

11 March 2003
Reference: 1922.03

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



Re: Release Notification for Chromium in Groundwater
Former Raytheon Facility
430 Boston Post Road
Wayland, Massachusetts (the "Site")

Dear BWSC Representative:

On behalf of Raytheon Company (Raytheon), Environmental Resources Management (ERM) is submitting the attached Release Notification Form (RNF, BWSC-103; Appendix A) for the above-referenced Site (Figures 1, 2 and 3). The RNF was prepared in response to the discovery of chromium in groundwater at the Site at a concentration above the applicable Reportable Concentration (RCGW-1), triggering release notification pursuant to 310 CMR 40.0315(1).

As part of ongoing response actions at the above-referenced Site (Tier IB Permit No. 133939), ERM has conducted in situ chemical oxidation (ISCO) pilot studies to evaluate the efficacy of permanganate oxidation at abating chlorinated hydrocarbons (primarily trichloroethene (TCE)) in groundwater. These activities were presented to the Department of Environmental Protection (Department) in the following Release Abatement Measure (RAM) documents:

- RAM Plan, 11 September 2001;
- RAM 120-Day Status Report, 31 January 2002;
- RAM Six-Month Status Report, 25 July 2002;
- RAM Plan – Modification #1, 22 October 2002; and,
- RAM Six-Month Status Report, 31 January 2003.

As part of the ISCO pilot study activities, ERM collected groundwater samples from two pilot study areas (i.e., MW-33 Area and MW-43 Area)

for laboratory analysis of chromium. An initial baseline monitoring round was conducted in both pilot areas in August 2001, during which 15 groundwater samples were collected and analyzed for chromium. Of these samples, chromium was detected in one sample (MW-43S) at a concentration of 0.01 milligrams per liter (mg/L), which is below the applicable RCGW-1 standard of 0.1 mg/L (Table 1).

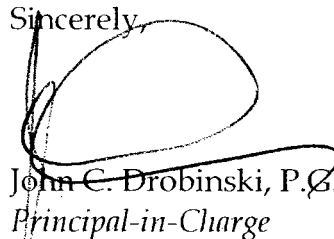
A second round of chromium monitoring was conducted in the MW-33 pilot area in January 2002, following consumption of permanganate in this area. A total of 12 groundwater samples were collected for analysis of chromium. Chromium was not detected in any of these samples (Table 1).

Permanganate persisted in groundwater in the MW-43 pilot study area through June 2002. A second permanganate injection was conducted in this pilot area in November 2002. A groundwater monitoring round was conducted in early November 2002 prior to permanganate injection. A total of 23 groundwater samples were collected from this area for analysis of chromium. Chromium was detected in four samples at concentrations ranging from 0.01 mg/L to 0.56 mg/L (Table 1), of which one sample (MW-104) exceeded the applicable RCGW-1 standard of 0.1 mg/L.

The groundwater sample that exceeded the RCGW-1 standard was collected from a well (MW-104) where permanganate was observed for over six months from October 2001 through April 2002. Chromium was not detected in the baseline sample collected from this well in August 2001. Chromium is more soluble in groundwater under oxidizing conditions, which would be expected during and following injection of permanganate. Therefore, ERM believes that chromium detected in groundwater in MW-104 is a transient condition and will likely naturally attenuate once the aquifer returns to ambient oxidation-reduction conditions.

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

Sincerely,



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



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

Enc. Table 1 Summary of Chromium Data
Figure 1 Locus Map
Figure 2 Site Plan
Figure 3 Site Plan Showing Pilot Study Areas
Appendix A BWSC-103 Release Notification Form

cc: Mr. Edwin Madera, Sr. Environmental Engineer, Restoration
Projects, Raytheon Company, 528 Boston Post Rd., MS-1880,
Sudbury, MA 01776

Mr. Benson Gould, CMG Environmental, Inc., 600 Charlton Street,
Southbridge, MA 01550

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

Public Repository (Secondary Location), Former Raytheon
Facility, Wayland Town Hall, 41 Cochituate Road, Wayland, MA
01778

Summary Table of Total Dissolved Chromium Concentrations (mg/L)
Raytheon Company
Former Raytheon Facility
Wayland, MA

