug-01	12-Dec-01	18-Feb-02	4-Mar-02	11-Apr-02	6-Jun-02
Comments			DUP-ERM			DUP-ERM	STEP 1500	STEP 1515	STEP 1530						
ıneter / Sampling Method	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	Diffusion Bag	Low Flow	Low Flow
Organics															
Volatile Organic Compounds (VOCs) (µg/l)											-	-	-	-	
Tetrachloroethene	-	-	2.1	-	-	-	7.4	-	-	5.8					2.4
Trichloroethene	350	280	180	170	560	530	600	370	330	290					2.7
cis-1,2-Dichloroethene	8.6	-	3.9	3.6	9.6	-	-	-	-	-					-
trans-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-	-					-
Vinyl Chloride	-	-	-	-	-	-	-	-	-	-					-
1,1,1-Trichloroethane	-	-	-	-	-	-	-	-	-	-					-
1,1-Dichloroethane	-	-	-	-	-	-	-	-	-	-					-
1,1-Dichloroethene	-	-	-	-	-	-	-	-	-	-					-
Chloroform	-	-	-	-	-	-	-	-	-	-					-
Bromoform	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17
1,1,2,2-Tetrachloroethane	-	-	-	-	-	-	-	-	-	-					-
Trichlorofluoromethane	-	-	1.6	3.0	-	-	7.4	5.1	-	-					-
1,2,3-Trichlorobenzene	-	NA	NA	NA	NA	NA	NA	NA	NA	NA					-
1,2-Dichlorobenzene	-	-	-	-	-	-	-	-	-	-					-
1,3-Dichlorobenzene	-	-	-	3.4	-	-	-	-	-	-					-
1,4-Dichlorobenzene	-	-	-	-	-	-	-	-	-	-					-
Chlorobenzene	-	-	-	-	-	-	-	-	-	-					-
Isopropylbenzene	-	NA	NA	NA	NA	NA	NA	NA	NA	NA					-
sec-Butylbenzene	-	NA	NA	NA	NA	NA	NA	NA	NA	NA					-
1,3,5-Trimethylbenzene	-	NA	NA	NA	NA	NA	NA	NA	NA	NA					-
1,2,4-Trimethylbenzene	-	NA	NA	NA	NA	NA	NA	NA	NA	NA					-
Naphthalene	-	NA	NA	NA	NA	NA	NA	NA	NA	NA					-
Benzene	-	NA	NA	NA	NA	NA	NA	NA	NA	NA					-
Toluene	-	NA	NA	NA	NA	NA	NA	NA	NA	NA					-
Ethylbenzene	-	NA	NA	NA	NA	NA	NA	NA	NA	NA					-
Xylenes	-	NA	NA	NA	NA	NA	NA	NA	NA	NA					-

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.
- = Analytical result below the method detection limit.
NA = Not Analyzed
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient conditions.

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Sample I.D.	MW-43D	MW-43D*	MW-43D*	MW-43D	MW-43D	MW-43D	MW-43D	MW-43D
Date Sampled	6-Apr-00	10-Jul-00	27-Aug-01	12-Dec-01	18-Feb-02	1-Mar-02	11-Apr-02	6-Jun-02
Comments								
Parameter / Sampling Method	Waterra	Waterra	Waterra	Low Flow	Low Flow	Diffusion Bag	Low Flow	Low Flow
Organics								
Volatile Organic Compounds (VOCs) (µg/l)	-	-	-	-	-	-	-	-
Tetrachloroethene								
Trichloroethene								
cis-1,2-Dichloroethene								
trans-1,2-Dichloroethene								
Vinyl Chloride								
1,1,1-Trichloroethane								
1,1-Dichloroethane								
1,1-Dichloroethene								
Chloroform								
1,1,2,2-Tetrachloroethane								
Trichlorofluoromethane								
1,2,3-Trichlorobenzene								
1,2-Dichlorobenzene								
1,3-Dichlorobenzene								
1,4-Dichlorobenzene								
Chlorobenzene								
Isopropylbenzene								
sec-Butylbenzene								
1,3,5-Trimethylbenzene								
1,2,4-Trimethylbenzene								
Naphthalene								
Benzene								
Toluene								
Ethylbenzene								
Xylenes								

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-44S 18-Nov-98 Bailer	MW-44S 29-Jul-99 Bailer	MW-44S 6-Apr-00 Bailer	MW-44S* 27-Aug-01 Bailer	MW-44S 1-Mar-02 Diffusion Bag
Organics						
Volatile Organic Compounds (VOCs) (µg/l)		-	-	-		
Tetrachloroethene					-	2.6
Trichloroethene					0.78	13
cis-1,2-Dichloroethene					-	-
trans-1,2-Dichloroethene					-	-
Vinyl Chloride					-	-
1,1,1-Trichloroethane					-	0.63
1,1-Dichloroethane					-	-
1,1-Dichloroethene					-	-
Chloroform					-	-
1,1,2,2-Tetrachloroethane					-	-
Trichlorofluoromethane					-	-
1,2,3-Trichlorobenzene					NA	-
1,2-Dichlorobenzene					-	-
1,3-Dichlorobenzene					-	-
1,4-Dichlorobenzene					-	-
Chlorobenzene					-	-
Isopropylbenzene					NA	-
sec-Butylbenzene					NA	-
1,3,5-Trimethylbenzene					NA	-
1,2,4-Trimethylbenzene					NA	-
Naphthalene					NA	-
Benzene					NA	-
Toluene					NA	-
Ethylbenzene					NA	-
Xylenes					NA	-

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-44M 18-Nov-98 Waterra	MW-44M 29-Jul-99 Waterra	MW-44M* 6-Apr-00 Waterra	MW-44M* 27-Aug-01 Waterra	MW-44M 4-Mar-02 Diffusion Bag
Organics						
Volatile Organic Compounds (VOCs) (µg/l)		-	-	-	-	-
Tetrachloroethene						
Trichloroethene						
cis-1,2-Dichloroethene						
trans-1,2-Dichloroethene						
Vinyl Chloride						
1,1,1-Trichloroethane						
1,1-Dichloroethane						
1,1-Dichloroethene						
Chloroform						
1,1,2,2-Tetrachloroethane						
Trichlorofluoromethane						
1,2,3-Trichlorobenzene						
1,2-Dichlorobenzene						
1,3-Dichlorobenzene						
1,4-Dichlorobenzene						
Chlorobenzene						
Isopropylbenzene						
sec-Butylbenzene						
1,3,5-Trimethylbenzene						
1,2,4-Trimethylbenzene						
Naphthalene						
Benzene						
Toluene						
Ethylbenzene						
Xylenes						

