

21 May 2003
Reference: 1922 01

Mr. Brian Monahan
Conservation Commission
Wayland Town Hall
41 Cochituate Road
Wayland, MA 01778



Dear Brian,

On behalf of Raytheon Company (Raytheon), Environmental Resources Management (ERM) is pleased to submit this update of Site activities for the former Raytheon facility at 430 Boston Post Road in Wayland, Massachusetts. In accordance with the special condition 33 in the Order of Conditions 322-532, dated 13 August 2002, analytical results from on-going Site investigation activities is presented in this package.

On 4 April 2003, ERM and Raytheon provided the Commission with a partial update of a polychlorinated dibenzo-p-dioxins (PCDDs) and polychlorinated dibenzo-p-dibenzofurans (PCDFs) analytical data set collected in the March 2003 sampling round. The purpose of this letter is to provide the Commission with the remainder of the data set from the March 2003 sampling event.

On 5 March 2003 and 20 March 2003, ERM collected sediment samples from 36 locations, labeled WS-1 through WS-36 (Figure 1), for laboratory analysis of one or more of the following parameters:

- PCDDs/PCDFs by EPA Method 8290
- Polychlorinated biphenyls (PCBs) by EPA Method 8082
- Polyaromatic hydrocarbons (PAHs) by EPA Method 8270
- Metals by EPA Method 3051

The following is enclosed:

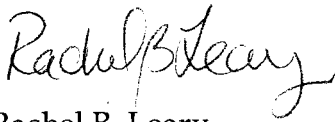
- Summary tables from sediment sampling in wetland for PCDDs/PCDFs and PCBs received to date (Table 1); and PAHs and heavy metals (Table 2);

- CD of PCDDs/PCDFs analytical data; and
- Figure 1 indicating sediment sampling locations.

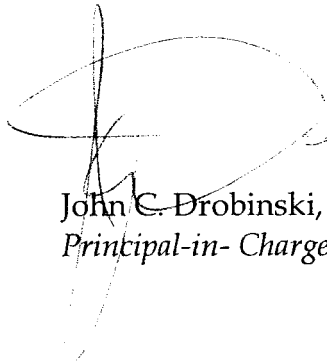
The human health and ecological risk characterizations for the Site have been updated and indicate that the risk posed to the Site by the impacted sediments has not changed in light of the new data. Therefore the remedial strategy for the Site has not changed based on the enclosed data. For more information please refer to the detailed update of the risk characterization that was provided to the Ms. Kim Tisa of the EPA in a letter dated 8 May 2003, which the commission was copied on.

Raytheon looks forward to continuing our cooperative effort, during this Site investigation. If you have any questions or comments please contact the undersigned at (617) 267-8377 or Edwin Madera at (978) 440-1813.

Sincerely,



Rachel B. Leary
Project Engineer



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

rbl

enclosures: Table 1 - 2
Figure 1
CD - Analytical Data

cc: Edwin Madera, Raytheon Company
Benson Gould, CMG
Public Repositories

Table 1
 Summary of Sediment PCDD/PCDF and PCB Analytical Results - March 2003
 Former Raytheon Facility
 Wayland, Massachusetts