Well ID	Sampling Round		
	27-Aug-01	15-Jan-02	11-Nov-02*
MW-33S	-	-	NS
MW-33M	-	-	NS
MW-43S	0.01	NS	0.08
MW-43D	NS	NS	-
MW-44S	NS	NS	-
MW-44M	NS	NS	-
MW-44D	NS	NS	-
MW-101	0.02	NS	-
MW-102	-	NS	-
MW-103	-	NS	-
MW-104	-	NS	0.56
MW-105	-	NS	0.01
MW-105M	NS	NS	-
MW-106	-	NS	-
MW-106M	NS	NS	-
MW-107	-	-	-
MW-108	-	-	-
MW-109	-	-	NS
MW-110	-	-	NS
MW-111	-	-	NS
MW-112	-	-	NS
MW-113	-	-	NS
MW-114	-	-	NS
MW-115	-	-	NS
MW-116	-	-	NS
MW-117*	NS	NS	0.01
MW-118*	NS	NS	-
MW-209	NS	NS	-
MW-210	NS	NS	-
MW-211	NS	NS	-
MW-212	NS	NS	NS**
MW-212M	NS	NS	-
MW-213	NS	NS	-
MW-214	NS	NS	-

Notes:

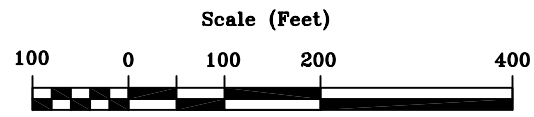
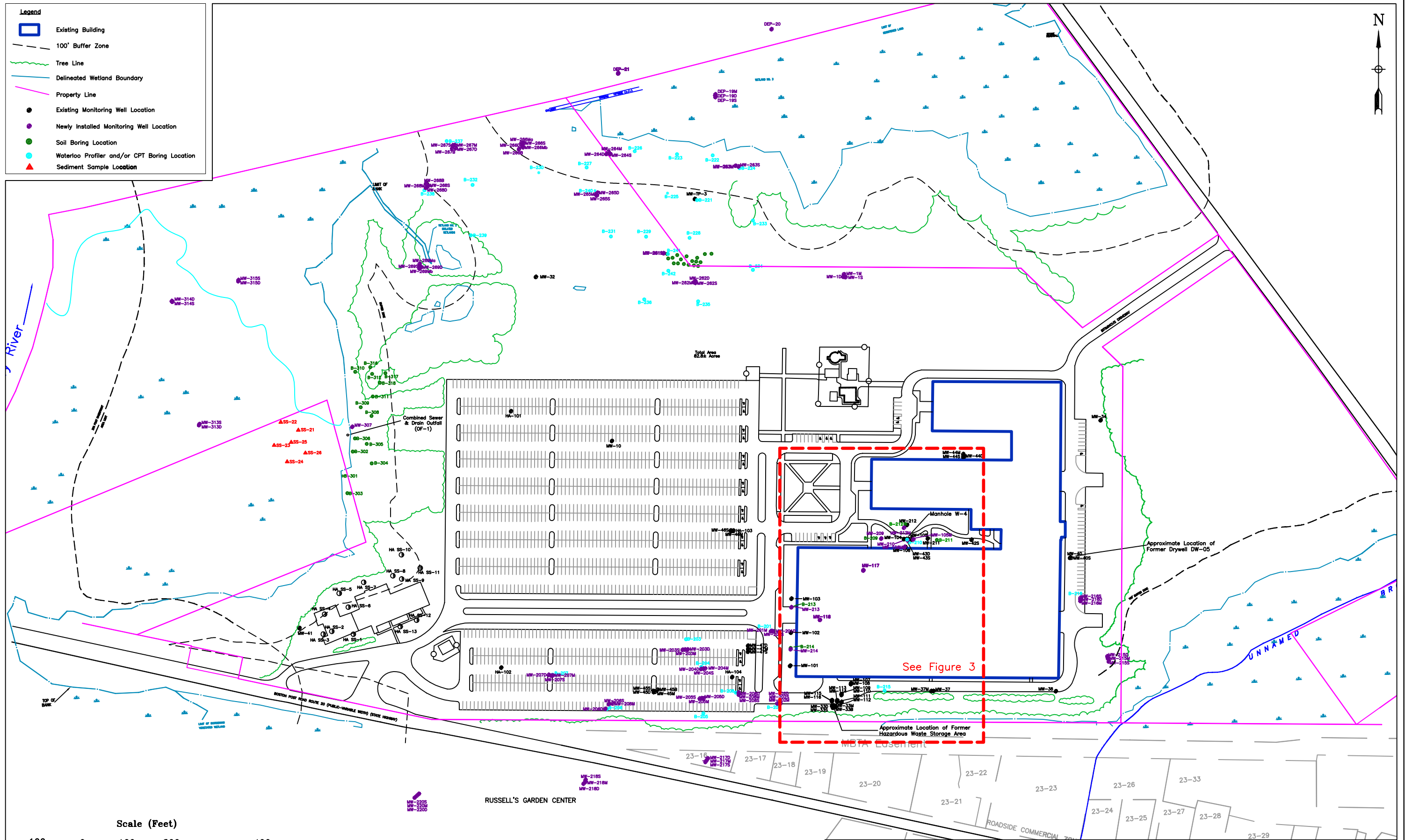
- = Indicates less than laboratory detection limits