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-44D 18-Nov-98 Waterra	MW-44D 29-Jul-99 Waterra	MW-44D* 6-Apr-00	MW-44D* 27-Aug-01 Waterra	MW-44D 4-Mar-02 Diffusion Bag
Organics						
Volatile Organic Compounds (VOCs) (µg/l)		-	-	-	-	-
Tetrachloroethene						
Trichloroethene						
cis-1,2-Dichloroethene						
trans-1,2-Dichloroethene						
Vinyl Chloride						
1,1,1-Trichloroethane						
1,1-Dichloroethane						
1,1-Dichloroethene						
Chloroform						
1,1,2,2-Tetrachloroethane						
Trichlorofluoromethane						
1,2,3-Trichlorobenzene						
1,2-Dichlorobenzene						
1,3-Dichlorobenzene						
1,4-Dichlorobenzene						
Chlorobenzene						
Isopropylbenzene						
sec-Butylbenzene						
1,3,5-Trimethylbenzene						
1,2,4-Trimethylbenzene						
Naphthalene						
Benzene						
Toluene						
Ethylbenzene						
Xylenes						

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.
- = Analytical result below the method detection limit.
NA = Not Analyzed
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Sample I.D.	MW-45S	MW-45S*	MW-45S*	MW-45S*	MW-45S*	MW-45S*	MW-45S*	MW-45S
Date Sampled	17-Nov-98	28-Jul-99	14-Sep-99	5-Apr-00	10-Jul-00	10-Jul-00	28-Aug-01	4-Mar-02
Comments						DUP-ERM		
ımeter / Sampling Method	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	Diffusion Bag
Organics								
Volatile Organic Compounds (VOCs) (µg/l)								
Tetrachloroethene	-	1.5	1.1	1.2	1.0	-	2.1	1.4
Trichloroethene	5.4	8.4	8.0	8.4	6.0	5.4	8.4	10
cis-1,2-Dichloroethene	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	-	-	-	-	-	-	-	-
Vinyl Chloride	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	-	-	-	-	-	-	-	-
1,1-Dichloroethane	-	-	-	-	-	-	-	-
1,1-Dichloroethene	-	-	-	-	-	-	-	-
Chloroform	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	-	-	-	-	-	-	-	-
Trichlorofluoromethane	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	-	NA	NA	NA	NA	NA	NA	-
1,2-Dichlorobenzene	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	-	-	-	-	-	-	-	-
Chlorobenzene	-	-	-	-	-	-	-	-
Isopropylbenzene	-	NA	NA	NA	NA	NA	NA	-
sec-Butylbenzene	-	NA	NA	NA	NA	NA	NA	-
1,3,5-Trimethylbenzene	-	NA	NA	NA	NA	NA	NA	-
1,2,4-Trimethylbenzene	-	NA	NA	NA	NA	NA	NA	-
Naphthalene	-	NA	NA	NA	NA	NA	NA	-
Benzene	-	NA	NA	NA	NA	NA	NA	-
Toluene	-	NA	NA	NA	NA	NA	NA	-
Ethylbenzene	-	NA	NA	NA	NA	NA	NA	-
Xylenes	-	NA	NA	NA	NA	NA	NA	-

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Sample I.D.	MW-45M	MW-45M*	MW-45M*	MW-45M*	MW-45M*	MW-45M*	MW-45M*	MW-45M*	MW-45M*	MW-45M*	MW-45M
Date Sampled	17-Nov-98	28-Jul-99	14-Sep-99	5-Apr-00	10-Jul-00	11-Jul-00	11-Jul-00	11-Jul-00	28-Aug-01	28-Aug-01	4-Mar-02
Comments						STEP 0900	STEP 0915	STEP 0930		DUP-ERM	
Parameter / Sampling Method	Waterra	Waterra	Waterra	Waterra	Waterra				Waterra	Waterra	Diffusion Bag
Organics											
Volatile Organic Compounds (VOCs) (µg/l)											
Tetrachloroethene	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	81	130	140	120	99	120	120	120	97	88	150
cis-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-	-	-
trans-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-	-	-
Vinyl Chloride	-	-	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	24	32	39	24	21	28	26	27	24	24	30
1,1-Dichloroethane	-	1.2	-	1.5	1.5	-	-	-	1.4	1.5	2.4
1,1-Dichloroethene	6.2	8.6	7.3	3.3	3.3	3.6	3.8	4.0	4.5	4.7	9.9
Chloroform	-	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	-	-	-	-	-	16	-	-	-	-	-
Trichlorofluoromethane	-	-	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	-	-	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	-	-	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	-	-	-	-	-	-	-	-	-	-	-
Isopropylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Sample I.D.	MW-45D*	MW-45D*	MW-45D	MW-45D*	MW-45D*	MW-45D*	MW-45D
Date Sampled	19-Aug-99	14-Sep-99	14-Sep-99	5-Apr-00	10-Jul-00	28-Aug-01	4-Mar-02
Comments							
Parameter / Sampling Method	Bailer	Bailer	Bailer	Bailer	Bailer	Bailer	Diffusion Bag
Organics							
Volatile Organic Compounds (VOCs) (µg/l)							
Tetrachloroethene	1.8	1.5	1.8	1.0	1.9	-	-
Trichloroethene	120	110	95	70	81	51	59
cis-1,2-Dichloroethene	4.5	4.5	4.4	3.8	3.1	3.0	3.4
trans-1,2-Dichloroethene	-	-	-	-	-	-	-
Vinyl Chloride	-	-	-	-	-	-	-
1,1,1-Trichloroethane	-	-	-	-	-	-	-
1,1-Dichloroethane	-	-	-	-	-	-	-
1,1-Dichloroethene	-	-	-	-	-	-	-
Chloroform	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	-	-	-	-	-	-	-
Trichlorofluoromethane	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	NA	NA	-	NA	NA	NA	NA
1,2-Dichlorobenzene	-	-	-	-	-	-	-
1,3-Dichlorobenzene	-	-	-	-	-	-	-
1,4-Dichlorobenzene	-	-	-	-	-	-	-
Chlorobenzene	-	-	-	-	-	-	-
Isopropylbenzene	NA	NA	-	NA	NA	NA	NA
sec-Butylbenzene	NA	NA	-	NA	NA	NA	NA
1,3,5-Trimethylbenzene	NA	NA	-	NA	NA	NA	NA
1,2,4-Trimethylbenzene	NA	NA	-	NA	NA	NA	NA
Naphthalene	NA	NA	-	NA	NA	NA	NA
Benzene	NA	NA	-	NA	NA	NA	NA
Toluene	NA	NA	-	NA	NA	NA	NA
Ethylbenzene	NA	NA	-	NA	NA	NA	NA
Xylenes	NA	NA	-	NA	NA	NA	NA