Parameter	Sample I.D.	65-21	65-22	65-22	65-23	65-24	65-25	65-26	WS-1	WS-2	WS-2	WS-3											
	Depth	(6-12")	(6-12")	(6-12")	(6-12")	(6-12")	(6-12")	(6-12")	(6-12")	(6-15")	(18-24")	(6-12")											
Date Sampled	12-Aug-02	12-Aug-02	12-Aug-02	12-Aug-02	12-Aug-02	12-Aug-02	12-Aug-02	12-Aug-02	05-Mar-03	05-Mar-03	05-Mar-03	05-Mar-03											
Comments	Flags	Flags	Flags	Flags	Flags	Flags	Flags	Flags	Flags	Flags	Flags	Flags											
Polychlorinated Biphenyls (ug/kg) (EPA Method 8082)		NA	NA	NA	NA	NA	NA	NA	NA		NA												
Aroclor 1254										13	u	13	u										
Aroclor 1260										13	u	520											
Total PCBs										26		533											
Total Organic Carbon(%)		NA	NA	NA	NA	NA	NA	NA	0.135	0.534	9.83	1.02											
Polychlorinated dibenzo-p-dioxins (PCDDs) (pg/g)																							
2,3,7,8-TCDD		8.28	0.20	je	0.06	u	0.55	u	0.30	je	1.13	j	0.1	u	0.35	u	0.05	u	0.05	u	0.05	u	
1,2,3,7,8-PeCDD		32.1	0.93	j	0.82	je	0.84	j	1.41	j	3.92	j	0.1	u	0.45	u	0.05	u	0.43	j	0.2	jb	
1,2,3,4,7,8-HxCDD		40.4	1.72	j	1.36	j	1.8	j	1.86	j	4.84	j	0.05	u	0.3	u	0.04	u	0.5	j	0.05	u	
1,2,3,6,7,8-HxCDD		252	6.66	j	6.15	j	7.61	j	10.3	j	24.8	j	0.05	u	0.3	u	0.04	u	2.9	j	0.61	jb	
1,2,3,7,8,9-HxCDD		145	6.49	j	5.66	j	6.74	j	6.95	j	17.2	j	0.05	u	0.3	u	0.04	u	4.1	j	0.46	ejb	
1,2,3,4,6,7,8-HpCDD		5100	d	225	164	j	207	d	225	d	427	d	2.2	j	2.0	j	1.0	ej	11.8	j	18.6	jb	
OCDD		95200	d	1920	1380	j	1790	d	2130	d	4110	d	13.6	j	11.8	j	7.6	j	46.6	j	169	jb	
Polychlorinated dibenzo-p-dibenzofurans (PCDFs) (pg/g)																							
2,3,7,8-TCDF		49.1	1.56	j	1.58	j	2.33	j	2.96	j	10.2	j	0.05	u	0.25	u	0.04	u	0.95	j	0.81	j	
1,2,3,7,8-PeCDF		179	0.85	j	0.92	j	1.07	j	1.37	j	4.38	j	0.045	u	0.25	u	0.035	u	0.22	ej	0.03	u	
1,2,3,4,7,8-PeCDF		49.5	1.54	j	1.67	j	2.18	j	3.32	j	10.2	j	0.045	u	0.25	u	0.31	ej	0.41	ej	0.4	jb	
1,2,3,4,7,8-HxCDF		130	3.17	j	3.59	j	5.23	j	11.1	j	27.8	j	0.41	j	0.51	ej	0.82	j	0.36	ej	0.91	jb	
1,2,3,6,7,8-HxCDF		54.5	1.30	j	1.49	j	1.98	j	3.28	j	11.1	j	0.035	u	0.2	u	0.26	ej	0.16	j	0.5	jb	
2,3,4,6,7,8-HxCDF		1.88	u	0.30	j	0.32	j	0.41	j	0.24	j	0.49	j	0.04	u	0.2	u	0.19	ej	0.005	u	0.6	jb
1,2,3,7,8,9-HxCDF		40.8	1.21	j	1.26	j	1.96	je	2.60	j	8.37	j	0.045	u	0.25	u	0.03	u	0.27	ej	0.23	jb	
1,2,3,4,6,7,8-HpCDF		1270	d	21.2	24.9	j	35.4	j	60.5	j	178	j	1.2	ej	1.7	j	3.3	j	0.55	j	4.4	jb	
1,2,3,4,7,8,9-HpCDF		98.2	1.56	j	1.56	j	2.19	j	4.86	j	11.6	j	0.05	u	0.4	u	0.045	u	0.05	u	0.42	jb	
OCDF		2820	d	40.2	46.0	j	66.2	j	130	j	296	j	1.1	j	0.65	u	2.3	j	0.61	ej	6.7	jb	
Total 2,3,7,8 TCDD Equivalent		207.88		6.86		5.95		7.97		10.60		27.46		0.33		1.21		0.45		1.60		1.12	

Notes:
 NA = Not Analyzed
 = sediment sampling location in proposed remedial area
 pg/g=picograms per gram (dry weight basis)

Flags
 u not detected, value shown is one-half of DL
 j concentration less than LMCL
 e EMPC = peak did not meet confirmation criteria
 d result reported from a dilution of the original extract
 b detected in laboratory method blank as well as field sample

Table 1
 Summary of Sediment PCDD/PCDF and PCB Analytical Results - March 2003
 Former Raytheon Facility
 Wayland, Massachusetts