NS = Not Sampled

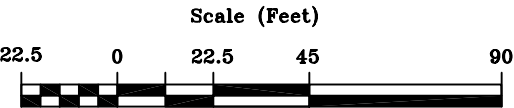
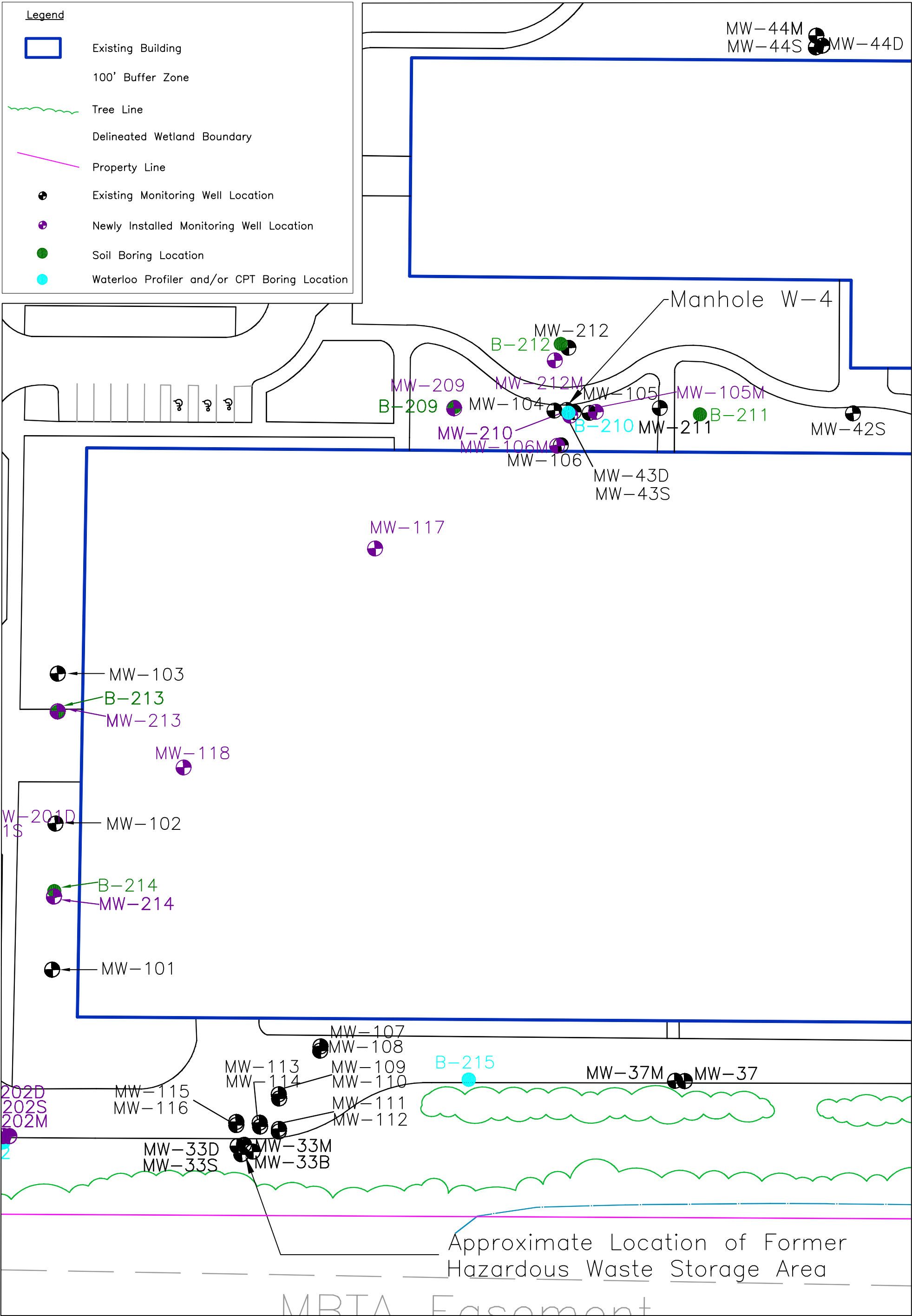
*MW-117 and MW-118 sampled on 3-Dec-02 due to insufficient water volume in Nov-02