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-45B* 5-Apr-00 Waterra	MW-45B* 19-Jul-00 Waterra	MW-45B* 28-Aug-01 Waterra	MW-45B 4-Mar-02 Diffusion Bag
Organics					
Volatile Organic Compounds (VOCs) (µg/l)					
Tetrachloroethene		-	-	-	-
Trichloroethene		4.4	7.5	7.8	33
cis-1,2-Dichloroethene		-	-	-	1.6
trans-1,2-Dichloroethene		-	-	-	-
Vinyl Chloride		-	-	-	-
1,1,1-Trichloroethane		-	-	-	-
1,1-Dichloroethane		-	-	-	-
1,1-Dichloroethene		-	-	-	-
Chloroform		-	-	-	-
1,1,2,2-Tetrachloroethane		-	-	-	-
Trichlorofluoromethane		-	-	-	-
1,2,3-Trichlorobenzene		NA	NA	NA	NA
1,2-Dichlorobenzene		-	-	-	-
1,3-Dichlorobenzene		-	-	-	-
1,4-Dichlorobenzene		-	-	-	-
Chlorobenzene		-	-	-	-
Isopropylbenzene		NA	NA	NA	NA
sec-Butylbenzene		NA	NA	NA	NA
1,3,5-Trimethylbenzene		NA	NA	NA	NA
1,2,4-Trimethylbenzene		NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA
Benzene		NA	NA	NA	NA
Toluene		NA	NA	NA	NA
Ethylbenzene		NA	NA	NA	NA
Xylenes		NA	NA	NA	NA

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-46S 17-Nov-98 Bailer	MW-46S 29-Jul-99 Bailer	MW-46S* 6-Apr-00 Bailer	MW-46S* 10-Jul-00 Bailer	MW-46S* 10-Jul-00 DUP-ERM Bailer	MW-46S* 28-Aug-01 Bailer	MW-46S 4-Mar-02 Diffusion Bag
Organics								
Volatile Organic Compounds (VOCs) (µg/l)			-	-	-	-	-	-
Tetrachloroethene		-						
Trichloroethene		1.4						
cis-1,2-Dichloroethene		-						
trans-1,2-Dichloroethene		-						
Vinyl Chloride		-						
1,1,1-Trichloroethane		-						
1,1-Dichloroethane		-						
1,1-Dichloroethene		-						
Chloroform		-						
1,1,2,2-Tetrachloroethane		-						
Trichlorofluoromethane		-						
1,2,3-Trichlorobenzene		-						
1,2-Dichlorobenzene		-						
1,3-Dichlorobenzene		-						
1,4-Dichlorobenzene		-						
Chlorobenzene		-						
Isopropylbenzene		-						
sec-Butylbenzene		-						
1,3,5-Trimethylbenzene		-						
1,2,4-Trimethylbenzene		-						
Naphthalene		-						
Benzene		-						
Toluene		-						
Ethylbenzene		-						
Xylenes		-						

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-46M 18-Nov-98 Waterra	MW-46M* 29-Jul-99 Waterra	MW-46M* 6-Apr-00 Waterra	MW-46M* 10-Jul-00 Waterra	MW-46M* 28-Aug-01 Waterra	MW-46M 4-Mar-02 Diffusion Bag
Organics							
Volatile Organic Compounds (VOCs) (µg/l)							
Tetrachloroethene		-	-	-	-	-	0.73
Trichloroethene		4.1	9.0	8.1	5.4	4.2	5.0
cis-1,2-Dichloroethene		-	-	-	-	-	-
trans-1,2-Dichloroethene		-	-	-	-	-	-
Vinyl Chloride		-	-	-	-	-	-
1,1,1-Trichloroethane		-	-	-	-	3.0	4.0
1,1-Dichloroethane		-	-	-	-	-	-
1,1-Dichloroethene		-	2.1	2.1	1.5	2.5	4.0
Chloroform		-	-	-	-	-	-
1,1,2,2-Tetrachloroethane		-	-	-	-	-	-
Trichlorofluoromethane		-	-	-	-	-	-
1,2,3-Trichlorobenzene		-	NA	NA	NA	NA	NA
1,2-Dichlorobenzene		-	-	-	-	-	-
1,3-Dichlorobenzene		-	-	-	-	-	-
1,4-Dichlorobenzene		-	-	-	-	-	-
Chlorobenzene		-	-	-	-	-	-
Isopropylbenzene		-	NA	NA	NA	NA	NA
sec-Butylbenzene		-	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene		-	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene		-	NA	NA	NA	NA	NA
Naphthalene		-	NA	NA	NA	NA	NA
Benzene		-	NA	NA	NA	NA	NA
Toluene		-	NA	NA	NA	NA	NA
Ethylbenzene		-	NA	NA	NA	NA	NA
Xylenes		-	NA	NA	NA	NA	NA

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-47S 17-Nov-98 Bailer	MW-47S 28-Jul-99 Bailer	MW-47S* 14-Sep-99 Bailer	MW-47S* 5-Apr-00 Bailer	MW-47S* 10-Jul-00 Bailer	MW-47S* 28-Aug-01 Bailer	MW-47S 4-Mar-02 Diffusion Bag
Organics								
Volatile Organic Compounds (VOCs) (µg/l)			-					
Tetrachloroethene		3.8		-	-	-	-	1.9
Trichloroethene		2.4		1.8	43	13	15	26
cis-1,2-Dichloroethene		-		-	-	-	-	-
trans-1,2-Dichloroethene		-		-	-	-	-	-
Vinyl Chloride		-		-	-	-	-	-
1,1,1-Trichloroethane		-		-	12	3.8	4.4	6.8
1,1-Dichloroethane		-		-	-	-	-	-
1,1-Dichloroethene		-		-	-	-	-	-
Chloroform		-		-	-	-	-	-
1,1,2,2-Tetrachloroethane		-		-	-	-	-	-
Trichlorofluoromethane		-		-	-	-	-	-
1,2,3-Trichlorobenzene		-		NA	NA	NA	NA	NA
1,2-Dichlorobenzene		-		-	-	-	-	-
1,3-Dichlorobenzene		-		-	-	-	-	-
1,4-Dichlorobenzene		-		-	-	-	-	-
Chlorobenzene		-		-	-	-	-	-
Isopropylbenzene		-		NA	NA	NA	NA	NA
sec-Butylbenzene		-		NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene		-		NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene		-		NA	NA	NA	NA	NA
Naphthalene		-		NA	NA	NA	NA	NA
Benzene		-		NA	NA	NA	NA	NA
Toluene		-		NA	NA	NA	NA	NA
Ethylbenzene		-		NA	NA	NA	NA	NA
Xylenes		-		NA	NA	NA	NA	NA