Parameter	Sample I.D.	WS-4	WS-4	WS-5	WS-5	WS-6	WS-7	WS-7
	Depth	(6-18")	(18-24")	(6-18")	(18-24")	(6-12")	(6-15")	(18-24")
Date Sampled	05-Mar-03	05-Mar-03	05-Mar-03	05-Mar-03	05-Mar-03	05-Mar-03	05-Mar-03	05-Mar-03
Comments								
Polychlorinated Biphenyls (ug/kg) (EPA Method 8082)			NA		NA	NA		NA
Aroclor 1254	13	u		13	u		13	u
Aroclor 1260	724			37			83	u
Total PCBs	737			50			96	
Total Organic Carbon(%)	0.872		6.31	1.66	0.158	5.38	1.98	2.42
Polychlorinated dibenzo-p-dioxins (PCDDs) (pg/g)								
2,3,7,8-TCDD	0.4	u	0.1	u	0.1	u	0.15	u
1,2,3,7,8-PeCDD	3.7	j	0.1	u	0.1	u	0.15	u
1,2,3,4,7,8-HxCDD	5.1		0.05	u	0.1	u	0.15	u
1,2,3,6,7,8-HxCDD	31.9		0.05	u	0.1	u	0.15	u
1,2,3,7,8,9-HxCDD	15.3		0.05	u	0.1	u	0.15	u
1,2,3,4,6,7,8-HpCDD	605.0		2.2	j	4.3	j	0.3	u
OCDD	5800		15.6		21.8		0.55	u
Polychlorinated dibenzo-p-dibenzofurans (PCDFs) (pg/g)								
2,3,7,8-TCDF	6.8		0.05	u	0.67	j	0.1	u
1,2,3,7,8-PeCDF	0.4	u	0.045	u	0.05	u	0.1	u
2,3,4,7,8-PeCDF	11		0.045	u	0.2	ej	0.1	u
1,2,3,4,7,8-HxCDF	32.9		0.41	j	0.45	ej	0.1	u
1,2,3,6,7,8-HxCDF	15.8		0.035	u	0.05	u	0.1	u
2,3,4,6,7,8-HxCDF	22.8		0.04	u	0.32	j	0.1	u
1,2,3,7,8,9-HxCDF	5.3	c	0.045	u	0.05	u	0.1	u
1,2,3,4,6,7,8-HpCDF	239		1.2	ej	2	j	0.15	u
1,2,3,4,7,8,9-HpCDF	12.3		0.05	u	0.1	u	0.15	u
OCDF	393		1.1	j	2.7	j	0.4	u
Total 2,3,7,8 TCDD Equivalent	32.39		0.33		0.55		0.46	

Notes:
 NA = Not Analyzed
 = sediment sampling location in proposed remedial area
 pg/g = picograms per gram (dry weight basis)

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 e EMPC = peak did not meet confirmation criteria
 d result reported from a dilution of the original extract
 b detected in laboratory method blank as well as field sample

Table 1
 Summary of Sediment PCDD/PCDF and PCB Analytical Results - March 2003
 Former Raytheon Facility
 Wayland, Massachusetts