**MW-212 was only sampled for VOCs due to insufficient water volume

Shading indicates exceedence of MCP RCGW-1 (0.1 mg/L) and MCP Method 1 GW 1 Standard (0.1 mg/L)



Environmental Resources Management 399 Boylston Street Boston, MA 02116 (617) 267-8377				Designed by: JE		Former Raytheon Facility 430 Boston Post Road Wayland, MA	
Revisions				Checked by: RL			
Symbol	Description	Date	Approved	Reviewed by: JMcT		Scale: 1"=200'	
Fig 2 Phase IV (11x17)				Submitted by:		Date: 3/3/03	
G:\Projects\143.xx-Raytheon\Wayland\				Drawing No.		Figure No.	
Job File\Figures\Raytheon basemap 2-21-03.dwg				Contract No. 1922.03.06		2	



<div><div></div><div>Environmental Resources Management 399 Boylston Street Boston, MA 02116 (617) 267-8377</div></div>				Designed by:		Former Raytheon Facility 430 Boston Post Road Wayland, MA Pilot Study Areas			
				Drawn by:					
				JE					
				Checked by:					
				VZ					
Symbol	File Path	Date	Approved	Reviewed by:		Scale: 1"= 45'		Date: 3/3/03	
	Pilot Study Areas			RJF					
	G:\Projects\143.xx-Raytheon\Wayland\			Submitted by:		Drawing No.		Figure No.	
	Job File\Figures\Raytheon basemap 2-21-03.dwg					Contract No. 1922.03.06		3	



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC-103

Release Tracking Number

**RELEASE NOTIFICATION & NOTIFICATION RETRACTION
FORM** Pursuant to 310 CMR 40.0335 and 310 CMR 40.0371 (Subpart C)

If assigned by DEP

A. RELEASE OR THREAT OF RELEASE LOCATION:

Street: 430 Boston Post Road

Location Aid:

City/Town: Wayland

ZIP Code: 01778-0000

B. THIS FORM IS BEING USED TO: (check one)

☒ Submit a **Release Notification** (complete all sections of this form).

Submit a **Retraction of a Previously Reported Notification** of a Release or Threat of Release (complete Sections A, B, E, F and G of this form). You **MUST** attach the supporting documentation required by 310 CMR 40.0335.

C. INFORMATION DESCRIBING THE RELEASE OR THREAT OF RELEASE (TOR):

Date and time you obtained knowledge of the Release or TOR. Date: 11/19/2002 Time: Specify: AM PM

The date you obtained knowledge is always required. The time you obtained knowledge is not required if reporting only 120 Day Conditions.

IF KNOWN, record date and time release or TOR occurred. Date: Time: Specify: AM PM

Check here if you previously provided an Oral Notification to DEP (2 Hour and 2 Hour Reporting Conditions only).