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Sample I.D.	MW-47M	MW-47M*	MW-47M*	MW-47M*	MW-47M*	MW-47M*	MW-47M*	MW-47M	MW-47M
Date Sampled	17-Nov-98	28-Jul-99	14-Sep-99	5-Apr-00	5-Apr-00	10-Jul-00	29-Aug-01	4-Mar-02	4-Mar-02
Comments					DUP-ERM				DUP-1
ıneter Sampling Method	Waterra	Waterra	Waterra	Waterra	Waterra	Bailer	Waterra	Diffusion Bag	Diffusion Bag
Organics									
Volatile Organic Compounds (VOCs) (µg/l)									
Tetrachloroethene	-	-	-	1.7	1.6	6.2	2.7	-	-
Trichloroethene	67	160	110	140	120	63	67	160	120
cis-1,2-Dichloroethene	4.6	9.6	6.5	7.8	7.9	4.0	4.3	12	8.8
trans-1,2-Dichloroethene	-	-	-	-	-	-	-	-	-
Vinyl Chloride	-	-	-	-	-	-	-	-	-
1,1,1-Trichloroethane	-	-	-	-	-	-	-	-	-
1,1-Dichloroethane	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	-	-	-	-	-	-	-	-	-
Chloroform	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	-	-	-	-	-	-	-	-	-
Trichlorofluoromethane	-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene	-	NA	NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene	-	-	-	-	-	-	-	-	-
1,3-Dichlorobenzene	-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene	-	-	-	-	1.6	-	-	-	-
Chlorobenzene	-	-	-	-	-	-	-	-	-
Isopropylbenzene	-	NA	NA	NA	-	NA	NA	NA	NA
sec-Butylbenzene	-	NA	NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene	-	NA	NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene	-	NA	NA	NA	NA	NA	NA	NA	NA
Naphthalene	-	NA	NA	NA	NA	NA	NA	NA	NA
Benzene	-	NA	NA	NA	NA	NA	NA	NA	NA
Toluene	-	NA	NA	NA	NA	NA	NA	NA	NA
Ethylbenzene	-	NA	NA	NA	NA	NA	NA	NA	NA
Xylenes	-	NA	NA	NA	NA	NA	NA	NA	NA

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Sample I.D.	MW-47D	MW-47D*	MW-47D*	MW-47D*	MW-47D*	MW-47D*	MW-47D*	MW-47D
Date Sampled	17-Nov-98	28-Jul-99	28-Jul-99	14-Sep-99	5-Apr-00	10-Jul-00	28-Aug-01	4-Mar-02
Comments			DUP-ERM					
ımeter Sampling Method	Waterra	Waterra	Waterra	Waterra	Waterra	Waterra	Waterra	Diffusion Bag
Organics								
Volatile Organic Compounds (VOCs) (µg/l)	-							
Tetrachloroethene		-	-	-	-	1.0	1.3	-
Trichloroethene		5.6	2.9	4.3	2.4	11	10	5.9
cis-1,2-Dichloroethene		-	-	-	-	-	1.2	-
trans-1,2-Dichloroethene		-	-	-	-	-	-	-
Vinyl Chloride		-	-	-	-	-	-	-
1,1,1-Trichloroethane		-	-	-	-	-	-	-
1,1-Dichloroethane		-	-	-	-	-	-	-
1,1-Dichloroethene		-	-	-	-	-	-	-
Chloroform		-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane		-	-	-	-	-	-	-
Trichlorofluoromethane		-	-	-	-	-	-	-
1,2,3-Trichlorobenzene		NA	NA	NA	NA	NA	NA	NA
1,2-Dichlorobenzene		-	-	-	-	-	-	-
1,3-Dichlorobenzene		-	-	-	-	-	-	-
1,4-Dichlorobenzene		-	-	-	-	-	-	-
Chlorobenzene		-	-	-	-	-	-	-
Isopropylbenzene		NA	NA	NA	NA	NA	NA	NA
sec-Butylbenzene		NA	NA	NA	NA	NA	NA	NA
1,3,5-Trimethylbenzene		NA	NA	NA	NA	NA	NA	NA
1,2,4-Trimethylbenzene		NA	NA	NA	NA	NA	NA	NA
Naphthalene		NA	NA	NA	NA	NA	NA	NA
Benzene		NA	NA	NA	NA	NA	NA	NA
Toluene		NA	NA	NA	NA	NA	NA	NA
Ethylbenzene		NA	NA	NA	NA	NA	NA	NA
Xylenes		NA	NA	NA	NA	NA	NA	NA

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Sample I.D.	MW-101	MW-101	MW-101	MW-102	MW-102	MW-102	MW-102	MW-103	MW-103	MW-103	MW-103
Date Sampled	28-Aug-01	11-Apr-02	6-Jun-02	27-Aug-01	14-Mar-02	11-Apr-02	06-Jun-02	27-Aug-01	11-Apr-02	11-Apr-02	06-Jun-02
Comments										DUP-1	
Parameter / Sampling Method	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow
Organics											
Volatile Organic Compounds (VOCs) (µg/l)											
Tetrachloroethene	-	1.0	0.81	-	-	-	-	0.65	0.59	0.73	-
Trichloroethene	2.3	20	2.3	500	630	570	670	5.9	6.2	7.3	4.4
cis-1,2-Dichloroethene	-	-	-	-	-	-	11	-	-	-	-

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D.	MW-104	MW-104	MW-104	MW-104	MW-104
	Date Sampled	27-Aug-01	12-Dec-01	18-Feb-02	11-Apr-02	6-Jun-02
	Comments					
	Sampling Method	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow
Organics						
Volatile Organic Compounds (VOCs) (µg/l)			-	-	-	
Tetrachloroethene		-				1.3
Trichloroethene		290				37