Parameter	Sample I.D. Depth Date Sampled Comments	WS-8 (6-12")		WS-9 (6-12")		WS-10 (6-12")		WS-10 (18-24")		WS-11 (18-24")		WS-12 (6-12")		WS-12 (18-24")		WS-13 (6-18")		WS-14 (6-12")		WS-15 (6-12")		
		Flags	Flags	Flags	Flags	Flags	Flags	Flags	Flags	Flags	Flags	Flags	Flags	Flags	Flags	Flags	Flags	Flags	Flags	Flags	Flags	
<i>Polychlorinated Biphenyls (ug/kg) (EPA Method 8082)</i>																						
Aroclor 1254	209	u	202	u	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
Aroclor 1260	209	u	202	u													17	u				
Total PCBs	418	u	403	u													35	u				
Total Organic Carbon(%)	11.7		9.03		12.4		13.5		9.14		0.087		10.6		3.47		5.32		3.87		11.7	
<i>Polychlorinated dibenzo-p-dioxins (PCDDs) (pg/g)</i>																						
2,3,7,8-TCDD	0.3	u	0.1	u	0.15	u	0.15	u	0.2	u	0.25	u	0.1	u	0.05	u	0.25	u	0.05	u	0.45	u
1,2,3,7,8-PeCDD	0.48	ej	0.1	u	0.1	u	0.85	ej	0.15	u	0.35	u	0.15	u	0.05	u	0.35	u	0.05	u	0.55	u
1,2,3,4,7,8-HxCDD	0.71	j	0.1	u	0.15	u	0.89	j	0.2	u	0.25	u	0.64	j	0.05	u	0.25	u	0.045	u	0.5	u
1,2,3,6,7,8-HxCDD	3.2	j	0.69	jb	0.15	u	1.4	j	0.2	u	0.25	u	2.5	j	0.7	j	2.4	j	0.5	j	1	j
1,2,3,7,8,9-HxCDD	3.1	j	0.87	jb	0.15	u	1.5	ej	0.2	u	0.25	u	2.9	j	0.91	ej	3.6	j	0.52	ej	1.2	ej
1,2,3,4,6,7,8-HpCDD	122		25.7		1.4	ej	7.7		7.8		0.45	u	38.9		3.7	j	13.0		4.4	j	25.9	
OCDD	1470		252		9.5	jb	43.1		62.1		0.75	u	226		19.8		78.1		22.8		181	
<i>Polychlorinated dibenzo-p-dibenzofurans (PCDFs) (pg/g)</i>																						
2,3,7,8-TCDF	0.85	j	0.51	j	0.1	u	0.1	u	0.15	u	0.2	u	0.1	u	0.04	u	0.88	j	0.56	j	0.35	u
1,2,3,7,8-PeCDF	0.2	u	0.05	u	0.5	j	0.61	ej	0.1	u	0.15	u	0.05	u	0.18	ej	0.15	u	0.03	u	0.3	u
2,3,4,7,8-PeCDF	0.69	ej	0.25	jb	0.1	u	0.81	j	0.1	u	0.2	u	0.1	u	0.035	u	0.2	u	0.8	j	0.35	u
1,2,3,4,7,8-HxCDF	3.1	jb	0.73	jb	0.41	j	1.1	ej	0.1	u	0.15	u	0.55	j	0.2	j	0.39	ej	2.4	j	0.3	u
1,2,3,6,7,8-HxCDF	1.2	j	0.29	jb	0.17	ej	0.8	ej	0.1	u	0.15	u	0.05	u	0.03	u	0.15	u	0.98	j	0.3	u
2,3,4,6,7,8-HxCDF	1.2	j	0.29	jb	0.05	u	1.4	j	0.1	u	0.2	u	0.1	u	0.035	u	0.15	u	1	j	0.35	u
1,2,3,7,8,9-HxCDF	0.45	u	0.1	u	0.35	j	1.2	j	0.1	u	0.2	u	0.1	u	0.55	ej	0.2	u	0.46	j	0.4	u
1,2,3,4,6,7,8-HpCDF	13.6		2.6	jb	0.66	ej	2.6	j	0.91	ej	0.25	u	1.9	j	0.26	j	1.5	j	9.5	j	1.2	j
1,2,3,4,7,8,9-HpCDF	0.65	u	0.1	u	0.1	u	1.7	j	0.2	u	0.3	u	0.15	u	0.05	u	0.3	u	0.38	ej	0.55	u
OCDF	207		43	jb	1.2	j	3.9	ej	2.2	j	0.55	u	3.7	j	0.42	j	1.7	j	6.8	j	0.85	u
Total 2,3,7,8 TCDD Equivalent	4.05		1.00		0.50		2.40		0.62		0.88		1.43		0.42		1.67		1.29		1.92	

Notes:
 NA = Not Analyzed
 = sediment sampling location in proposed remedial area
 pg/g = picograms per gram (dry weight basis)

Flags
 u not detected, value shown is one-half of DL
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 e EMPC = peak did not meet confirmation criteria
 d result reported from a dilution of the original extract
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Table 1
 Summary of Sediment PCDD/PCDF and PCB Analytical Results - March 2003
 Former Raytheon Facility
 Wayland, Massachusetts