Provide date and time of Oral Notification. Date: Time: Specify: AM PM

Check all Notification Thresholds that apply to the Release or Threat of Release: (for more information see 310 CMR 40.0310 - 40.0315)

2 HOUR REPORTING CONDITIONS

72 HOUR REPORTING CONDITIONS

120 DAY REPORTING CONDITIONS

- | | | |
|--|---|---|
| <input type="checkbox"/> Sudden Release | <input type="checkbox"/> Subsurface Non-Aqueous Phase Liquid (NAPL) Equal to or Greater than 1/2 Inch | <input checked="" type="checkbox"/> Release of Hazardous Material(s) to Soil or Groundwater Exceeding Reportable Concentration(s) |
| <input type="checkbox"/> Threat of Sudden Release | | |
| <input type="checkbox"/> Oil Sheen on Surface Water | <input type="checkbox"/> Underground Storage Tank (UST) Release | <input type="checkbox"/> Release of Oil to Soil Exceeding Reportable Concentration(s) and Affecting More than 2 Cubic Yards |
| <input type="checkbox"/> Poses Imminent Hazard | <input type="checkbox"/> Threat of UST Release | |
| <input type="checkbox"/> Could Pose Imminent Hazard | | <input type="checkbox"/> Release of Oil to Groundwater Exceeding Reportable Concentration(s) |
| <input type="checkbox"/> Release Detected in Private Well | <input type="checkbox"/> Release to Groundwater near Water Supply | |
| <input type="checkbox"/> Release to Storm Drain | <input type="checkbox"/> Release to Groundwater near School or Residence | <input type="checkbox"/> Subsurface Non-Aqueous Phase Liquid (NAPL) Equal to or Greater than 1/8 Inch and Less than 1/2 Inch |
| <input type="checkbox"/> Sanitary Sewer Release (Imminent Hazard Only) | | |

List below the Oils or Hazardous Materials that exceed their Reportable Concentration or Reportable Quantity by the greatest amount. If necessary, attach a list of additional Oil and Hazardous Material substances subject to reporting.

Name and Quantities of Oils (O) and Hazardous Materials (HM)

O or HM Released	O (check one)	HM (check one)	CAS # (if known)	Amount or Concentration	Units	Reportable Concentrations Exceeded, if Applicable (RCS-1, RCS-2, RCGW-1, RCGW-2)
Chromium	<input type="checkbox"/>	<input checked="" type="checkbox"/>		0.56	mg/l	RCGW-1
	<input type="checkbox"/>	<input type="checkbox"/>				
	<input type="checkbox"/>	<input type="checkbox"/>				

D. ADDITIONAL INVOLVED PARTIES:

Check here if attaching names and addresses of owners of properties affected by the Release or Threat of Release, other than an owner who is submitting this Release Notification (required)

Check here if attaching Licensed Site Professional (LSP) name and address (optional).

You may write in names and addresses on the bottom of the second page of this form.



Massachusetts Department of Environmental Protection
Bureau of Waste Site Cleanup

BWSC-103

Release Tracking Number

RELEASE NOTIFICATION & NOTIFICATION RETRACTION
FORM Pursuant to 310 CMR 40.0335 and 310 CMR 40.0371 (Subpart C)

If assigned by DEP

E. PERSON REQUIRED TO NOTIFY:

Name of Organization: Raytheon Company

Name of Contact: Edwin P. Madera

Title: Sr. Environmental Engineer

Street: 528 Boston Post Road, MS 1880

City/Town: Sudbury

State: MA

ZIP Code: 01776-0000

Telephone: 978-440-1813

Ext.:

FAX: (optional) 978-440-2176

F. RELATIONSHIP OF PERSON REQUIRED TO NOTIFY TO RELEASE OR THREAT OF RELEASE: (check one)

☒ RP or PRP Specify ☐ Owner ☐ Operator ☐ Generator ☐ Transporter Other RP or PRP: Former Operator

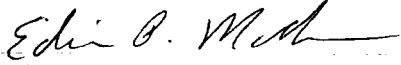
Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

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

Any Person Otherwise Required to Notify Specify Relationship:

G. CERTIFICATION OF PERSON REQUIRED TO NOTIFY:

I, Edwin P. Madera, 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: 
(signature)

Title: Sr. Environmental Engineer

For:
(print name of person or entity recorded in Section E)

Date:

3/11/03

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

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.