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.
- = Analytical result below the method detection limit.
NA = Not Analyzed
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown
tests for wells MW-33S, MW-43S and MW-45M.
Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D.	MW-105	MW-105	MW-105	MW-105	MW-105	MW-105
	Date Sampled	27-Aug-01	27-Aug-01	12-Dec-01	18-Feb-02	11-Apr-02	6-Jun-02
	Comments		DUP-1				
	Sampling Method	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow
Organics							
Volatile Organic Compounds (VOCs) (µg/l)							
Tetrachloroethene		1.8	1.8	-	2.5	2.8	-
Trichloroethene		60	66	82	140	140	170
cis-1,2-Dichloroethene		12	12	1.6	4.0	3.9	-
Trichlorofluoromethane		-	-	-	-	1.7	-

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-106 27-Aug-01 Low Flow	MW-106 12-Dec-01 Low Flow	MW-106 18-Feb-02 Low Flow	MW-106 11-Apr-02 Low Flow	MW-106 06-Jun-02 Low Flow
Organics						
Volatile Organic Compounds (VOCs) (µg/l)						
Tetrachloroethene		3.3	-	-	-	-
Trichloroethene		160	120	100	96	69
						-

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-107 28-Aug-01 Low Flow	MW-107 5-Nov-01 Low Flow	MW-107 11-Dec-01 Low Flow	MW-107 15-Jan-02 Low Flow
Organics					
Volatile Organic Compounds (VOCs) (µg/l)					
Trichloroethene		34	65	68	65
cis-1,2-Dichloroethene		2.0	3.4	2.6	2.2

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.
- = Analytical result below the method detection limit.
NA = Not Analyzed
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown
tests for wells MW-33S, MW-43S and MW-45M.
Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-108 28-Aug-01 Low Flow	MW-108 13-Nov-01 Low Flow	MW-108 11-Dec-01 Low Flow	MW-108 15-Jan-02 Low Flow
Organics					
Volatile Organic Compounds (VOCs) (µg/l)					
Tetrachloroethene		-	-	-	1.4
Trichloroethene		1.4	3.7	4.6	8.2

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.
- = Analytical result below the method detection limit.
NA = Not Analyzed
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown
tests for wells MW-33S, MW-43S and MW-45M.
Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-109 28-Aug-01 Low Flow	MW-109 12-Nov-01 Low Flow	MW-109 11-Dec-01 Low Flow	MW-109 15-Jan-02 Low Flow
Organics					
Volatile Organic Compounds (VOCs) (µg/l)					
Trichloroethene		18	26	35	36
cis-1,2-Dichloroethene		1.6	2	2.3	2.8

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.
- = Analytical result below the method detection limit.
NA = Not Analyzed
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown
tests for wells MW-33S, MW-43S and MW-45M.
Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-110 28-Aug-01 Low Flow	MW-110 13-Nov-01 Low Flow	MW-110 11-Dec-01 Low Flow	MW-110 15-Jan-02 Low Flow
Organics					
Volatile Organic Compounds (VOCs) (µg/l)		-	-	-	-

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.
- = Analytical result below the method detection limit.
NA = Not Analyzed
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-111 28-Aug-01 Low Flow	MW-111 13-Nov-01 Low Flow	MW-111 11-Dec-01 Low Flow	MW-111 15-Jan-02 Low Flow
Organics					
Volatile Organic Compounds (VOCs) (µg/l)					
Trichloroethene		70	9.3	6.6	4.6
1,1,1-Trichloroethane		24	2	-	-
1,1-Dichloroethene		0.72	-	-	-

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.
- = Analytical result below the method detection limit.
NA = Not Analyzed
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown
tests for wells MW-33S, MW-43S and MW-45M.
Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Sample I.D.	MW-112	MW-112	MW-112	MW-112
Date Sampled	28-Aug-01	13-Nov-01	11-Dec-01	15-Jan-02
Comments				
Parameter / Sampling Method	Low Flow	Low Flow	Low Flow	Low Flow
Organics				
Volatile Organic Compounds (VOCs) (µg/l)				
Tetrachloroethene	-	-	-	4.4
Trichloroethene	82	47	37	36
1,1,1-Trichloroethane	29	15	12	10

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.
- = Analytical result below the method detection limit.
NA = Not Analyzed
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown
tests for wells MW-33S, MW-43S and MW-45M.
Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Sample I.D.	MW-113	MW-113	MW-113	MW-113	MW-113
Date Sampled	29-Aug-01	13-Nov-01	11-Dec-01	11-Dec-01	15-Jan-02
Comments					
Parameter / Sampling Method	Low Flow	Low Flow	Low Flow	Low Flow	Low Flow
Organics					
Volatile Organic Compounds (VOCs) (µg/l)					
Trichloroethene	24	14	14	12	12
cis-1,2-Dichloroethene	-	0.9	0.71	-	0.82
1,1,1-Trichloroethane	6.5	0.55	6.5	-	-

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. Date Sampled Comments Sampling Method	MW-114 28-Sep-01 Low Flow	MW-114 12-Nov-01 Low Flow	MW-114 10-Dec-01 Low Flow	MW-114 15-Jan-02 Low flow
Organics					
Volatile Organic Compounds (VOCs) (µg/l)					
Trichloroethene		23	24	14	16
1,1,1-Trichloroethane		5.5	8.4	4.2	4.6

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.
- = Analytical result below the method detection limit.
NA = Not Analyzed
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown
tests for wells MW-33S, MW-43S and MW-45M.
Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-115 29-Aug-01 Low Flow	MW-115 12-Nov-01 Low Flow	MW-115 10-Dec-01 Low Flow	MW-115 15-Jan-02 Low Flow
Organics					
Volatile Organic Compounds (VOCs) (µg/l)					
Trichloroethene		81	60	41	22
1,1,1-Trichloroethane		24	17	10	3.8

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.
- = Analytical result below the method detection limit.
NA = Not Analyzed
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown
tests for wells MW-33S, MW-43S and MW-45M.
Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-116 28-Aug-01 Low Flow	MW-116 12-Nov-01 Low Flow	MW-116 12-Nov-01 DUP-1 Low Flow	MW-116 10-Dec-01 Low Flow	MW-116 15-Jan-02 Low Flow	MW-116 15-Jan-02 DUP-1 Low Flow
Organics							
Volatile Organic Compounds (VOCs) (µg/l)							
Trichloroethene		180	130	120	81	59	74
1,1,1-Trichloroethane		64	44	39	26	19	23