Parameter	Sample I.D.	WS-16	WS-17	WS-18	WS-19	WS-20	WS-21	WS-22	WS-22	WS-23	WS-23	WS-23
	Depth Date Sampled Comments	(6-15") 05-Mar-03	(6-12") 05-Mar-03	(6-12") 05-Mar-03	(6-18") 05-Mar-03	(6-12") 05-Mar-03	(6-12") 05-Mar-03	(6-12") 05-Mar-03	(18-24") 05-Mar-03	(6-12") 05-Mar-03	(6-12") 20-Mar-03	(6-12") 20-Mar-03
Polychlorinated Biphenyls (ug/kg) (EPA Method 8082)			NA	NA		NA	NA	NA	NA			
Aroclor 1254		481 u			13 u						196 u	196 u
Aroclor 1260		481 u			13 u						196 u	196 u
Total PCBs		962			26						391	391
Total Organic Carbon(%)		9.81	5.76	0.395	2.27	0.325	10.8	6.41	8.82	5.88	10.9	11.2
Polychlorinated dibenzo-p-dioxins (PCDDs) (pg/g)												
2,3,7,8-TCDD		0.2 u	0.2 u	0.05 u	0.1 u	0.05 u	0.15 u	0.1 u	0.1 u	0.1 u	0.25 u	0.05 u
1,2,3,7,8-PeCDD		0.15 u	0.15 u	0.05 u	0.1 u	0.1 u	0.1 u	0.1 u	0.1 u	0.1 u	0.35 u	0.1 u
1,2,3,4,7,8-HxCDD		0.2 u	0.15 u	0.05 u	0.1 u	0.05 u	0.15 u	0.15 u	0.1 u	0.1 u	0.65 u	0.34 jb
1,2,3,6,7,8-HxCDD		0.2 u	0.15 u	0.05 u	0.56 j	0.05 u	0.37 ej	0.48 j	0.1 u	1.2 j	2.5 j	1.1 jb
1,2,3,7,8,9-HxCDD		0.2 u	0.15 u	0.05 u	0.51 j	0.05 u	0.38 j	0.54 j	0.1 u	1.8 j	1.6 ej	1.00 jb
1,2,3,4,6,7,8-HpCDD		2.6 j	0.66 j	0.2 ej	1.9 ej	0.1 u	2.7 ej	3.6 j	0.98 j	6.6 j	23.3 j	9.8 b
OCDD		16	2.8 ejb	1.1 ej	11.3	0.8 j	16.3	21.4	5.1 jb	31.5	175	97.4
Polychlorinated dibenzo-p-dibenzofurans (PCDFs) (pg/g)												
2,3,7,8-TCDF		0.15 u	0.15 u	0.04 u	0.49 j	0.05 u	0.1 u	0.1 u	0.05 u	0.49 ej	0.78 j	0.74 j
1,2,3,7,8-PeCDF		0.1 u	0.1 u	0.035 u	0.05 u	0.045 u	0.1 u	0.1 u	0.05 u	0.05 u	0.2 u	0.05 u
2,3,4,7,8-PeCDF		0.1 u	0.1 u	0.035 u	0.05 u	0.045 u	0.1 u	0.1 u	0.05 u	0.1 u	0.66 ej	0.34 jb
1,2,3,4,7,8-HxCDF		0.1 u	0.1 u	0.13 ej	0.05 u	0.035 u	0.38 j	0.19 j	0.05 u	0.26 ej	1.7 jb	0.76 jb
1,2,3,6,7,8-HxCDF		0.1 u	0.1 u	0.03 u	0.05 u	0.035 u	0.5 u	0.1 u	0.05 u	0.05 u	0.35 u	0.37 jb
2,3,4,6,7,8-HxCDF		0.1 u	0.1 u	0.03 u	0.05 u	0.035 u	0.1 u	0.1 u	0.05 u	0.1 u	0.35 u	0.31 jb
1,2,3,7,8,9-HxCDF		0.15 u	0.1 u	0.04 u	0.05 u	0.045 u	0.1 u	0.1 u	0.05 u	0.1 u	0.4 u	0.05 u
1,2,3,4,6,7,8-HpCDF		0.49 j	0.1 u	0.13 ej	0.56 ej	0.05 u	0.95 j	0.52 ej	0.1 u	0.46 j	6.6 j	2.5 jb
1,2,3,4,7,8,9-HpCDF		0.2 u	0.15 u	0.05 u	0.1 u	0.05 u	0.15 u	0.15 u	0.1 u	0.1 u	0.6 u	0.1 u
OCDF		0.5 u	3.8 j	0.61 j	1.6 j	0.1 u	1.2 j	0.5 u	0.61 ej	0.3 u	12.6	4.5 jb
Total 2,3,7,8 TCDD Equivalent		0.56	0.51	0.17	0.44	0.21	0.55	0.48	0.29	0.74	2.10	0.92

Notes:
 NA = Not Analyzed
 [shaded box] = sediment sampling location in proposed remedial area
 pg/g = picograms per gram (dry weight basis)

Flags
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Table 1
 Summary of Sediment PCDD/PCDF and PCB Analytical Results - March 2003
 Former Raytheon Facility
 Wayland, Massachusetts