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comment / Sampling Method	MW-1 24-Oct-95	MW-1 27-May-98 Peristaltic	MW-1 18-Feb-02 Low Flow	MW-2 24-Oct-95	MW-2 27-May-98 Peristaltic	MW-3 24-Oct-95	MW-4 20-Oct-95	MW-5 25-Oct-95	MW-6 25-Oct-95
Organics										
Volatile Organic Compounds (VOCs) (µg/l)		-	-	-	-	-		-		
Tetrachloroethene							-		17	-
Trichloroethene							-		8.6	38
cis-1,2-Dichloroethene							2.0		-	-
trans-1,2-Dichloroethene							-		-	-
Vinyl Chloride							-		-	-
1,1,1-Trichloroethane							-		-	12
1,1-Dichloroethane							-		-	-
1,1-Dichloroethene							-		-	-
Chloroform							-		-	-
1,1,2,2-Tetrachloroethane							-		-	-
Trichlorofluoromethane							-		-	-
1,2,3-Trichlorobenzene							-		-	-
1,2-Dichlorobenzene							-		-	-
1,3-Dichlorobenzene							-		-	-
1,4-Dichlorobenzene							-		-	-
Chlorobenzene							-		-	-
Isopropylbenzene							-		-	-
sec-Butylbenzene							-		-	-
1,3,5-Trimethylbenzene							-		-	-
1,2,4-Trimethylbenzene							-		-	-
Naphthalene							-		-	-
Benzene							-		-	-
Toluene							-		-	-
Ethylbenzene							-		-	-
Xylenes							-		-	-

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient conditions.

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comment / Sampling Method	MW-6 27-May-98 Peristaltic	MW-7 25-Oct-95	MW-7* 25-Nov-95	MW-8 24-Oct-95	MW-9 24-Oct-95	MW-9 27-May-98 Peristaltic	MW-11 28-Dec-95	MW-11 27-May-98 Bailer	MW-11 27-May-98 DUP-ERM Bailer
Organics										
Volatile Organic Compounds (VOCs) (µg/l)						-	-		-	-
Tetrachloroethene		-	-	0.65	4.1			1.5		
Trichloroethene		20	7.6	21	11			10		
cis-1,2-Dichloroethene		-	-	1.2	-			6.5		
trans-1,2-Dichloroethene		-	-	-	-			-		
Vinyl Chloride		-	-	-	-			-		
1,1,1-Trichloroethane		9.1	1.6	4.0	-			-		
1,1-Dichloroethane		-	-	-	-			-		
1,1-Dichloroethene		-	2.0	2.7	-			-		
Chloroform		-	-	0.59	-			-		
1,1,2,2-Tetrachloroethane		-	-	-	-			-		
Trichlorofluoromethane		-	-	-	-			-		
1,2,3-Trichlorobenzene		-	-	NA	-			-		
1,2-Dichlorobenzene		-	-	-	-			-		
1,3-Dichlorobenzene		-	-	-	-			-		
1,4-Dichlorobenzene		-	-	-	-			-		
Chlorobenzene		-	-	-	-			-		
Isopropylbenzene		-	-	NA	-			8.6		
sec-Butylbenzene		-	-	NA	-			2.3		
1,3,5-Trimethylbenzene		-	-	NA	-			31		
1,2,4-Trimethylbenzene		-	-	NA	-			120		
Naphthalene		-	-	NA	-			30		
Benzene		-	-	NA	-			25		
Toluene		-	-	NA	-			4.1		
Ethylbenzene		-	-	NA	-			31		
Xylenes		-	-	NA	-			95		

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient conditions.

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. Date Sampled Comment Sampling Method	MW-13 31-Jan-96	MW-13 27-May-98 SPLIT-ERM Bailer	MW-13 27-May-98 SPLIT-HA Bailer	MW-18 27-May-98 Bailer	MW-30 27-May-98 SPLIT-ERM Bailer	MW-30 27-May-98 SPLIT-HA Bailer	MW-31 6-Aug-96	MW-35 27-May-98 Bailer	MW-36 27-May-98 Bailer
Organics										
Volatile Organic Compounds (VOCs) (µg/l)										
Tetrachloroethene		6.1	2.6	7.7	-	-	-	8.0	2.8	-
Trichloroethene		47	73	100	51	400	25	190	1.8	68
cis-1,2-Dichloroethene		77	15	89	-	-	-	55	-	-
trans-1,2-Dichloroethene		-	-	-	-	-	-	-	-	-
Vinyl Chloride		-	-	7.2	-	-	-	2.6	-	-
1,1,1-Trichloroethane		-	-	-	-	-	-	-	2.2	-
1,1-Dichloroethane		1.6	-	1.2	-	-	-	-	-	-
1,1-Dichloroethene		-	-	-	-	-	-	-	-	-
Chloroform		-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane		-	-	-	-	-	-	-	-	-
Trichlorofluoromethane		-	-	-	-	-	-	-	-	-
1,2,3-Trichlorobenzene		-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene		-	-	1.1	-	-	-	-	-	-
1,3-Dichlorobenzene		-	-	-	-	-	-	-	-	-
1,4-Dichlorobenzene		-	-	-	-	-	-	-	-	-
Chlorobenzene		-	-	-	-	-	-	-	-	-
Isopropylbenzene		3.4	-	-	-	-	-	-	-	-
sec-Butylbenzene		1.2	-	-	-	-	-	-	-	-
1,3,5-Trimethylbenzene		-	-	-	-	-	-	-	-	-
1,2,4-Trimethylbenzene		-	-	-	-	-	-	-	-	-
Naphthalene		-	-	-	-	-	-	-	-	-
Benzene		11	-	2.6	-	-	-	1.2	-	-
Toluene		-	-	-	-	-	-	-	-	-
Ethylbenzene		-	-	-	-	-	-	-	-	-
Xylenes		-	-	-	-	-	-	-	-	-

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient conditions.

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comment / Sampling Method	MW-39 27-May-98 Bailer	MW-39 17-Nov-98 Bailer	RAY-01 24-Oct-95	RAY-01* 20-Nov-95	RAY-01 27-May-98 Bailer	BW-1 12-Dec-96	BW-1 27-May-98 Bailer	BW-2 12-Dec-96	BW-2 27-May-98 Bailer
Organics										
Volatile Organic Compounds (VOCs) (µg/l)		-	-							
Tetrachloroethene				2.1	3.5	2.1	-	2.8	2.2	4.1
Trichloroethene				68	-	45	26	37	43	62
cis-1,2-Dichloroethene				3.3	6.4	1.1	-	2.6	-	1.6
trans-1,2-Dichloroethene				-	-	-	-	-	-	-
Vinyl Chloride				-	-	-	-	-	-	-
1,1,1-Trichloroethane				-	72	-	-	-	-	-
1,1-Dichloroethane				-	-	-	-	-	-	-
1,1-Dichloroethene				4.6	4.8	-	1.1	-	-	-
Chloroform				-	2.5	-	-	-	-	-
1,1,2,2-Tetrachloroethane				-	-	-	-	-	-	-
Trichlorofluoromethane				-	-	-	-	-	-	-
1,2,3-Trichlorobenzene				-	NA	-	-	-	-	-
1,2-Dichlorobenzene				-	-	-	-	-	-	-
1,3-Dichlorobenzene				-	-	-	-	-	-	-
1,4-Dichlorobenzene				-	-	-	-	-	-	-
Chlorobenzene				-	-	-	-	-	-	-
Isopropylbenzene				-	NA	-	-	-	-	-
sec-Butylbenzene				-	NA	-	-	-	-	-
1,3,5-Trimethylbenzene				-	NA	-	-	-	-	-
1,2,4-Trimethylbenzene				-	NA	-	-	-	-	-
Naphthalene				-	NA	-	-	-	-	-
Benzene				-	NA	-	-	-	-	-
Toluene				-	NA	-	-	-	-	-
Ethylbenzene				-	NA	-	-	-	-	-
Xylenes				-	NA	-	-	-	-	-

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient conditions.

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comment / Sampling Method	BW-2 27-May-98 DUP-ERM	BW-3 12-Dec-96	BW-3 27-May-98 Bailer
Organics				
Volatile Organic Compounds (VOCs) (µg/l)				
Tetrachloroethene		3.8	8.0	5.7
Trichloroethene		36	110	140
cis-1,2-Dichloroethene		1.2	32	23
trans-1,2-Dichloroethene		-	-	-
Vinyl Chloride		-	-	-
1,1,1-Trichloroethane		-	-	-
1,1-Dichloroethane		-	-	-
1,1-Dichloroethene		-	-	-
Chloroform		-	-	-
1,1,2,2-Tetrachloroethane		-	-	-
Trichlorofluoromethane		-	-	-
1,2,3-Trichlorobenzene		-	-	-
1,2-Dichlorobenzene		-	-	-
1,3-Dichlorobenzene		-	-	-
1,4-Dichlorobenzene		-	-	-
Chlorobenzene		-	-	-
Isopropylbenzene		-	-	-
sec-Butylbenzene		-	-	-
1,3,5-Trimethylbenzene		-	-	-
1,2,4-Trimethylbenzene		-	-	-
Naphthalene		-	-	-
Benzene		-	-	-
Toluene		-	-	-
Ethylbenzene		-	-	-
Xylenes		-	-	-

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient conditions.

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-10 27-May-98 Bailer	MW-10 18-Nov-98 Bailer	MW-10 28-Jul-99 Bailer	MW-10* 6-Apr-00 Bailer	MW-10* 28-Aug-01 Bailer	MW-10 4-Mar-02 Diffusion Bag
Organics							
Volatile Organic Compounds (VOCs) (µg/l)		-	-	-	-	-	-
Tetrachloroethene							
Trichloroethene							
cis-1,2-Dichloroethene							
trans-1,2-Dichloroethene							
Vinyl Chloride							
1,1,1-Trichloroethane							
1,1-Dichloroethane							
1,1-Dichloroethene							
Chloroform							
1,1,2,2-Tetrachloroethane							
Trichlorofluoromethane							
1,2,3-Trichlorobenzene							
1,2-Dichlorobenzene							
1,3-Dichlorobenzene							
1,4-Dichlorobenzene							
Chlorobenzene							
Isopropylbenzene							
sec-Butylbenzene							
1,3,5-Trimethylbenzene							
1,2,4-Trimethylbenzene							
Naphthalene							
Benzene							
Toluene							
Ethylbenzene							
Xylenes							

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.
- = Analytical result below the method detection limit.
NA = Not Analyzed
µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	MW-TP-3 6-Aug-96 Bailer	MW-TP-3 27-May-98 Bailer	MW-TP-3 18-Nov-98 Bailer	MW-TP-3* 29-Jul-99 Bailer	MW-TP-3* 6-Apr-00 Bailer	MW-TP-3* 29-Aug-01 Bailer	MW-TP-3 1-Mar-02 Diffusion Bag
Organics								
Volatile Organic Compounds (VOCs) (µg/l)								
Tetrachloroethene		-	-	-	2.0	-	1.3	2.2
Trichloroethene		9.2	-	1.4	23	4.2	12	16
cis-1,2-Dichloroethene		18	1.7	2.5	35	7.7	16	18.0
trans-1,2-Dichloroethene		-	-	-	-	-	-	-
Vinyl Chloride		-	-	-	-	-	-	-
1,1,1-Trichloroethane		-	-	-	-	-	-	-
1,1-Dichloroethane		-	-	-	-	-	-	-
1,1-Dichloroethene		-	-	-	-	-	-	-
Chloroform		-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane		-	-	-	-	-	-	-
Trichlorofluoromethane		-	-	-	-	-	-	-
1,2,3-Trichlorobenzene		2.8	130	79	NA	NA	NA	-
1,2-Dichlorobenzene		-	14	10	-	4.2	-	-
1,3-Dichlorobenzene		-	-	-	-	-	-	-
1,4-Dichlorobenzene		-	-	-	-	4.0	-	-
Chlorobenzene		-	-	-	-	2.1	-	-
Isopropylbenzene		-	-	-	NA	NA	NA	-
sec-Butylbenzene		-	-	-	NA	NA	NA	-
1,3,5-Trimethylbenzene		-	-	-	NA	NA	NA	-
1,2,4-Trimethylbenzene		-	-	-	NA	NA	NA	-
Naphthalene		-	-	-	NA	NA	NA	-
Benzene		-	-	-	NA	NA	NA	-
Toluene		-	-	-	NA	NA	NA	-
Ethylbenzene		-	-	-	NA	NA	NA	-
Xylenes		-	-	-	NA	NA	NA	-