Parameter	Sample I.D. Depth Date Sampled Comments	WS-24 (6-18") 05-Mar-03	Flags
Polychlorinated Biphenyls (ug/kg) (EPA Method 8082)			
Aroclor 1254		13	u
Aroclor 1260		13	u
Total PCBs		26	
Total Organic Carbon(%)		0.086	
Polychlorinated dibenzo-p-dioxins (PCDDs) (pg/g)			
2,3,7,8-TCDD		0.1	u
1,2,3,7,8-PeCDD		0.1	u
1,2,3,4,7,8-HxCDD		0.05	u
1,2,3,6,7,8-HxCDD		0.1	u
1,2,3,7,8,9-HxCDD		0.05	u
1,2,3,4,6,7,8-HpCDD		0.15	u
OCDD		0.51	ej
Polychlorinated dibenzo-p-dibenzofurans (PCDFs) (pg/g)			
2,3,7,8-TCDF		0.05	u
1,2,3,7,8-PeCDF		0.045	u
2,3,4,7,8-PeCDF		0.05	u
1,2,3,4,7,8-HxCDF		0.04	u
1,2,3,6,7,8-HxCDF		0.04	u
2,3,4,6,7,8-HxCDF		0.045	u
1,2,3,7,8,9-HxCDF		0.05	u
1,2,3,4,6,7,8-HpCDF		0.05	u
1,2,3,4,7,8,9-HpCDF		0.1	u
OCDF		0.2	u
Total 2,3,7,8 TCDD Equivalent		0.27	

Notes:


NA = Not Analyzed
 (Sediment Sampling Location) = sediment sampling location in proposed remedial area
 pg/g = picograms per gram (dry weight basis)

Flags

u not detected, value shown is one-half of DL
 j concentration less than LMCL
 e EMPC = peak did not meet confirmation criteria
 d result reported from a dilution of the original extract
 b detected in laboratory method blank as well as field sample

Table 1
 Summary of Sediment PCDD/PCDF and PCB Analytical Results - March 2003
 Former Raytheon Facility
 Wayland, Massachusetts

Parameter	Sample I.D.	WS-25		WS-26		WS-27		WS-28		WS-29		WS-30		WS-31		WS-32		WS-33		WS-34		WS-35	
	Depth Date Sampled Comments	(0-24") 05-Mar-03	Flags	(6-12") 05-Mar-03	Flags	(6-12") 05-Mar-03	Flags	(0-24") 05-Mar-03	Flags	(0-24") 05-Mar-03	Flags	(0-24") 05-Mar-03	Flags	(6-12") 05-Mar-03	Flags	(6-12") 05-Mar-03	Flags	(6-12") 20-Mar-03	Flags	(6-12") 20-Mar-03	Flags	(6-12") 20-Mar-03	Flags
Polychlorinated Biphenyls (ug/kg) (EPA Method 8082)																							
Aroclor 1254		NA		NA		NA		NA		NA		417	u	NA		NA		NA		NA		NA	
Aroclor 1260												417	u										
Total PCBs												833											
Total Organic Carbon(%)																							
		12.3		9.68		10.3		6.84		12.8		7.6		5.63		3.65		5.58		5.69		6.32	
Polychlorinated dibenzo-p-dioxins (PCDDs) (pg/g)																							
2,3,7,8-TCDD		0.05	u	0.1	u	0.1	u	0.05	u	0.46	ej	0.15	u	0.1	u	0.15	u	0.1	u	0.15	u	0.2	u
1,2,3,7,8-PeCDD		0.05	u	0.05	u	0.1	u	0.05	u	1.1	j	0.15	u	0.1	u	0.15	u	0.2	u	0.2	u	0.25	u
1,2,3,4,7,8-HxCDD		0.1	u	0.1	u	0.05	u	0.19	ej	1.1	j	0.15	u	0.1	u	0.15	u	0.25	u	0.3	u	0.35	u
1,2,3,6,7,8-HxCDD		0.42	j	0.1	u	0.32	j	1.2	j	3.5	j	0.37	ej	0.1	u	0.15	u	0.2	u	0.73	ej	0.68	j
1,2,3,7,8,9-HxCDD		0.41	ej	0.19	ej	0.29	ej	1.6	j	4	J	0.15	u	0.1	u	0.15	u	0.25	u	0.3	u	0.70	j
1,2,3,4,6,7,8-HpCDD		7.1		1.2	j	2.6	j	6.6		70.2		3.6	ej	0.87	j	0.84	ej	4.6	j	9.8		10.7	
OCDD		45		6.8	jb	13.4		27.4		507		18		5.6	jb	4.5	jb	37.0		71.1		80.6	
Polychlorinated dibenzo-p-dibenzofurans (PCDFs) (pg/g)																							
2,3,7,8-TCDF		0.22	j	0.05	u	0.34	ej	0.53	ej	3.2		0.64	j	0.36	j	0.1	u	0.78	j	1.1		1.0	
1,2,3,7,8-PeCDF		0.045	u	0.045	u	0.045	u	0.13	ej	1.6	j	0.1	u	0.05	u	0.1	u	0.1	u	0.1	u	0.15	u
2,3,4,7,8-PeCDF		0.33	ej	0.045	u	0.045	u	0.18	j	3.1	j	0.31	j	0.05	u	0.1	u	0.58	ej	0.78	j	0.86	j
1,2,3,4,7,8-HxCDF		0.61	j	0.045	u	0.27	ej	0.4	j	6.5		0.73	j	0.05	u	0.35	j	1.3	jb	2.0	jb	1.7	jb
1,2,3,6,7,8-HxCDF		0.045	u	0.045	u	0.035	u	0.17	j	2.5	j	0.1	u	0.05	u	0.1	u	0.73	j	0.62	j	0.82	j
2,3,4,6,7,8-HxCDF		0.21	ej	0.05	u	0.035	u	0.04	u	2.7	j	0.1	u	0.05	u	0.1	u	0.38	j	0.2	u	0.75	j
1,2,3,7,8,9-HxCDF		0.05	u	0.05	u	0.045	u	0.05	u	1.4	ej	0.1	u	0.05	u	0.1	u	0.2	u	0.2	u	0.3	u
1,2,3,4,6,7,8-HpCDF		1.6	j	0.24	ej	0.53	ej	0.76	j	24.1		2	ej	0.41	ej	0.42	ej	3.0	j	5.8		5.7	
1,2,3,4,7,8,9-HpCDF		0.1	u	0.1	u	0.05	u	0.05	u	1.8	j	0.15	u	0.1	u	0.15	u	0.25	u	0.3	u	0.4	u
OCDF		2.8	j	0.4	u	0.94	j	0.79	ej	27.4		2.1	j	0.3	u	0.35	u	4.2	j	8.0	j	8.7	j
Total 2,3,7,8 TCDD Equivalent																							
		0.60		0.25		0.40		0.69		6.69		0.75		0.33		0.49		1.09		1.46		1.69	