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	HA-101 18-Nov-98 Bailer	HA-101 28-Jul-99 Bailer	HA-101* 6-Apr-00 Bailer	HA-101* 28-Aug-01 Bailer	HA-101 4-Mar-02 Diffusion Bag
Organics						
Volatile Organic Compounds (VOCs) (µg/l)		-	-	-		-
Tetrachloroethene					-	
Trichloroethene					0.71	
cis-1,2-Dichloroethene					-	
trans-1,2-Dichloroethene					-	
Vinyl Chloride					-	
1,1,1-Trichloroethane					-	
1,1-Dichloroethane					-	
1,1-Dichloroethene					-	
Chloroform					-	
1,1,2,2-Tetrachloroethane					-	
Trichlorofluoromethane					-	
1,2,3-Trichlorobenzene					NA	
1,2-Dichlorobenzene					-	
1,3-Dichlorobenzene					-	
1,4-Dichlorobenzene					-	
Chlorobenzene					-	
Isopropylbenzene					NA	
sec-Butylbenzene					NA	
1,3,5-Trimethylbenzene					NA	
1,2,4-Trimethylbenzene					NA	
Naphthalene					NA	
Benzene					NA	
Toluene					NA	
Ethylbenzene					NA	
Xylenes					NA	

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	HA-102 18-Nov-98 Bailer	HA-102* 28-Jul-99 Bailer	HA-102* 6-Apr-00 Bailer	HA-102* 10-Jul-00 Bailer	HA-102 12-Oct-00 Bailer	HA-102* 28-Aug-01 Bailer	HA -102 4-Mar-02 Diffusion Bag
Organics								
Volatile Organic Compounds (VOCs) (µg/l)								
Tetrachloroethene		3.0	4.4	5.4	2.9	3	2.6	-
Trichloroethene		6.3	13	17	11	11	8.4	1.6
cis-1,2-Dichloroethene		-	-	-	-	-	-	-
trans-1,2-Dichloroethene		-	-	-	-	-	-	-
Vinyl Chloride		-	-	-	-	-	-	-
1,1,1-Trichloroethane		-	-	-	-	0.5	-	-
1,1-Dichloroethane		-	-	-	-	-	-	-
1,1-Dichloroethene		-	-	-	-	-	-	-
Chloroform		-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane		-	-	-	-	-	-	-
Trichlorofluoromethane		-	-	-	-	-	-	-
1,2,3-Trichlorobenzene		-	NA	NA	NA	-	NA	NA
1,2-Dichlorobenzene		-	-	-	-	-	-	-
1,3-Dichlorobenzene		-	-	-	-	-	-	-
1,4-Dichlorobenzene		-	-	-	-	-	-	-
Chlorobenzene		-	-	-	-	-	-	-
Isopropylbenzene		-	NA	NA	NA	-	NA	NA
sec-Butylbenzene		-	NA	NA	NA	-	NA	NA
1,3,5-Trimethylbenzene		-	NA	NA	NA	-	NA	NA
1,2,4-Trimethylbenzene		-	NA	NA	NA	-	NA	NA
Naphthalene		-	NA	NA	NA	-	NA	NA
Benzene		-	NA	NA	NA	-	NA	NA
Toluene		-	NA	NA	NA	-	NA	NA
Ethylbenzene		-	NA	NA	NA	-	NA	NA
Xylenes		-	NA	NA	NA	-	NA	NA

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	HA-103 18-Nov-98 Bailer	HA-103 29-Jul-99 Bailer	HA-103* 6-Apr-00 Bailer	HA-103* 10-Jul-00 Bailer	HA-103* 28-Aug-01 Bailer	HA-103 4-Mar-02 Diffusion Bag
Organics							
Volatile Organic Compounds (VOCs) (µg/l)		-	-	-	-	-	-
Tetrachloroethene							
Trichloroethene							
cis-1,2-Dichloroethene							
trans-1,2-Dichloroethene							
Vinyl Chloride							
1,1,1-Trichloroethane							
1,1-Dichloroethane							
1,1-Dichloroethene							
Chloroform							
1,1,2,2-Tetrachloroethane							
Trichlorofluoromethane							
1,2,3-Trichlorobenzene							
1,2-Dichlorobenzene							
1,3-Dichlorobenzene							
1,4-Dichlorobenzene							
Chlorobenzene							
Isopropylbenzene							
sec-Butylbenzene							
1,3,5-Trimethylbenzene							
1,2,4-Trimethylbenzene							
Naphthalene							
Benzene							
Toluene							
Ethylbenzene							
Xylenes							

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.
- = Analytical result below the method detection limit.
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µg/l=micrograms per liter (parts per billion (ppb))
GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient

Table 3
Summary of Groundwater VOC Analytical Results
Raytheon Company
Wayland, Massachusetts

Parameter	Sample I.D. / Date Sampled / Comments / Sampling Method	HA-104 27-May-98 Bailer	HA-104 18-Nov-98 Bailer	HA-104* 6-Apr-00 Bailer	HA-104* 11-Jul-00 Bailer	HA-104* 28-Aug-01 Bailer	HA-104 4-Mar-02 Diffusion Bag
Organics							
Volatile Organic Compounds (VOCs) (µg/l)							
Tetrachloroethene		39	11	36	24	4.0	9.6
Trichloroethene		36	47	69	18	5.2	14
cis-1,2-Dichloroethene		-	-	-	-	-	-
trans-1,2-Dichloroethene		-	-	-	-	-	-
Vinyl Chloride		-	-	-	-	-	-
1,1,1-Trichloroethane		-	-	-	-	-	-
1,1-Dichloroethane		-	-	-	-	-	-
1,1-Dichloroethene		-	-	-	-	-	-
Chloroform		-	-	-	-	-	-
1,1,2,2-Tetrachloroethane		-	-	-	-	-	-
Trichlorofluoromethane		-	-	-	-	-	-
1,2,3-Trichlorobenzene		-	-	NA	NA	NA	NA
1,2-Dichlorobenzene		-	-	-	-	-	-
1,3-Dichlorobenzene		-	-	-	-	-	-
1,4-Dichlorobenzene		-	-	-	-	-	-
Chlorobenzene		-	-	-	-	-	-
Isopropylbenzene		-	-	NA	NA	NA	NA
sec-Butylbenzene		-	-	NA	NA	NA	NA
1,3,5-Trimethylbenzene		-	-	NA	NA	NA	NA
1,2,4-Trimethylbenzene		-	-	NA	NA	NA	NA
Naphthalene		-	-	NA	NA	NA	NA
Benzene		-	-	NA	NA	NA	NA
Toluene		-	-	NA	NA	NA	NA
Ethylbenzene		-	-	NA	NA	NA	NA
Xylenes		-	-	NA	NA	NA	NA

Notes:

* = VOC analysis for chlorinated compounds only by EPA Method 8021B.

- = Analytical result below the method detection limit.

NA = Not Analyzed

µg/l=micrograms per liter (parts per billion (ppb))

GW samples were collected during step drawdown tests for wells MW-33S, MW-43S and MW-45M. Analytical results are not representative of ambient