Notes:
 NA = Not Analyzed
 = sediment sampling location in proposed remedial area
 pg/g = picograms per gram (dry weight basis)

Flags
 u not detected, value shown is one-half of DL
 j concentration less than LMCL
 e EMPC = peak did not meet confirmation criteria
 d result reported from a dilution of the original extract
 b detected in laboratory method blank as well as field sample

Table 1
 Summary of Sediment PCDD/PCDF and PCB Analytical Results - March 2003
 Former Raytheon Facility
 Wayland, Massachusetts

Parameter	Sample I.D. Depth Date Sampled Comments	WS-36 (6-16") 05-Mar-03	Flags
Polychlorinated Biphenyls (ug/kg) (EPA Method 8082)			
Aroclor 1254		13	u
Aroclor 1260		13	u
Total PCBs		26	
Total Organic Carbon(%)		0.434	
Polychlorinated dibenzo-p-dioxins (PCDDs) (pg/g)			
2,3,7,8-TCDD		0.1	u
1,2,3,7,8-PeCDD		0.1	u
1,2,3,4,7,8-HxCDD		0.1	u
1,2,3,6,7,8-HxCDD		0.1	u
1,2,3,7,8,9-HxCDD		0.1	u
1,2,3,4,6,7,8-HpCDD		0.2	u
OCDD		8.3	j
Polychlorinated dibenzo-p-dibenzofurans (PCDFs) (pg/g)			
2,3,7,8-TCDF		0.1	u
1,2,3,7,8-PeCDF		0.1	u
2,3,4,7,8-PeCDF		0.1	u
1,2,3,4,7,8-HxCDF		0.05	u
1,2,3,6,7,8-HxCDF		0.05	u
2,3,4,6,7,8-HxCDF		0.1	u
1,2,3,7,8,9-HxCDF		0.1	u
1,2,3,4,6,7,8-HpCDF		0.1	u
1,2,3,4,7,8,9-HpCDF		0.15	u
OCDF		0.3	u
Total 2,3,7,8 TCDD Equivalent		0.33	

Notes:

NA = Not Analyzed
 11-11-03-001 = sediment sampling location in proposed remedial area
 pg/g = picograms per gram (dry weight basis)

Flags

u not detected, value shown is one-half of DL
 j concentration less than LMCL
 e EMPC = peak did not meet confirmation criteria
 d result reported from a dilution of the original extract
 b detected in laboratory method blank as well as field sample










Table 2
Summary of Sediment Metals and PAHs Analytical Results - March 2003
Former Raytheon Facility
Wayland, Massachusetts

Sample I.D. Depth Date Sampled Comments	WS-5 (6-18") 5-Mar-03	WS-13 (6-18") 5-Mar-03	WS-19 (6-18") 5-Mar-03	WS-23 (6-12") 20-Mar-03	WS-23 (6-12") 20-Mar-03 DUF-1	WS-24 (6-18") 5-Mar-03	WS-36 (6-16") 3/5/2003
Total Metals (mg/kg)							
Aluminum	7000	7300	8100	8900	8800	3300	8700
Antimony	-	-	-	-	-	-	-
Arsenic	9.5	14	5.6	11	9.7	2.7	6.3
Barium	26	21	18	41	41	12	29
Beryllium	0.32	0.7	0.92	1.1	1.1	-	0.11
Cadmium	0.14	0.41	0.52	2.2	2.2	-	0.11
Calcium	850	2100	640	2800	2600	330	1200
Chromium	21	16	13	110	100	5.3	14
Chromium , Hexavalent	-	-	-	-	-	-	-
Cobalt	2.2	0.93	2	2.6	-	2.1	3.9
Copper	13	18	21	170	160	3.9	6.8
Iron	5900	2500	4700	4500	4100	3600	9600
Lead	12	7.5	11	38	38	1.8	4.4
Magnesium	840	410	840	410	400	840	2400
Manganese	72	57	44	81	79	30	83
Mercury	0.04	0.07	0.03	-	-	-	0.01
Nickel	4.7	3.6	5.8	11	11	4.9	8.1
Potassium	150	75	96	-	-	310	370
Selenium	-	-	-	-	-	-	-
Silver	0.29	-	0.15	4.1	3.8	-	-
Sodium	82	180	110	310	290	-	110
Thallium	-	-	-	-	-	-	-
Vanadium	11	18	12	19	18	5.5	15
Zinc	8.2	3.4	31	94	100	7.3	13
Polyaromatic Hydrocarbons (ug/kg) (EPA Method 8270 M)							
Acenaphthene	-	-	-	99	-	-	-
Fluoranthene	-	100	-	1800	64	-	-
Benzo(a)anthracene	-	-	-	870	-	-	-
Benzo(a)pyrene	-	-	-	760	-	-	-
Benzo(b)fluoranthene	-	180	-	1000	-	-	-
Benzo(k)fluoranthene	-	67	-	440	-	-	-
Chrysene	-	87	-	960	-	-	-
Anthracene	-	-	-	320	-	-	-
Benzo(ghi)perylene	-	100	-	480	-	-	-
Fluorene	-	-	-	110	-	-	-
Phenanthrene	-	-	-	1400	-	-	-
Dibenzo(a,h)anthracene	-	-	-	140	-	-	-
Indeno(1,2,3-cd)Pyrene	-	95	-	540	-	-	-
Pyrene	31	100	-	1600	-	-	-
Perylene	-	-	-	170	-	-	-
Benzo(e)Pyrene	-	110	-	520	-	-	-
Total PAHs	31	839		11209	64		

Notes:

NA = Not Analyzed
 - = Analytical result below the method detection limit.
 mg/kg = milligram per kilogram (parts per million (ppm)).
 ug/kg = micrograms per kilogram (parts per billion (ppb)).

Legend

-  Existing Building
-  100' Buffer Zone
-  Tree Line
-  Delineated Wetland Boundary
-  Property Line
-  Existing Monitoring Well Location
-  Area of Stunted Growth
-  Proposed Excavation Areas
-  Sediment Sampling Location (Mar 2003)



Sudbury River

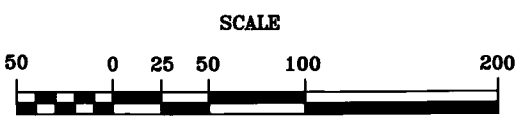
200 FOOT RESERVOIR
AREA LIMIT


LIMIT OF BANK

Combined Sewer & Drain Outfall (OF-1)

Stone Bound

HA-101



 Environmental Resources Management 399 Boylston Street Boston, MA 02116 (617) 267-8377		Designed by:	Former Raytheon Facility 430 Boston Post Road Wayland, MA Wetland Sediment Sampling Locations Map	
		Drawn by: JE		
		Checked by: RL	Scale: 1"=100' Date: 5/20/03	
		Reviewed by: JD		
		Submitted by:	Drawing No.	Exhibit No.
			Contract No. 1922.01	1

Revisions			
Symbol	Description	Date	Approved
	Dioxin Locs		
R:\Raytheon\Wayland - 1922 Northern Area Phase I			
Work Plan\Raytheon - State Plans.dwg			